

CUE 02 0008

A-2000-24

VII-A-6

September 6, 2002

US Environmental Protection Agency
Methyl Bromide Critical Use Exemption
Global Programs Division
501 3rd St. NW
Washington, DC 20001
Phone: (202) 564-9410

FED EX
MUST
ARRIVE
MONDAY

To Whom It May Concern:



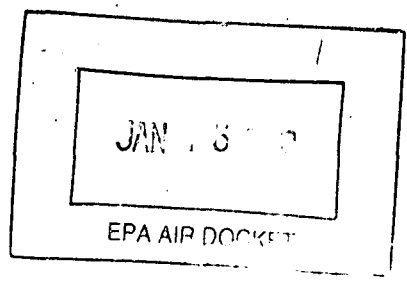
Enclosed is the Critical Use Exemption request of the California Tomato Commission on behalf of our producers in Orange and San Diego Counties, California. We are also enclosing the IR-4 Study referenced in this CUE.

Thank you for consideration of this request.

Sincerely,

Edward L. Beckman
President and Chief Executive Officer

Enc.





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460**

INSTRUCTIONS

The information provided by you in this application will be used to evaluate the requested methyl bromide use. The U.S. and other countries that are parties to the Montreal Protocol On Substances That Deplete The Ozone Layer decided that: "a use of methyl bromide should qualify as "critical" only if the nominating Party determines that:

- (i) The specific use is critical because the lack of availability of methyl bromide for that use would result in a significant market disruption; and
 (ii) There are no technically and economically feasible alternatives available to the user that are acceptable from the standpoint of environment and health and are suitable to the crops and circumstances of the nomination ..."

<p>WHO APPLIES?</p>	<p>If you anticipate that you will need methyl bromide in 2005 because you believe there are no technically and economically feasible alternatives, then you should apply for the critical use exemption. This application may be submitted either by a consortium representing multiple users or by individual users. We encourage users with similar circumstances of use to submit a single application (for example, any number of pre-plant users with similar soil, pest, and climactic conditions can submit a single application.)</p> <p>If a consortium is applying for multiple methyl bromide users, the economic data should be for a representative or typical user within the consortium unless otherwise noted. If economic or technical factors (such as size of the farm) affecting the ability of this "representative user" to use alternatives are significantly different than other users in the consortium, more than one application should be submitted to reflect these differences.</p> <p>Please contact your local, state, regional or national commodity association and/or state representative agency to find out if they plan on submitting an application on behalf of your commodity group.</p>
<p>STATE CONTACTS</p>	<p>States that have agreed to participate in the exemption process are listed on EPA's website at www.epa.gov/ozone/mbr/cueqa.html</p>
<p>HOW DO I APPLY?</p>	<p>You may either complete an electronic (Microsoft Excel) or a printed version of the application. Please fill out each form or worksheet in the application as completely as possible. If you are completing the printed version and need extra space you may attach additional sheets as needed. Additional information may be available from your local state department of agriculture or at the sites listed below or by calling 1-800-296-1996.</p>
<p>SECTIONS OF WORKBOOK</p>	<p>Each worksheet number corresponds to the tab number in the electronic version of the application. Instructions specific to each worksheet are provided at the top of each sheet. A header row is included on each worksheet to include an application ID number that EPA will assign.</p> <p>Instructions</p> <p>Worksheet 1. Contact and Methyl Bromide Request Information</p> <p>Worksheet 2. Methyl Bromide - Historical Data</p> <p>2-A. Methyl Bromide Use 1997-2000</p> <p>2-B. Methyl Bromide - Crop/Commodity Yield and Revenue 1997-2000</p> <p>2-C. Methyl Bromide - Crop/Commodity Yield and Revenue 2001</p> <p>2-D. Methyl Bromide Use and Costs for 2001</p> <p>2-E. Methyl Bromide - Other Operating Costs for 2001</p> <p>2-F. Methyl Bromide - Fixed and Overhead Costs</p> <p>Worksheet 3. Alternatives - Feasibility of Alternatives to Methyl Bromide</p> <p>3-A. Alternatives - Technical Feasibility</p> <p>Research Summary Worksheet</p> <p>Example Research Sum (Summary) Worksheet</p> <p>3-B. Alternatives - Pest Control Regimen Costs</p> <p>3-C. Alternatives - Crop/Commodity Yield and Revenue</p> <p>3-D. Alternatives - Other Operating Costs</p> <p>Worksheet 4. Alternatives - Research Plans</p> <p>Worksheet 5. Additional Information</p> <p>Worksheet 6. Application Summary</p> <p>Fumigation Cycle</p> <p>Climate Zone Map</p>

OMB Control #

2060-0482



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460**

**EXCEL
USER TIPS**

Inserting a blank worksheet:

- 1 To add additional blank worksheets in the Excel file, go to the menu line at the top of the worksheet and select "Insert" then "worksheet"
- 2 A tab with the name "Sheet 1" will appear at the bottom of the worksheet and will be highlighted in white. Take the cursor and double click the "new tab"
- 3 By double clicking in the tab you can now rename the worksheet to the appropriate number letter designation (e.g., 3-A(1), 3-A(1)(a), etc.)
- 4 To move a newly inserted worksheet, simply drag the worksheet with your mouse to the desired location.
- 5 Once you add a new worksheet, Excel will automatically name each subsequently added worksheet as Sheet 2, Sheet 3, Sheet 4, etc... Follow the instructions above to rename the new blank worksheets as appropriate.

Copying and pasting an entire worksheet's contents into a blank worksheet:

- 1 Select the worksheet to be copied by clicking on the worksheet tab at the bottom of the screen. The tab will turn white in color when it has been selected.
- 2 Select the top left corner of the worksheet (this is the space to the left of the column A and above the row 1. You will know that the entire worksheet has been selected because the row and column marks as well as the worksheet itself will change to a different color.
- 3 Go to the menu line at the top of the worksheet and select "Edit" then "Copy".
- 4 Go to the blank worksheet where you want the copied information to be pasted.
- 5 Again, select the top left corner of the worksheet (left of column A and above row 1) to select the entire worksheet.
- 6 Go to the menu line at the top of the worksheet and select "Edit" then "Paste"
- 7 Change the title row of the newly pasted worksheet from the old worksheet number to be consistent with the worksheet tab.

Note: This is the only way you can copy a worksheet and not lose portions of the text instructions.

Viewing worksheets

Worksheets are best viewed in "Page Break Preview." To select the view of the worksheet, go to the menu bar and select "View" and then "Page Break Preview." Page break preview shows only the printable area of the worksheet, with the blue lines that surround the screen indicating the edges of each page.

To increase or decrease the size of the page that is viewable on the screen, go to the menu bar and select "View" and then "Zoom".

Navigating between worksheets

The set of four arrows on the bottom left of the screen will help you navigate between worksheets. This is necessary to access the remaining worksheet tabs in the workbook that are not viewable. The two arrows with vertical lines to either the left or right will take you to the first worksheet and to the last worksheet respectively in the workbook. The inner two arrows allow you move the worksheet tabs to the right or to the left incrementally

The two arrows on the bottom right of the screen allow you to move the worksheet that you are viewing to the right or to the left. This is useful if the viewable area of on the screen is smaller than the entire page that is in the worksheet.

Printing worksheets

If you would like to print all worksheets that are contained in this workbook, go to the menu bar at the top of the screen and select "File" and then "Print." Then in the section of the menu that appears called "Print what," select "Entire Workbook."

Worksheet 1. Contact and Methyl Bromide Request Information

17. How much active ingredient (ai) of methyl bromide are you requesting for 2005? 300,000 la. lbs.

If a consortium is submitting this application, the data for question 17 and 17a. should be the total for the consortium.

In the question below, area is defined as follows for each user: acres for growers, cubic feet for post harvest operations, and square feet for structural applications.

17a. How much area will this be applied to? Please list units. 2500 acres units

18. Are you requesting methyl bromide for additional years beyond 2005? Yes No

18a. If yes, please list year and quantity active ingredient (ai) of methyl bromide requested in the table below and explain why you need authorization for multiple years.

Alternatives have failed to provide efficient and economical control of soil borne disease. There are no tomato varieties with demonstrated resistance to the level of pest pressure in the area.

If a consortium is submitting this application, the data below should be the total for the consortium.

In the table below, area is defined as follows for each user: acres for growers, cubic feet for post harvest operations, and square feet for structural applications.

Year	Quantity ai (lb.) of Methyl Bromide	Area to be Treated	Unit of Area Treated
2006	300,000	2500	Acres
2007	300,000	2500	Acres

19. Target Pest(s) or Pest Problem(s):

(Be as specific as possible about the species or classes of pests relevant to the feasibility of alternatives.)

First priority are soil borne diseases, primarily fusarium and verticillium. These diseases cause the loss of young plants.

Secondary pests include root knot nematodes.

20. If applying as a consortium for many users of methyl bromide, please define a representative user. Define exactly, issues such as size of the operation (acres treated with methyl bromide for growers, cubic feet for post-harvest operations, and square feet for structural applications), whether the representative user owns or rents the land or operation, intensity of methyl bromide use (treat regularly or only when pest reaches a threshold), pest pressure, etc.

Integrated grower-shipper, producing fresh tomatoes only on 900 acres, in an area where urban encroachment surrounds famliar

Most land is either owned or leased, with a portion of the leased land on Camp Pendleton, a U.S. Navy base in San Diego County.

Methyl Bromide use is a standard pre-plant practice, required as growers are unable to rotate crops due to micro-climate.

Pest pressure is intensive due to nearby urbanization and the resulting restrictions on pesticide usage.

Soil types vary widely within a single field, thus growers face severe pressure from soil borne disease.

20a. Explain why this user represents the typical user in the consortium.

Representative user produces tomatoes in multiple micro-climates, employs IPM practices, and is a cooperator on Methyl Bromid alternative research. Producer costs and yield are representative of the average for the area.

Worksheet 2-A. Methyl Bromide - Use 1997-2000

If a consortium is submitting this application, all data should reflect the actual data for the consortium.	
Col A: Formulation of Methyl Bromide	Enter the appropriate data in Col B-M for each formulation, if known, and/or the totals and averages for all formulations. If you enter only the total and averages for all formulations in the last row of the table, please describe in the comments section the formulations typically used, or the approximate proportions of the formulations used.
Col B, E, H, K: Actual Area Treated	Enter the total actual area treated. Note: This number should be the <u>total actual</u> area treated by the individual user or total actual area for the entire consortium, for the year indicated.
Col C, F, I, L: Actual Total lbs. ai of Methyl Bromide Applied	Enter the actual total pounds active ingredient (ai) of methyl bromide applied. Note: This number should be the total pounds ai applied by the individual user or the entire consortium, for the year indicated.
Col D, G, J, M: Actual Average lbs. ai Applied per Area	The average application rates in pounds ai of methyl bromide per area are automatically calculated from the previous 2 columns.

Area is defined below as follows for each user: acres for growers, cubic feet for post-harvest operations, and square feet for structural applications.

A Formulation of Methyl Bromide	B C D 1997			E F G 1998			H I J 1999			K L M 2000		
	Total Actual Area Treated	Actual Total lbs. ai of Methyl Bromide Applied	Average lbs. ai Applied per Area	Total Actual Area Treated	Actual Total lbs. ai of Methyl Bromide Applied	Average lbs. ai Applied per Area	Total Actual Area Treated	Actual Total lbs. ai of Methyl Bromide Applied	Average lbs. ai Applied per Area	Total Actual Area Treated	Actual Total lbs. ai of Methyl Bromide Applied	Average lbs. ai Applied per Area
over 95% methyl bromide			0			0			0			0
75% methyl bromide, 25% chloropicrin	1898	271046	142.806112	1733	242686	140.038084	583	52455	89.974271	61	6018	98.6557377
67% methyl bromide, 33% chloropicrin	100	20000	200	363	59413	163.672178	1070	157398	147.100935	1133	187254	165.272727
50% methyl bromide, 50% chloropicrin			0			0	900	67500	75	1065	78232	73.457277
57% methyl bromide, 43% chloropicrin	93	7943	85.4086022			0	43	3206	74.5581395	181	13416	74.121547
__% methyl bromide, __% chloropicrin			0			0			0			0
			0			0			0			0
All formulations of methyl bromide	2091	298989	142.988522	2096	302099	144.131202	2596	280559	108.073575	2440	284920	116.770492

Comments:

Area is equal to one acre.
Higher application rates are the result of broadcast fumigation.
Lower application rates are the result of bed/strip fumigation.

Worksheet 3. Alternatives - Feasibility of Alternative Pest Control Regimens

Purpose of Data on Alternative Pest Control Regimens: To estimate the loss as a result of not having methyl bromide available. EPA needs to compare data (yields, crop/commodity prices, gross revenues and costs) on the use of methyl bromide and alternative pest control regimens.

Complete each of the worksheets below (3-A, 3-B, 3-C, and 3-D) for each alternative pest control regimen listed in the "U.S. Matrix" for chemical controls (www.epa.gov/ozone/mbr/cueqa.html) and the "International Matrix" for non-chemical pest controls (www.epa.gov/ozone/mbr/cue). Each worksheet contains a place holder in the title for you to insert the name of the specific alternative pest control regimen addressed. You should add additional worksheets as required. Please add a number designation to each worksheet title to indicate a different alternative. For example, for the first alternative pest control regimen label the worksheets as 3-A(1), 3-B(1), 3-C(1), and 3-D(1). For the second alternative pest control regimen label the worksheets 3-A(2), 3-B(2), 3-C(2), and 3-D(2).

Enter all alternative pesticides and pest control methods (and associated cost and yield data) that would replace one treatment of methyl bromide throughout the fumigation cycle. See the fumigation cycle worksheet for a comprehensive definition.

Worksheet	Title	
3-A	Alternatives - Technical Feasibility	This form is used to obtain information on the chemical alternatives identified by the Methyl Bromide Technical Options Committee (MBTOC) that are registered for use in the United States, as well as the non-chemical alternatives identified by the MBTOC. Applicants must address the technical feasibility of all the chemical and non-chemical alternatives identified on the list.
3-B	Alternatives - Pest Control Regimen Costs	This form is used to estimate the cost of using alternative pest control regimens.
3-C	Alternatives - Crop/Commodity Yield and Gross Revenue	This form is used to estimate the crop/commodity yields and gross revenues when using alternative pest control regimens.
3-D	Alternatives - Changes in Other Costs	This form is used to estimate change in any other costs as a result of using the alternatives.

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Worksheet 3-A. Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Section II. Existing Research Studies on Alternatives to Methyl Bromide

1. Is the study on EPA's website? Yes _____ No X

1a. If not on the EPA website, please attach a copy.

2. Author(s) or researcher(s) Industry Knowledge

3. Publication and Date of Publication NA

4. Location of research study NA

5. Name of alternative(s) in study. If more than one alternative, list the ones you wish to discuss.
Name of alternative(s) in study. If more than one alternative, list the ones you wish to discuss.

6. Was crop yield measured in the study? Yes NA No _____

7. Describe the effectiveness of the alternative in controlling pests in the study.
1,3-D is effective against nematodes, but not diseases such as Verticillium and Fusarium Wilts; additional chemicals are needed to control these targets.

8. Discuss how the results of the study apply to your situation. Would you expect similar results? Are there other factors that would affect your adoption of this tool?
Township caps and 300 ft. buffers in a densely populated growing area with limited land make the adoption of this tool extremely limited.

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ID# _____

Worksheet 3-A. Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Section II. Existing Research Studies on Alternatives to Methyl Bromide

1. Is the study on EPA's website? Yes _____ No X

1a. If not on the EPA website, please attach a copy.

2. Author(s) or researcher(s) Jack Norton, Ph.D., Manager of IR-4 MBA Programs
Bernard Olsen, Principal Investigator, Plant Sciences, Inc.
Michael D. Nelson, Ph.D., Contract Research Manager, Plant Sciences, Inc.

3. Publication and Date of Publication Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

4. Location of research study San Diego and Orange Counties, CA

5. Name of alternative(s) in study. If more than one alternative, list the ones you wish to discuss.
1,3-D/ Chloropicrin (Inline).

6. Was crop yield measured in the study? Yes X No _____

7. Describe the effectiveness of the alternative in controlling pests in the study.
1,3-D/Chloropicrin combination showed some activity against T.semipenetrans, but not as effective as Methyl Bromide/Chloropicrin. Disease pressure too low in this study to evaluate. MeBr was applied two weeks prior to 1,3-D/ Chloropicrin treatment.

8. Discuss how the results of the study apply to your situation. Would you expect similar results? Are there other factors that would affect your adoption of this tool?
Nematode control was better with MeBr/Chlor. than with 1,3-D/Chloropicrin premix. From practical experience and industry knowledge, the concentration of Chloropicrin in premix combinations of 1,3-D is not high enough to provide effective control against plant pathogens in this growing area.

Alternative: _____ Example _____

Study: _____

Provide one summary table for each study being described.	
Provide a summary table of research information that will allow us compare the impact of methyl bromide and the alternative regimen on such things as pest control, yield or quality of the commodity being treated, or protected. Ideally, a research study should directly compare methyl bromide and the alternative regimen.	
Col. A: Treatment Number	List the treatment number from the research study you are citing.
Col. B: Treatment	List what type of pest control method was used.
Col. C: Rate	Enter the pounds or gallons of a chemical used, days of solarization, etc.
Col. D, F, H, J, L, N: Interval	Enter the intervals (days, weeks or months) that the rating was taken for each treatment in Columns D, F, H, J, L, and N. For example, a study for nematode control may have looked at nematode population in the soil pre-treatment, 3 weeks after treatment, and 6 weeks after treatment. For this example, insert "pre-treatment" in the "Interval 1" column, insert "3 weeks" in the "Interval 2" column, and insert "6 weeks" in the "Interval 3" column.
Cols. E, G, I, K, M, O: Rating for interval:	In columns E, G, I, K, M, and O insert the rating (the level of control provided for a specific pest) for each interval for each treatment described. In this example, for the methyl bromide treatment for sting nematode enter 669 for the "Rating for Interval 1", 221 for the "Rating for Interval 2", and 120 for the "Rating for Interval 3." In the comments section below describe the rating scale (e.g., nematodes per gram of soil, number of colony forming units per gram of soil, etc.).
Control of Pests 1 and 2 (Cols. D - I and Cols. J - O):	For the target pest(s) in the study list the pest or pest species being rated in the column header or the comments section. For example, a study for nematode control in tomatoes may have looked at sting nematode and stunt nematode. Enter sting nematode for pest 1 in the Col F header below and stunt nematode for pest 2 in the Col. L header below. In the comments section describe the rating system used (0 to 100 scale where 0 is no control, number of nematodes per gram of soil, number of colony forming units per gram of soil, etc.).
Col. J: Yield	Enter the marketable yield of the crop or commodity and specify the units (lbs./acre, tons) in the column header or comments section.

Area is defined below as follows for each user: acres for growers, cubic feet for post-harvest operations, and square feet for structural applications.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Treatment Number	Treatment	Rate (lbs. or gals. ai per area)	Sting nematode						Stunt nematode						Yield (lbs/acre)
			Interval 1	Rating for Interval 1	Interval 2	Rating for Interval 2	Interval 3	Rating for Interval 3	Interval 1	Rating for Interval 1	Interval 2	Rating for Interval 2	Interval 3	Rating for Interval 3	
1	Untreated	-	pre-trt	700	3 wks	700	6 wks	707	pre-trt	100	3 wks	111	6 wks	109	5,000
2	Methyl Bromide	300 gal.	pre-trt	669	3 wks	221	6 wks	120	pre-trt	98	3 wks	77	6 wks	36	8,000
3	Iodo methane	150 gal.	pre-trt	675	3 wks	250	6 wks	125	pre-trt	111	3 wks	35	6 wks	32	7,580

Comments:
Ratings are for nematodes per gram of soil

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Worksheet 3-A. Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Section II. Existing Research Studies on Alternatives to Methyl Bromide

1. Is the study on EPA's website? Yes NA No _____

1a. If not on the EPA website, please attach a copy.

2. Author(s) or researcher(s) NA

3. Publication and Date of Publication NA

4. Location of research study NA

5. Name of alternative(s) in study. If more than one alternative, list the ones you wish to discuss.

6. Was crop yield measured in the study? Yes _____ No _____

7. Describe the effectiveness of the alternative in controlling pests in the study.

Not economically feasible.

8. Discuss how the results of the study apply to your situation. Would you expect similar results? Are there other factors that would affect your adoption of this tool?

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Worksheet 3-A. Alternatives - Technical Feasibility of Alternatives to Methyl Bromide

Section II. Existing Research Studies on Alternatives to Methyl Bromide

1. Is the study on EPA's website? Yes NA No _____

1a. If not on the EPA website, please attach a copy.

2. Author(s) or researcher(s) NA

3. Publication and Date of Publication NA

4. Location of research study NA

5. Name of alternative(s) in study. If more than one alternative, list the ones you wish to discuss.
NA

6. Was crop yield measured in the study? Yes NA No _____

7. Describe the effectiveness of the alternative in controlling pests in the study.
NA

8. Discuss how the results of the study apply to your situation. Would you expect similar results? Are there other factors that would affect your adoption of this tool?
Not technically feasible.

Research Summary Table

Alternative: Metam Sodium - Orange County

Study: Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Provide one summary table for each study being described.

Provide a summary table of research information that will allow us compare the impact of methyl bromide and the alternative regimen on such things as pest control, yield or quality of the commodity being treated, or protected. Ideally, a research study s .

Col. A: Treatment Number	List the treatment number from the research study you are citing.
Col. B: Treatment	List what type of pest control method was used.
Col. C: Rate	Enter the pounds or gallons of a chemical used, days of solarization, etc.
Col. D, F, H, J, L, N: Interval	Enter the interval after treatment that the rating was taken. Enter the interval (days, weeks or months) in the column heading or in the comments section. In the comments describe the rating scale (e.g. 0 to 100 where 100 is complete control).
Cols. E, G, I, K, M, O: Rating for Interval:	Use these columns to describe the level of control provided for a specific pest and the time interval at which the rating was taken. For example, a study for nematode control may have looked at nematode population in the soil pre-treatment, 3 weeks after
Control of Pests 1 and 2 (Cols. D - I and Cols. J - O):	For the target pest(s) in the study list the pest or pest species being rated in the column header or the comments section. For example, a study for nematode control in tomatoes may have looked at sting nematode and stunt nematode. Enter sting nematode
Col. J: Yield	Enter the marketable yield of the crop or commodity and specify the units (lbs./acre, tons) in the column header or comments section.

Area is defined below as follows for each user: acres for growers, cubic feet for post-harvest operations, and square feet for structural applications.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Treatment Number	Treatment	Rate (lbs. or gals. al per area)	Citrus Nematode (1)						Rhizoctonia solani (1)						Yield (cartons/acre) (2)
			Interval 1	Rating for Interval 1	Interval 2	Rating for Interval 2	Interval 3	Rating for Interval 3	Interval 1	Rating for Interval 1	Interval 2	Rating for Interval 2	Interval 3	Rating for Interval 3	
9	Metam Sodium - Shank	75 Gal/acre	6 in.	1	12 in.	119	18 in.	560	6 in.	100	12 in.	75	18 in.	0	5001 bc
13	MeBr/Chloropicrin (67/33)	347 lbs/acre	6 in.	2	12 in.	2	18 in.	2.67	6 in.	57.5	12 in.	5	18 in.	0	4839 c
19	Untreated	NA	6 in.	37.8	12 in.	120	18 in.	282	6 in.	0	12 in.	0	18 in.	0	5771 ab

Comments:
 (1) Used only buried indicator species for evaluation, not indigenous populations; Citrus nematode used, not a problem on tomato; R. solani not major disease problem in this area. Removed from plots approx. 7 days after application. (2) Significant differences can not be attributed to pest pressure or control measures; study conducted on site with no pest pressure; yield data extrapolated from small plots. Study design and conduct is not scientifically valid; no conclusions can be made.

Worksheet 3-B. Alternatives - Pest Control Regimen Costs for Alternative:

Solarization, Fungicides

If a consortium is submitting this application, the data for this table should reflect a representative user.

Col. A: Name of Product and Non-chemical Control	Enter all alternatives and non-chemical pest control that would replace one treatment of methyl bromide throughout the fumigation cycle. See the Fumigation Cycle Worksheet for a comprehensive definition of the fumigation cycle. If multiple crops are grown If someone other than the applicant previously benefited from the application of methyl bromide in the fumigation cycle and you do not have the quantitative data for the crops grown on the same land, please indicate so in the comments section below.
Col. B: Target Pests	Be as specific as possible regarding the species or classes of pests controlled by the active ingredient or pesticide product.
Col. C: Active Ingredients	Use one row for each active ingredient (ai). For example, if a product contains 2 ai's use 2 rows for that product. Once a row is completed for a given product, then only Col. B (if applicable), C, and E need to be completed for additional rows regarding
Col. D: Formulation	Enter the formulation or the % of active ingredient.
Col. E, F, G: Application Rate	As a cross check, EPA is requesting both the amount of active ingredient in Col. E and product applied per area in Col. F. Indicate the unit of the product in Col. G.
Col. H, I, J: Prices and Costs	Use 2001 prices and costs. If the product is custom applied you may enter the total cost in the last column (Col. M) and override the formula. If a pesticide is applied by the user, enter the price of the product in Col. H and the cost of applying it in
Col. K: Area Treated	Enter the area receiving at least one application of the pesticide.
Col. L: # of Applications per Year	Enter the number of applications in a fumigation cycle comparable to methyl bromide for this alternative pest control regimen. Since this number is an average, it does not need to be a whole number.
Col. M: Cost per Area in 2001 Dollars	Enter the cost per area in 2001 dollars. Col. M will be calculated automatically using the data you have entered for a chemical pest control, or, the formula in Col. M can be overridden if the cost per area is known because the product was custom applied
Non-chemical Control	Enter data near the bottom of the form. Identify the control in Col. A. Enter the target pests in Col. B. Describe the non-chemical pest control Col. B-L. Enter the costs in Col. M in 2001 dollars.

Area is defined below as follows for each user: acres for growers, cubic feet for post-harvest operations, and square feet for structural applications.

A	B	C	D	E			F	G	H	I	J	K	L	M
Name of Product	Target Pests	Active Ingredients (ai) in Product	Formulation of Product	Application Rate			Price per Unit of the Product	Cost of Applying Pesticide per Area	Other Costs per Application	Area Treated at Least Once	# of Applications per Year	Cost per Area (2001\$)		
				lbs. ai per Area per Application	Units of product per Area per Application	Product Unit (e.g., lbs., gals)								
NOT FEASIBLE - SEE COMMENTS														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
														\$ 0.00
Non-Chemical Pest Control	Target Pests	Description										Cost/area		
												Total	\$ 0.00	

Comments:
Solarization is not technically feasible. Soil temperatures do not get high enough for adequate control when solarization is used during field preparation time (Dec./Jan.).

Worksheet 5. Additional Information

1. How will you minimize your use and/or emissions of methyl bromide?

- 1a. Check all methods you will use Nothing
 Tarpaulin (high density polyethylene)
 Virtually impermeable film (VIF)
 Cultural practices (please specify) _____

1b. Will you use other pesticides to reduce use of methyl bromide? Yes No

If yes please specify. Growers will field test alternative controls, including Telone C-35 Inline.

1c. Other non-chemical methods: (please specify):

2. Do you have access to recycled methyl bromide? Yes No

If yes, how many pounds? _____ lbs.

3. Do you anticipate that you will have any methyl bromide in storage on January 1, 2005? Yes No

If yes, how many pounds? _____ lbs.

4. What is the cumulative amount spent to date by the user or consortium on research to develop alternatives to methyl bromide (beginning in 1992)?
\$ 300,000.00

5. Other investments, if any, made to reduce your reliance on methyl bromide. Describe each investment and its associated cost.

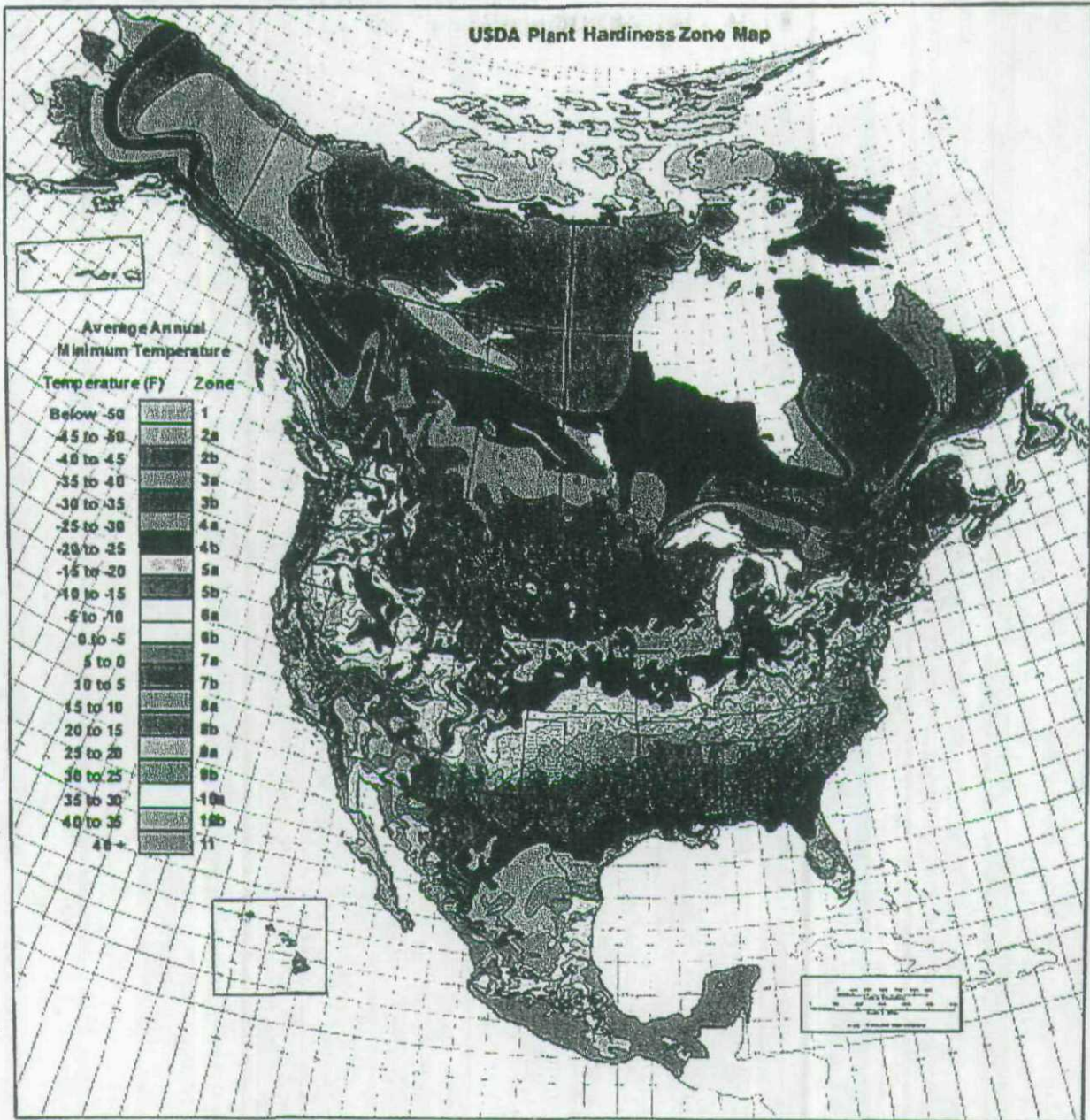
6. Identify what factors would allow you to stop or reduce your use of methyl bromide (e.g. registration of particular pesticide; completion of research plan; capital outlay).

Any reduction is based upon the availability of new materials that effectively control soil-borne disease.

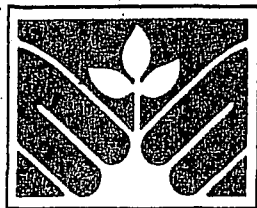
When do you expect these to occur? Unknown.

7. Range of acres farmed by growers included in this application? (insert number of users in each category)

- 0-10 acres
- 10-25 acres
- 25-50 acres
- 50-100 acres
- 100-200 acres
- 200-400 acres
- 100% over 400 acres



CVE 02 0006 attachment

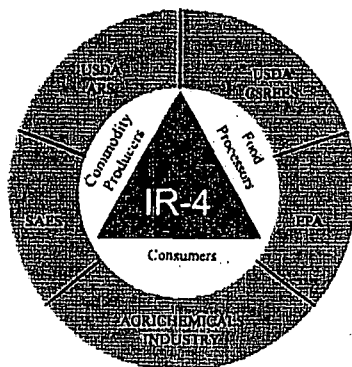


Plant Sciences, Inc.[®]

Agricultural Consulting and Research

USDA IR-4 METHYL BROMIDE ALTERNATIVES PROGRAM FOR MINOR CROPS

2000 FIELD EVALUATION OF ALTERNATIVES TO METHYL BROMIDE FOR PRE-PLANT SOIL FUMIGATION IN CALIFORNIA TOMATOES



Jack Norton, Ph.D., Manager of IR-4 MBA Programs

Richard D. Nelson, Ph.D., President, Plant Sciences, Inc.

Michael D. Nelson, Ph.D., Contract Research Manager, Plant Sciences, Inc.

Bernard O. Olsen, Principal Investigator, Plant Sciences, Inc.

Bryan Vander Mey, Research Associate, Plant Sciences, Inc.

Gabriel Lepez, Research Associate, Plant Sciences, Inc.

I. INTRODUCTION

Methyl bromide is a highly effective soil fumigant used for broad spectrum control of soilborne plant pathogens, nematodes, insects and weeds. Approximately forty percent of the worldwide supply of methyl bromide, some sixty million pounds, is used in North America. Three quarters of this amount is used for preplant soil fumigation in agriculture; the remainder is used to fumigate harvested commodities during storage and export, to fumigate structures and to produce other chemicals. The majority of preplant uses of methyl bromide occur on tomatoes and strawberries, primarily in Florida and California. The remaining preplant uses are on ornamentals, peppers, cucurbits and other crops (source: <http://pestdata.ncsu.edu/ir-4/MB.html>).

Methyl bromide has been identified as a chemical that depletes the earth's ozone layer, and thus its use is being phased out. The United States has implemented a methyl bromide use reduction leading to a complete ban for soil fumigation uses by 2005. There is no known single alternative fumigant, chemical or other technology that can readily substitute for methyl bromide in effectiveness, low cost, ease of use, and wide availability. The USDA's Agricultural Research Service (ARS) has been investigating alternatives for several years. The research has focused primarily on the standard fumigant products (metam sodium, 1,3-dichloropropene and chloropicrin) and fumigant alternatives such as biological control, host resistance, natural chemicals, cultural control, soil amendments and systems approaches.

The USDA's IR-4 program began addressing methyl bromide alternatives issues in 1998. Under the direction of the IR-4 New Technology Team, work began on a project to identify safe products and new technologies that have the potential to fill the void created when methyl bromide is phased out. Several methyl bromide alternatives programs for minor crops are underway. These programs include soil fumigation studies with methyl bromide alternatives in production strawberries, fresh market tomatoes, strawberry nurseries and cut flowers. IR-4 is also involved in the development of methyl bromide alternatives for controlling pests in stored food products including raisins, other dried fruits, and tree nuts. IR-4's role is to form alliances with universities, USDA and contract researchers, grower organizations, chemical companies and producers to conduct research leading to acceptable methyl bromide replacements. IR-4 is assisting these alliances to obtain the funding needed to conduct the research.

Plant Sciences, Inc. (PSI), of Watsonville, California, was contracted by IR-4 to evaluate various potential methyl bromide alternatives for preplant soil fumigation in California tomatoes, during the 2000 growing season. PSI was contracted by IR-4 to develop the study protocol, carry out the project field-phase, and assemble the resulting data into this final report.

Two field trials were conducted in the major fresh market tomato production areas of southern California. The products evaluated in these tests were 1,3-dichloropropene / chloropicrin (InLine), chloropicrin, dazomet (Basamid), fosthiazate, iodomethane (methyl iodide / TM-425) with and without chloropicrin, metam sodium, PlantPro-45 and propargyl bromide. These products were evaluated using various rates, combinations and methods of application and were each compared to the industry standard treatment of methyl bromide / chloropicrin. The methyl bromide alternatives treatments were evaluated for their effects on tomato plant growth, control of nematodes, weeds and soilborne fungal pathogens, and tomato fruit yield and quality. This report summarizes the materials and methods and results from the two California trials.

We would like to acknowledge the following companies / organizations who provided support of the research work reported herein: Ajay North America, LLC., Albemarle Corp., BASF Corp., the Chloropicrin Task Force, Dow AgroSciences, LLC., ISK Biosciences Corp., the Metam Sodium Task Force, Tomen Agro Inc., and TriCal, Inc.. We also acknowledge and are grateful for the cooperation of growers Harry Singh, Jr. of Harry Singh and Sons Co., and Richard Cacho of Gargiulo, Inc., who provided portions of their farms for use in these field trials.

II. MATERIALS AND METHODS

TEST SITES/GROUND PREPARATION:

Both field trials were conducted in commercial fresh market tomato fields, one in Oceanside, San Diego County, and the other in Tustin, Orange County. Fresh market tomatoes had been grown commercially at both of the farms for the previous several years. As a result, the soil at both sites had previously been fumigated with methyl bromide / chloropicrin annually, prior to establishing each tomato crop.

The soil at the Oceanside test site was conventionally prepared in March and April of 2000. The grower listed and shaped the beds on May 10, 2000. The beds were spaced 64 inches (center to center), and were 24 inches wide on the bed-top and 28 inches wide at the bed-base (mean width = 26 inches), and were raised approximately four inches above the furrow. The grower applied all preplant and postplant fertilizers and postplant foliar pest / disease control sprays, as he treated his neighboring commercial acreage, in accordance with local standard cultural practices.

The soil at the Tustin trial site was conventionally prepared in April of 2000. The grower formed the beds on May 17, 2000. The beds were spaced 60 inches apart (center to center), and were 24 inches wide on the bed-top, 28 inches wide at the bed-base (mean width = 26 inches), and were raised approximately six inches above the furrow. The grower applied all necessary preplant and postplant fertilizers and postplant foliar pest / disease control sprays, as he treated his neighboring commercial acreage, in accordance with local standard cultural practices.

At both trial sites, black polyethylene plastic bed mulch was used to cover beds of all treatments, except those of the InLine (Telone C35 EC) treatments, which were covered with green VIF (virtually impermeable film) mulch.

PLOT DESCRIPTION AND PLANTING:

Both trials comprised 17 treatments, replicated four times each in a randomized complete block design.

Oceanside: Each replicate consisted of one bed, 75 feet long, with one plant row in the center of the bed. Tomato plants (cv. H. Singh and Sons proprietary) were transplanted on June 21, 2000, at an approximate in-row spacing of 22 inches. Throughout the growing season, the plots were irrigated by a single drip line located in the center of each bed. The plants were supported by stakes / string as they developed.

Tustin: Each replicate comprised one bed, 150 feet long, with one plant row in the center of the bed. Tomato plants (cv. BHN) were transplanted on June 20, 2000 at an approximate in-row

spacing of 22 inches. Throughout the growing season, the plots were irrigated by a single drip line located in the center of each bed. The plants were supported by stakes / string as they developed.

TREATMENTS AND APPLICATION METHODOLOGY:

Table 1 outlines the products, actual application rates, application methods, and dates of application for both the Oceanside and Tustin trials. Several of the treatments were comprised of two or more products, applied separately. These combination treatments were designed in an effort to control the broad spectrum of soilborne pests, pathogens, and weed seeds that are currently controlled by the industry standard, methyl bromide / chloropicrin.

TABLE 1. TREATMENT DESCRIPTIONS AND APPLICATION DATES

Trt. No.	Product(s)	Rate ¹ Oceanside Trial	Rate ¹ Tustin Trial	Application Methodology	Application Date: Oceanside Trial	Application Date: Tustin Trial
1	Iodomethane (1x) / Chloropicrin (67/33)	441 lbs	330 lbs	Bed/Shank injection ²	5/10/00	5/17/00
2	Iodomethane (½x) / Chloropicrin (50/50)	254 lbs	360 lbs	Bed/Shank injection ²	5/10/00	5/17/00
3	Iodomethane (½x) ⁷	101 lbs	235 lbs ⁷	Bed/Shank injection ²	5/16/00	5/17/00
4	Metam Sodium	37.5 gals	37.5 gals	Broadcast spray over bed top ⁴	5/12/00	5/19/00
	+ PlantPro-45 (1x)	142 gals (preplant)	142 gals (preplant)	Drip ³	5/27/00	6/2/00
		63 gals (postplant x1)	63 gals (postplant x1)	Drip ³	8/4/00	7/28/00
5	Metam Sodium	37.5 gals	37.5 gals	Broadcast spray over bed top ⁴	5/12/00	5/19/00
	+ PlantPro-45 (2x) ⁸	190 gals (preplant)	190 gals (preplant)	Drip ³	5/27/00	6/4/00
		63 gals (postplant x1)	63 gals (postplant x1)	Drip ³	8/4/00	7/28/00
6	Metam Sodium	75.0 gals	75.0 gals	Drip ³	5/26/00	6/5/00
9	Metam Sodium	75.0 gals	75.0 gals	Bed/Shank injection ⁵	5/10/00	5/17/00
10	Basamid	191 lbs	199 lbs	Broadcast over bed-top, water- incorporated ⁶	5/9/00	5/18/00
	+ InLine (Telone C35 EC)	20.0 gals	20.5 gals	Drip ³	5/26/00	6/5/00
11	Metam Sodium	37.5 gals	37.5 gals	Broadcast spray over bed top ⁴	5/12/00	5/19/00
	+ InLine (Telone C35 EC)	20.0 gals	20.5 gals	Drip ³	5/26/00	6/5/00

TABLE 1. TREATMENT DESCRIPTIONS AND APPLICATION DATES (CONT.)

12	InLine (Telone C35 EC)	20.0 gals	20.5 gals	Drip ³	5/26/00	6/5/00
13	Methyl bromide / Chloropicrin (67/33)	347 lbs	328 lbs	Bed/Shank injection ²	5/10/00	5/17/00
14	Metam Sodium	37.5 gals	37.5 gals	Broadcast spray over bed top ⁴	5/12/00	5/19/00
	+ Chloropicrin EC	200 lbs	200 lbs	Drip ³	5/24/00	6/1/00
	+ Fosthiazate 500EC	9.0 lbs ai	4.5 lbs ai	Drip ³	6/15/00	6/13/00
15	Metam Sodium	37.5 gals	37.5 gals	Broadcast spray over bed top ⁴	5/12/00	5/19/00
	+ Chloropicrin EC	200 lbs	200 lbs	Drip ³	5/24/00	6/1/00
	+ Fosthiazate 900EC	9.0 lbs ai	4.5 lbs ai	Drip ³	6/15/00	6/13/00
16	Propargyl Bromide	300 lbs	150 lbs	Drip ³	5/26/00	6/5/00
17	Metam Sodium	37.5 gals	37.5 gals	Broadcast spray over bed top ⁴	5/12/00	5/19/00
	+ Chloropicrin EC	300 lbs	300 lbs	Drip ³	5/24/00	6/1/00
18	Metam Sodium (Check)	37.5 gals	37.5 gals	Broadcast spray over bed top ⁴	5/12/00	5/19/00
19	Untreated Control	---	---	---	---	---

¹ Rates are given in quantities of formulated product per treated acre, except for Fosthiazate, which are given in quantities of ai per treated acre.

² Shank-applied using two shanks per bed, spaced 13 inches apart and ~12 inches deep.

³ All drip treatments were made using two lines per bed, located 5-6 inches to either side of the bed center, except Trt. 6 (metam sodium drip), which had 3 drip lines used for the application of chemical (third line at bed center).

⁴ Metam Sodium broadcast spray applications for bed-top weed control were applied using 1000 gallons of water per treated acre; beds were tarped immediately following application.

⁵ Metam Sodium shank treatment applied using three shanks per bed, 7.5 inches apart and ~12 inches deep.

⁶ Basamid granular formulation broadcast-applied to bed-top and incorporated using 3/4 inch of broadcast applied water (1/4 inch at each of three events).

⁷ At the Tustin trial, the product tested was iodomethane / chloropicrin (67/33) at a target rate of 250 lbs. / treated acre; change requested by Tomen Agro, Inc.

⁸ Treatment 5 was included to satisfy EPA requirements for evaluating a 2x rate for any potential phytotoxicity effects.

Table 2 summarizes the quantities of carrier water (inches per treated acre) used during applications of the drip-applied products. The total volume of water used for each of the drip applications is broken down into three categories, as follows: (1) the quantity used just prior to each application, at which time the drip lines were charged and checked for any leaks (designated 'Pre-Inject.');

(2) the quantity used to actually deliver the formulated material to the appropriate treatment beds (designated 'Chem. Injection');

and (3) the quantity used to flush the irrigation system after the chemical injection was completed (designated 'System Flush').

TABLE 2. ACTUAL QUANTITIES OF WATER (INCHES PER TREATED ACRE) USED TO DELIVER DRIP-APPLIED PRODUCTS.

Trt. No.	Product(s)	Oceanside Trial				Tustin Trial			
		Pre-Injection	Chem. Injection	System Flush	Total	Pre-Injection	Chem. Injection	System Flush	Total
4	PlantPro-45 (1x) - preplant	0.20	1.60	0.15	1.95	0.79	1.55	0.12	2.46
	PlantPro-45 (1x) - postplant	0.31	1.32	0.28	1.91	0.70	1.46	0.24	2.40
5	PlantPro-45 (2x) - preplant	0.52	1.74	0.17	2.43	0.49	2.01	0.31	2.81
	PlantPro-45 (2x) - postplant	0.31	1.32	0.28	1.91	0.70	1.46	0.24	2.40
6	Metam Sodium	0.27	1.37	0.20	1.84	0.10	1.45	0.26	1.81
10	InLine (Telone C35 EC)	0.28	1.78	0.12	2.18	0.27	1.66	0.17	2.10
11	InLine (Telone C35 EC)	0.28	1.78	0.12	2.18	0.27	1.66	0.17	2.10
12	InLine (Telone C35 EC)	0.28	1.78	0.12	2.18	0.27	1.66	0.17	2.10
14	Chloropicrin EC	0.25	2.03	0.14	2.42	0.25	1.88	0.25	2.38
	Fosthiazate 500EC	0.29	1.61	0.17	2.07	0.37	1.69	0.20	2.26
15	Chloropicrin EC	0.25	2.03	0.14	2.42	0.25	1.88	0.25	2.38
	Fosthiazate 900EC	0.41	1.47	0.22	2.10	0.09	1.60	0.22	2.16
16	Propargyl Bromide	0.07	2.18	nr ¹	2.25	0.55	1.69	0.21	2.45
17	Chloropicrin EC	0.10	2.11	0.12	2.33	0.33	1.88	0.25	2.46

¹ nr = not recorded; total does not include any additional amount used to flush the irrigation system post-application.

The use of metam sodium as a bed-top broadcast spray in Treatments 4, 5, 11, 14, 15, and 17 was strictly for the purpose of controlling weeds in the upper several inches of bed-top soil. A stand-alone check treatment of metam sodium used in the same manner (Trt. 18) was included in each trial, to assess the effects of this metam sodium rate and application technique on the many variables evaluated in these field trials. The results from this treatment were then utilized in interpreting individual product effects in the combination treatments listed above.

All treatments were applied to the preformed beds, and all equipment was calibrated before use. The various methods of application are described below.

Bed-Shank: A commercial bed shaper / shank-injector / tarp layer was used for application of the gaseous fumigants iodomethane / chloropicrin (Trts. 1 and 2 at both trial sites, and Trt. 3 at the Tustin site), iodomethane (Trt. 3, Oceanside site only), and methyl bromide / chloropicrin (Trt. 13). TriCal, Inc. provided a fumigation rig driver and assisted with the bed-shank applications at both trial sites. The rig was equipped with a Raven system which electronically regulated the test product output based on input constants (eg. bed width, application rate, product density) and the speed of the tractor. Two shanks per bed were used, each spaced approximately 6 ½ inches from the center of the preformed bed. The tip of the shanks extended approximately 12 inches below the bed-top. The fumigant canisters were weighed before and after each application, to document the actual rates applied per replicate plot. The plastic bed mulch was laid immediately after the shank-in applications, using the tarp layer attached to the bed-shank applicator. The quantity of test substance used per treatment was based on the mean width of the bed-base and bed-top (mean = 26 inches at both sites) x the length of the replicate x four replicates per treatment.

Metam sodium was shank-applied to Trt. 9. Three shanks per bed were used, and were spaced approximately 7.5 inches apart on a tool bar. Each shank was equipped with three evenly spaced TeeJet 80015 nozzles, for a total of 9 nozzles per bed, and each shank extended 10-12 inches below the soil surface. The metam sodium shank application system was pressurized by CO₂, at approximately 30 psi. The shank-applied metam sodium beds were covered with plastic mulch within 30 minutes of the application.

Sprayed-on: Metam sodium was applied to Treatment No's. 4, 5, 11, 14, 15, 17, and 18 as a broadcast spray to the surface of the bed-top and shoulders, using three 8020BR TeeJet flat fan nozzles (12" nozzle spacing) on a tractor-mounted boom, and a carrier water volume of 1000 gallons per treated acre. The resulting swath width was 36 inches at both trials. A tractor with a plastic mulch layer followed the spray tractor, covering the beds within five minutes after the spray application, while the soil was still moist from the spray. The quantity of test substance

used per treatment was based on the area treated, using the swath width of the spray pattern x the length of the replicate x four replicates per treatment.

Drip irrigation applications: The following products were applied via drip irrigation: PlantPro-45 in Trts. 4 and 5, metam sodium in Trt. 6, InLine in Trts. 10, 11, and 12, Fosthiazate 500EC and 900EC in Trts. 14 and 15, respectively, chloropicrin EC in Trts. 14, 15 and 17, and propargyl bromide in Trt. 16. Two drip lines per bed were used to make the drip applications in all cases except for Trt. 6 (metam sodium drip-applied @ 75 gallons per acre), where three drip lines were utilized for the application. The two drip lines were spaced approximately 14 inches apart (7 inches to either side of the bed center), with the third drip line in Trt. 6 placed in the middle of the bed.

Test substances were applied through the drip lines by injecting the chemicals through a custom manifold and into a 2-inch diameter lay-flat header pipe, to which each of the drip lines were connected. All drip lines were connected to the header with shut off valves, allowing only specific beds to be treated at each application. The application system consisted of a nitrogen pressurized cylinder (containing the test chemical) connected to a flow meter equipped with a needle valve to regulate flow (an in-line filter was used before the flow meter to remove any particulate matter present in the test chemical). The pressurized cylinder was placed on a scale to measure the chemical output over time. The needle valve was connected to a ball valve (shut-off valve), with an injection needle just "downstream" of the ball valve. Test chemical was injected into the manifold at the interior center of the manifold pipe, via the injection needle. A pressure gauge, flow meter, and check valve were placed in-line on the manifold (before the injection point), to monitor the water pressure, rate of water flow, and to eliminate any back-flow of chemical into the water source lines, respectively. After injection, the chemical / water mixture flowed through a static mixer to ensure complete mixing of the chemical in the water carrier. The manifold was equipped with a pressure gauge and shut-off valve "downstream" of the static mixer, used to monitor the flow of water + test chemical through the header and to shut off the entire system once the application was completed. A pre-filter was used in the manifold to remove any particulate matter that might be present in the carrier water, "upstream" of the injection needle.

The drip lines were charged with water for approximately 15-20 minutes before each injection, while the injection system was being calibrated and while the drip tapes were checked for any leaks. The drip lines were flushed with water after each injection for approximately 15-20 minutes to ensure that any remaining test chemical was flushed out of the system. The area used for calculating chemical amounts for all drip treatments was based on the mean bed width (mean of bed-top and -base) x the replicate bed length x four replicates per treatment. The treated area for the drip-applied treatments at the Oceanside trial was 650 ft² (based on a 26" mean bed width x 75' long replicate length) per treatment. The treated area at the Tustin site was 1300 ft² (also based on a 26" mean bed width x 150' replicate length) per treatment. All beds were covered with plastic mulch prior to any drip applications. The quantity of carrier water (inches per treated acre) used for each drip application event, including amounts used for pre-injection, test substance injection application and system flush, is outlined in Table 2.

Basamid: Basamid was applied to the bed-top using a hand-operated Scotts fertilizer applicator. The applicator was calibrated several times over a 50' run to ensure a uniform and consistent output. The applicator (with test chemical) was weighed before and after each pass over a replicate plot, to document product output. The applicator was pushed along the length of each bed to apply the chemical evenly to the bed-top. A single pass was made over each bed-top, to apply the required amount of Basamid. Following the application, the chemical was incorporated into the bed by applying ¼-inch of water at three separate occasions over a period of 1 ½ days, the first occurring immediately following the Basamid application. Once the soil dried back from the water incorporation, the beds were covered with plastic mulch. The water used to incorporate the Basamid was applied by spraying the required amount through a pto (power take-off)-driven tractor mounted boom sprayer. The tractor-mounted Gearmore sprayer used at both the Oceanside and Tustin trial sites was equipped with four 8020BR TeeJet Flat Fan nozzles. Several passes were made over each bed to apply the ¼-inch of required irrigation water per event. The treated area used for calculating the amount of test chemical and water to use was based on the bed-top width x the replicate plot length x four replicates per treatment. In Oceanside, the treated area for the Basamid application was 600 ft² per treatment, based on a 24" bed-top width. The treated area in Tustin was 1200 ft² per treatment, also based on a 24" bed-top width.

WEATHER AND SOIL DATA:

Daily weather data for the Oceanside trial was monitored by the California Irrigation Management Information System (CIMIS) station number 49 located in Oceanside, CA. Daily weather data for the Tustin trial was monitored by CIMIS station number 75 in Irvine, CA. Daily weather data for both trial sites for the duration of the growing season are included in Appendix IV.

The soil texture at the Oceanside test site was classified as a Silt Loam (34% Sand, 52% Silt, and 14% clay). The soil texture at the Tustin test site was classified as a Clay Loam (30% Sand, 34% Silt, and 36% Clay). Soil characterization data from both trial sites are provided in Appendix V.

EFFICACY EVALUATIONS:

Efficacy evaluations were made throughout the duration of the two field trials to specifically identify treatment effects and to assess the performance of each alternative fumigant treatment, relative to that of the methyl bromide / chloropicrin standard. Data from each variable were subjected to an analysis of variance (ANOVA) at the $p \leq 0.05$ level of significance, and when significant differences were obtained, treatment means were subjected to Duncan's Multiple Range Test (DMRT). The efficacy evaluation data and statistical analyses results are presented in Appendices II and III for the Oceanside and Tustin trials, respectively, for each of the following variables:

Control of buried fungal pathogen: The root pruning pathogen, *Rhizoctonia solani*, was used as an indicator to assess the relative fungicidal activity of the various treatments tested. Sterile strawberry stolon tissue was inoculated with the pathogen in the laboratory and was then packaged into small (ca. 1 ½-inch diameter) mesh bags, with at least ten inoculated stolon pieces per bag. The bags were then tied to bamboo stakes approximately 40 inches long, at 6-inch intervals from 6 to 36 inches from the top of the stake. One bamboo stake with six bags attached was buried in each replicate plot 1-2 days prior to application of each alternative fumigant product. In addition, one stake was buried in each replicate of the Untreated Control at every evaluation interval. Stakes were buried so that the inoculum bags were positioned at 6, 12, 18,

24, 30 and 36-inch soil depths. A 3-inch wide x 48-inch long soil probe attached to a tractor-mounted hydraulic soil-coring machine was used to excavate soil. Once a stake was placed in the ground, soil was back-filled into the hole and tamped with a rod to approximate the pre-disturbed soil compaction. The stakes were removed from the plots approximately 7 days after they were buried, following application of each of the individual methyl bromide alternative products.

Upon removal from the test plots, the bamboo stakes were organized by treatment, and the inoculum bags were removed from the stakes. The strawberry stolon pieces were surface sterilized in a 10% sodium hypochlorite solution for 30 seconds, then processed through three sterile water rinses. Stolon pieces were then placed into fresh water agar filled petri dishes and labeled according to treatment, replicate and soil depth. The plates were incubated for two days and then evaluated for *R. solani* growth originating from the stolon pieces. The percent mortality of the fungal pathogen was quantified by summing the total number of tissue pieces without fungal growth and dividing this number by the total number of pieces evaluated for a given soil depth interval of a replicate plot.

Control of nematodes: Because the incidence of indigenous plant parasitic nematodes was anticipated to be relatively low (due to soil fumigation history at both test sites), the citrus nematode, *Tylenchulus semipenetrans*, was used as an indicator species in accordance with a procedure developed by Dr. John Radewalde, retired extension nematologist, University of California, Riverside. Naturally infested soil was collected from an old-grove citrus orchard in southern California. Small cloth bags containing ¼-cup of soil infested with *T. semipenetrans* juveniles were buried in the replicate plots one day prior to application of the test products, in accordance with the procedure described above for the *R. solani* inoculum. After removal, approximately seven days post-application, the number of live nematode juveniles per ¼-cup of soil was quantified using the Baerman funnel technique.

In addition to the citrus nematode evaluations, soil samples were taken pre- and post-application at each trial site, to assess the incidence of the plant parasitic root-knot nematode (*Meloidogyne*

spp.), and the effects of the various treatments on this soilborne pest. Nematodes, Inc., located in Selma, California, analyzed the soil samples for nematode incidence.

Control of buried weed seed: Thirty annual-bluegrass (*Poa annua*) and common-purslane (*Portulaca oleracea*) seeds were placed into small mesh bags and buried 6" deep at the timing intervals described above for the fungal pathogen and citrus nematode control evaluations. After removal, the weed seed of the two species were placed onto water agar in individual petri dishes. The plates were then incubated under lights in a growth room. Several days later, the number of germinated weed seeds per replicate plate was quantified. The percent mortality was calculated by dividing the number of non-germinated seeds by the total number buried (30), and then multiplying by 100.

Plant height and vigor: Plant height measurements and vigor ratings were taken during the growing season at both the Oceanside and Tustin trial sites. The heights of 25 plants per treatment were measured, while the vigor ratings were based on a 1-5 scale, with 5 representing the most vigorous plants, and 1 representing the least vigorous plants. Treatments were also evaluated for the incidence of very weak or dead plants at each of the evaluations. Two plant height / vigor evaluations were made at the Oceanside trial, and three evaluations were conducted at the Tustin site.

Fruit yield and quality: Yield data were obtained for the entire harvest season (August-November) at both test sites. Five harvests were conducted at the Oceanside trial, and six harvests were performed at the Tustin trial. All of the plants within each 75-foot long replicate plot were used for the harvest evaluations at the Oceanside trial site. Thirty plants from the center of each replicate plot were marked and harvested at the Tustin trial. At each harvest event, fruit from each replicate were sorted into categories of marketable and cull. Marketable fruit were characterized by having good shape and color, without blemishes (or with only minor blemishes). Any fruit which were misshapen or moderately to severely blemished were considered culls. The marketable fruit were then sorted into the fruit size categories of extra-large, large, medium, and small, based on the USDA tomato fruit grading system, and then counted and weighed (in lbs.). The fruit diameter range (inches) for each of these fruit size

classes is as follows: extra-large (>2.75"), large (2.5"-2.75"), medium (2.25"-2.5") and small (<2.25"). Monthly and season-long marketable fruit yield totals (including size classes of medium, large, and extra-large) were converted to the number of 25-pound cartons per acre. Small sized fruit were not included in the computation of marketable yields, as these are typically not used for the fresh market.

Crop value: The marketable fruit value in dollars was calculated using the average market price received for tomatoes during the 2000 California harvest season, together with the yield data obtained from the fruit harvest evaluations. The average market prices used in these calculations are summarized in Appendix VI, for both the Oceanside and Tustin trials (source: Market News Service, Fresno, California).

III. RESULTS

Results from the data statistical analyses for each variable are provided in Appendices II and III for the Oceanside and Tustin trials, respectively. The statistical analyses were performed using ARM software from Gylling Data Management, Inc.. Portions of the data are also summarized graphically and figures are provided in Appendix I-A (Oceanside trial) and I-B (Tustin trial).

Throughout this Results section, the metam soduim spray-check (37.5 gallons per treated acre), metam sodium drip (75 gallons per treated acre) and metam sodium bed-shank (75 gallons per treated acre) treatments are referred to as metam-spray, metam-drip and metam-shank, respectively.

CONTROL OF BURIED FUNGAL PATHOGEN:

Results from the statistical analyses of the *R. solani* mortality data are provided in Appendices II-A and III-A for the Oceanside and Tustin trials, respectively. The data are summarized for each treatment (or each product, in the case of the product combination treatments) according to the date that the inoculum was removed from the treated plots. The samples were removed approximately 5-7 days following application of each individual product. In the case of the combination treatments, the names of the individual products which were tested for their effects on the buried fungal pathogen are underlined in the statistical analyses printouts. Further, in

these data printouts, each treatment or individual product (in the case of the combination treatments) is compared statistically to the methyl bromide / chloropicrin (mb/pic) standard treatment and the Untreated Control (UTC), using data obtained for these two treatments at the initial evaluation (May 15, 2000).

Oceanside Trial: The mb/pic industry standard treatment did not result in significantly greater mortality of the *R. solani* inoculum at any soil depth interval, relative to the UTC. Treatments / products which did significantly increase mortality of the soilborne fungal pathogen, relative to the UTC, are as follows: metam-drip (6" soil depth only), metam-shank (6" and 12" depths only), propargyl bromide (6", 12", 24" and 30" soil depths) and chloropicrin EC in Trt. #17 (6" and 12" depths). The following treatments / products did not significantly increase mortality of *R. solani*, relative to the UTC, at any soil depth interval: the iodomethane / chloropicrin combinations (67/33 and 50/50), Basamid, PlantPro-45 (1x) used in preplant or postplant applications, InLine, Fosthiazate 500EC or 900EC, or the metam-spray check treatment.

Tustin Trial: A significantly higher *R. solani* mortality was observed in the mb/pic standard at the 6" soil depth, relative to the UTC. This same result was seen with the iodomethane / chloropicrin combination treatments, both of which had mortality levels at the 6" soil depth which were statistically comparable to that of the industry standard treatment. The metam-shank treatment gave comparable control of the pathogen at the 6" soil depth, relative to mb/pic, and gave significantly greater control at the 12" depth, relative to both the industry standard and the UTC. The metam-drip treatment resulted in a mortality level which was comparable to that of the mb/pic treatment, at the 6" soil depth, but not significantly different from that of the UTC. This same result was observed with both chloropicrin EC (in the combination Trt. #17) and propargyl bromide. The preplant application of PlantPro-45 resulted in significantly greater *R. solani* mortality at the 6" soil depth, relative to the UTC, a level which was statistically comparable to that of the industry standard treatment. However, when applied as a postplant application (approximately ½ the rate used at the preplant application), PlantPro-45 did not significantly control the fungal pathogen at any depth, relative to the UTC. Drip applications of InLine, Fosthiazate 500EC and 900EC and the bed-top application of Basamid did not result in any *R. solani* mortality at any soil depth.

CONTROL OF NEMATODES:

Results from the statistical analyses of the post-application citrus nematode count data are summarized in Appendices II-A and III-A for the Oceanside and Tustin trials, respectively. The data are outlined for each treatment (or each product, in the case of the combination treatments) according to the date that the buried soil samples were removed from the treated plots. The samples were removed approximately 5-7 days following application of each individual product. In the case of the combination treatments, the names of the individual products which were tested for their effects on the buried fungal pathogen are underlined in the statistical analyses printouts. Further, in the statistical analyses printouts, each treatment (or individual product, in the case of the combination treatments) is compared statistically to the mb/pic standard using data obtained from this treatment at the initial evaluation (May 15, 2000). Each treatment / product is also compared to the UTC, utilizing data obtained from this treatment at each respective evaluation event.

Oceanside Trial: The mb/pic industry standard treatment resulted in significantly lower counts of the buried citrus nematode indicator, relative to the UTC, at the 12", 18" and 24" soil depths. The mb/pic treatment also had a numerically lower mean number of nematodes recovered at the 6" soil depth, compared to the UTC. The three iodomethane treatments reduced counts to levels statistically comparable with those of the mb/pic standard at all soil depths, with exception of the lowest depth (36") in the stand-alone iodomethane treatment, where a significantly higher count was observed. Both the metam-shank treatment and the bed-top application of Basamid in Trt. #10 provided control comparable to that of the standard, at the 6-18" soil depth intervals. Not surprisingly, the metam-spray check treatment did not significantly reduce counts of the buried nematode, relative to the UTC. The purpose of the bed-top metam spray applications in several of the product combination treatments was strictly for controlling weeds in the upper several inches of bed-top soil.

The preplant application of PlantPro-45 (Trt. #4, 1x rate) reduced citrus nematode counts at the 6" and 12" depths to levels statistically comparable with those of the mb/pic standard, but not significantly different from those of the UTC. Further, at the 18" and 24" depths, counts in the PlantPro-45 treatment were significantly higher than those in the industry standard treatment.

Preplant drip applications of InLine, propargyl bromide and chloropicrin EC all resulted in significant reductions in the incidence of citrus nematode at the 6"-18" soil depths, relative to the UTC, and resulted in control comparable with that of the mb/pic standard treatment at each of these depths. Drip-applied Fosthiazate 500EC gave significant control of the indicator nematode species at the 6" soil depth, relative to the UTC, and reduced its incidence to a level comparable with that of the mb/pic standard. However, counts in the Fosthiazate 500EC and UTC treatments were not statistically different at soil depths below the 6" interval. The preplant application of Fosthiazate 900EC and the postplant application of PlantPro-45 did not result in significant reductions of *T. semipenetrans*, relative to the UTC.

Prior to initiating the Oceanside trial, a composite sample of multiple soil cores (1" diameter, 12" long) from the proposed trial site area revealed a relatively low indigenous root-knot nematode infestation level (206 nematodes per kg soil, or ~20.6 per 100 cc soil). Just prior to initiating the trial at the proposed site, the grower cooperator opted to relocate us to a neighboring block at the same ranch, where he indicated he had experienced his greatest pressure from soilborne pests / pathogens. A post-application evaluation was made June 22, 2000, by sampling ten 1" diameter x 12" long soil cores per replicate plot, and then compositing the ten cores into a single sample per replicate. No root-knot nematodes were found in any of the soil samples. A second set of samples were taken November 8, 2000 from the UTC replicates only. Root-knot nematodes were found only in the Replicate A sample, and subsequent samples from the various fumigant alternative treatments were therefore not taken. The root-knot nematode data are summarized in Appendix VII.

Tustin Trial: Vast numerical differences in the mean number of nematodes per ¼ cup of buried soil were observed between the mb/pic standard and the UTC, with much lower means at all soil depths in the standard, relative to those in the UTC. However, the only statistical differences were observed at the 6" soil depth, where the standard had a significantly lower count compared to that of the UTC. Treatments / products which resulted in a mean count which was statistically comparable to that of the mb/pic standard at the 6" soil depth interval were as follows: all iodomethane / chloropicrin (1x, ½x and 0.7x iodomethane rates) treatments, metam-shank, Basamid (in the combination Trt. #10), PlantPro-45 (1x, both preplant and postplant

applications), chloropicrin EC, metam-drip, InLine, propargyl bromide, and Fosthiazate 500EC. However, for several treatments, the mean counts at this 6" depth did not significantly differ from that observed in the UTC at this same depth. This was the case for the following treatments / products: Basamid (in Trt. #10), PlantPro-45 (1x, both pre- and postplant applications), chloropicrin EC, and Fosthiazate 900EC.

A composite soil sample taken from the trial site area prior to initiating the test revealed a very low incidence of *Meloidogyne* spp. (22 root-knot nematodes per kg of soil, or ~2.2 per 100 cc soil). An analysis of post-application soil samples taken from the UTC replicate plots on November 8, 2000 showed no root-knot nematodes in any of the samples (see raw data, Appendix VII). Hence, no additional samples were taken from any of the various fumigant alternative treatments evaluated in this field trial.

CONTROL OF BURIED WEED SEED:

Results from the statistical analyses of the weed seed mortality data are summarized in Appendices II-A and III-A for the Oceanside and Tustin trials, respectively.

Oceanside Trial: The mb/pic standard gave complete control of both the annual-bluegrass and purslane seeds buried 6" deep prior to application. Treatments / products which resulted in statistically comparable levels of weed seed control, relative to mb/pic, were as follows: iodomethane (1x) / chloropicrin, iodomethane (1/2x), metam-drip, metam-shank, Basamid, InLine, propargyl bromide, chloropicrin EC, and the metam-spray check. Products which did not result in a significantly greater mortality of bluegrass seed, relative to the UTC, were PlantPro-45, Fosthiazate 500EC and Fosthiazate 900EC. The same results were obtained with the buried purslane seed, except that Basamid and the metam-spray check did not result in seed mortality levels comparable with that of the mb/pic standard.

Tustin Trial: Results at this trial site were very similar to those observed at the Oceanside trial. Mb/pic resulted in 91.8 and 80.8 percent control of bluegrass and purslane weed seed, respectively. Treatments which resulted in statistically comparable levels of bluegrass seed control, relative to the standard, were as follows: iodomethane (1x or 0.7x) / chloropicrin,

metam-drip, metam-shank, Basamid, InLine, propargyl bromide, and chloropicrin EC. Consistent with observations at the Oceanside trial, products which did not result in a significant increase in bluegrass seed mortality, relative to the UTC, were PlantPro-45, the two formulations of Fosthiazate, and the metam-spray check. Similar results were obtained for the purslane evaluations, with all fumigant alternative treatments / products resulting in seed mortality levels statistically comparable to that of the mb/pic standard, with the exception of InLine and the two formulations of Fosthiazate.

PLANT HEIGHT AND VIGOR:

The results from the statistical analyses of the plant height and plant vigor data are reported in Appendices II-B and III-B for the Oceanside and Tustin trials, respectively.

Oceanside Trial: The mean plant height observed in the mb/pic standard was 31.2 inches, and was not significantly different from that of the UTC (29.8 inches). All treatments were statistically comparable to both the standard and the UTC, except for the PlantPro-45 (2x) + metam combination. Plants in this treatment were found to be significantly shorter than those in both the standard and the UTC, suggesting a possible phytotoxic response to the PlantPro-45, when applied at the exaggerated 2x rate. The incidence of very weak / dead tomato plants was 14.9% in the mb/pic standard, a level not statistically different from that observed in the UTC (20.1%). All treatments were statistically comparable to the mb/pic treatment, in regard to this variable, except for PlantPro-45 (2x) + metam, InLine, and Fosthiazate 900EC + chloropicrin EC + metam, all of which had statistically higher incidences of very weak / dead plants. The mean vigor rating observed in the mb/pic standard was significantly greater than that of the UTC. All treatments received mean vigor scores which were statistically comparable to that of the mb/pic standard, except for PlantPro-45 (2x) + metam, InLine, and Fosthiazate 900EC + chloropicrin EC + metam, all of which had significantly lower mean vigor scores.

Tustin Trial: The mean plant height observed in the mb/pic standard was 37.5 inches, and was not significantly different from that of the UTC (38.5 inches). All of the fumigant alternative treatments were statistically comparable to both the standard and the UTC, with regard to this variable. The incidence of very weak / dead tomato plants was 2.8% in the mb/pic standard, a

level not statistically different from that of the UTC (9.4%). All treatments were statistically comparable to the mb/pic treatment in this regard, except for the InLine + metam combination (27.0% incidence). The mb/pic standard also did not differ significantly from the UTC, with regard to the mean plant vigor score. All treatments received mean vigor scores which were statistically comparable to the mb/pic treatment, except for metam-shank, InLine + Basamid, InLine + metam, and InLine alone, all of which had significantly lower mean vigor scores.

FRUIT YIELD / QUALITY AND CROP VALUE:

Results from the statistical analyses of the marketable and cull fruit yield data and the crop value data are summarized in Appendices II-C and III-C for the Oceanside and Tustin trials, respectively.

Oceanside Trial: With regard to the season-total yields of marketable fruit (fruit size classes of medium to extra-large), all of the treatments were statistically comparable one to another. The mb/pic standard numerically outyielded the UTC by approximately 172 25-pound cartons per acre. The mean marketable fruit weight from the mb/pic standard treatment was 0.38 pounds, and all treatments were statistically comparable to the standard in regard to this variable. The statistical results from the analyses of the marketable crop value data are consistent with those summarized here for the marketable yield and fruit weight data.

Tustin Trial: All of the treatments produced marketable fruit yields which were statistically comparable with or superior to that of the mb/pic standard. The fumigant alternative treatments which significantly outyielded the standard were as follows: PlantPro-45 (2x) + metam, metam-drip, InLine, propargyl bromide, and chloropicrin EC + metam. Each of these treatments also resulted in a significantly greater marketable crop value, relative to the standard, except for the PlantPro-45 (2x) + metam combination. The mean marketable fruit weight observed in the mb/pic treatment was 0.29 pounds, and all treatments were statistically comparable to the standard in this regard.

IV. CONCLUSION / DISCUSSION

Control of the buried fungal (*R. solani*) and nematode (*T. semipenetrans*) indicators by the mb/pic standard and other shank-applied gaseous fumigants (iodomethane with or without chloropicrin) was not as consistent nor as thorough in the upper soil profiles (6"-24" soil depths), relative to previous evaluations in the IR-4 MBA strawberry field trials. At the Oceanside trial, mb/pic did not provide significant *R. solani* control at any soil depth, compared to the UTC, but did result in significant reductions of *T. semipenetrans* at the 12"-24" depths (but not at the 6" depth). At the Tustin trial, the industry standard treatment resulted in significant control of the buried fungal and nematode indicators only at the 6" soil depth. The reduced efficacy, relative to earlier evaluations, is likely attributable to differences in soil texture (and associated soil moisture retention capabilities) across the trial sites. The tomato trials were conducted on silt loam and clay loam soil types, at the Oceanside and Tustin trial sites, respectively. These "heavier" (ie. finer) soil textures likely reduced the movement of the shank-applied volatile fumigants, relative to the "lighter" (ie. coarse) soil textures associated with the strawberry trials. While these observations are not new to these trials, they do remind us of the influence of soil type on fumigant product performance. Side-by-side comparisons of shank-applications vs. drip-applications of potential alternatives on both "heavy" (eg. silt loams or clay loams) and "light" (eg. sandy loams) soil types are advisable, to optimize product performance across these different environmental conditions.

Despite the apparent reduced movement of the shank-applied volatile fumigants in the heavier soils used in these tomato trials, the mb/pic standard resulted in complete or nearly complete control of bluegrass and purslane weed seed buried 6" deep, at both of the field trial sites. Treatments that performed statistically comparable to the standard in this regard, across both test sites, were as follows: the iodomethane / chloropicrin combinations, metam-drip, metam-shank, propargyl bromide and chloropicrin EC.

In both of the tomato trials summarized herein, all of the fumigant alternative treatments resulted in season-total marketable fruit yields which were statistically comparable or superior to that of the mb/pic industry standard. Yields in the UTC were also comparable to those of the mb/pic treatment, at both test sites. This likely resulted from insufficient pressure by indigenous

soilborne pests (nematodes) / pathogens, a condition brought on by repeated annual soil fumigations with mb/pic at the commercial farms where the trials were conducted. Subsequent site searches for additional fumigant alternative trials have revealed that the majority of soils previously farmed to fresh market tomatoes in southern California are free-from or nearly free-from the incidence of root-knot nematode, in particular. Fields with moderate to heavy pressure from this soil pest are the "exception to the rule," and will be pursued for use in future fumigant alternatives performance trials.

At the Oceanside test, all of the fumigant alternative treatments had mean plant heights which were statistically comparable to that of the mb/pic standard, except for the exaggerated 2x-rate treatment of PlantPro-45. Plants in this treatment were also significantly shorter than those of the UTC, pointing to a possible phytotoxicity effect from the PlantPro-45. Despite this observation, this treatment did produce a marketable fruit yield which was statistically comparable with that of the mb/pic industry standard treatment. Based on the potential for phytotoxicity from the pre- + post-transplanting applications of PlantPro-45, new ongoing research efforts with this product focus on minimizing these effects primarily through changes in application timing. In particular, pre-transplanting applications alone are being combined with post-application irrigation events, with the goal of eliminating any potential negative plant growth effects. Results from the 2001 IR-4 MBA California tomato trial reveal that, with the application timing and methodology changes made, no phytotoxicity effects were caused, and fruit yields were numerically highest in the PlantPro-45 treatments, relative to all other treatments tested in the trial (final report in progress; to be completed Spring 2002).

Appendix I
Figures of Results

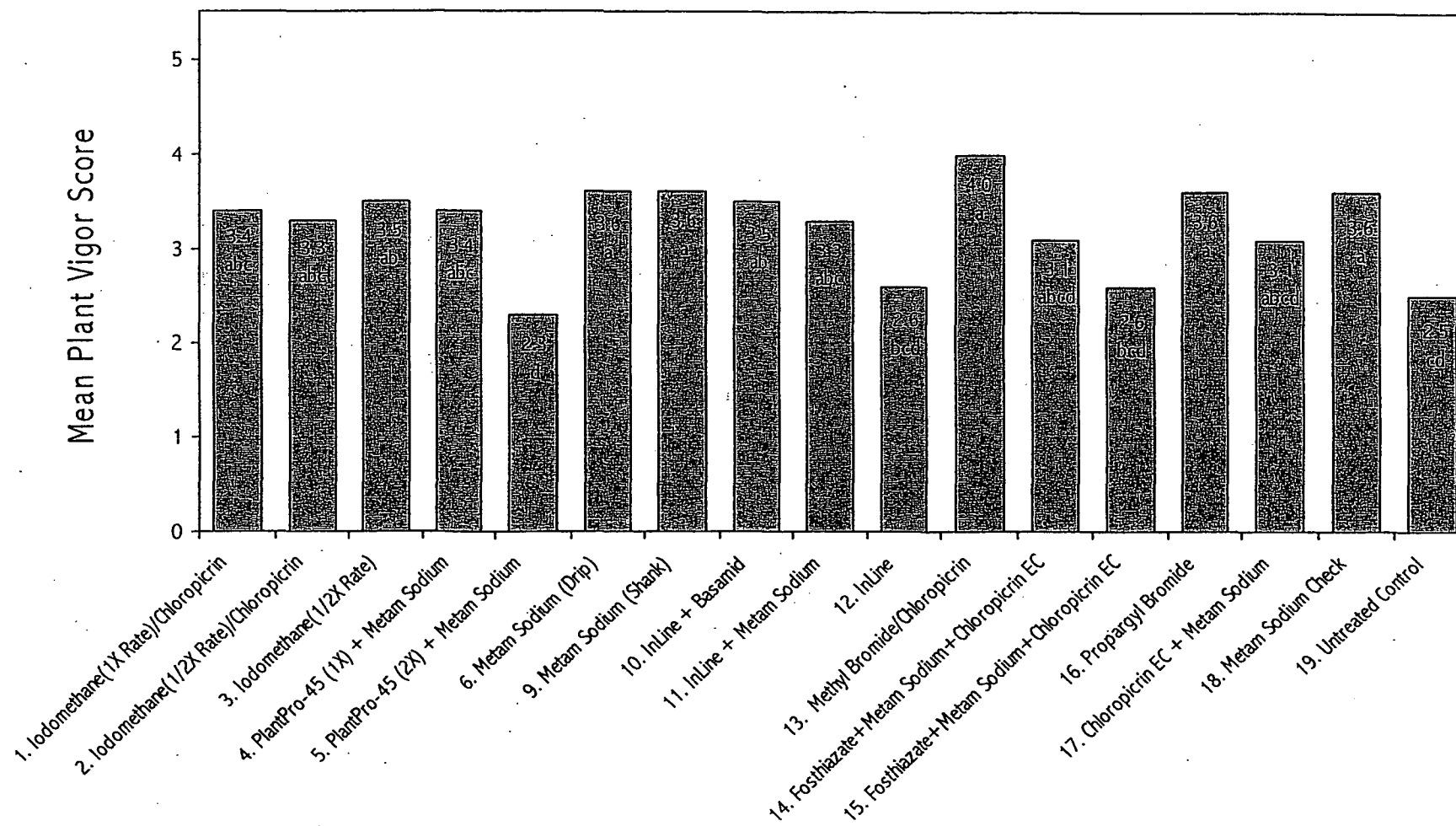
A. Figures of Results, Oceanside Trial

B. Figures of Results, Tustin Trial

Appendix I - A

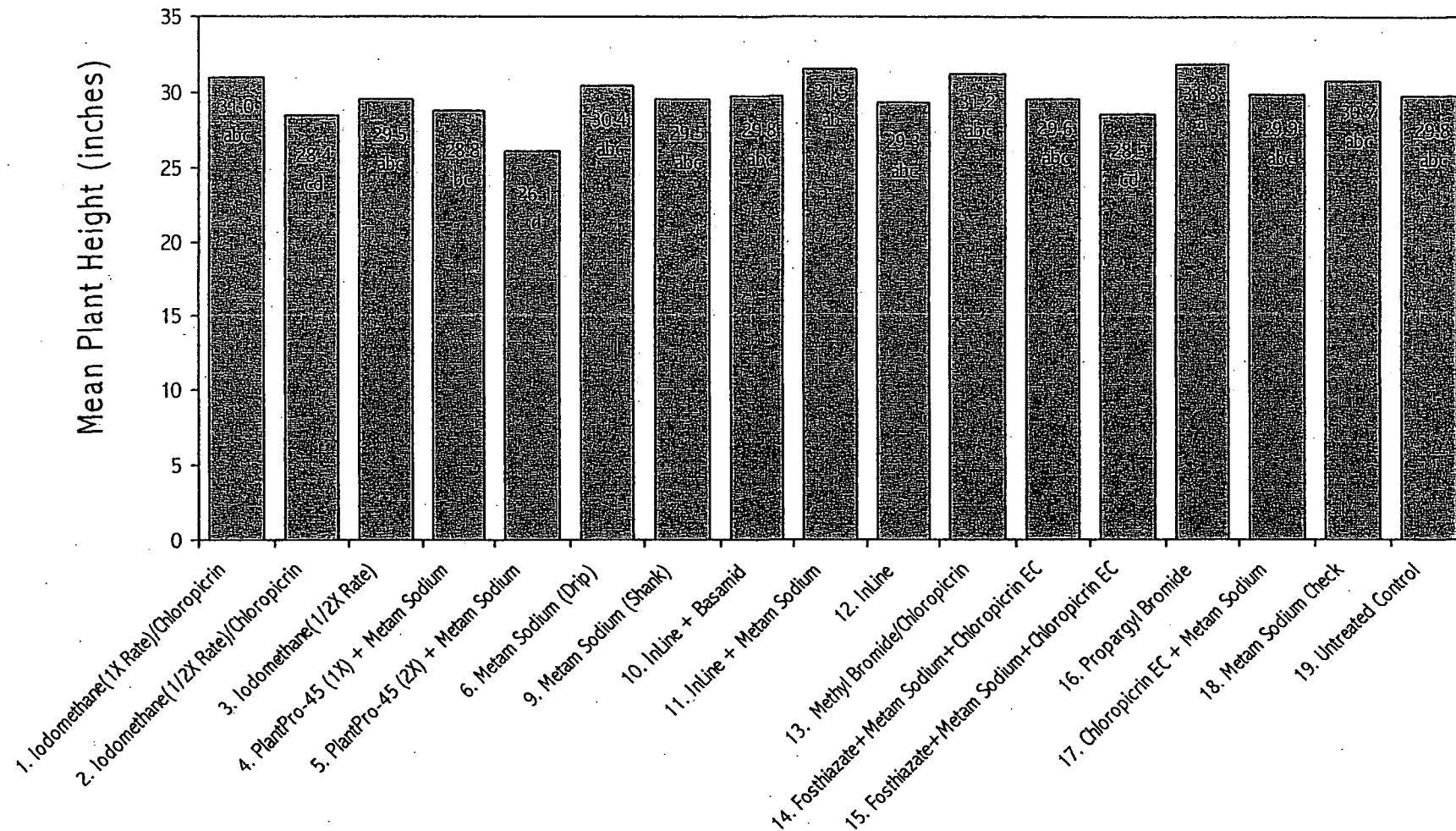
Figures of Results: Oceanside Trial

Figure 1. Mean Plant Vigor Scores (1- poor to 5- excellent)¹
Oceanside Trial, California



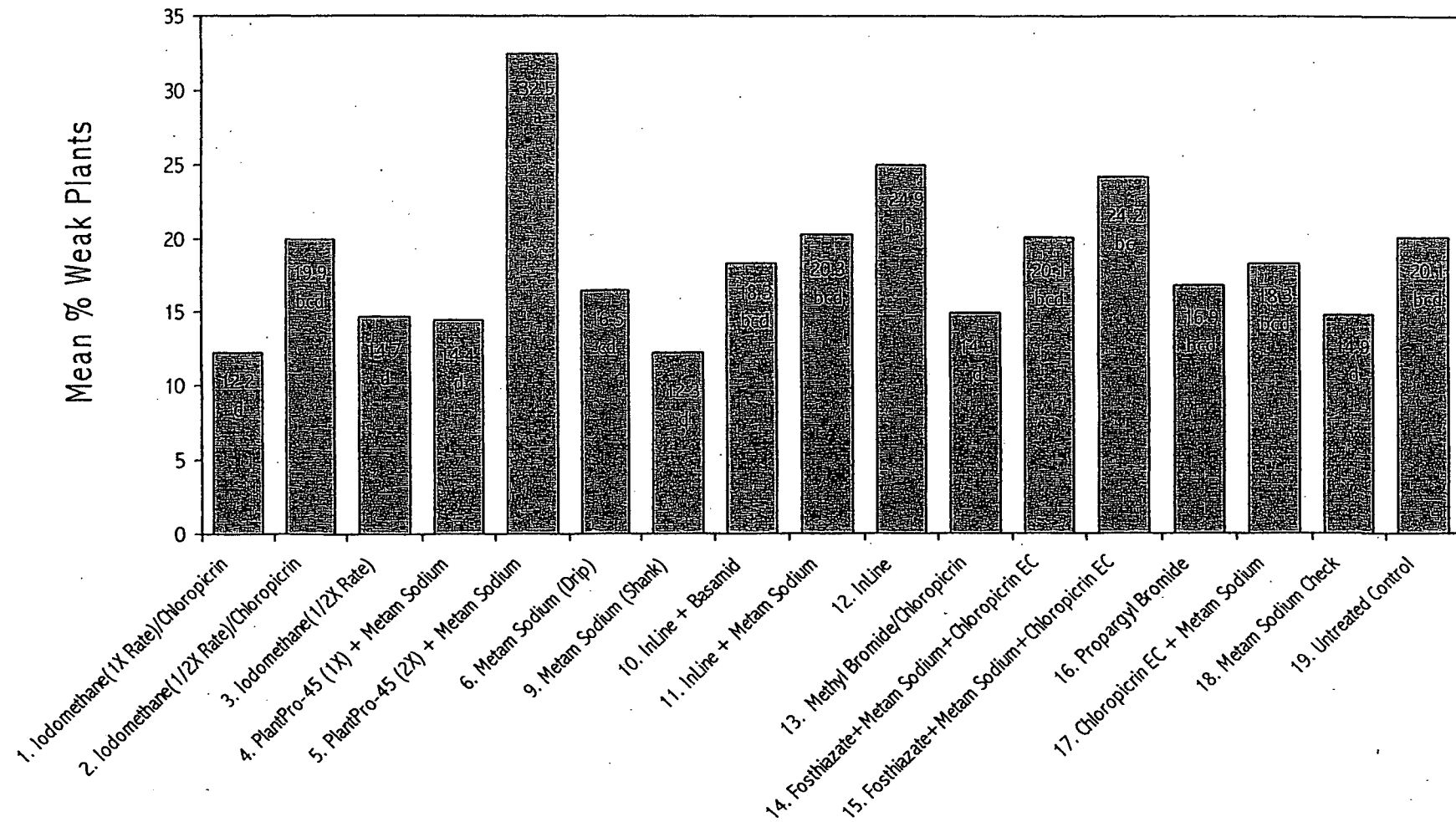
¹ Mean vigor scores followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

Figure 2. Mean Plant Height (inches)¹
Oceanside Trial, California



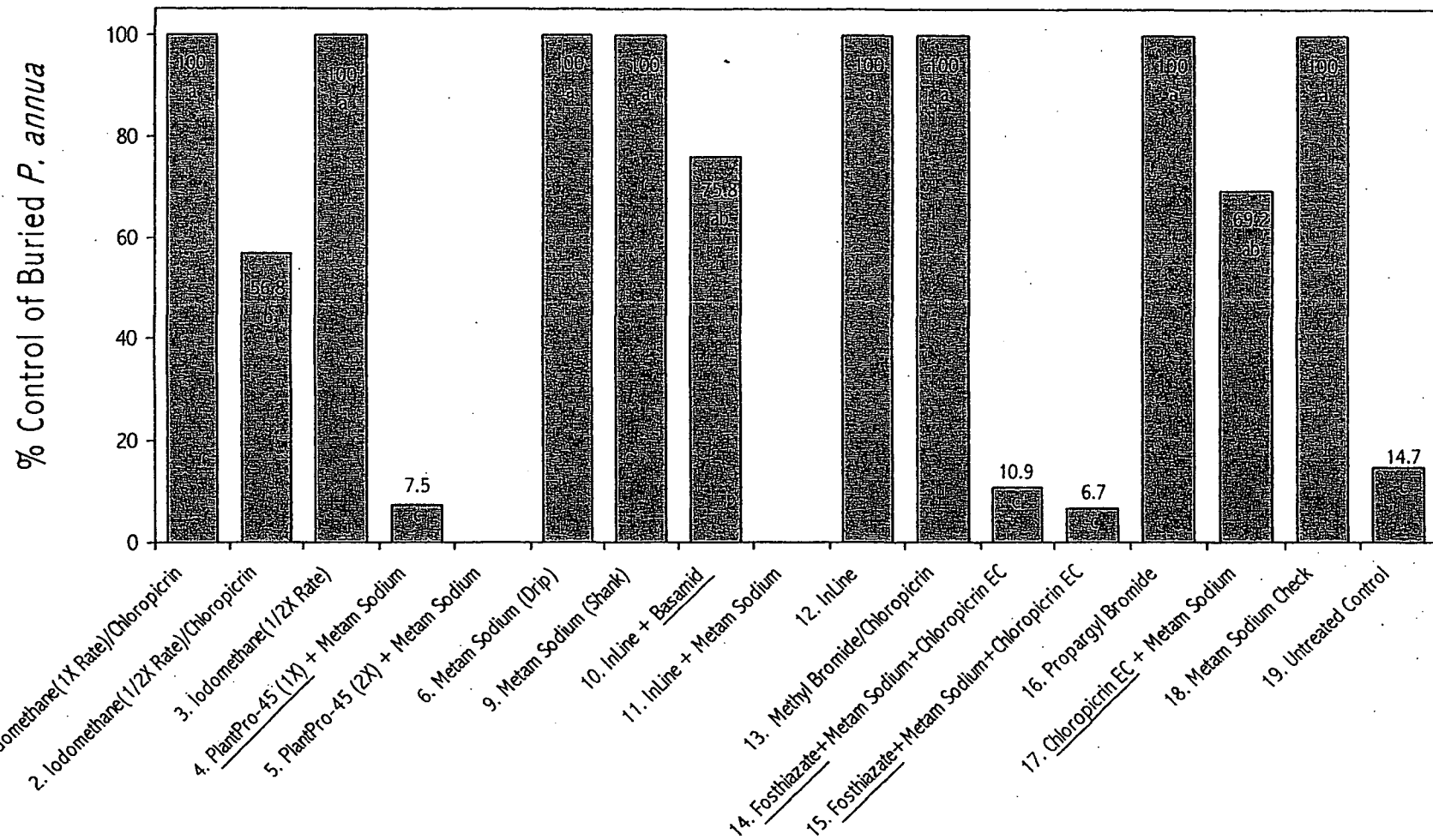
¹ Mean plant height values followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

Figure 3. Mean Percentage Weak/Low-Vigor Plants¹
Oceanside Trial, California



¹ Mean %'s of weak / low-vigor plants followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

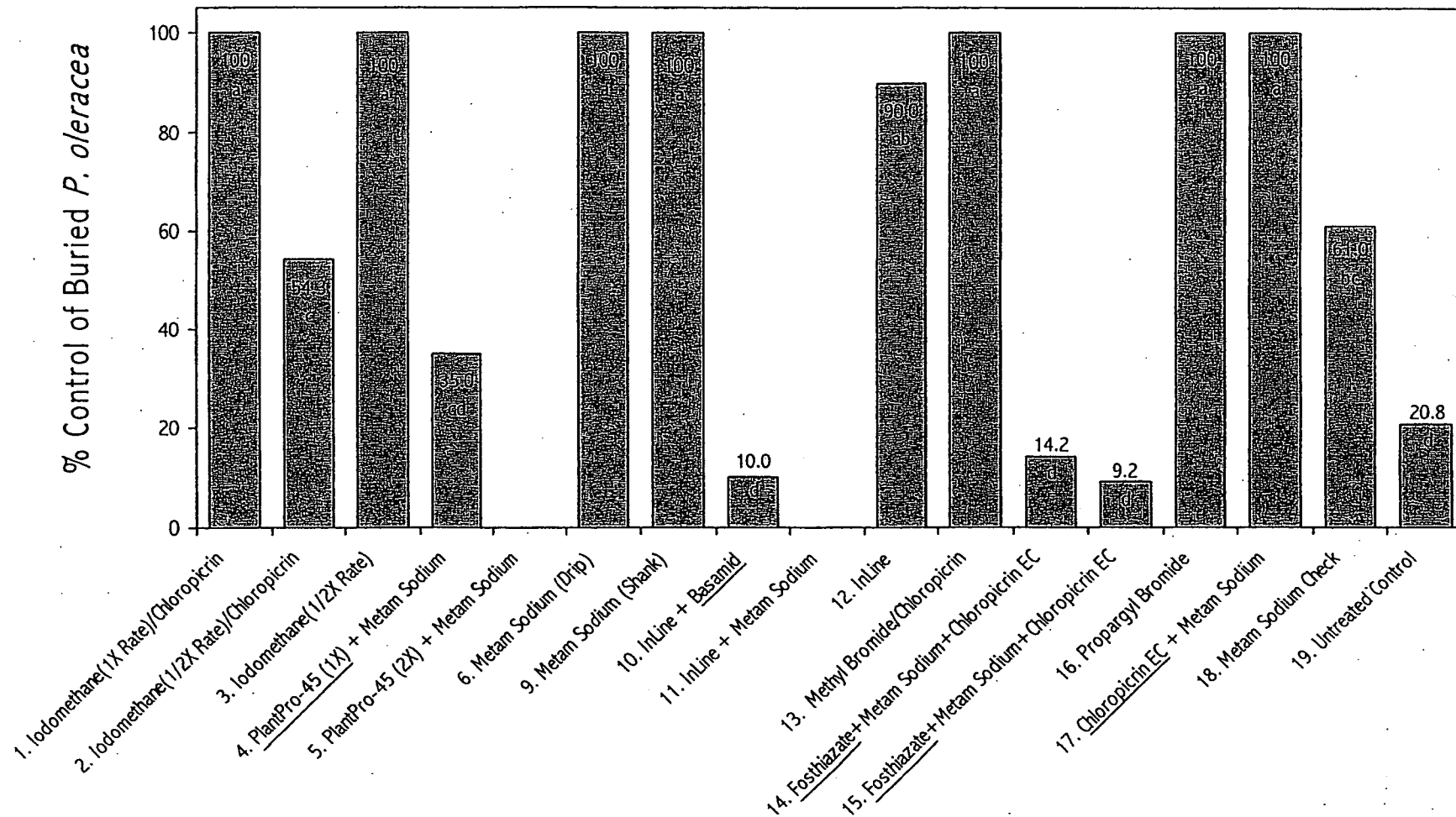
Figure 4. Control of Buried *P. annua* Seed¹
Oceanside Trial, California



¹ Mean %control values followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

Note: For combination treatments (No's. 4,10,14,15, & 17), data reported are for the products which are underlined.

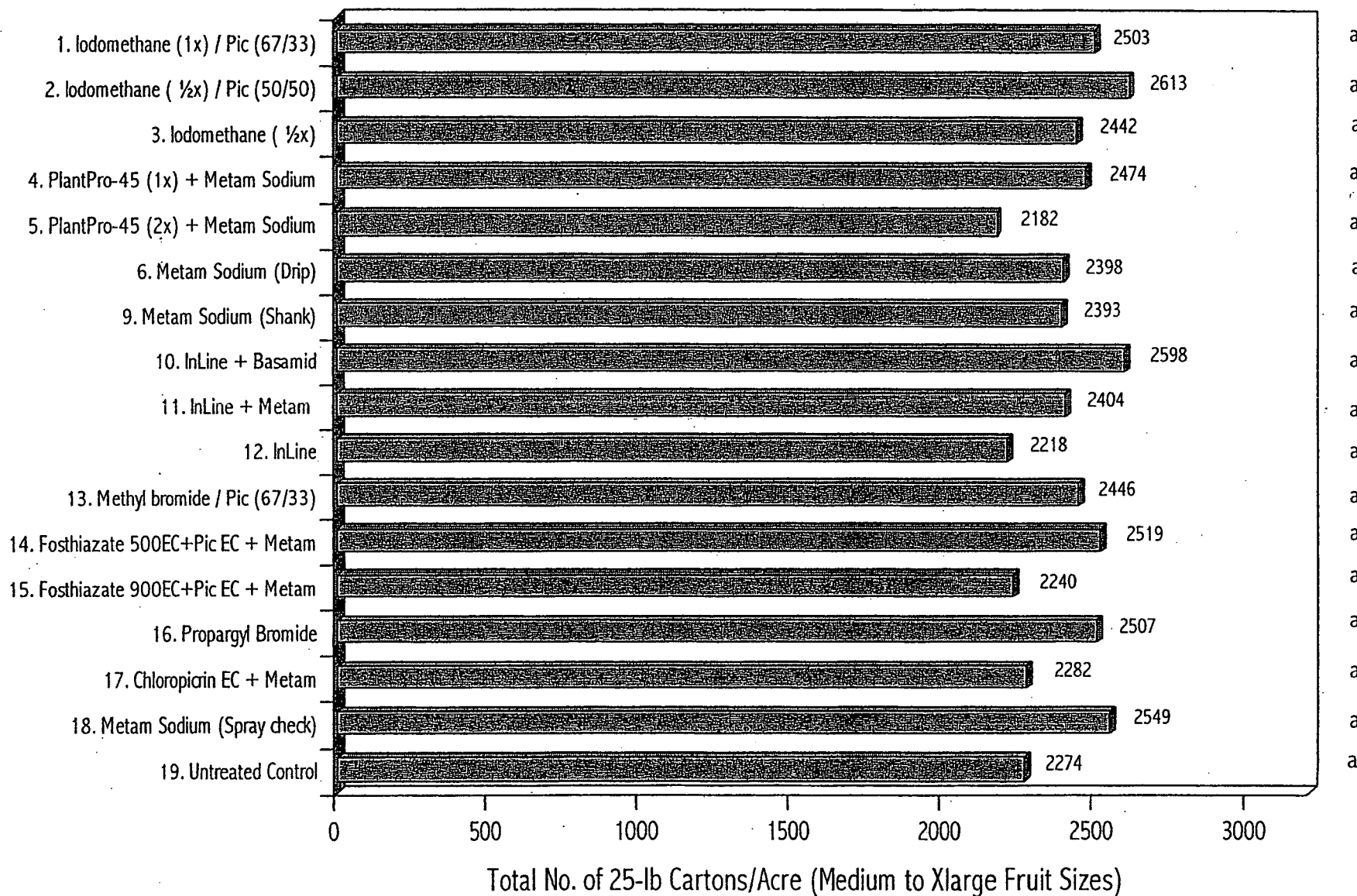
Figure 5. Control of Buried *P. oleracea* Seed¹
Oceanside Trial, California



¹ Mean %control values followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

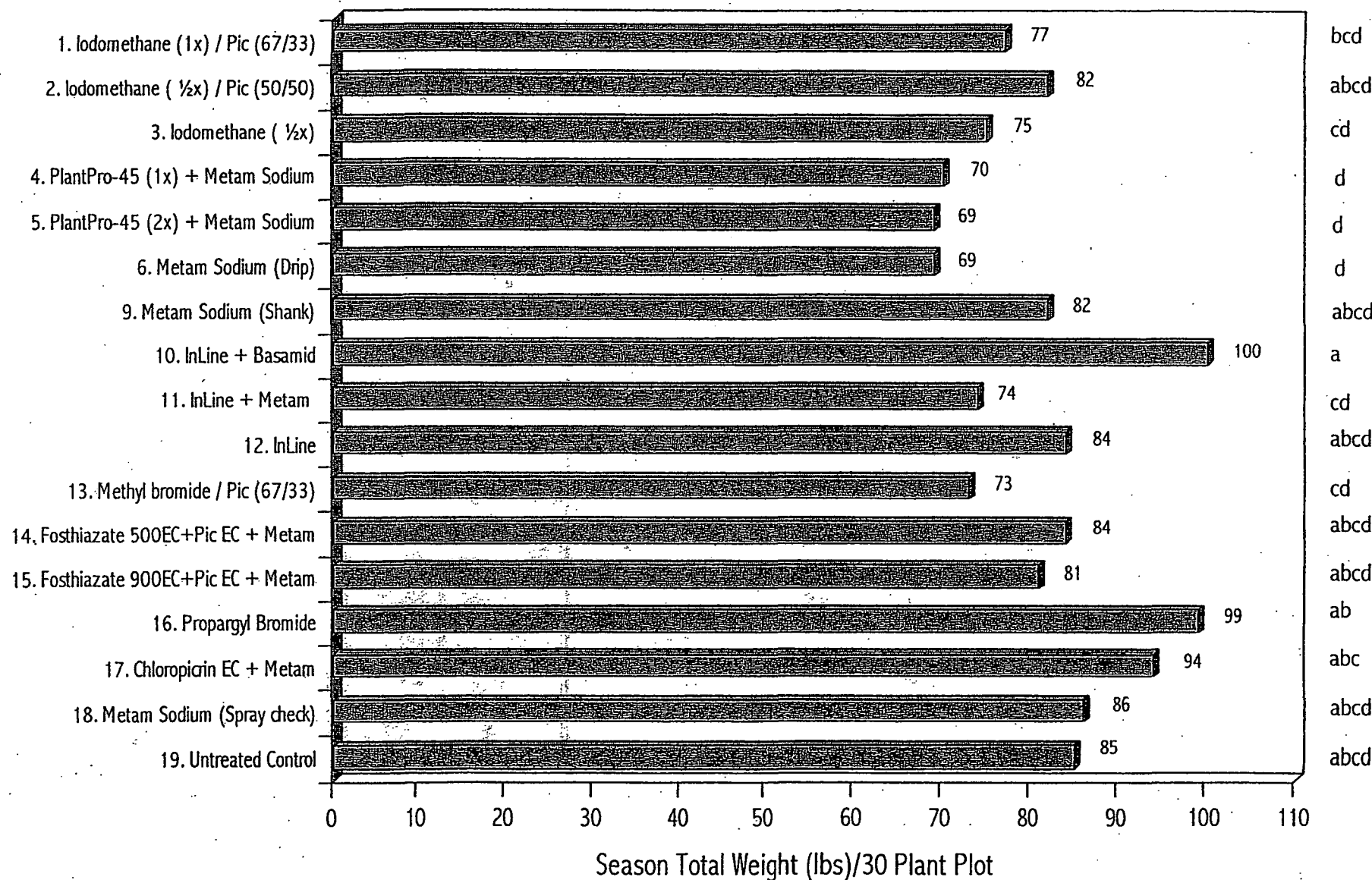
Note: For combination treatments (No's. 4,10,14,15, & 17), data reported are for the products which are underlined.

**Figure 6. Marketable Tomato Yield¹
Oceanside Trial, California**



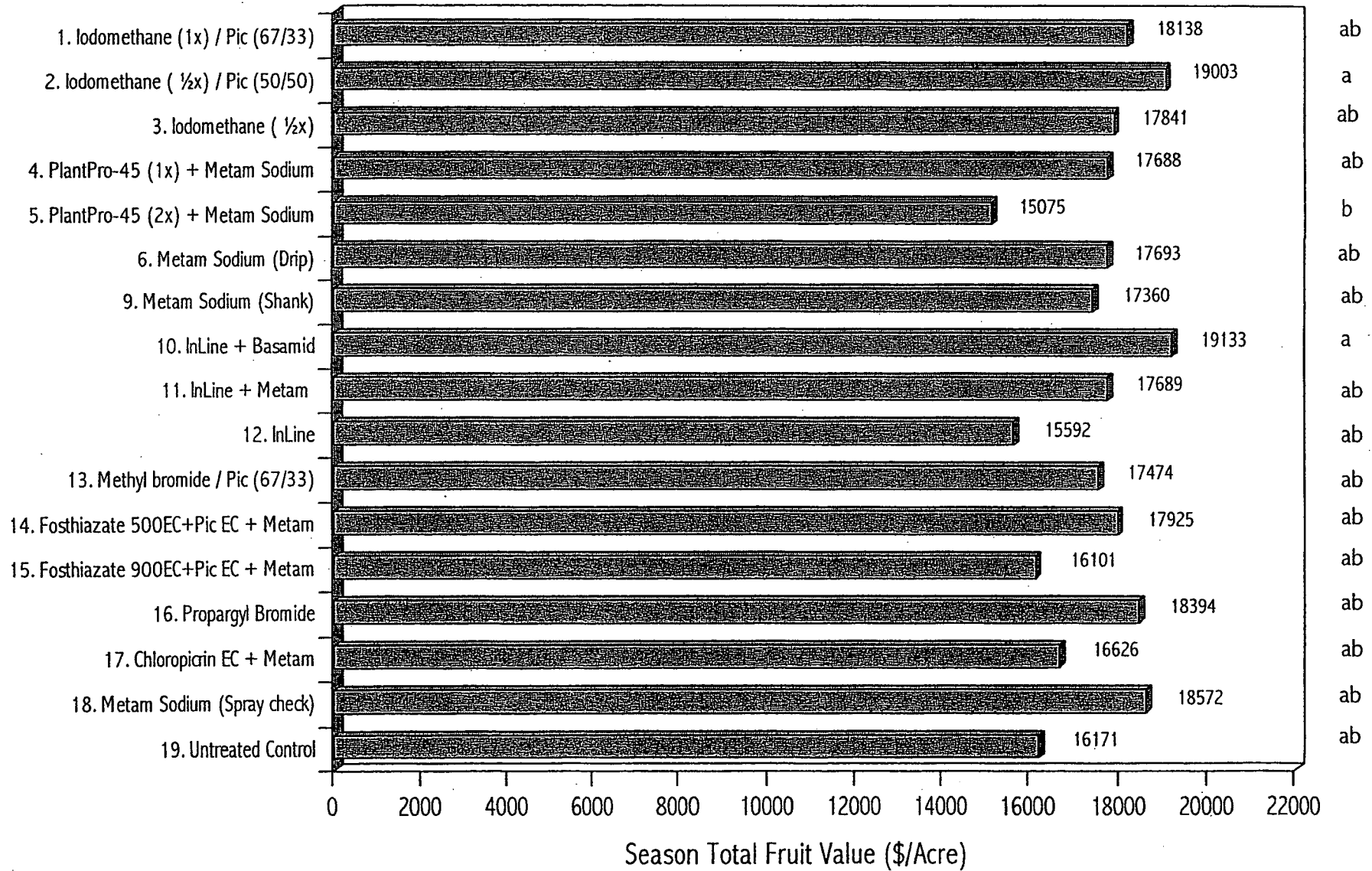
¹Mean yield values followed by the same letter are not significantly different (DMRT, $P \leq 0.05$).

Figure 7. Cull Tomato Yield¹
Oceanside Trial, California



¹Mean yield values followed by the same letter are not significantly different (DMRT, $P \leq 0.05$).

**Figure 8. Marketable Tomato Value¹
Oceanside Trial, California**

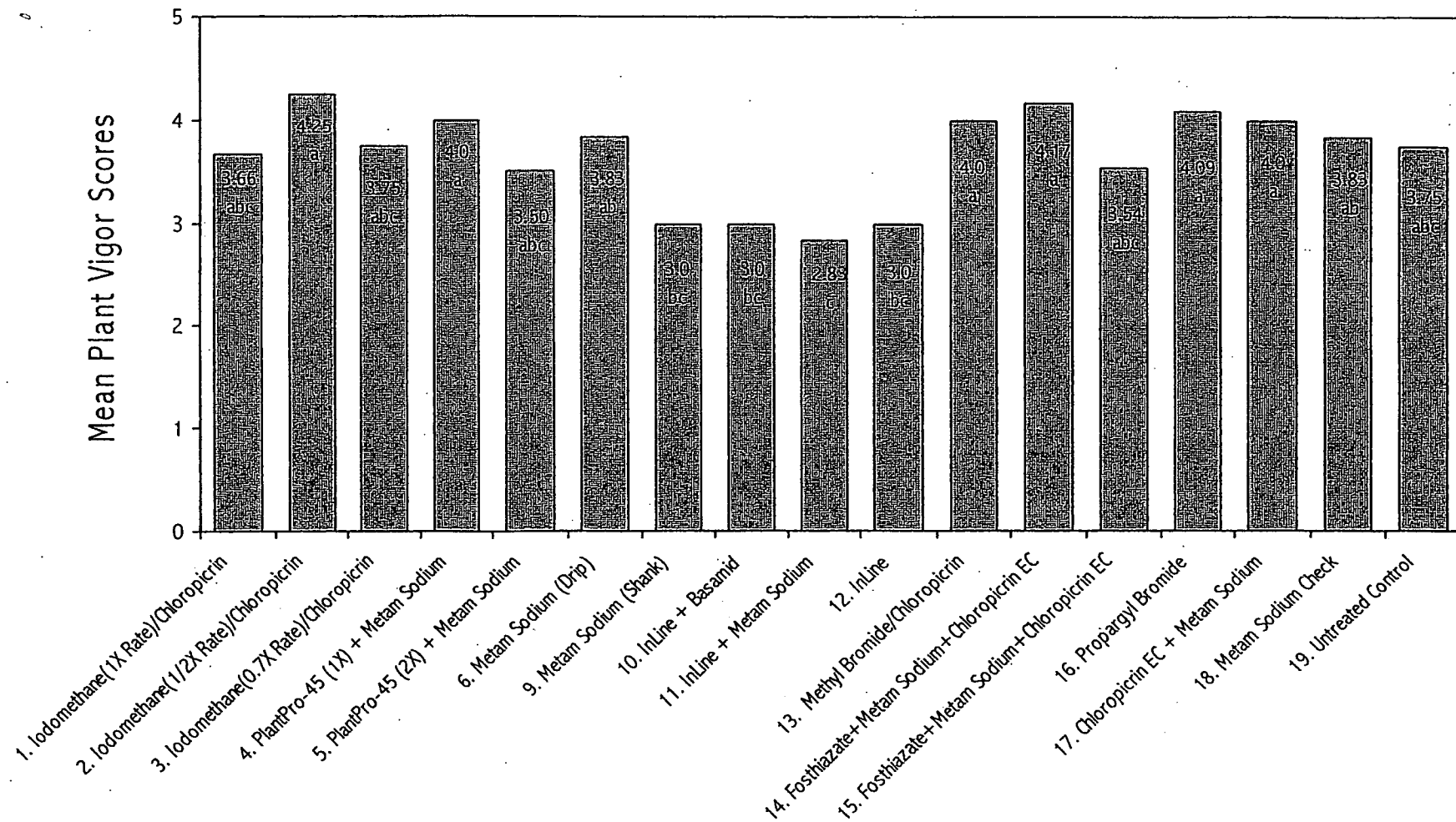


¹Mean crop values followed by the same letter are not significantly different (DMRT, $P \leq 0.05$).

Appendix I - B

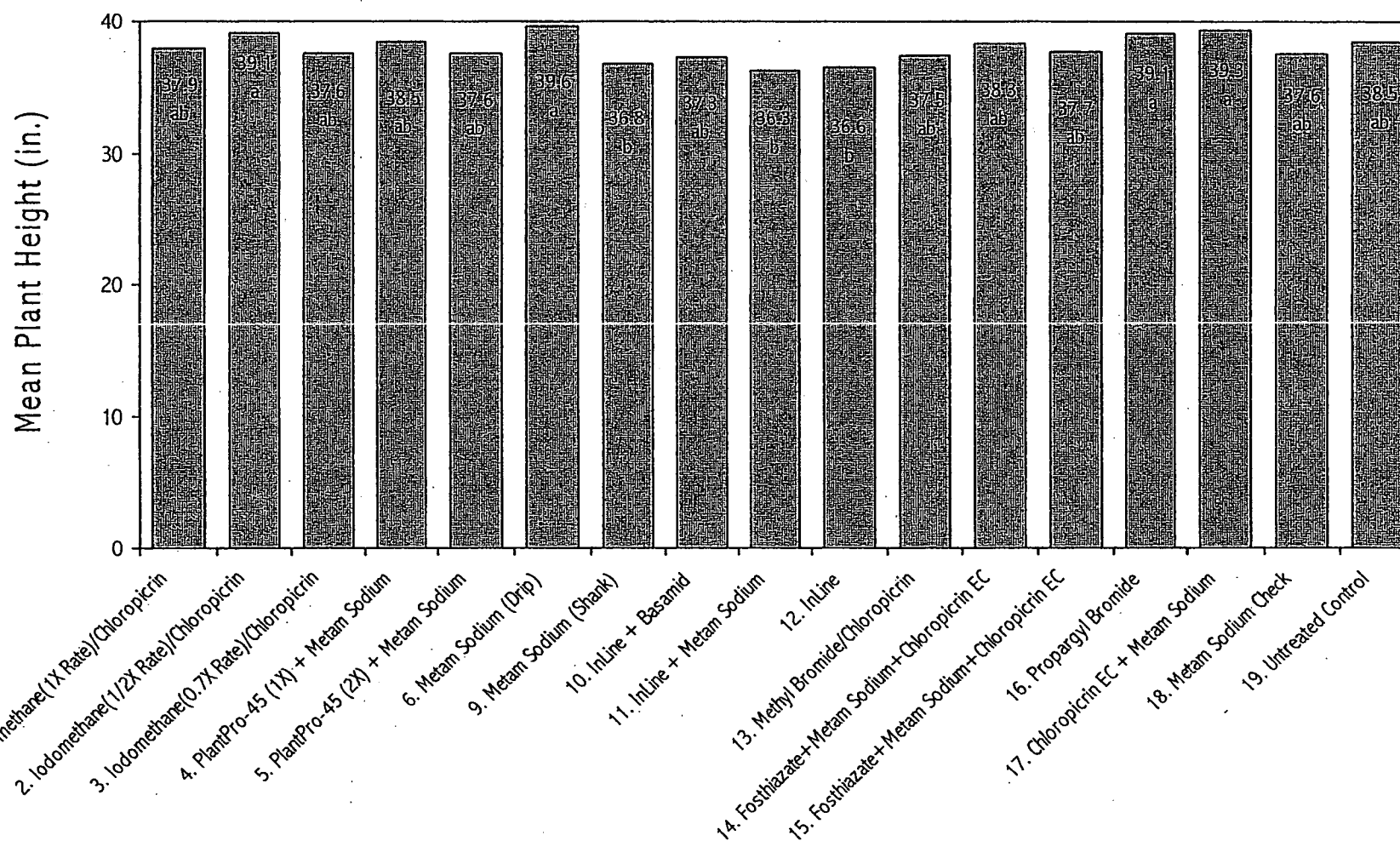
Figures of Results: Tustin Trial

Figure 9. Mean Plant Vigor Scores (1- poor to 5- excellent)¹
Tustin Trial, California



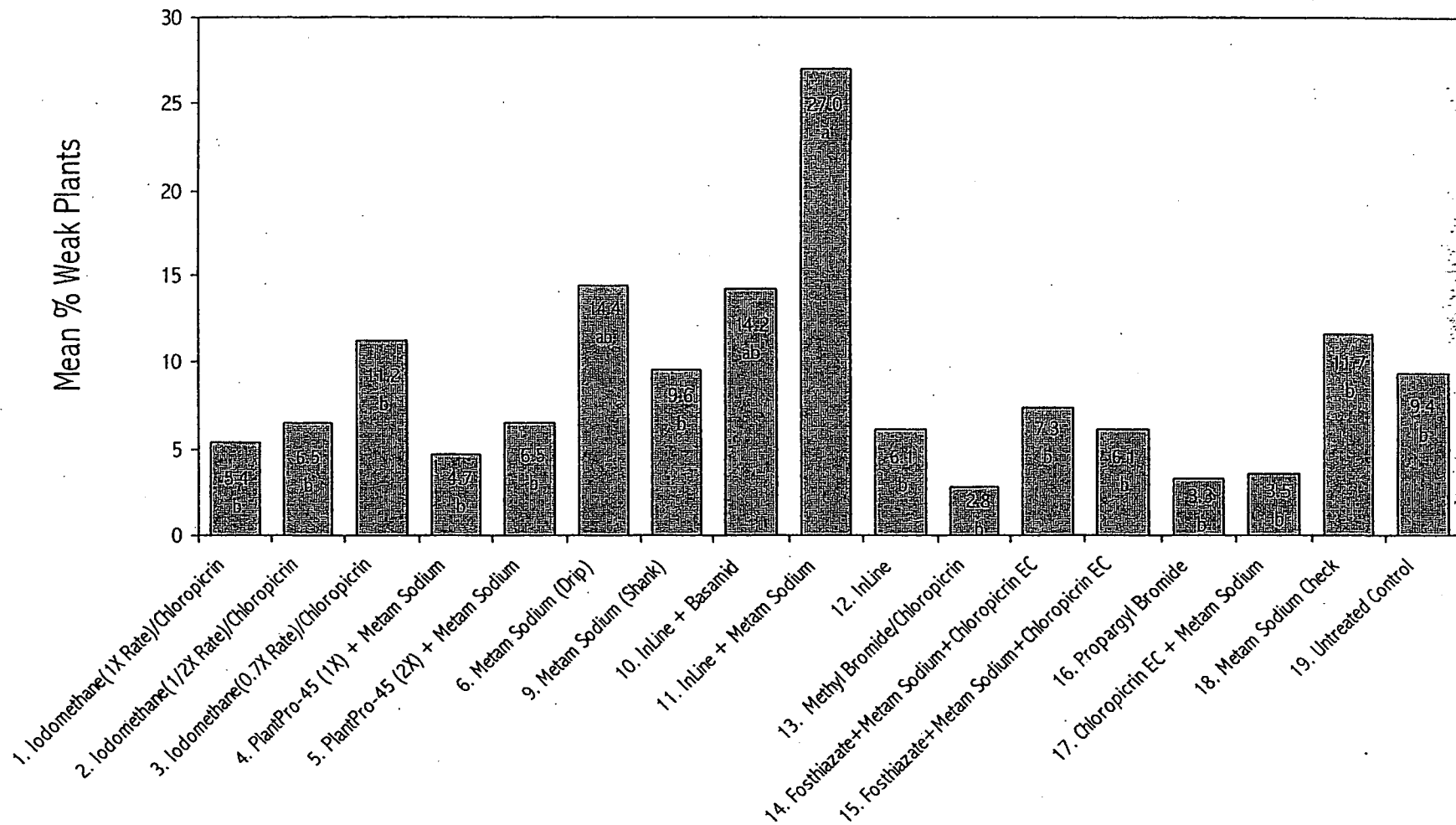
¹ Mean vigor scores followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

Figure 10. Mean Plant Height (inches)¹
Tustin Trial, California



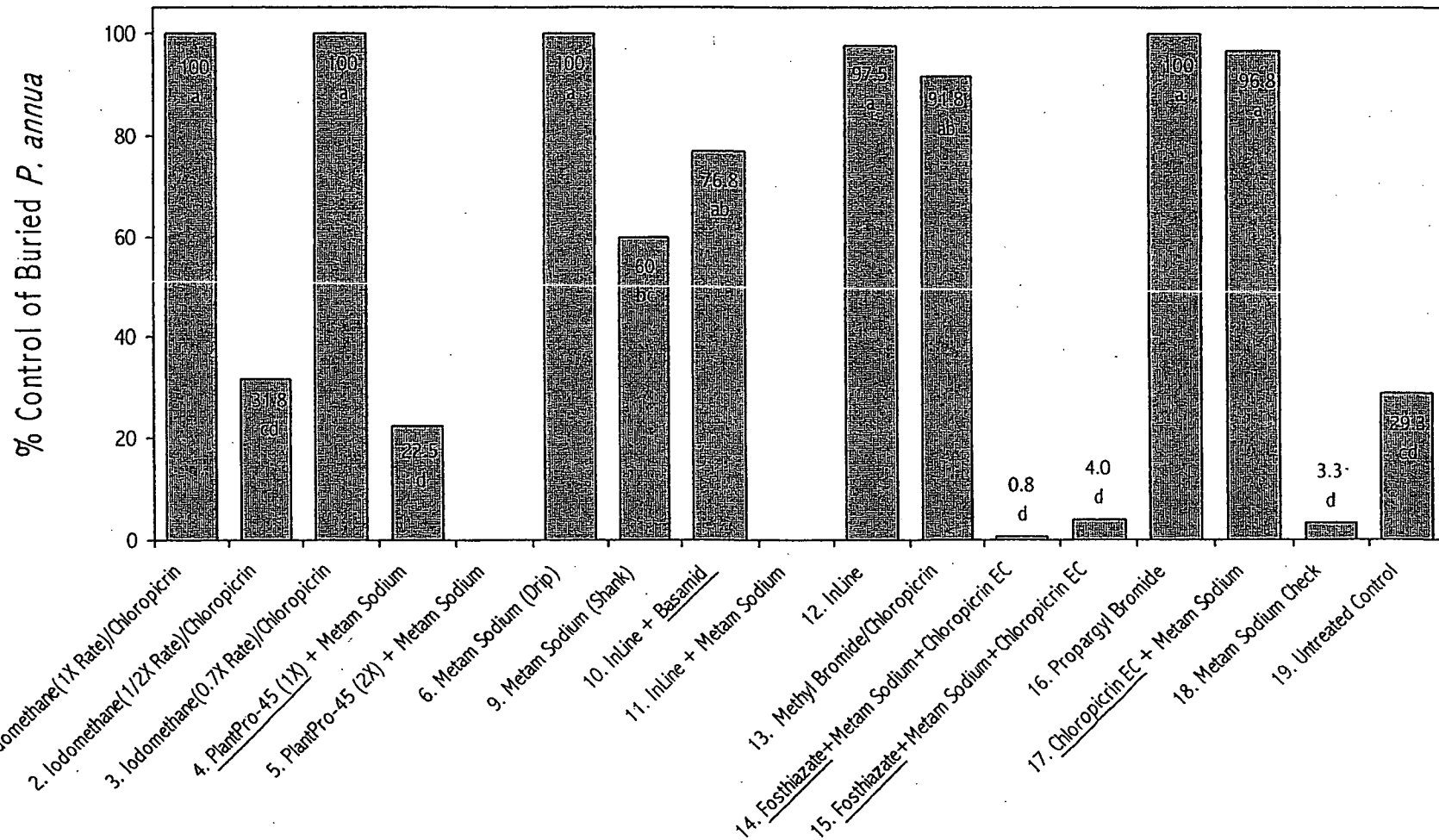
¹ Mean plant height values followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

Figure 11. Mean Percentage Weak/Low-Vigor Plants¹
Tustin Trial, California



¹ Mean %'s of weak / low-vigor plants followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

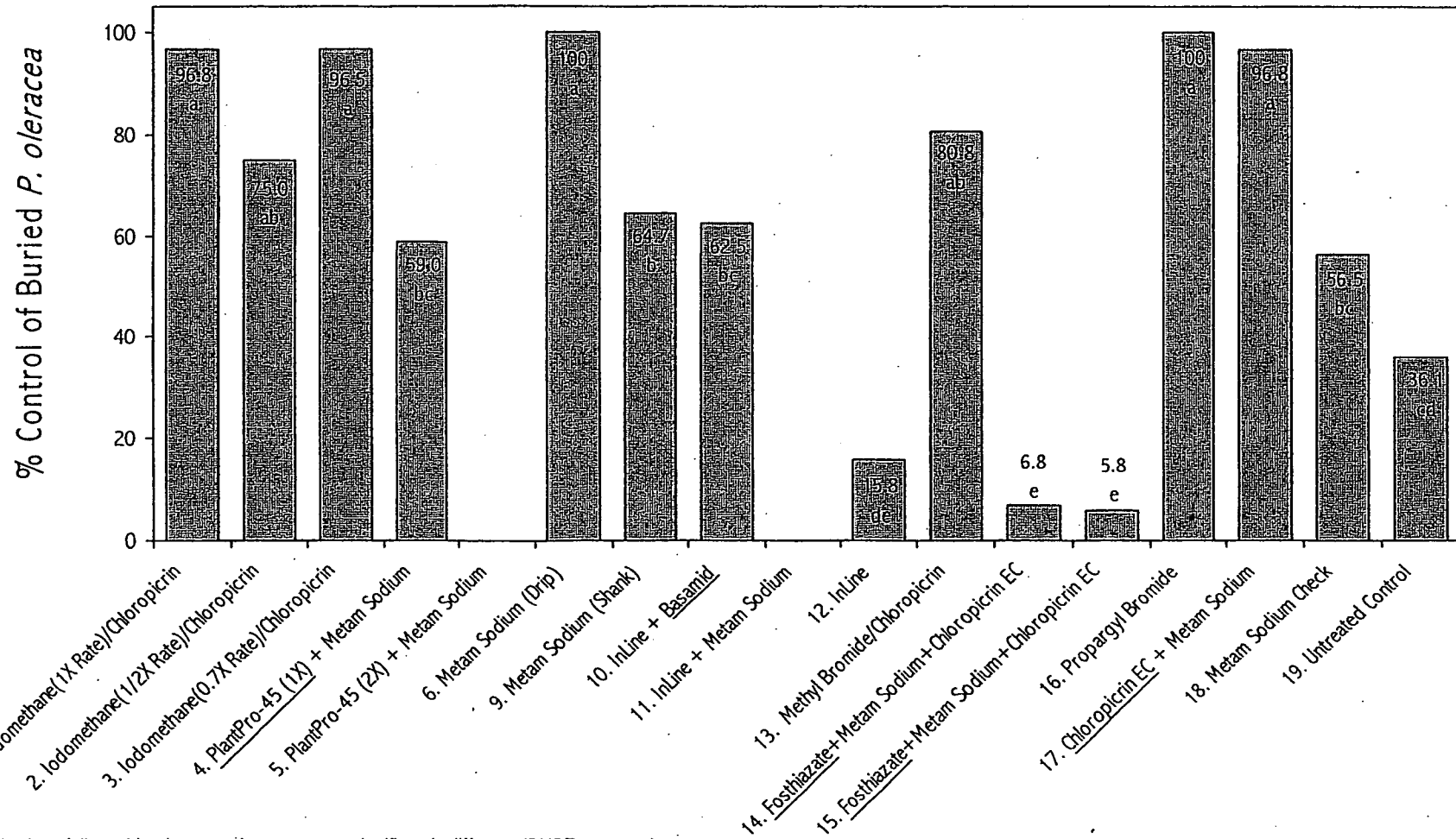
Figure 12. Control of Buried *P. annua* Seed¹
Tustin Trial, California



¹ Mean %control values followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

Note: For combination treatments (No's. 4,10,14,15, & 17), data reported are for the products which are underlined.

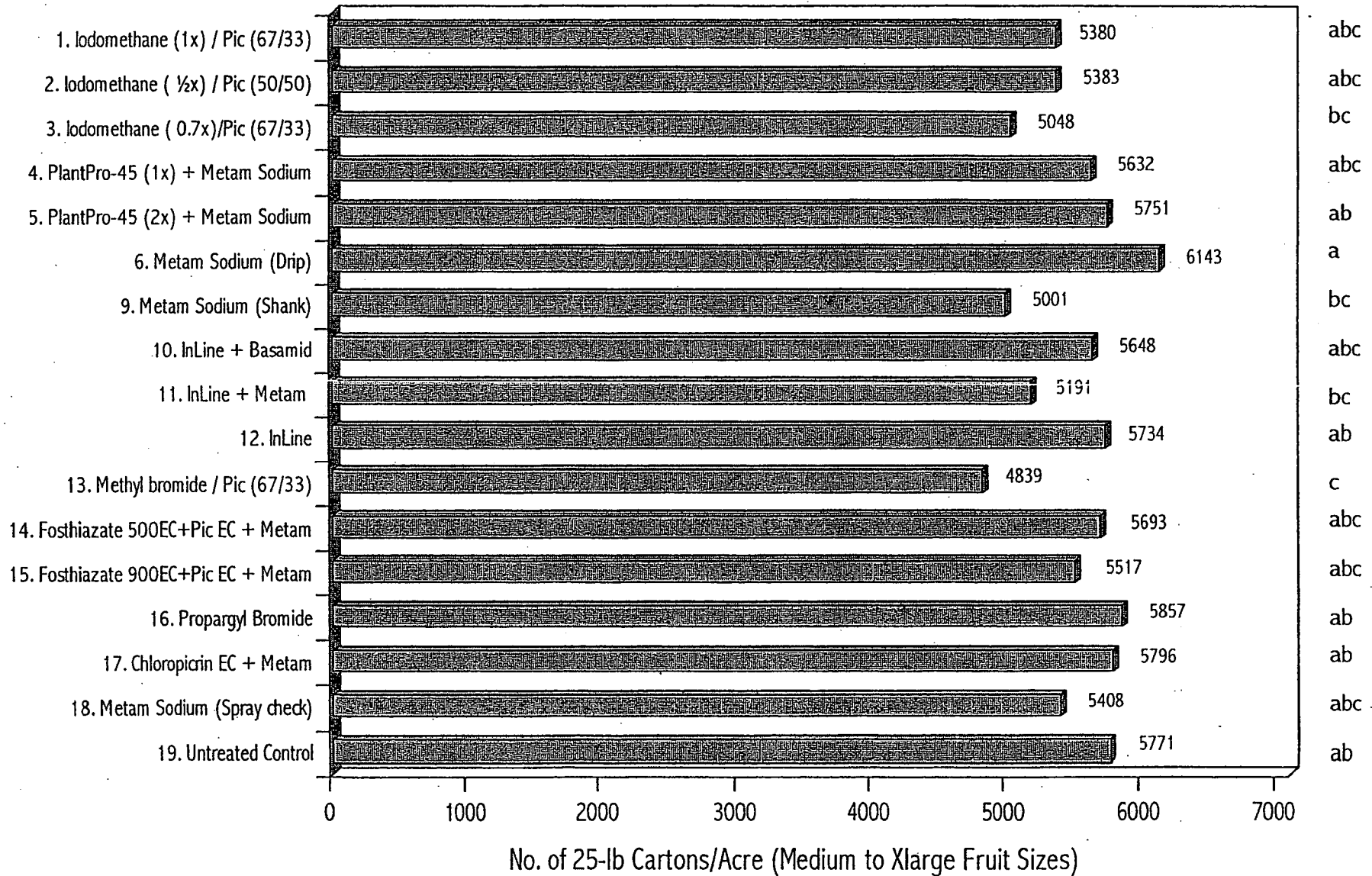
Figure 13. Control of Buried *P. oleracea* Seed¹
Tustin Trial, California



¹ Mean %control values followed by the same letter are not significantly different (DMRT, $p \leq 0.05$).

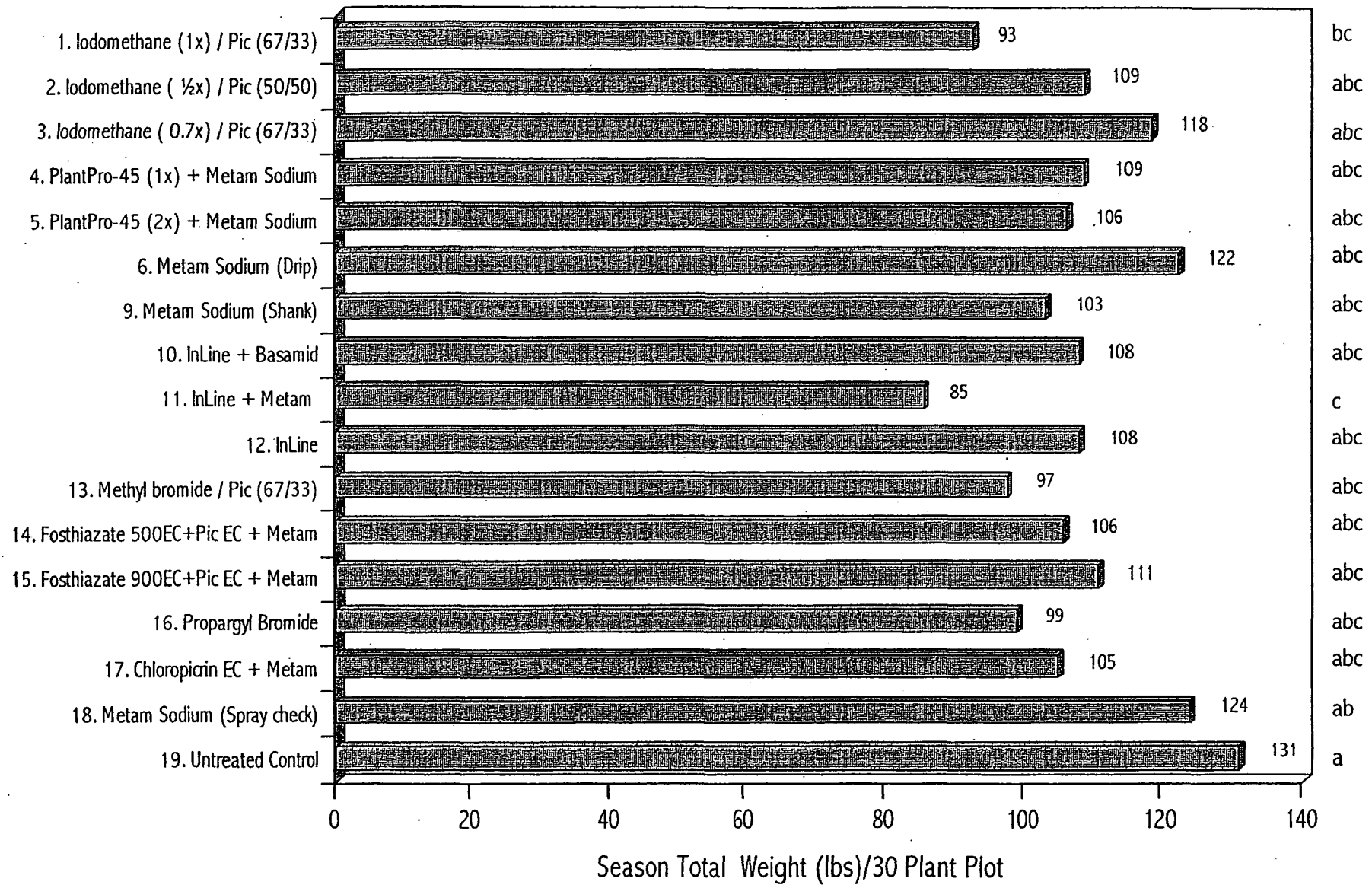
Note: For combination treatments (No's. 4, 10, 14, 15, & 17), data reported are for the products which are underlined.

**Figure 14. Marketable Tomato Yield¹
Tustin Trial, California**



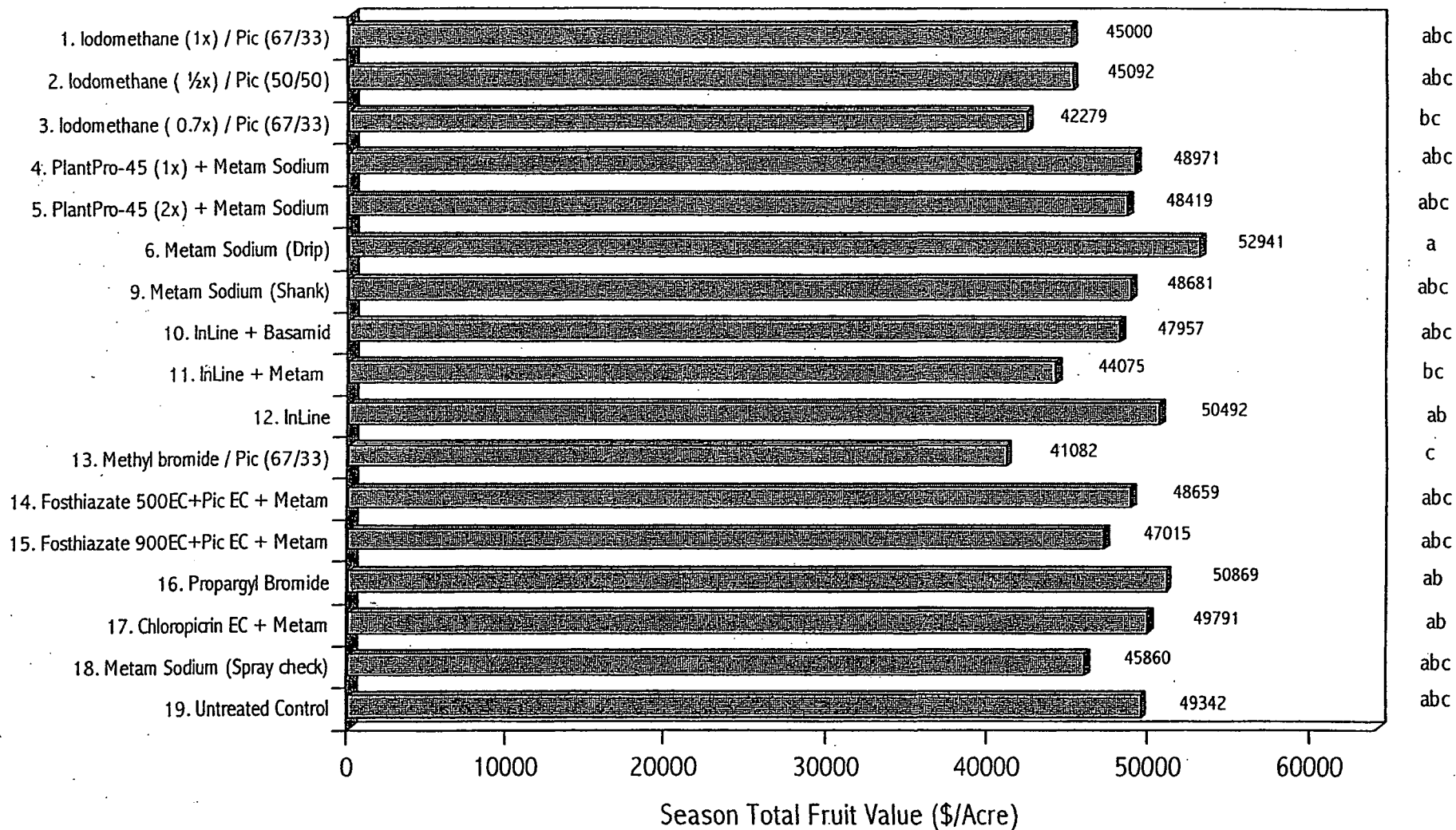
¹Mean yield values followed by the same letter are not significantly different (DMRT, $P \leq 0.05$).

**Figure 15. Cull Tomato Yield
Tustin Trial, California**



¹Mean yield values followed by the same letter are not significantly different (DMRT, P ≤ 0.05).

Figure 16. Marketable Tomato Value¹
Tustin Trial, California



¹Mean crop values followed by the same letter are not significantly different (DMRT, $P \leq 0.05$).

Appendix II

Statistical Analyses Printouts of Efficacy Evaluation Data (ANOVA, DMRT), Oceanside Trial

- A. Treatment Effects on Buried Fungal Pathogen (*Rhizoctonia solani*), Buried Citrus Nematode (*Tylenchulus semipenetrans*) and Buried Weed Seed Packets (*P. annua* and *P. oleracea*)

- B. Treatment Effects on:
 - Plant Height
 - Plant Vigor
 - Incidence of Low Vigor / Dead Tomato Plants

- C. Treatment Effects on Marketable and Cull Fruit Yield and Crop Value

Appendix II - A

Statistical Analyses Data Printouts: Oceanside Trial

Treatment Effects on Buried Fungal Pathogen (*Rhizoctonia solani*), Buried Citrus
Nematode (*Tylenchulus semipenetrans*) and Buried Weed Seed Packets
(*P. annua* and *P. oleracea*)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00	05/31/00

Trt Treatment

No. Name

16 Propargyl Bromide							97.3 a	100.0 a
17 <u>Chloropicrin EC + Metam Sodium</u>							45.0 b	52.5 b
18 Metam Sodium Spray Check	18.3 b	0.0 b	0.0 a	0.0 a	0.0 a	0.0 a		
19 Untreated Control	11.3 b	0.0 b	0.0 a	0.0 a	0.0 a	0.0 a	0.0 c	2.5 c
LSD (P=.05)	33.33	24.62	0.00	14.51	0.00	2.81	28.54	28.06
Standard Deviation	22.43	16.50	0.00	9.72	0.00	1.89	19.21	18.89
CV	120.1	385.01	0.0	544.49	0.0	529.15	51.93	85.3
Replicate F	0.236	0.944	0.000	0.944	0.000	1.000	1.702	0.868
Replicate Prob(F)	0.8704	0.4411	1.0000	0.4411	1.0000	0.4155	0.2023	0.4760
Treatment F	3.673	1.889	0.000	0.944	0.000	1.000	19.208	17.436
Treatment Prob(F)	0.0147	0.1413	1.0000	0.4897	1.0000	0.4552	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00	06/20/00	06/20/00

Trt Treatment

No. Name

1	Methyl Iodide (1X Rate)							
1	/Chloropicrin							
2	Methyl Iodide (1/2X Rate)							
2	/Chloropicrin							
3	Methyl Iodide (1/2X Rate)							
4	<u>PlantPro 45 (1X Rate)</u>	0.0 a	2.5 b	7.5 ab	7.0 a			
4	Metam Sodium							
5	PlantPro 45 (2X Rate)							
5	Metam Sodium							
6	Metam Sodium (Appl. Mthd #1, Drip)	0.0 a	0.0 b	0.0 b	0.0 a			
7	Metam Sodium							
7	Appl. Method #2, Spray/Incorporate							
8	Metam Sodium							
8	Appl. Method #2, Spray/Incorporate							
9	Metam Sodium							
9	Appl. Method #3, Shank Injected							
10	InLine(CA) or Telone C35 (FL)							
10	+ Basamid							
11	InLine(CA) or Telone C35 (FL)							
11	+ Metam Sodium							
12	InLine(CA) or Telone C35 (FL)	0.0 a	0.0 b	6.0 ab	6.3 a			
13	Methyl Bromide/Chloropicrin 67/33	0.0 a	0.0 b	0.0 b	0.0 a	5.0 a	0.0 a	0.0 a
14	<u>Fosthiazate 500 EC</u>					14.0 a	10.0 a	0.0 a
14	+ Metam Sodium							
14	+ Chloropicrin EC							
15	<u>Fosthiazate 900 EC</u>					5.0 a	0.0 a	0.0 a
15	+ Metam Sodium							
15	+ Chloropicrin EC							

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00	06/20/00	06/20/00

Trt Treatment

No. Name

16 Propargyl Bromide	25.0 a	6.7 a	23.3 a	19.5 a				
17 Chloropicrin EC + Metam Sodium	5.5 a	0.0 b	0.0 b	0.0 a				
18 Metam Sodium Spray Check								
19 Untreated Control	0.0 a	0.0 b	0.0 b	2.5 a	0.0 a	0.0 a	0.0 a	0.0 a
LSD (P=.05)	28.65	3.96	16.99	22.60	13.22	11.31	0.00	0.00
Standard Deviation	19.20	2.64	11.27	15.08	8.26	7.07	0.00	0.00
CV	440.71	201.95	214.26	298.67	137.72	282.84	0.0	0.0
Replicate F	1.442	1.418	0.239	1.898	1.033	1.000	0.000	0.000
Replicate Prob(F)	0.2656	0.2741	0.8678	0.1706	0.4235	0.4363	1.0000	1.0000
Treatment F	0.944	3.688	2.323	0.872	1.992	2.000	0.000	0.000
Treatment Prob(F)	0.4897	0.0171	0.0869	0.5364	0.1858	0.1846	1.0000	1.0000

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

16	Propargyl Bromide							
17	Chloropicrin EC + Metam Sodium							
18	Metam Sodium Spray Check							
19	Untreated Control	0.0 a	2.3 a	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
LSD (P=.05)		0.00	3.60	9.99	0.00	0.00	0.00	4.50
Standard Deviation		0.00	2.25	5.77	0.00	0.00	0.00	2.60
CV		0.0	400.0	346.41	0.0	0.0	0.0	346.41
Replicate F		0.000	1.000	1.000	0.000	0.000	0.000	1.000
Replicate Prob(F)		1.0000	0.4363	0.4547	1.0000	1.0000	1.0000	0.4547
Treatment F		0.000	1.000	1.000	0.000	0.000	0.000	1.000
Treatment Prob(F)		1.0000	0.4363	0.4219	1.0000	1.0000	1.0000	0.4219

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00	05/31/00

Trt No.	Treatment Name							
1	Methyl Iodide (1X Rate)	10.0	0.0	0.0	0.0	0.0	0.0	
1	/Chloropicrin	50.0	0.0	0.0	0.0	0.0	0.0	
		10.0	0.0	0.0	0.0	0.0	0.0	
		64.0	0.0	0.0	0.0	0.0	10.0	
	Mean =	33.5	0.0	0.0	0.0	0.0	2.5	
2	Methyl Iodide (1/2X Rate)	0.0	0.0	0.0	0.0	0.0	0.0	
2	/Chloropicrin	0.0	0.0	0.0	0.0	0.0	0.0	
		0.0	0.0	0.0	0.0	0.0	0.0	
		0.0	0.0	0.0	0.0	0.0	0.0	
	Mean =	0.0	0.0	0.0	0.0	0.0	0.0	
3	Methyl Iodide (1/2X Rate)							
	Mean =							
4	PlantPro 45 (1X Rate)						0.0	0.0
4	Metam Sodium						0.0	0.0
							0.0	0.0
	Mean =						0.0	0.0
5	PlantPro 45 (2X Rate)							
5	Metam Sodium							
	Mean =							
6	Metam Sodium (Appl. Mthd #1, Drip)						100.0	0.0
							64.0	0.0
							100.0	0.0
							100.0	0.0
	Mean =						91.0	0.0

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00	05/31/00

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	90.0	90.0	0.0	0.0	0.0	0.0
9 Appl. Method #3, Shank Injected	50.0	0.0	0.0	0.0	0.0	0.0
	50.0	0.0	0.0	0.0	0.0	0.0
	50.0	0.0	0.0	50.0	0.0	0.0

Mean = 60.0 30.0 0.0 12.5 0.0 0.0

10 InLine(CA) or Telone C35 (FL)	11.0	0.0	0.0	0.0	0.0	0.0
10 + Basamid	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0

Mean = 2.8 0.0 0.0 0.0 0.0 0.0

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)						0.0	0.0
						50.0	0.0
						33.0	0.0
						0.0	0.0

Mean = 20.8 0.0

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00	05/31/00

Trt No.	Treatment Name									
13	Methyl Bromide/Chloropicrin 67/33	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
		20.0	0.0	0.0	0.0	0.0	0.0	20.0		
		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
		Mean =	5.0	0.0	0.0	0.0	0.0	0.0	5.0	
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	.	.	.	.	.	.	.
		Mean =	.	.	.	.	.	.
		15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC
				Mean =
16	Propargyl Bromide								100.0	100.0
							89.0	100.0		
							100.0	100.0		
							100.0	100.0		
		Mean =						97.3	100.0	
17	Chloropicrin EC + Metam Sodium						0.0	100.0		
							50.0	10.0		
							100.0	90.0		
							30.0	10.0		
		Mean =						45.0	52.5	
18	Metam Sodium Spray Check	0.0	0.0	0.0	0.0	0.0	0.0			
		73.0	0.0	0.0		0.0	0.0			
		0.0	0.0	0.0	0.0	0.0	0.0			
		0.0	0.0	0.0	0.0		0.0			
		Mean =	18.3	0.0	0.0	0.0	0.0	0.0		

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00	05/31/00

Trt No.	Treatment Name							
19	Untreated Control	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0
		45.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	10.0
	Mean =	11.3	0.0	0.0	0.0	0.0	0.0	2.5

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00	06/20/00	06/20/00

Trt Treatment

No. Name

1 Methyl Iodide (1X Rate)
1 /Chloropicrin

Mean =

2 Methyl Iodide (1/2X Rate)
2 /Chloropicrin

Mean =

3 Methyl Iodide (1/2X Rate)

Mean =

4 PlantPro 45 (1X Rate)
4 Metam Sodium

	0.0	0.0	0.0	
	0.0	0.0	18.0	
	0.0	0.0	0.0	
	0.0	10.0	30.0	10.0

Mean = 0.0 2.5 7.5 7.0

5 PlantPro 45 (2X Rate)
5 Metam Sodium

Mean =

6 Metam Sodium (Appl. Mthd #1, Drip)

	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0

Mean = 0.0 0.0 0.0 0.0

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00	06/20/00	06/20/00

Trt Treatment

No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)	0.0	0.0	8.0	
	0.0	0.0		11.0
	0.0	0.0	0.0	0.0
	0.0	0.0	10.0	8.0
Mean =	0.0	0.0	6.0	6.3

05/02/01 (CAT01R)

Plot Data Summary Page 7 of 12

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00	06/20/00	06/20/00

Trt No.	Treatment Name	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
13	Methyl Bromide/Chloropicrin 67/33	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	20.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Mean =	0.0	0.0	0.0	0.0	5.0	0.0	0.0
14	Fosthiazate 500 EC					20.0	30.0	0.0
						27.0	0.0	0.0
						9.0	0.0	0.0
						0.0	10.0	0.0
		Mean =					14.0	10.0	0.0
15	Fosthiazate 900 EC					10.0	0.0	0.0
						0.0	0.0	0.0
						10.0	0.0	0.0
						0.0	0.0	0.0
		Mean =					5.0	0.0	0.0
16	Propargyl Bromide	0.0	0.0	20.0	0.0			
		0.0	10.0	50.0	78.0			
		100.0			0.0			
		0.0	10.0	0.0	0.0			
		Mean =	25.0	6.7	23.3	19.5		
17	Chloropicrin EC + Metam Sodium	0.0	0.0	0.0	0.0			
		0.0	0.0	0.0	0.0			
		22.0						
		0.0	0.0	0.0	0.0			
		Mean =	5.5	0.0	0.0	0.0		
18	Metam Sodium Spray Check							
		Mean =						

05/02/01 (CAT01R)

Plot Data Summary Page 8 of 12

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00	06/20/00	06/20/00

Trt Treatment

No. Name

19 Untreated Control	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mean =	0.0	0.0	0.0	2.5	0.0	0.0	0.0

05/02/01 (CAT01R)

Plot Data Summary Page 9 of 12

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

1 Methyl Iodide (1X Rate)

1 /Chloropicrin

Mean =

2 Methyl Iodide (1/2X Rate)

2 /Chloropicrin

Mean =

3 Methyl Iodide (1/2X Rate)

Mean =

4 PlantPro 45 (1X Rate)

4 Metam Sodium

0.0	0.0	0.0	0.0	0.0	9.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0

Mean =

0.0	0.0	0.0	0.0	0.0	2.3
-----	-----	-----	-----	-----	-----

5 PlantPro 45 (2X Rate)

5 Metam Sodium

Mean =

6 Metam Sodium (Appl. Mthd #1, Drip)

Mean =

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00

Trt No.	Treatment Name
---------	----------------

7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium
9	Appl. Method #3, Shank Injected

Mean =

10	InLine(CA) or Telone C35 (FL)
10	+ Basamid

Mean =

11	InLine(CA) or Telone C35 (FL)
11	+ Metam Sodium

Mean =

12	InLine(CA) or Telone C35 (FL)
----	-------------------------------

Mean =

05/02/01 (CAT01R)

Plot Data Summary Page 12 of 12

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

19	Untreated Control	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0
	Mean =	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00

Trt No.	Treatment Name
---------	----------------

1	Methyl iodide (1X Rate)	0.0 a	1.0 b	3.0 b	8.0 c	4.0 c	49.0 b
1	/Chloropicrin						
2	Methyl iodide (1/2X Rate)	164.0 a	298.0 b	71.0 b	62.0 bc	236.0 bc	146.0 b
2	/Chloropicrin						
3	Methyl iodide (1/2X Rate)	4.0 a	5.0 b	16.0 b	52.0 bc	214.0 bc	713.0 a
4	<u>PlantPro 45 (1X Rate)</u>						91.0 ab
4	Metam Sodium						
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)						20.0 b
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium	4.0 a	192.0 b	317.3 b	238.7 ab	568.0 a	117.3 b
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)	276.0 a	266.0 b	224.0 b	263.0 a	400.0 ab	373.0 ab
10	+ <u>Basamid</u>						
11	InLine(CA) or Telone C35 (FL)						
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)						2.0 b
13	Methyl Bromide/Chloropicrin 67/33	0.0 a	3.0 b	0.0 b	6.0 c	13.3 c	162.7 b
14	Fosthiazate 500 EC						
14	+ Metam Sodium						
14	+ Chloropicrin EC						
15	Fosthiazate 900 EC						
15	+ Metam Sodium						
15	+ Chloropicrin EC						

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00

Trt Treatment
No. Name

16 Propargyl Bromide							0.0 b
17 Chloropicrin EC + Metam Sodium							6.0 b
18 Metam Sodium Spray Check	52.0 a	1420.0 a	289.0 b	125.0 abc	279.0 abc	197.0 b	
19 Untreated Control	206.0 a	1030.0 a	307.0 a	218.0 ab	175.0 bc	221.3 b	336.0 a
LSD (P=.05)	284.30	616.61	476.72	181.78	293.17	421.92	245.79
Standard Deviation	192.74	416.63	323.19	123.24	198.09	284.00	164.74
CV	218.41	103.67	149.68	101.36	83.88	114.79	253.45
Replicate F	0.422	1.619	1.975	0.245	1.132	0.428	1.019
Replicate Prob(F)	0.7391	0.2181	0.1502	0.8636	0.3613	0.7352	0.4089
Treatment F	1.322	6.524	2.834	2.922	3.591	2.193	2.261
Treatment Prob(F)	0.2911	0.0005	0.0318	0.0281	0.0124	0.0851	0.0869

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt No.	Treatment Name
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1	Methyl Iodide (1X Rate)						
1	/Chloropicrin						
2	Methyl Iodide (1/2X Rate)						
2	/Chloropicrin						
3	Methyl Iodide (1/2X Rate)						
4	<u>PlantPro 45 (1X Rate)</u>	177.0 ab	242.0 b	287.0 a	376.0 a	250.0 a	
4	Metam Sodium						
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)	141.0 b	113.0 bc	282.0 a	386.0 a	178.0 a	
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium						
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)						
10	+ Basamid						
11	InLine(CA) or Telone C35 (FL)						
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)	1.0 b	79.0 bc	179.0 abc	285.3 a	113.3 a	
13	Methyl Bromide/Chloropicrin 67/33	3.0 b	0.0 c	6.0 c	13.3 a	162.7 a	0.0 b 3.0 a
14	<u>Fosthiazate 500 EC</u>						62.0 b 159.0 a
14	+ Metam Sodium						
14	+ Chloropicrin EC						
15	<u>Fosthiazate 900 EC</u>						163.0 a 96.0 a
15	+ Metam Sodium						
15	+ Chloropicrin EC						

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment

No. Name

16 Propargyl Bromide	12.0 b	18.0 c	23.0 bc	195.0 a	78.7 a		
17 <u>Chloropicrin EC</u> + Metam Sodium	44.0 b	128.0 bc	162.0 abc	208.0 a	83.0 a		
18 Metam Sodium Spray Check							
19 Untreated Control	338.0 a	481.0 a	206.7 ab	410.0 a	177.3 a	174.0 a	82.0 a
LSD (P=.05)	186.20	194.80	175.53	359.98	234.70	74.34	231.78
Standard Deviation	125.33	131.12	117.65	240.13	154.74	46.48	144.91
CV	122.53	86.51	71.88	89.71	103.85	46.59	170.48
Replicate F	0.821	1.123	3.616	2.391	2.499	2.508	1.677
Replicate Prob(F)	0.4991	0.3661	0.0348	0.1068	0.1021	0.1248	0.2407
Treatment F	4.003	6.391	3.658	1.385	0.629	12.894	0.783
Treatment Prob(F)	0.0101	0.0010	0.0162	0.2795	0.7049	0.0013	0.5328

Means followed by same letter do not significantly differ (P=.05, Durican's New-MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/20/00	06/20/00	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

1	Methyl iodide (1X Rate)						
1	/Chloropicrin						
2	Methyl iodide (1/2X Rate)						
2	/Chloropicrin						
3	Methyl iodide (1/2X Rate)						
4	<u>PlantPro 45 (1X Rate)</u>				204.0 a	136.0 a	87.0 a
4	Metam Sodium						
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)						
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium						
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)						
10	+ Basamid						
11	InLine(CA) or Telone C35 (FL)						
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)						
13	Methyl Bromide/Chloropicrin 67/33	0.0 a	6.0 b	13.3 a	162.7 a	0.0 b	3.0 a
14	<u>Fosthiazate 500 EC</u>	73.0 a	53.0 ab	40.0 a	102.0 a		
14	+ Metam Sodium						
14	+ Chloropicrin EC						
15	<u>Fosthiazate 900 EC</u>	101.0 a	82.0 a	36.0 a	69.0 a		
15	+ Metam Sodium						
15	+ Chloropicrin EC						

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/20/00	06/20/00	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00

Trt Treatment
No. Name

16 Propargyl Bromide							
17 Chloropicrin EC + Metam Sodium							
18 Metam Sodium Spray Check							
19 Untreated Control	95.0 a	73.0 ab	53.0 a	39.0 a	45.0 b	138.0 a	109.0 a
LSD (P=.05)	123.89	68.45	79.70	189.90	88.81	207.79	84.37
Standard Deviation	77.45	42.80	48.88	116.46	48.85	120.09	48.76
CV	115.17	79.99	137.36	125.0	58.86	130.06	74.63
Replicate F	1.090	1.034	0.127	0.404	0.623	0.552	2.131
Replicate Prob(F)	0.4021	0.4228	0.9415	0.7541	0.6300	0.6651	0.1976
Treatment F	1.437	2.511	0.457	0.828	19.252	1.660	5.590
Treatment Prob(F)	0.2954	0.1245	0.7200	0.5145	0.0045	0.2668	0.0426

Means followed by same letter do not significantly differ (P=.05, Durican's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

1	Methyl iodide (1X Rate)			
1	/Chloropicrin			
2	Methyl iodide (1/2X Rate)			
2	/Chloropicrin			
3	Methyl iodide (1/2X Rate)			
4	PlantPro 45 (1X Rate)	248.0 a	172.0 a	108.0 a
4	Metam Sodium			
5	PlantPro 45 (2X Rate)			
5	Metam Sodium			
6	Metam Sodium (Appl. Mthd #1, Drip)			
7	Metam Sodium			
7	Appl. Method #2, Spray/Incorporate			
8	Metam Sodium			
8	Appl. Method #2, Spray/Incorporate			
9	Metam Sodium			
9	Appl. Method #3, Shank Injected			
10	InLine(CA) or Telone C35 (FL)			
10	+ Basamid			
11	InLine(CA) or Telone C35 (FL)			
11	+ Metam Sodium			
12	InLine(CA) or Telone C35 (FL)			
13	Methyl Bromide/Chloropicrin 67/33	6.0 a	13.3 a	162.7 a
14	Fosthiazate 500 EC			
14	+ Metam Sodium			
14	+ Chloropicrin EC			
15	Fosthiazate 900 EC			
15	+ Metam Sodium			
15	+ Chloropicrin EC			

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/10/00	08/10/00	08/10/00

Trt Treatment
 No. Name

16 Propargyl Bromide

17 Chloropicrin EC + Metam Sodium

18 Metam Sodium Spray Check

19 Untreated Control	50.0 a	154.0 a	325.0 a
----------------------	--------	---------	---------

LSD (P=.05)	269.76	166.45	654.58
Standard Deviation	148.39	91.56	290.92
CV	146.43	80.94	146.52

Replicate F	0.926	0.449	0.093
Replicate Prob(F)	0.4927	0.7288	0.9591
Treatment F	3.019	3.602	0.602
Treatment Prob(F)	0.1381	0.1075	0.6028

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00

Trt No.	Treatment Name
---------	----------------

1	Methyl Iodide (1X Rate)	0.0	4.0	4.0	0.0	8.0	4.0
1	/Chloropicrin	0.0	0.0	0.0	4.0	0.0	188.0
		0.0	0.0	8.0	0.0	8.0	0.0
		0.0	0.0	0.0	28.0	0.0	4.0
	Mean =	0.0	1.0	3.0	8.0	4.0	49.0
2	Methyl Iodide (1/2X Rate)	4.0	0.0	4.0	0.0	16.0	76.0
2	/Chloropicrin	640.0	1104.0	120.0	120.0	484.0	164.0
		8.0	0.0	12.0	88.0	384.0	128.0
		4.0	88.0	148.0	40.0	60.0	216.0
	Mean =	164.0	298.0	71.0	62.0	236.0	146.0
3	Methyl Iodide (1/2X Rate)	16.0	0.0	16.0	56.0	56.0	1200.0
		0.0	4.0	0.0	24.0	176.0	364.0
		0.0	16.0	44.0	120.0	604.0	1280.0
		0.0	0.0	4.0	8.0	20.0	8.0
	Mean =	4.0	5.0	16.0	52.0	214.0	713.0
4	PlantPro 45 (1X Rate)						116.0
4	Metam Sodium						164.0
							4.0
							80.0
	Mean =						91.0
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
	Mean =						
6	Metam Sodium (Appl. Mthd #1, Drip)						0.0
							80.0
							0.0
							0.0
	Mean =						20.0

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00

Trt Treatment

No. Name

- 7 Metam Sodium
- 7 Appl. Method #2, Spray/Incorporate

Mean =

- 8 Metam Sodium
- 8 Appl. Method #2, Spray/Incorporate

Mean =

- 9 Metam Sodium
- 9 Appl. Method #3, Shank Injected

0.0	24.0	88.0	400.0	220.0	116.0
8.0	132.0	856.0	316.0	776.0	232.0
4.0	420.0	8.0	0.0	708.0	4.0

Mean = 4.0 192.0 317.3 238.7 568.0 117.3

- 10 InLine(CA) or Telone C35 (FL)
- 10 + Basamid

8.0	236.0	32.0	128.0	508.0	92.0
8.0	368.0	320.0	548.0	180.0	640.0
800.0	360.0	384.0	48.0	452.0	392.0
288.0	100.0	160.0	328.0	460.0	368.0

Mean = 276.0 266.0 224.0 263.0 400.0 373.0

- 11 InLine(CA) or Telone C35 (FL)
- 11 + Metam Sodium

Mean =

- 12 InLine(CA) or Telone C35 (FL)

0.0
0.0
4.0
4.0

Mean = 2.0

05/02/01 (CAT01N)

Plot Data Summary Page 3 of 16

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00

Trt No.	Treatment Name
---------	----------------

13	Methyl Bromide/Chloropicrin 67/33	0.0	0.0	0.0	4.0	8.0	68.0	0.0
		0.0	4.0	0.0	12.0	0.0	416.0	0.0
		0.0	8.0	0.0	8.0	32.0	4.0	0.0
		0.0	0.0	0.0	0.0			0.0
	Mean =	0.0	3.0	0.0	6.0	13.3	162.7	0.0

14	Fosthiazate 500 EC
14	+ Metam Sodium
14	+ Chloropicrin EC

Mean =

15	Fosthiazate 900 EC
15	+ Metam Sodium
15	+ Chloropicrin EC

Mean =

16	Propargyl Bromide
----	-------------------

0.0
0.0
0.0
0.0

Mean =

0.0

17	Chloropicrin EC + Metam Sodium
----	--------------------------------

4.0
4.0
8.0
8.0

Mean =

6.0

18	Metam Sodium Spray Check
----	--------------------------

60.0	1368.0	524.0	96.0	656.0	76.0
0.0		228.0	20.0	144.0	172.0
16.0	2228.0	344.0	200.0	152.0	156.0
132.0	664.0	60.0	184.0	164.0	384.0

Mean =

52.0	1420.0	289.0	125.0	279.0	197.0
------	--------	-------	-------	-------	-------

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/15/00	05/31/00

Trt Treatment

No. Name

19	Untreated Control	308.0	1136.0	1176.0	320.0	120.0	184.0	32.0
		176.0	928.0	204.0	108.0	200.0	320.0	
		320.0	2000.0	1800.0	312.0	356.0		48.0
		20.0	56.0	48.0	132.0	24.0	160.0	928.0
	Mean =	206.0	1030.0	807.0	218.0	175.0	221.3	336.0

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment
No. Name

- 1 Methyl iodide (1X Rate)
- 1 /Chloropicrin

Mean =

- 2 Methyl iodide (1/2X Rate)
- 2 /Chloropicrin

Mean =

- 3 Methyl iodide (1/2X Rate)

Mean =

4 PlantPro 45 (1X Rate)	68.0	324.0	264.0	600.0	80.0
4 Metam Sodium	376.0	36.0	448.0	244.0	140.0
	16.0	100.0	0.0	124.0	56.0
	248.0	508.0	436.0	536.0	724.0

Mean = 177.0 242.0 287.0 376.0 250.0

- 5 PlantPro 45 (2X Rate)
- 5 Metam Sodium

Mean =

6 Metam Sodium (Appl. Mthd #1, Drip)	100.0	140.0	456.0	396.0	204.0
	452.0	116.0	412.0	208.0	324.0
	12.0	52.0	104.0	36.0	20.0
	0.0	144.0	156.0	904.0	164.0

Mean = 141.0 113.0 282.0 386.0 178.0

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)	4.0	0.0	180.0	556.0	36.0
	0.0	96.0	356.0	200.0	76.0
	0.0	84.0	4.0		
	0.0	136.0	176.0	100.0	228.0
Mean =	1.0	79.0	179.0	285.3	113.3

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment

No. Name

13	Methyl Bromide/Chloropicrin 67/33	0.0	0.0	4.0	8.0	68.0	0.0	0.0
		4.0	0.0	12.0	0.0	416.0	0.0	4.0
		8.0	0.0	8.0	32.0	4.0	0.0	8.0
		0.0	0.0	0.0			0.0	0.0
	Mean =	3.0	0.0	6.0	13.3	162.7	0.0	3.0
14	Fosthiazate 500 EC						52.0	16.0
14	+ Metam Sodium						24.0	8.0
14	+ Chloropicrin EC						8.0	24.0
							164.0	588.0
	Mean =						62.0	159.0
15	Fosthiazate 900 EC						156.0	88.0
15	+ Metam Sodium						84.0	40.0
15	+ Chloropicrin EC						200.0	0.0
							212.0	256.0
	Mean =						163.0	96.0
16	Propargyl Bromide	12.0	8.0	20.0	60.0			
		0.0	0.0	8.0	4.0	16.0		
		0.0	16.0	0.0	0.0	8.0		
		36.0	48.0	64.0	716.0	212.0		
	Mean =	12.0	18.0	23.0	195.0	78.7		
17	Chloropicrin EC + Metam Sodium	60.0	344.0	296.0	524.0	80.0		
		0.0	72.0	56.0	216.0	56.0		
		28.0	0.0	96.0	44.0	68.0		
		88.0	96.0	200.0	48.0	128.0		
	Mean =	44.0	128.0	162.0	208.0	83.0		
18	Metam Sodium Spray Check							
	Mean =							

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	Nematode INT 12	Nematode INT 18	Nematode INT 24	Nematode INT 30	Nematode INT 36	Nematode INT 6	Nematode INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/31/00	05/31/00	05/31/00	05/31/00	05/31/00	06/20/00	06/20/00
Trt Treatment No. Name							
19 Untreated Control	188.0	344.0	180.0	680.0	96.0	100.0	96.0
	308.0	784.0		456.0	164.0	152.0	20.0
	600.0	300.0	48.0	252.0		232.0	160.0
	256.0	496.0	392.0	252.0	272.0	212.0	52.0
Mean =	338.0	481.0	206.7	410.0	177.3	174.0	82.0

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/20/00	06/20/00	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00

Trt Treatment
No. Name

- 1 Methyl iodide (1X Rate)
- 1 /Chloropicrin

Mean =

- 2 Methyl iodide (1/2X Rate)
- 2 /Chloropicrin

Mean =

- 3 Methyl iodide (1/2X Rate)

Mean =

- 4 PlantPro 45 (1X Rate)
- 4 Metam Sodium

284.0	228.0	60.0
112.0	24.0	60.0
	40.0	40.0
216.0	252.0	188.0

Mean =

204.0	136.0	87.0
-------	-------	------

- 5 PlantPro 45 (2X Rate)
- 5 Metam Sodium

Mean =

- 6 Metam Sodium (Appl. Mthd #1, Drip)

Mean =

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/20/00	06/20/00	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

- 7 Metam Sodium
- 7 Appl. Method #2, Spray/Incorporate

Mean =

- 8 Metam Sodium
- 8 Appl. Method #2, Spray/Incorporate

Mean =

- 9 Metam Sodium
- 9 Appl. Method #3, Shank Injected

Mean =

- 10 InLine(CA) or Telone C35 (FL)
- 10 + Basamid

Mean =

- 11 InLine(CA) or Telone C35 (FL)
- 11 + Metam Sodium

Mean =

- 12 InLine(CA) or Telone C35 (FL)

Mean =

05/02/01 (CAT01N)

Plot Data Summary Page 11 of 16

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/20/00	06/20/00	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00

Trt No.	Treatment Name	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
13	Methyl Bromide/Chloropicrin 67/33	0.0	4.0	8.0	68.0	0.0	0.0
		0.0	12.0	0.0	416.0	0.0	4.0
		0.0	8.0	32.0	4.0	0.0	8.0
		0.0	0.0			0.0	0.0
		Mean =	0.0	6.0	13.3	162.7	0.0	3.0
14	Fosthiazate 500 EC	56.0	44.0	4.0	92.0		
		92.0	52.0	148.0	108.0		
		108.0	16.0	8.0	44.0		
		36.0	100.0	0.0	164.0		
		Mean =	73.0	53.0	40.0	102.0	
15	Fosthiazate 900 EC	76.0	104.0	36.0	44.0		
		320.0	40.0	16.0	20.0		
		0.0	124.0	44.0	184.0		
		8.0	60.0	48.0	28.0		
		Mean =	101.0	82.0	36.0	69.0	
16	Propargyl Bromide						
		Mean =					
17	Chloropicrin EC + Metam Sodium						
		Mean =					
18	Metam Sodium Spray Check						
		Mean =					

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/20/00	06/20/00	06/20/00	06/20/00	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

19. Untreated Control	68.0	132.0	60.0	64.0	20.0	24.0	32.0
	88.0	16.0	20.0	40.0	40.0	40.0	64.0
	140.0	12.0	36.0	40.0	72.0	348.0	160.0
	84.0	132.0	96.0	12.0	48.0	140.0	180.0
Mean =	95.0	73.0	53.0	39.0	45.0	138.0	109.0

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/10/00	08/10/00	08/10/00

Trt No.	Treatment Name
1	Methyl iodide (1X Rate) /Chloropicrin
2	Methyl iodide (1/2X Rate) /Chloropicrin
3	Methyl iodide (1/2X Rate)
4	PlantPro 45 (1X Rate) Metam Sodium
5	PlantPro 45 (2X Rate) Metam Sodium
6	Metam Sodium (Appl. Mthd #1, Drip)

Mean =

Mean =

Mean =

4 PlantPro 45 (1X Rate)	96.0	56.0	144.0
4 Metam Sodium	64.0	284.0	
		68.0	
	584.0	280.0	72.0

Mean = 248.0 172.0 108.0

Mean =

Mean =

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/10/00	08/10/00	08/10/00

Trt Treatment

No. Name

7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
 9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
 10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
 11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)

Mean =

05/02/01 (CAT01N)

Plot Data Summary Page 15 of 16

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/10/00	08/10/00	08/10/00

Trt No.	Treatment Name	Nematode	Nematode	Nematode
13	Methyl Bromide/Chloropicrin 67/33	4.0	8.0	68.0
		12.0	0.0	416.0
		8.0	32.0	4.0
		0.0		
		Mean =	6.0	13.3	162.7
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC			
		Mean =	.	.
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC			
		Mean =	.	.
16	Propargyl Bromide			
		Mean =	.	.
17	Chloropicrin EC + Metam Sodium			
		Mean =	.	.
18	Metam Sodium Spray Check			
		Mean =	.	.

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/10/00	08/10/00	08/10/00

Trt Treatment
No. Name

19 Untreated Control	20.0	188.0	164.0
	52.0	176.0	80.0
	64.0	148.0	592.0
	64.0	104.0	464.0
Mean =	50.0	154.0	325.0

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt	Treatment
No.	Name

1	Methyl Iodide (1X Rate)	100.00	a	100.00	a
1	/Chloropicrin				
2	Methyl Iodide (1/2X Rate)	56.75	b	54.25	c
2	/Chloropicrin				
3	Methyl Iodide (1/2X Rate)	100.00	a	100.00	a
4	<u>PlantPro 45 (1X Rate)</u>	7.50	c	35.00	cd
4					
5	PlantPro 45 (2X Rate)				
5	Metam Sodium				
6	Metam Sodium (Appl. Mthd #1, Drip)	100.00	a	100.00	a
7	Metam Sodium				
7	Appl. Method #2, Spray/Incorporate				
8	Metam Sodium				
8	Appl. Method #2, Spray/Incorporate				
9	Metam Sodium	100.00	a	100.00	a
9	Appl. Method #3, Shank Injected				
10	InLine(CA) or Telone C35 (FL)	75.75	ab	10.00	d
10	+ <u>Basamid</u>				
11	InLine(CA) or Telone C35 (FL)				
11	+ Metam Sodium				
12	InLine(CA) or Telone C35 (FL)	100.00	a	90.00	ab
13	Methyl Bromide/Chloropicrin 67/33	100.00	a	100.00	a
14	<u>Fosthiazate 500 EC</u>	10.85	c	14.18	d
14	+ Metam Sodium				
14	+ Chloropicrin EC				
15	<u>Fosthiazate 900 EC</u>	6.65	c	9.15	d
15	+ Metam Sodium				
15	+ Chloropicrin EC				
16	Propargyl Bromide	100.00	a	100.00	a

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt	Treatment
No.	Name

17	<u>Chloropicrin EC + Metam Sodium</u>	69.18	ab	100.00	a
18	Metam Sodium Spray Check	100.00	a	61.00	bc
19	Untreated Control	14.65	c	20.77	d
LSD (P=.05)		28.475		29.610	
Standard Deviation		19.925		20.720	
CV		28.7		31.26	
Replicate F		0.515		0.463	
Replicate Prob(F)		0.6747		0.7098	
Treatment F		15.750		13.903	
Treatment Prob(F)		0.0001		0.0001	

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt Treatment

No. Name

1	Methyl iodide (1X Rate)	100.00	100.00
1	/Chloropicrin	100.00	100.00
		100.00	100.00
		100.00	100.00

Mean = 100.00 100.00

2	Methyl iodide (1/2X Rate)	100.00	100.00
2	/Chloropicrin	20.00	7.00
		100.00	100.00
		7.00	10.00

Mean = 56.75 54.25

3	Methyl iodide (1/2X Rate)	100.00	100.00
		100.00	100.00
		100.00	100.00
		100.00	100.00

Mean = 100.00 100.00

4	PlantPro 45 (1X Rate)	0.00	26.70
4		0.00	33.30
		30.00	36.70
		0.00	43.30

Mean = 7.50 35.00

5	PlantPro 45 (2X Rate)		
5	Metam Sodium		

Mean =

6	Metam Sodium (Appl. Mthd #1, Drip)	100.00	100.00
		100.00	100.00
		100.00	100.00
		100.00	100.00

Mean = 100.00 100.00

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt	Treatment
No.	Name

7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium
9	Appl. Method #3, Shank Injected

100.00	100.00
--------	--------

Mean =	100.00	100.00
--------	--------	--------

10	InLine(CA) or Telone C35 (FL)	100.00	10.00
10	+ Basamid	97.00	13.00
		93.00	7.00
		13.00	10.00

Mean =	75.75	10.00
--------	-------	-------

11	InLine(CA) or Telone C35 (FL)
11	+ Metam Sodium

Mean =

12	InLine(CA) or Telone C35 (FL)	100.00	60.00
		100.00	100.00
		100.00	100.00
		100.00	100.00

Mean =	100.00	90.00
--------	--------	-------

05/01/01 (CAT01Sm)

Plot Data Summary Page 3 of 4

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt No.	Treatment Name	B.Grass	Purslane
---------	----------------	---------	----------

13	Methyl Bromide/Chloropicrin 67/33	100.00	100.00
		100.00	100.00
		100.00	100.00
		100.00	100.00

Mean =	100.00	100.00
--------	--------	--------

14	Fosthiazate 500 EC	6.70	10.00
14	+ Metam Sodium	10.00	20.00
14	+ Chloropicrin EC	6.70	6.70
		20.00	20.00

Mean =	10.85	14.18
--------	-------	-------

15	Fosthiazate 900 EC	3.30	20.00
15	+ Metam Sodium	6.70	3.30
15	+ Chloropicrin EC	3.30	10.00
		13.30	3.30

Mean =	6.65	9.15
--------	------	------

16	Propargyl Bromide	100.00	100.00
		100.00	100.00
		100.00	100.00
		100.00	100.00

Mean =	100.00	100.00
--------	--------	--------

17	Chloropicrin EC + Metam Sodium	56.70	100.00
		80.00	100.00
		40.00	100.00
		100.00	100.00

Mean =	69.18	100.00
--------	-------	--------

18	Metam Sodium Spray Check	100.00	100.00
		100.00	100.00
		100.00	7.00
		100.00	37.00

Mean =	100.00	61.00
--------	--------	-------

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt Treatment

No. Name

19	Untreated Control	23.20	36.70
		22.10	31.00
		1.00	3.30
		12.30	12.10
Mean =		14.65	20.77

03/22/01 (CAT01Sm)

AOV Means Table Page 1 of 2

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment
No. Name

1	Methyl Iodide (1X Rate)	100.0	a	100.0	a		
1	/Chloropicrin						
2	Methyl Iodide (1/2X Rate)	56.8	b	54.3	b		
2	/Chloropicrin						
3	Methyl Iodide (1/2X Rate)	100.0	a	100.0	a		
4	<u>PlantPro 45 (1X Rate)</u>			7.50	c	35.00	b
4							
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)			100.00	a	100.00	a
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium	100.0	a	100.0	a		
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)	75.8	ab	10.0	c		
10	+ <u>Basamid</u>						
11	InLine(CA) or Telone C35 (FL)						
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)			100.00	a	90.00	a
13	Methyl Bromide/Chloropicrin 67/33	100.0	a	100.0	a	100.00	a
14	<u>Fosthiazate 500 EC</u>					10.85	b
14	+ Metam Sodium					14.18	b
14	+ Chloropicrin EC						
15	<u>Fosthiazate 900 EC</u>					6.65	b
15	+ Metam Sodium					9.15	b
15	+ Chloropicrin EC						

03/22/01 (CAT01Sm)

AOV Means Table Page 2 of 2

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment
No. Name

16 Propargyl Bromide			100.00 a	100.00 a		
17 <u>Chloropicrin EC</u> + Metam Sodium			69.18 b	100.00 a		
18 Metam Sodium Spray Check	100.0 a	61.0 ab				
19 Untreated Control	14.0 c	9.0 c	14.18 c	37.50 b	15.82 b	5.82 b
LSD (P=.05)	37.82	40.71	24.753	28.859	25.978	12.071
Standard Deviation	25.46	27.41	16.661	19.425	16.241	7.547
CV	31.5	41.04	23.76	24.17	48.73	23.37
Replicate F	1.002	0.650	0.196	0.161	1.032	0.530
Replicate Prob(F)	0.4146	0.5933	0.8975	0.9213	0.4237	0.6727
Treatment F	6.092	8.497	25.512	9.771	30.169	143.937
Treatment Prob(F)	0.0009	0.0001	0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment

No. Name

1	Methyl iodide (1X Rate)	100.0	100.0			
1	/Chloropicrin	100.0	100.0			
		100.0	100.0			
		100.0	100.0			
	Mean =	100.0	100.0			
2	Methyl iodide (1/2X Rate)	100.0	100.0			
2	/Chloropicrin	20.0	7.0			
		100.0	100.0			
		7.0	10.0			
	Mean =	56.8	54.3			
3	Methyl iodide (1/2X Rate)	100.0	100.0			
		100.0	100.0			
		100.0	100.0			
		100.0	100.0			
	Mean =	100.0	100.0			
4	PlantPro 45 (1X Rate)			0.00	26.70	
4				0.00	33.30	
				30.00	36.70	
				0.00	43.30	
	Mean =			7.50	35.00	
5	PlantPro 45 (2X Rate)					
5	Metam Sodium					
	Mean =					
6	Metam Sodium (Appl. Mthd #1, Drip)			100.00	100.00	
				100.00	100.00	
				100.00	100.00	
				100.00	100.00	
	Mean =			100.00	100.00	

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment

No. Name

7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
 9 Appl. Method #3, Shank Injected

100.0 100.0

Mean = 100.0 100.0

10 InLine(CA) or Telone C35 (FL) 100.0 10.0
 10 + Basamid 97.0 13.0
 93.0 7.0
 13.0 10.0

Mean = 75.8 10.0

11 InLine(CA) or Telone C35 (FL)
 11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL) 100.00 60.00
 100.00 100.00
 100.00 100.00
 100.00 100.00

Mean = 100.00 90.00

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt No.	Treatment Name	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
13	Methyl Bromide/Chloropicrin 67/33	100.0	100.0	100.00	100.00	100.00	100.00
		100.0	100.0	100.00	100.00	100.00	100.00
		100.0	100.0	100.00	100.00	100.00	100.00
		100.0	100.0	100.00	100.00	100.00	100.00
		Mean =	100.0	100.0	100.00	100.00	100.00
14	Fosthiazate 500 EC					6.70	10.00
						10.00	20.00
						6.70	6.70
						20.00	20.00
		Mean =					10.85	14.18
15	Fosthiazate 900 EC					3.30	20.00
						6.70	3.30
						3.30	10.00
						13.30	3.30
		Mean =					6.65	9.15
16	Propargyl Bromide			100.00	100.00		
				100.00	100.00		
				100.00	100.00		
				100.00	100.00		
		Mean =			100.00	100.00	
17	Chloropicrin EC + Metam Sodium			56.70	100.00		
				80.00	100.00		
				40.00	100.00		
				100.00	100.00		
		Mean =			69.18	100.00	
18	Metam Sodium Spray Check	100.0	100.0				
		100.0	100.0				
		100.0	7.0				
		100.0	37.0				
		Mean =	100.0	61.0			

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/15/00	05/15/00	05/31/00	05/31/00	06/20/00	06/20/00

Trt Treatment
No. Name

19	Untreated Control	13.0	10.0	56.70	100.00	0.00	0.00
		3.0	3.0	0.00	26.70	63.30	20.00
		3.0	10.0	0.00	0.00	0.00	0.00
		37.0	13.0	0.00	23.30	0.00	3.30
	Mean =	14.0	9.0	14.18	37.50	15.82	5.82

Appendix II - B

Statistical Analyses Data Printouts: Oceanside Trial

Treatment Effects on:

- Plant Height
- Plant Vigor
- Incidence of Low Vigor / Dead Tomato Plants

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	07/18/00	07/18/00	07/18/00	07/18/00	07/18/00	10/09/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2		

Trt No.	Treatment Name	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
1	Methyl Iodide (1X Rate)/Chloropicrin	17.83 a-d	2 ab	42 ab	5.35 ab	3.75 a-d	44.25 abc
2	Methyl Iodide (1/2X Rate)/Chloropicrin	16.33 cde	5 a	43 ab	11.20 a	3.50 bcd	40.50 a-d
3	Methyl Iodide (1/2X Rate)	16.22 de	3 ab	43 ab	6.41 ab	3.50 bcd	42.75 abc
4	PlantPro 45 (1X Rate) + Metam Sodium	16.62 cde	3 ab	42 ab	6.63 ab	3.25 cd	41.00 abc
5	PlantPro 45 (2X Rate) + Metam Sodium	16.15 e	3 ab	42 ab	5.85 ab	3.25 cd	36.17 d
6	Metam Sodium (Appl. Method #1, Drip)	18.26 ab	1 b	43 a	2.25 b	4.50 ab	42.63 abc
7	NA						
8	NA						
9	Metam Sodium (Appl. Method #3, Shank Injected)	17.62 a-e	2 ab	42 ab	5.36 ab	3.50 bcd	41.38 abc
10	InLine(CA) or Telone C35 (FL) + Basamid	17.46 a-e	4 ab	43 ab	8.76 ab	3.75 a-d	42.13 abc
11	InLine(CA) or Telone C35 (FL) + Metam Sodium	17.69 a-e	1 b	42 ab	2.91 b	4.50 ab	45.33 a
12	InLine(CA) or Telone C35 (FL)	18.42 ab	2 ab	42 ab	4.09 ab	4.00 a-d	40.13 bcd
13	Methyl Bromide/Chloropicrin 67/33	17.90 abc	2 ab	42 ab	4.22 ab	4.75 a	44.50 abc
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	17.56 a-e	2 ab	43 ab	5.32 ab	3.50 bcd	41.63 abc
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	16.99 a-e	3 ab	41 b	6.01 ab	3.25 cd	40.00 cd
16	Propargyl Bromide	18.56 a	1 b	42 ab	2.37 b	4.25 abc	45.13 ab
17	Chloropicrin EC + Metam Sodium	16.63 cde	3 ab	43 ab	7.03 ab	3.50 bcd	43.13 abc
18	Metam Sodium Spray Check	17.42 a-e	3 ab	43 ab	5.80 ab	3.75 a-d	44.00 abc
19	Untreated Control	16.87 b-e	5 a	43 ab	10.71 a	3.00 d	42.75 abc
LSD (P=.05)		1.380	2.6	1.5	6.348	0.941	4.255
Standard Deviation		0.966	1.8	1.1	4.442	0.659	2.978
CV		5.57	73.86	2.55	75.31	17.63	7.06

01/30/02 (CAT01P)

AOV Means Table Page 2 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	07/18/00	07/18/00	07/18/00	07/18/00	07/18/00	10/09/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2		

Trt Treatment
 No. Name

Replicate F	2.425	5.848	7.300	5.365	6.282	14.210
Replicate Prob(F)	0.0771	0.0017	0.0004	0.0029	0.0011	0.0001
Treatment F	2.512	1.347	1.048	1.309	2.339	2.358
Treatment Prob(F)	0.0071	0.2092	0.4271	0.2308	0.0120	0.0119

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Number	Total	Percent	Rating	Average
Rating Unit	Count	Count	Percent		Inch
Rating Date	10/09/00	10/09/00	10/09/00	10/09/00	
PRM Data Type			T2		T3
# Subsamples, Dec.			2		2

Trt Treatment
 No. Name

1	Methyl Iodide (1X Rate)/Chloropicrin	8.00 e	42.00 abc	19.08 e	3.00 ab	31.04 abc
2	Methyl Iodide (1/2X Rate)/Chloropicrin	12.25 cde	42.75 ab	28.60 cde	3.00 ab	28.42 cd
3	Methyl Iodide (1/2X Rate)	9.75 de	42.25 abc	22.98 de	3.50 ab	29.49 abc
4	PlantPro 45 (1X Rate) + Metam Sodium	9.25 e	42.00 abc	22.25 de	3.50 ab	28.81 bc
5	PlantPro 45 (2X Rate) + Metam Sodium	24.67 a	41.67 abc	59.43 a	1.33 c	26.05 d
6	Metam Sodium (Appl. Method #1, Drip)	13.00 b-e	42.00 abc	30.76 b-e	2.75 abc	30.44 abc
7	NA					
8	NA					
9	Metam Sodium (Appl. Method #3, Shank Injected)	8.25 e	43.00 ab	19.18 e	3.75 a	29.50 abc
10	InLine(CA) or Telone C35 (FL) + Basamid	11.75 cde	42.00 abc	27.86 cde	3.25 ab	29.79 abc
11	InLine(CA) or Telone C35 (FL) + Metam Sodium	16.33 bcd	42.67 ab	38.20 bcd	2.00 bc	31.54 ab
12	InLine(CA) or Telone C35 (FL)	19.00 ab	41.50 bc	45.76 b	1.25 c	29.27 abc
13	Methyl Bromide/Chloropicrin 67/33	10.50 de	40.75 c	25.61 de	3.25 ab	31.20 abc
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	14.75 b-e	42.25 abc	34.86 b-e	2.75 abc	29.59 abc
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	18.00 bc	42.50 ab	42.39 bc	2.00 bc	28.49 cd
16	Propargyl Bromide	13.00 b-e	41.50 bc	31.40 b-e	3.00 ab	31.84 a
17	Chloropicrin EC + Metam Sodium	12.75 b-e	43.00 ab	29.57 cde	2.75 abc	29.88 abc
18	Metam Sodium Spray Check	10.25 de	42.75 ab	23.96 de	3.50 ab	30.71 abc
19	Untreated Control	12.75 b-e	43.25 a	29.39 cde	2.00 bc	29.81 abc
LSD (P=.05)		5.788	1.454	13.747	1.317	2.361
Standard Deviation		4.050	1.017	9.620	0.922	1.652
CV		30.71	2.41	30.78	33.63	5.55

01/30/02 (CAT01P)

AOV Means Table Page 4 of 6

Plant Sciences, Inc.
Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Number	Total		Rating	Average
Rating Unit	Count	Count	Percent		Inch
Rating Date	10/09/00	10/09/00	10/09/00	10/09/00	
PRM Data Type			T2		T3
# Subsamples, Dec.			2		2

Trt	Treatment
No.	Name

Replicate F	4.397	4.904	4.215	3.080	13.417
Replicate Prob(F)	0.0084	0.0049	0.0103	0.0366	0.0001
Treatment F	4.555	1.646	4.709	2.743	2.846
Treatment Prob(F)	0.0001	0.0944	0.0001	0.0038	0.0028

Means followed by same letter do not significantly differ ($P=.05$, Duncan's New MRT)

01/30/02 (CAT01P)

AOV Means Table Page 5 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	1

Trt No.	Treatment Name	%LowVigor	Vigor
1	Methyl Iodide (1X Rate)/Chloropicrin	12.21 d	3.4 abc
2	Methyl Iodide (1/2X Rate)/Chloropicrin	19.90 bcd	3.3 abc
3	Methyl Iodide (1/2X Rate)	14.69 d	3.5 ab
4	PlantPro 45 (1X Rate) + Metam Sodium	14.44 d	3.4 abc
5	PlantPro 45 (2X Rate) + Metam Sodium	32.48 a	2.3 d
6	Metam Sodium (Appl. Method #1, Drip)	16.51 cd	3.6 a
7	NA		
8	NA		
9	Metam Sodium (Appl. Method #3, Shank Injected)	12.27 d	3.6 a
10	InLine(CA) or Telone C35 (FL) + Basamid	18.31 bcd	3.5 ab
11	InLine(CA) or Telone C35 (FL) + Metam Sodium	20.27 bcd	3.3 abc
12	InLine(CA) or Telone C35 (FL)	24.92 b	2.6 bcd
13	Methyl Bromide/Chloropicrin 67/33	14.92 d	4.0 a
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	20.09 bcd	3.1 a-d
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	24.20 bc	2.6 bcd
16	Propargyl Bromide	16.88 bcd	3.6 a
17	Chloropicrin EC + Metam Sodium	18.30 bcd	3.1 a-d
18	Metam Sodium Spray Check	14.88 d	3.6 a
19	Untreated Control	20.05 bcd	2.5 cd
LSD (P=.05)		7.188	0.80
Standard Deviation		5.030	0.56
CV		27.12	17.28

01/30/02 (CAT01P)

AOV Means Table Page 6 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	1

Trt	Treatment
No.	Name

Replicate F	5.000	2.651
Replicate Prob(F)	0.0044	0.0598
Treatment F	4.161	2.786
Treatment Prob(F)	0.0001	0.0034

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/30/02 (CAT01P)

Plot Data Summary Page 1 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	07/18/00	07/18/00	07/18/00	07/18/00	07/18/00	10/09/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2		
<hr/>						
Trt No.	Treatment Name					
1	Methyl iodide (1X Rate)/Chloropicrin	17.41	4	43	9.30	44.00
		18.84	2	42	4.76	49.00
		18.08	1	41	2.44	44.00
		17.00	2	41	4.88	40.00
	Mean =	17.83	2	42	5.35	44.25
2	Methyl iodide (1/2X Rate)/Chloropicrin	16.00	4	44	9.09	46.50
		16.64	2	42	4.76	39.50
		16.88	9	42	21.43	36.00
		15.80	4	42	9.52	40.00
	Mean =	16.33	5	43	11.20	40.50
3	Methyl iodide (1/2X Rate)	16.36	6	43	13.95	38.00
		15.36	0	43	0.00	53.00
		15.88	3	42	7.14	38.00
		17.28	2	44	4.55	42.00
	Mean =	16.22	3	43	6.41	42.75
4	PlantPro 45 (1X Rate) + Metam Sodium	16.64	3	42	7.14	43.00
		18.96	1	42	2.38	46.00
		15.04	3	43	6.98	38.00
		15.84	4	40	10.00	37.00
	Mean =	16.62	3	42	6.63	41.00
5	PlantPro 45 (2X Rate) + Metam Sodium	15.48	4	44	9.09	37.00
		16.48	2	40	5.00	40.00
		15.84	1	40	2.50	31.50
		16.80	3	44	6.82	3.00
	Mean =	16.15	3	42	5.85	36.17
6	Metam Sodium (Appl. Method #1, Drip)	18.84	2	44	4.55	41.50
		18.72	0	42	0.00	46.00
		19.20	0	42	0.00	43.00
		16.28	2	45	4.44	40.00
	Mean =	18.26	1	43	2.25	42.63

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total		Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	07/18/00	07/18/00	07/18/00	07/18/00	07/18/00	10/09/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2		

Trt Treatment
 No. Name

7 NA

Mean =

8 NA

Mean =

9 Metam Sodium (Appl. Method #3, Shank Injected)	16.04	5	42	11.90	4.00	38.00
	18.68	0	42	0.00	2.00	48.00
	17.68	2	41	4.88	4.00	37.50
	18.08	2	43	4.65	4.00	42.00
Mean =	17.62	2	42	5.36	3.50	41.38

10 InLine(CA) or Telone C35 (FL) + Basamid	16.04	8	43	18.60	3.00	39.50
	19.08	2	43	4.65	4.00	43.00
	17.28	3	42	7.14	4.00	44.00
	17.44	2	43	4.65	4.00	42.00
Mean =	17.46	4	43	8.76	3.75	42.13

11 InLine(CA) or Telone C35 (FL) + Metam Sodium	17.44	3	43	6.98	5.00	49.00
	17.84	0	41	0.00	4.00	45.00
	17.96	0	41	0.00	5.00	42.00
	17.52	2	43	4.65	4.00	
Mean =	17.69	1	42	2.91	4.50	45.33

12 InLine(CA) or Telone C35 (FL)	18.46	4	42	9.52	5.00	42.50
	19.36	0	42	0.00	4.00	43.00
	18.00	0	40	0.00	3.00	37.00
	17.84	3	44	6.82	4.00	38.00
Mean =	18.42	2	42	4.09	4.00	40.13

01/30/02 (CAT01P)

Plot Data Summary Page 3 of 12

Plant Sciences, Inc.
Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	07/18/00	07/18/00	07/18/00	07/18/00	07/18/00	10/09/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2		

Trt Treatment
 No. Name

13	Methyl Bromide/Chloropicrin 67/33	18.04	3	42	7.14	5.00	48.50
		18.96	0	41	0.00	5.00	47.00
		17.20	0	42	0.00	4.00	39.00
		17.40	4	41	9.76	5.00	43.50
		Mean =	17.90	2	42	4.22	4.75	44.50
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	15.52	6	41	14.63	3.00	43.00
		19.44	0	42	0.00	3.00	44.50
		17.64	0	43	0.00	4.00	40.00
		17.64	3	45	6.67	4.00	39.00
		Mean =	17.56	2	43	5.32	3.50	41.63
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	18.04	4	42	9.52	4.00	40.00
		15.52	4	41	9.76	2.00	39.00
		17.92	0	40	0.00	4.00	41.00
		16.48	2	42	4.76	3.00	40.00
		Mean =	16.99	3	41	6.01	3.25	40.00
16	Propargyl Bromide	18.84	1	43	2.33	5.00	49.00
		18.64	0	41	0.00	3.00	47.50
		19.24	0	42	0.00	5.00	40.00
		17.52	3	42	7.14	4.00	44.00
		Mean =	18.56	1	42	2.37	4.25	45.13
17	Chloropicrin EC + Metam Sodium	16.39	2	43	4.65	4.00	44.00
		15.80	7	42	16.67	2.00	47.50
		18.08	0	41	0.00	4.00	42.00
		16.24	3	44	6.82	4.00	39.00
		Mean =	16.63	3	43	7.03	3.50	43.13
18	Metam Sodium Spray Check	17.24	4	44	9.09	4.00	46.50
		18.36	3	43	6.98	3.00	50.00
		17.24	1	42	2.38	4.00	41.50
		16.84	2	42	4.76	4.00	38.00
		Mean =	17.42	3	43	5.80	3.75	44.00

01/30/02 (CAT01P)

Plot Data Summary Page 4 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total		Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	07/18/00	07/18/00	07/18/00	07/18/00	07/18/00	10/09/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2		
<hr/>						
Trt Treatment						
No. Name						
19 Untreated Control	17.08	4	42	9.52	4.00	42.50
	15.72	8	41	19.51	2.00	47.50
	17.40	3	42	7.14	2.00	38.00
	17.28	3	45	6.67	4.00	43.00
Mean =	16.87	5	43	10.71	3.00	42.75

01/30/02 (CAT01P)

Plot Data Summary Page 5 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight	%LowVigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Number	Total		Rating	Average	Average
Rating Unit	Count	Count	Percent		Inch	Percent
Rating Date	10/09/00	10/09/00	10/09/00	10/09/00		
PRM Data Type			T2		T3	T4
# Subsamples, Dec.			2		2	2

Trt No.	Treatment Name	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight	%LowVigor
1	Methyl iodide (1X Rate)/Chloropicrin	9.00	44.00	20.45	3.00	30.70	14.88
		4.00	42.00	9.52	4.00	33.92	7.14
		9.00	41.00	21.95	3.00	31.04	12.20
		10.00	41.00	24.39	2.00	28.50	14.64
	Mean =	8.00	42.00	19.08	3.00	31.04	12.21
2	Methyl iodide (1/2X Rate)/Chloropicrin	17.00	44.00	38.64	4.00	31.25	23.86
		13.00	42.00	30.95	2.00	28.07	17.86
		11.00	42.00	26.19	2.00	26.44	23.81
		8.00	43.00	18.60	4.00	27.90	14.06
	Mean =	12.25	42.75	28.60	3.00	28.42	19.90
3	Methyl iodide (1/2X Rate)	17.00	43.00	39.53	2.00	27.18	26.74
		4.00	42.00	9.52	4.00	34.18	4.76
		12.00	42.00	28.57	3.00	26.94	17.86
		6.00	42.00	14.29	5.00	29.64	9.42
	Mean =	9.75	42.25	22.98	3.50	29.49	14.69
4	PlantPro 45 (1X Rate) + Metam Sodium	5.00	42.00	11.90	5.00	29.82	9.52
		9.00	42.00	21.43	4.00	32.48	11.90
		8.00	44.00	18.18	3.00	26.52	12.58
		15.00	40.00	37.50	2.00	26.42	23.75
	Mean =	9.25	42.00	22.25	3.50	28.81	14.44
5	PlantPro 45 (2X Rate) + Metam Sodium	20.00	42.00	47.62	1.00	26.24	28.35
		18.00	42.00	42.86	2.00	28.24	23.93
		36.00	41.00	87.80	1.00	23.67	45.15
	Mean =	24.67	41.67	59.43	1.33	26.05	32.48
6	Metam Sodium (Appl. Method #1, Drip)	20.00	43.00	46.51	2.00	30.17	25.53
		6.00	41.00	14.63	4.00	32.36	7.32
		12.00	42.00	28.57	2.00	31.10	14.29
		14.00	42.00	33.33	3.00	28.14	18.89
	Mean =	13.00	42.00	30.76	2.75	30.44	16.51

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt.	%LowVigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Number	Total		Rating	Average	Average
Rating Unit	Count	Count	Percent		Inch	Percent
Rating Date	10/09/00	10/09/00	10/09/00	10/09/00		
PRM Data Type			T2		T3	T4
# Subsamples, Dec.			2		2	2

Trt Treatment
 No. Name

7	NA					
			Mean =			
8	NA					
			Mean =			
9	Metam Sodium (Appl. Method #3, Shank Injected)	9.00	44.00	20.45	4.00	27.02
		9.00	42.00	21.43	3.00	33.34
		8.00	44.00	18.18	4.00	27.59
		7.00	42.00	16.67	4.00	30.04
		Mean =	8.25	43.00	19.18	3.75
					29.50	12.27
10	InLine(CA) or Telone C35 (FL) + Basamid	14.00	44.00	31.82	3.00	27.77
		14.00	43.00	32.56	3.00	31.04
		9.00	42.00	21.43	4.00	30.64
		10.00	39.00	25.64	3.00	29.72
		Mean =	11.75	42.00	27.86	3.25
					29.79	18.31
11	InLine(CA) or Telone C35 (FL) + Metam Sodium	19.00	44.00	43.18	2.00	33.22
		12.00	42.00	28.57	3.00	31.42
		18.00	42.00	42.86	1.00	29.98
		Mean =	16.33	42.67	38.20	2.00
					31.54	20.27
12	InLine(CA) or Telone C35 (FL)	16.00	41.00	39.02	1.00	30.48
		20.00	41.00	48.78	1.00	31.18
		21.00	42.00	50.00	1.00	27.50
		19.00	42.00	45.24	2.00	27.92
		Mean =	19.00	41.50	45.76	1.25
					29.27	24.92

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight	%LowVigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Number	Total	Percent	Rating	Average	Average
Rating Unit	Count	Count	Percent		Inch	Percent
Rating Date	10/09/00	10/09/00	10/09/00	10/09/00		
PRM Data Type			T2		T3	T4
# Subsamples, Dec.			2		2	2

Trt	Treatment
No.	Name

13	Methyl Bromide/Chloropicrin 67/33	10.00	42.00	23.81	4.00	33.27	15.47
		5.00	40.00	12.50	4.00	32.98	6.25
		17.00	42.00	40.48	2.00	28.10	20.24
		10.00	39.00	25.64	3.00	30.45	17.70
	Mean =	10.50	40.75	25.61	3.25	31.20	14.92
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	12.00	42.00	28.57	5.00	29.26	21.60
		16.00	42.00	38.10	2.00	31.97	19.05
		12.00	42.00	28.57	2.00	28.82	14.29
		19.00	43.00	44.19	2.00	28.32	25.43
	Mean =	14.75	42.25	34.86	2.75	29.59	20.09
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	13.00	42.00	30.95	3.00	29.02	20.24
		16.00	43.00	37.21	2.00	27.26	23.48
		25.00	42.00	59.52	1.00	29.46	29.76
		18.00	43.00	41.86	2.00	28.24	23.31
	Mean =	18.00	42.50	42.39	2.00	28.49	24.20
16	Propargyl Bromide	12.00	42.00	28.57	4.00	33.92	15.45
		11.00	42.00	26.19	3.00	33.07	13.10
		14.00	42.00	33.33	2.00	29.62	16.67
		15.00	40.00	37.50	3.00	30.76	22.32
	Mean =	13.00	41.50	31.40	3.00	31.84	16.88
17	Chloropicrin EC + Metam Sodium	15.00	44.00	34.09	3.00	30.19	19.37
		7.00	42.00	16.67	3.00	31.65	16.67
		14.00	44.00	31.82	3.00	30.04	15.91
		15.00	42.00	35.71	2.00	27.62	21.27
	Mean =	12.75	43.00	29.57	2.75	29.88	18.30
18	Metam Sodium Spray Check	13.00	44.00	29.55	3.00	31.87	19.32
		4.00	42.00	9.52	5.00	34.18	8.25
		17.00	42.00	40.48	2.00	29.37	21.43
		7.00	43.00	16.28	4.00	27.42	10.52
	Mean =	10.25	42.75	23.96	3.50	30.71	14.88

01/30/02 (CAT01P)

Plot Data Summary Page 8 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt	%LowVigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Number	Total	Percent	Rating	Average	Average
Rating Unit	Count	Count	Percent	Inch	Inch	Percent
Rating Date	10/09/00	10/09/00	10/09/00	10/09/00		
PRM Data Type			T2		T3	T4
# Subsamples, Dec.			2		2	2

Trt No.	Treatment Name	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt	%LowVigor
19	Untreated Control	13.00	43.00	30.23	1.00	29.79	19.88
		9.00	42.00	21.43	3.00	31.61	20.47
		18.00	44.00	40.91	1.00	27.70	24.02
		11.00	44.00	25.00	3.00	30.14	15.84
Mean =		12.75	43.25	29.39	2.00	29.81	20.05

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Vigor
Crop Code	Tomato
Rating Data Type	Average
Rating Unit	Rating
Rating Date	
PRM Data Type	T5
# Subsamples, Dec.	1

Trt	Treatment
No.	Name

1	Methyl Iodide (1X Rate)/Chloropicrin	3.5
		3.5
		3.5
		3.0
	Mean =	3.4
2	Methyl Iodide (1/2X Rate)/Chloropicrin	4.0
		2.5
		3.0
		3.5
	Mean =	3.3
3	Methyl Iodide (1/2X Rate)	3.0
		3.5
		3.5
		4.0
	Mean =	3.5
4	PlantPro 45 (1X Rate) + Metam Sodium	4.5
		4.0
		2.5
		2.5
	Mean =	3.4
5	PlantPro 45 (2X Rate) + Metam Sodium	2.0
		2.5
		2.5
	Mean =	2.3
6	Metam Sodium (Appl. Method #1, Drip)	3.5
		4.0
		3.5
		3.5
	Mean =	3.6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Vigor
Crop Code	Tomato
Rating Data Type	Average
Rating Unit	Rating
Rating Date	
PRM Data Type	T5
# Subsamples, Dec.	1

Trt	Treatment
No.	Name

7 NA

Mean =

8 NA

Mean =

9	Metam Sodium (Appl. Method #3, Shank Injected)	4.0
		2.5
		4.0
		4.0

Mean = 3.6

10	InLine(CA) or Telone C35 (FL) + Basamid	3.0
		3.5
		4.0
		3.5

Mean = 3.5

11	InLine(CA) or Telone C35 (FL) + Metam Sodium	3.5
		3.5
		3.0

Mean = 3.3

12	InLine(CA) or Telone C35 (FL)	3.0
		2.5
		2.0
		3.0

Mean = 2.6

Plant Sciences, Inc.
Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Vigor
Crop Code	Tomato
Rating Data Type	Average
Rating Unit	Rating
Rating Date	
PRM Data Type	T5
# Subsamples, Dec.	1

Trt Treatment
 No. Name

13	Methyl Bromide/Chloropicrin 67/33	4.5
		4.5
		3.0
		4.0
	Mean =	4.0
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	4.0
		2.5
		3.0
		3.0
	Mean =	3.1
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	3.5
		2.0
		2.5
		2.5
	Mean =	2.6
16	Propargyl Bromide	4.5
		3.0
		3.5
		3.5
	Mean =	3.6
17	Chloropicrin EC + Metam Sodium	3.5
		2.5
		3.5
		3.0
	Mean =	3.1
18	Metam Sodium Spray Check	3.5
		4.0
		3.0
		4.0
	Mean =	3.6

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Plant Sciences, Inc.
Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Vigor
Crop Code	Tomato
Rating Data Type	Average
Rating Unit	Rating
Rating Date	
PRM Data Type	T5
# Subsamples, Dec.	1

Trt	Treatment	
No.	Name	
19	Untreated Control	2.5
		2.5
		1.5
		3.5
	Mean =	2.5

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Prepped by Keeia Richards

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A-2000-24

Appendix II - C

Statistical Analyses Data Printouts: Oceanside Trial

Treatment Effects on Marketable and Cull Fruit Yield and Crop Value

01/15/02 (CAT01H)

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Plants	Small	Small	Small	Medium	Medium	Medium
Rating Data Type	Count	Count	Weight	Size	Count	Weight	Size
Rating Unit	Number	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval		to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							
# Subsamples, Dec.	0	0	1		0	1	

Trt Treatment
No. Name

15 Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	43 ab	257 b	42.6 c	0.16 a	249 c	64.1 c	0.26 b
16 Propargyl Bromide	42 bc	393 a	64.1 ab	0.16 a	288 abc	74.6 abc	0.26 b
17 Chloropicrin EC + Metam Sodium	43 ab	321 ab	52.8 abc	0.16 a	231 c	66.3 bc	0.35 a
18 Metam Sodium Spray Check	43 ab	389 a	65.8 ab	0.16 a	284 abc	83.4 ab	0.26 b
19 Untreated Control	43 a	429 a	62.9 ab	0.16 a	290 abc	74.0 abc	0.26 b
LSD (P=.05)	1.4	106.0	13.76	0.015	66.7	15.07	0.071
Standard Deviation	1.0	74.2	9.63	0.011	46.7	10.55	0.049
CV	2.34	20.97	16.65	6.61	16.59	14.33	18.67
Replicate F	5.685	8.746	9.565	4.868	3.803	6.383	0.447
Replicate Prob(F)	0.0021	0.0001	0.0001	0.0049	0.0159	0.0010	0.7205
Treatment F	1.768	1.485	1.916	0.354	1.780	2.241	0.898
Treatment Prob(F)	0.0652	0.1451	0.0422	0.9870	0.0629	0.0160	0.5752

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Large	Xlarge	Xlarge	Xlarge	Total
Rating Data Type	Count	Weight	Size	Count	Weight	Size	Count
Rating Unit	Number	LBs	LBs	Number	LBs	LBs	Number
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							T1
# Subsamples, Dec.	0	1		0	1		0

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
1	Methyl iodide (1X Rate) 1 /Chloropicrin	328 ab	94.6 abc	0.34 b	671 ab	298.9 a	0.49 abc	1741 ab
2	Methyl iodide (1/2X Rate) 2 /Chloropicrin	312 a-d	97.3 ab	0.35 b	702 ab	325.0 a	0.50 abc	1783 a
3	Methyl iodide (1/2X Rate)	343 a	103.4 a	0.35 b	612 ab	290.8 a	0.49 abc	1593 a-d
4	PlantPro 45 (1X Rate) 4 Metam Sodium	277 cde	89.8 a-d	0.35 b	653 ab	310.6 a	0.48 abc	1574 a-d
5	PlantPro 45 (2X Rate) 5 Metam Sodium	264 de	78.7 cd	0.35 b	584 b	272.0 a	0.47 c	1489 bcd
6	Metam Sodium (Appl. Mthd #1, Drip)	262 de	79.8 bcd	0.34 b	643 ab	306.8 a	0.50 abc	1559 a-d
7	Metam Sodium 7 Appl. Method #2, Spray/Incorporate							
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate							
9	Metam Sodium 9 Appl. Method #3, Shank Injected	286 bcd	88.3 a-d	0.34 b	660 ab	310.4 a	0.49 abc	1560 a-d
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	277 cde	86.2 a-d	0.35 b	646 ab	339.3 a	0.53 ab	1554 a-d
11	InLine(CA) or Telone C35 (FL) 11: + Metam Sodium	269 cde	78.3 cd	0.33 b	661 ab	322.1 a	0.49 abc	1510 a-d
12	InLine(CA) or Telone C35 (FL)	275 cde	78.0 cd	0.36 ab	589 b	280.5 a	0.50 abc	1431 cd
13	Methyl Bromide/Chloropicrin 67/33	266 de	79.1 cd	0.34 b	664 ab	308.6 a	0.54 a	1543 a-d
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	284 bcd	86.5 a-d	0.34 b	700 ab	333.4 a	0.50 abc	1561 a-d

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Large	Xlarge	Xlarge	Xlarge	Total
Rating Data Type	Count	Weight	Size	Count	Weight	Size	Count
Rating Unit	Number	LBs	LBs	Number	LBs	LBs	Number
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							T1
# Subsamples, Dec.	0	1		0	1		0

Trt Treatment
No. Name

15 Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	231 e	71.7 d	0.40 a	635 ab	301.0 a	0.51 abc	1373 d
16 Propargyl Bromide	287 bcd	89.1 a-d	0.34 b	667 ab	312.9 a	0.53 ab	1635 a-d
17 Chloropicrin EC + Metam Sodium	267 de	84.8 bcd	0.37 ab	622 ab	299.0 a	0.51 abc	1440 cd
18 Metam Sodium Spray Check	318 abc	91.9 abc	0.35 b	725 a	323.4 a	0.48 bc	1715 ab
19 Untreated Control	292 bcd	84.1 bcd	0.33 b	656 ab	293.6 a	0.48 bc	1666 abc
LSD (P=.05)	43.3	15.41	0.047	106.7	55.87	0.047	230.4
Standard Deviation	30.3	10.79	0.033	74.7	39.09	0.033	161.2
CV	10.65	12.55	9.47	11.45	12.71	6.57	10.25
Replicate F	7.552	10.455	1.872	2.883	3.263	0.374	3.490
Replicate Prob(F)	0.0003	0.0001	0.1469	0.0453	0.0293	0.7723	0.0226
Treatment F	3.302	2.237	1.042	1.007	0.842	1.299	1.890
Treatment Prob(F)	0.0007	0.0162	0.4332	0.4660	0.6338	0.2369	0.0457

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Total	M-XL	S-XL	M-XL	Medium	Large	XLarge
Rating Data Type	Weight	Weight	Size	Size	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	Sept	Sept	Sept
PRM Data Type	T2						
# Subsamples, Dec.	1						

Trt No.	Treatment Name	549.0 ab	480.98 ab	0.31 b	0.36 b	16.40 ab	38.05 ab	244.43 b
1	Methyl Iodide (1X Rate)							
1	/Chloropicrin							
2	Methyl Iodide (1/2X Rate)	580.0 a	512.67 a	0.32 b	0.37 b	14.00 ab	37.55 ab	320.65 a
2	/Chloropicrin							
3	Methyl Iodide (1/2X Rate)	527.4 ab	472.67 ab	0.31 b	0.37 b	18.50 a	43.20 a	298.05 a
4	PlantPro 45 (1X Rate)	534.0 ab	476.70 ab	0.31 b	0.36 b	15.75 ab	38.95 ab	319.50 a
4	Metam Sodium							
5	PlantPro 45 (2X Rate)	476.0 b	415.45 b	0.31 b	0.36 b	15.50 ab	38.10 ab	298.70 a
5	Metam Sodium							
6	Metam Sodium (Appl. Mthd #1, Drip)	519.8 ab	461.60 ab	0.32 b	0.37 b	13.05 ab	31.50 ab	291.50 a
7	Metam Sodium							
7	Appl. Method #2, Spray/Incorporate							
8	Metam Sodium							
8	Appl. Method #2, Spray/Incorporate							
9	Metam Sodium	527.2 ab	471.50 ab	0.31 b	0.36 b	12.25 b	37.00 ab	308.30 a
9	Appl. Method #3, Shank Injected							
10	InLine(CA) or Telone C35 (FL)	560.5 ab	499.52 ab	0.33 ab	0.39 ab	12.10 b	33.67 ab	321.23 a
10	+ Basamid							
11	InLine(CA) or Telone C35 (FL)	520.7 ab	468.67 ab	0.31 b	0.36 b	13.60 ab	27.90 b	298.27 a
11	+ Metam Sodium							
12	InLine(CA) or Telone C35 (FL)	474.0 b	422.58 b	0.32 ab	0.37 ab	13.40 ab	37.83 ab	294.17 a
13	Methyl Bromide/Chloropicrin 67/33	512.9 ab	456.53 ab	0.32 ab	0.38 ab	13.35 ab	36.40 ab	309.25 a
14	Fosthiazate 500 EC	541.2 ab	488.23 ab	0.32 ab	0.37 ab	14.00 ab	37.95 ab	332.33 a
14	+ Metam Sodium							
14	+ Chloropicrin EC							

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Total	M-XL	S-XL	M-XL	Medium	Large	XLarge
Rating Data Type	Weight	Weight	Size	Size	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	Sept	Sept	Sept
PRM Data Type	T2						
# Subsamples, Dec.	1						

Trt No.	Treatment Name	Marketable Total	Marketable M-XL	Marketable S-XL	Marketable M-XL	Marketable Medium	Marketable Large	Marketable XLarge
15	Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	479.5 b	436.85 ab	0.33 ab	0.39 ab	15.10 ab	32.15 ab	298.55 a
16	Propargyl Bromide	540.5 ab	476.50 ab	0.32 ab	0.37 ab	14.05 ab	35.65 ab	303.45 a
17	Chloropicrin EC + Metam Sodium	502.8 ab	450.00 ab	0.35 a	0.41 a	14.65 ab	34.60 ab	296.77 a
18	Metam Sodium Spray Check	564.5 ab	498.65 ab	0.31 b	0.36 b	16.45 ab	35.80 ab	321.15 a
19	Untreated Control	514.6 ab	451.67 ab	0.31 b	0.35 b	13.15 ab	39.95 a	300.67 a
	LSD (P=.05)	77.35	70.602	0.027	0.036	5.028	9.891	45.851
	Standard Deviation	54.13	49.404	0.019	0.025	3.519	6.921	32.085
	CV	10.31	10.58	6.0	6.87	24.38	19.09	10.58
	Replicate F	3.141	3.915	1.153	0.943	26.384	29.616	14.578
	Replicate Prob(F)	0.0337	0.0140	0.3373	0.4271	0.0001	0.0001	0.0001
	Treatment F	1.269	1.151	1.255	1.231	0.910	1.057	1.443
	Treatment Prob(F)	0.2550	0.3398	0.2642	0.2806	0.5630	0.4189	0.1625

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	XLarge	Medium	Large	XLarge	Tot #/
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	30 plant
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	Number
Trt-Eval Interval	Oct	Oct	Oct	Nov	Nov	Nov	S-XL
PRM Data Type							T5
# Subsamples, Dec.							0

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
1	Methyl iodide (1X Rate) 1 /Chloropicrin	30.45 a	33.50 ab	39.80 ab	40.60 abc	23.05 abc	14.70 a	1246 a
2	Methyl iodide (1/2X Rate) 2 /Chloropicrin	27.15 ab	34.42 ab	45.35 ab	49.20 a	25.30 ab	16.05 a	1251 a
3	Methyl iodide (1/2X Rate)	25.00 ab	34.95 ab	48.58 ab	34.95 a-e	25.25 ab	12.40 a	1132 a-d
4	PlantPro 45 (1X Rate) 4 Metam Sodium	20.90 ab	26.65 ab	36.85 ab	39.65 a-d	24.15 ab	14.10 a	1122 a-d
5	PlantPro 45 (2X Rate) 5 Metam Sodium	17.90 b	21.85 b	26.70 b	31.30 b-e	18.75 abc	7.80 a	1075 a-d
6	Metam Sodium (Appl. Mthd #1, Drip)	24.00 ab	28.00 ab	54.90 a	38.05 a-e	20.25 abc	10.70 a	1113 a-d
7	Metam Sodium 7 Appl. Method #2, Spray/Incorporate							
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate							
9	Metam Sodium 9 Appl. Method #3, Shank Injected	23.55 ab	31.20 ab	43.85 ab	37.00 a-e	20.10 abc	11.75 a	1088 a-d
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	25.45 ab	28.40 ab	49.35 ab	36.50 a-e	24.15 ab	18.00 a	1111 a-d
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	27.35 ab	30.10 ab	55.35 a	27.30 b-e	20.30 abc	13.75 a	1065 a-d
12	InLine(CA) or Telone C35 (FL)	25.55 ab	24.20 ab	33.00 ab	25.15 de	16.00 bc	11.45 a	1034 bcd
13	Methyl Bromide/Chloropicrin 67/33	29.65 a	29.45 ab	43.40 ab	25.85 cde	13.20 c	12.15 a	1137 a-d
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	26.65 ab	29.90 ab	45.80 ab	27.60 b-e	18.70 abc	11.80 a	1109 a-d

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	XLarge	Medium	Large	XLarge	Tot #/
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	30 plant
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	Number
Trt-Eval Interval	Oct	Oct	Oct	Nov	Nov	Nov	S-XL
PRM Data Type							T5
# Subsamples, Dec.							0

Trt No.	Treatment Name
---------	----------------

15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	24.65 ab	22.80 ab	43.05 ab	24.35 e	16.75 abc	13.15 a	969 d
16	Propargyl Bromide	27.65 ab	33.35 ab	51.50 a	32.85 b-e	20.05 abc	12.10 a	1183 abc
17	Chloropicrin EC + Metam Sodium	26.55 ab	35.65 a	45.05 ab	25.05 de	14.50 bc	10.90 a	1004 cd
18	Metam Sodium Spray Check	26.00 ab	29.25 ab	45.00 ab	40.95 ab	26.85 a	14.20 a	1206 ab
19	Untreated Control	23.90 ab	27.10 ab	43.10 ab	36.95 a-e	17.00 abc	8.90 a	1155 a-d
LSD (P=.05)		8.709	11.146	19.574	12.618	9.036	8.935	161.1
Standard Deviation		6.094	7.799	13.697	8.830	6.323	6.252	112.7
CV		23.96	26.48	31.02	26.18	31.21	49.69	10.09
Replicate F		6.597	3.936	1.841	5.003	3.338	3.351	3.394
Replicate Prob(F)		0.0008	0.0137	0.1523	0.0042	0.0269	0.0265	0.0252
Treatment F		0.967	1.130	1.134	2.589	1.630	0.629	1.885
Treatment Prob(F)		0.5054	0.3566	0.3527	0.0057	0.0968	0.8445	0.0463

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT01H)

AOV Means Table Page 10 of 14

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	TotWt/	TotWt/	TotWt	M-XL	Small	Small	Medium
Rating Data Type	30 plant	30 plant	/25LB	/25LB	Count	Weight	Count
Rating Unit	LBs	LBs	Carts	Carts	Number	LBs	Number
Trt-Eval Interval	S-XL	M-XL			to 11-8	to 11-8	to 11-8
PRM Data Type	T6		T9				
# Subsamples, Dec.	2	2	2		0	1	0

Trt No.	Treatment Name	Marketable 1	Marketable 2	Marketable 3	Marketable 4	Cull 1	Cull 2	Cull 3
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	338.31 b	308.22 a	2485.35 b	2239.73 a	264 c	38.9 abc	39 abc
16	Propargyl Bromide	391.29 ab	344.99 a	2808.24 ab	2506.95 a	380 abc	44.3 ab	39 abc
17	Chloropicrin EC + Metam Sodium	350.78 ab	314.02 a	2614.20 ab	2281.85 a	456 ab	48.6 ab	41 abc
18	Metam Sodium Spray Check	397.12 ab	350.83 a	2938.15 ab	2549.35 a	493 a	50.3 a	47 ab
19	Untreated Control	356.63 ab	312.96 a	2679.12 ab	2274.18 a	371 abc	45.9 ab	40 abc
	LSD (P=.05)	54.400	49.395	402.483	358.923	146.2	14.42	12.3
	Standard Deviation	38.067	34.565	281.641	251.160	102.3	10.09	8.6
	CV	10.2	10.4	10.32	10.4	28.02	25.43	22.03
	Replicate F	4.390	5.776	8.382	5.777	1.319	3.696	6.009
	Replicate Prob(F)	0.0083	0.0019	0.0001	0.0019	0.2793	0.0179	0.0015
	Treatment F	1.256	1.130	1.285	1.131	1.773	1.813	1.258
	Treatment Prob(F)	0.2636	0.3561	0.2450	0.3560	0.0643	0.0573	0.2624

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Large	Xlarge	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight	Count	Weight	Count	Weight
Rating Unit	LBS	Number	LBS	Number	LBS	Number	LBS
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type						T3	T4
# Subsamples, Dec.	1	0	1	0	1	0	1

Trt No.	Treatment Name	9.0	abc	42	a-d	12.5	bcd	78	cd	41.4	d	564	a-d	107.0	abc
1	Methyl iodide (1X Rate) 1 /Chloropicrin														
2	Methyl iodide (1/2X Rate) 2 /Chloropicrin	8.8	bc	46	abc	15.4	a-d	98	a-d	55.8	a-d	530	a-d	117.0	abc
3	Methyl iodide (1/2X Rate)	8.3	bc	30	cd	11.3	cd	84	a-d	45.3	bcd	528	a-d	104.9	bc
4	PlantPro 45 (1X Rate) 4 Metam Sodium	9.1	abc	34	bcd	10.9	cd	80	bcd	45.7	bcd	443	d	97.9	c
5	PlantPro 45 (2X Rate) 5 Metam Sodium	8.3	bc	39	a-d	12.6	bcd	72	d	40.0	d	500	a-d	94.7	c
6	Metam Sodium (Appl. Mthd #1, Drip)	8.8	bc	44	abc	13.3	bcd	87	a-d	49.2	a-d	414	d	96.4	c
7	Metam Sodium 7 Appl. Method #2, Spray/Incorporate														
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate														
9	Metam Sodium 9 Appl. Method #3, Shank Injected	12.4	a	42	a-d	14.0	bcd	84	a-d	48.0	a-d	555	a-d	117.2	abc
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	10.3	abc	54	a	18.4	abc	105	abc	62.3	ab	665	a	138.0	a
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	8.9	abc	40	a-d	13.3	bcd	86	a-d	50.4	a-d	459	cd	104.2	c
12	InLine(CA) or Telone C35 (FL)	8.4	bc	25	d	7.9	d	108	ab	61.8	abc	532	a-d	115.4	abc
13	Methyl Bromide/Chloropicrin 67/33	7.9	c	41	a-d	13.5	bcd	78	cd	42.5	d	474	bcd	98.7	c
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	10.9	abc	38	a-d	12.7	bcd	94	a-d	54.7	a-d	563	a-d	118.7	abc

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Large	Xlarge	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight	Count	Weight	Count	Weight
Rating Unit	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type						T3	T4
# Subsamples, Dec.	1	0	1	0	1	0	1

Trt No.	Treatment Name
---------	----------------

15	Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	9.6 abc	39 a-d	12.6 bcd	95 a-d	54.2 a-d	436 d	115.3 abc
16	Propargyl Bromide	9.1 abc	49 ab	20.8 ab	108 ab	62.3 ab	576 a-d	136.5 a
17	Chloropicrin EC + Metam Sodium	9.5 abc	40 a-d	12.9 bcd	110 a	64.6 a	646 abc	135.6 ab
18	Metam Sodium Spray Check	11.6 ab	40 a-d	13.2 bcd	81 a-d	47.3 a-d	661 ab	122.5 abc
19	Untreated Control	9.8 abc	39 a-d	23.3 a	81 a-d	44.2 cd	532 a-d	123.2 abc
LSD (P=.05)		2.97	15.0	7.60	25.2	15.06	160.8	26.59
Standard Deviation		2.08	10.5	5.32	17.6	10.54	112.5	18.61
CV		22.03	26.3	37.9	19.6	20.6	21.08	16.28
Replicate F		7.652	4.624	8.910	3.097	3.153	2.114	7.537
Replicate Prob(F)		0.0003	0.0064	0.0001	0.0354	0.0332	0.1108	0.0003
Treatment F		1.415	1.626	1.941	1.887	2.302	1.828	2.277
Treatment Prob(F)		0.1748	0.0980	0.0393	0.0460	0.0134	0.0547	0.0144

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull
Crop Code	Tomato	Tomato
Part Rated	Tot #/	TotWt/
Rating Data Type	30 plant	30 plant
Rating Unit	Number	LBs
Trt-Eval Interval	to 11-8	to 11-8
PRM Data Type	T7	T8
# Subsamples, Dec.	0	1

Trt No.	Treatment Name				
1	Methyl Iodide (1X Rate)	403	abc	76.6	bcd
1	/Chloropicrin				
2	Methyl Iodide (1/2X Rate)	371	abc	82.0	a-d
2	/Chloropicrin				
3	Methyl Iodide (1/2X Rate)	375	abc	74.5	cd
4	PlantPro 45 (1X Rate)	317	bc	70.0	d
4	Metam Sodium				
5	PlantPro 45 (2X Rate)	362	abc	68.5	d
5	Metam Sodium				
6	Metam Sodium (Appl. Mthd #1, Drip)	295	c	68.9	d
7	Metam Sodium				
7	Appl. Method #2, Spray/Incorporate				
8	Metam Sodium				
8	Appl. Method #2, Spray/Incorporate				
9	Metam Sodium	386	abc	81.8	a-d
9	Appl. Method #3, Shank Injected				
10	InLine(CA) or Telone C35 (FL)	481	a	99.8	a
10	+ Basamid				
11	InLine(CA) or Telone C35 (FL)	323	bc	73.5	cd
11	+ Metam Sodium				
12	InLine(CA) or Telone C35 (FL)	385	abq	83.5	a-d
13	Methyl Bromide/Chloropicrin 67/33	349	abc	72.7	cd
14	Fosthiazate 500 EC	400	abc	84.4	a-d
14	+ Metam Sodium				
14	+ Chloropicrin EC				

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AOV Means Table Page 14 of 14

Plant Sciences, Inc.
Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull
Crop Code	Tomato	Tomato
Part Rated	Tot #/	TotWt/
Rating Data Type	30 plant	30 plant
Rating Unit	Number	LBs
Trt-Eval Interval	to 11-8	to 11-8
PRM Data Type	T7	T8
# Subsamples, Dec.	0	1

Trt Treatment
 No. Name

15 Fosthiazate 900 EC	307 c	81.3 a-d
15 + Metam Sodium		
15 + Chloropicrin EC		
16 Propargyl Bromide	416 abc	98.7 ab
17 Chloropicrin EC + Metam Sodium	449 ab	94.4 abc
18 Metam Sodium Spray Check	464 a	85.9 a-d
19 Untreated Control	369 abc	85.2 a-d
LSD (P=.05)	116.9	19.49
Standard Deviation	81.8	13.64
CV	21.55	16.78
Replicate F	1.767	7.239
Replicate Prob(F)	0.1660	0.0004
Treatment F	1.701	2.040
Treatment Prob(F)	0.0791	0.0293

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Plants	Small	Small	Small	Medium	Medium	Medium
Rating Data Type	Count	Count	Weight	Size	Count	Weight	Size
Rating Unit	Number	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval		to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							
# Subsamples, Dec.	0	0	1		0	1	

Trt No.	Treatment Name	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
		Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
		Plants	Small	Small	Small	Medium	Medium	Medium
		Count	Count	Weight	Size	Count	Weight	Size
		Number	Number	LBs	LBs	Number	LBs	LBs
			to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
1	Methyl iodide (1X Rate)	44	445	71.0	0.16	326	86.2	0.26
1	/Chloropicrin	42	373	60.4	0.15	304	79.6	0.25
		41	495	82.6	0.17	377	98.6	0.26
		41	320	58.0	0.18	331	85.4	0.26
	Mean =	42	408	68.0	0.16	335	87.4	0.26
2	Methyl iodide (1/2X Rate)	44	473	71.2	0.15	368	95.2	0.26
2	/Chloropicrin	42	349	56.2	0.16	297	75.2	0.25
		42	508	86.6	0.17	419	110.6	0.26
		43	357	55.2	0.16	308	80.4	0.26
	Mean =	43	422	67.3	0.16	348	90.3	0.26
3	Methyl iodide (1/2X Rate)	43	245	43.0	0.17	206	53.4	0.26
		42	365	56.6	0.15	366	90.6	0.25
		42	381	64.4	0.17	375	95.2	0.25
		42	326	54.8	0.16	288	74.6	0.26
	Mean =	42	329	54.7	0.16	309	78.4	0.25
4	PlantPro 45 (1X Rate)	42	365	61.6	0.16	352	89.0	0.25
4	Metam Sodium	42	311	52.0	0.16	283	62.8	0.22
		44	418	71.2	0.17	374	96.2	0.26
		40	253	44.4	0.16	222	57.2	0.26
	Mean =	42	337	57.3	0.16	308	76.3	0.25
5	PlantPro 45 (2X Rate)	42	526	73.0	0.15	233	59.4	0.26
5	Metam Sodium	42	422	68.6	0.16	328	81.8	0.25
		41	311	53.8	0.17	220	56.8	0.26
		41	275	47.0	0.16	249	60.8	0.25
	Mean =	42	384	60.6	0.16	258	64.7	0.25
6	Metam Sodium (Appl. Mthd #1, Drip)	43	564	79.2	0.15	330	82.0	0.25
		41	261	43.8	0.16	285	74.6	0.26
		42	399	71.8	0.18	341	85.4	0.26
		42	204	37.8	0.18	230	58.4	0.25
	Mean =	42	357	58.2	0.17	297	75.1	0.26

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Plants	Small	Small	Small	Medium	Medium	Medium
Rating Data Type	Count	Count	Weight	Size	Count	Weight	Size
Rating Unit	Number	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval		to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							
# Subsamples, Dec.	0	0	1		0	1	

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	44	375	62.4	0.17	235	60.4	0.26
9 Appl. Method #3, Shank Injected	42	312	50.4	0.13	287	73.0	0.26
	44	349	60.2	0.16	336	86.4	0.26
	42	290	49.8	0.17	272	71.4	0.26

Mean =

10 InLine(CA) or Telone C35 (FL)	44	300	51.0	0.17	252	65.6	0.26
10 + Basamid	43	439	67.6	0.16	331	86.4	0.26
	42	432	71.0	0.16	298	78.4	0.26
	39	271	54.2	0.19	198	65.8	0.36

Mean =

11 InLine(CA) or Telone C35 (FL)	44	439	72.0	0.15	295	73.8	0.25
11 + Metam Sodium	42	341	57.0	0.18	278	71.0	0.26
	42	219	37.0	0.18	259	67.6	0.26
	42	252	42.2	0.16	236	60.6	0.26

Mean =

	43	313	52.0	0.17	267	68.3	0.26
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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Plants	Small	Small	Small	Medium	Medium	Medium
Rating Data Type	Count	Count	Weight	Size	Count	Weight	Size
Rating Unit	Number	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval		to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							
# Subsamples, Dec.	0	0	1		0	1	

Trt No.	Treatment Name	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable
		Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
		Plants	Small	Small	Small	Medium	Medium
		Count	Count	Weight	Size	Count	Weight
		Number	Number	LBs	LBs	Number	LBs
			to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
12	InLine(CA) or Telone C35 (FL)	41	306	50.2	0.16	217	55.4
		41	310	49.0	0.16	276	73.0
		42	405	66.2	0.17	303	78.4
		42	258	40.4	0.15	193	49.6
	Mean =	42	320	51.4	0.16	247	64.1
13	Methyl Bromide/Chloropicrin 67/33	42	381	59.4	0.15	225	58.2
		40	353	53.7	0.13	338	83.6
		42	337	59.4	0.18	275	70.6
		39	300	52.8	0.18	244	63.0
	Mean =	41	343	56.3	0.16	271	68.8
14	Fosthiazate 500 EC	42	356	54.2	0.15	262	68.8
	+ Metam Sodium	42	270	48.6	0.17	254	64.6
	+ Chloropicrin EC	42	449	73.6	0.17	311	81.8
		43	214	35.6	0.16	195	57.8
	Mean =	42	322	53.0	0.17	256	68.3
15	Fosthiazate 900 EC	42	312	51.2	0.16	292	74.4
	+ Metam Sodium	43	238	38.0	0.16	267	67.6
	+ Chloropicrin EC	42	236	37.4	0.16	194	52.0
		43	243	43.8	0.18	243	62.4
	Mean =	43	257	42.6	0.16	249	64.1
16	Propargyl Bromide	42	457	70.4	0.15	315	79.6
		42	411	66.0	0.16	297	77.0
		42	328	58.6	0.18	300	79.2
		40	376	61.2	0.16	240	62.4
	Mean =	42	393	64.1	0.16	288	74.6
17	Chloropicrin EC + Metam Sodium	44	311	53.1	0.16	228	55.8
		42	390	59.4	0.15	164	68.6
		44	367	61.4	0.17	314	84.6
		42	214	37.2	0.17	217	56.0
	Mean =	43	321	52.8	0.16	231	66.3

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Plot Data Summary Page 4 of 24

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Plants	Small	Small	Small	Medium	Medium	Medium
Rating Data Type	Count	Count	Weight	Size	Count	Weight	Size
Rating Unit	Number	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval		to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							
# Subsamples, Dec.	0	0	1		0	1	

Trt No.	Treatment Name	Total # of	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
		Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
		Plants	Small	Small	Small	Medium	Medium	Medium
		Count	Count	Weight	Size	Count	Weight	Size
		Number	Number	LBs	LBs	Number	LBs	LBs
			to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
18	Metam Sodium Spray Check	44	373	65.6	0.17	275	71.8	0.26
		42	523	84.6	0.17	304	79.6	0.26
		42	374	63.0	0.16	222	96.4	0.27
		43	286	50.2	0.16	333	85.8	0.26
	Mean =	43	389	65.8	0.16	284	83.4	0.26
19	Untreated Control	43	421	69.2	0.17	269	70.6	0.26
		42	371	62.6	0.16	324	81.2	0.25
		44	635	70.2	0.15	253	65.2	0.26
		44	288	49.6	0.17	313	79.0	0.25
	Mean =	43	429	62.9	0.16	290	74.0	0.26

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Large	Xlarge	Xlarge	Xlarge	Total
Rating Data Type	Count	Weight	Size	Count	Weight	Size	Count
Rating Unit	Number	LBs	LBs	Number	LBs	LBs	Number
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							T1
# Subsamples, Dec.	0	1		0	1		0

Trt No.	Treatment Name	Count	Weight	Size	Count	Weight	Size	Count
1	Methyl Iodide (1X Rate)	334	84.0	0.32	568	247.0	0.50	1673
1	/Chloropicrin	301	93.0	0.34	760	344.8	0.50	1738
		366	109.8	0.35	685	300.0	0.48	1923
		310	91.6	0.36	671	303.9	0.48	1632
	Mean =	328	94.6	0.34	671	298.9	0.49	1741
2	Methyl Iodide (1/2X Rate)	311	97.2	0.35	683	310.0	0.49	1835
2	/Chloropicrin	268	82.2	0.35	665	300.4	0.49	1579
		334	105.9	0.35	634	278.6	0.48	1895
		334	103.8	0.34	825	411.2	0.52	1824
	Mean =	312	97.3	0.35	702	325.0	0.50	1783
3	Methyl Iodide (1/2X Rate)	279	81.2	0.35	535	252.0	0.50	1265
		381	113.8	0.34	572	273.6	0.50	1684
		383	119.0	0.36	641	302.8	0.49	1780
		330	99.6	0.35	698	334.9	0.47	1642
	Mean =	343	103.4	0.35	612	290.8	0.49	1593
4	PlantPro 45 (1X Rate)	239	77.0	0.35	720	343.8	0.50	1676
4	Metam Sodium	294	90.8	0.33	642	316.9	0.50	1530
		323	111.6	0.37	635	283.7	0.45	1750
		251	79.6	0.35	614	298.2	0.49	1340
	Mean =	277	89.8	0.35	653	310.6	0.48	1574
5	PlantPro 45 (2X Rate)	214	64.4	0.35	554	257.6	0.48	1527
5	Metam Sodium	291	82.8	0.34	648	304.4	0.48	1689
		265	82.4	0.37	467	207.0	0.47	1263
		285	85.2	0.34	667	319.2	0.45	1476
	Mean =	264	78.7	0.35	584	272.0	0.47	1489
6	Metam Sodium (Appl. Mthd #1, Drip)	269	80.2	0.32	644	300.4	0.49	1807
		290	86.8	0.34	712	331.2	0.47	1548
		295	94.8	0.36	666	338.4	0.54	1701
		195	57.2	0.34	550	257.0	0.50	1179
	Mean =	262	79.8	0.34	643	306.8	0.50	1559

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Plot Data Summary Page 6 of 24

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Large	Xlarge	Xlarge	Xlarge	Total
Rating Data Type	Count	Weight	Size	Count	Weight	Size	Count
Rating Unit	Number	LBs	LBs	Number	LBs	LBs	Number
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							T1
# Subsamples, Dec.	0	1		0	1		0

Trt Treatment
No. Name

- 7 Metam Sodium
- 7 Appl. Method #2, Spray/Incorporate

Mean =

- 8 Metam Sodium
- 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	247	77.4	0.35	621	286.6	0.47	1478
9 Appl. Method #3, Shank Injected	272	82.8	0.34	679	335.0	0.50	1550
	338	105.0	0.34	676	312.0	0.48	1699
	287	88.0	0.34	662	308.0	0.50	1511

Mean =

10 InLine(CA) or Telone C35 (FL)	236	66.8	0.35	492	281.4	0.58	1280
10 + Basamid	295	99.0	0.35	770	414.4	0.52	1835
	293	91.6	0.35	670	340.4	0.51	1693
	286	87.5	0.34	652	320.8	0.50	1407

Mean =

11 InLine(CA) or Telone C35 (FL)	294	88.6	0.34	654	317.4	0.49	1682
11 + Metam Sodium	244	65.8	0.32	614	298.6	0.51	1477
	279	88.6	0.37	746	367.3	0.48	1503
	259	70.2	0.31	631	305.2	0.49	1378

Mean =

	269	78.3	0.33	661	322.1	0.49	1510
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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Large	Xlarge	Xlarge	Xlarge	Total
Rating Data Type	Count	Weight	Size	Count	Weight	Size	Count
Rating Unit	Number	LBs	LBs	Number	LBs	LBs	Number
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							T1
# Subsamples, Dec.	0	1		0	1		0

Trt No.	Treatment Name	Count	Weight (LBs)	Size (LBs)	Count	Weight (LBs)	Size (LBs)	Total Count
12	InLine(CA) or Telone C35 (FL)	281	73.1	0.34	465	218.8	0.49	1269
		219	69.2	0.41	612	273.8	0.50	1417
		344	100.6	0.34	660	326.0	0.50	1711
		257	69.2	0.34	619	303.2	0.50	1326
		Mean =	275	78.0	0.36	589	280.5	0.50	1431
13	Methyl Bromide/Chloropicrin 67/33	249	71.2	0.34	691	323.5	0.50	1546
		226	66.0	0.34	679	323.0	0.49	1596
		303	93.8	0.35	612	280.4	0.69	1527
		284	85.2	0.34	674	307.6	0.47	1502
		Mean =	266	79.1	0.34	664	308.6	0.54	1543
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	248	75.0	0.34	539	252.8	0.50	1405
		285	78.4	0.31	751	352.2	0.49	1560
		309	98.2	0.35	750	368.8	0.50	1819
		295	94.6	0.35	758	359.9	0.49	1462
		Mean =	284	86.5	0.34	700	333.4	0.50
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	244	75.2	0.35	680	324.6	0.49	1528
		251	77.0	0.34	721	332.6	0.50	1477
		205	64.4	0.56	523	237.4	0.51	1158
		225	70.2	0.36	617	309.6	0.52	1328
		Mean =	231	71.7	0.40	635	301.0	0.51	1373
16	Propargyl Bromide	249	78.0	0.34	720	324.8	0.50	1741
		283	86.0	0.34	513	270.4	0.58	1504
		298	94.6	0.35	672	297.2	0.49	1597
		318	97.6	0.34	764	359.2	0.53	1697
		Mean =	287	89.1	0.34	667	312.9	0.53	1635
17	Chloropicrin EC + Metam Sodium	245	74.4	0.34	595	293.0	0.50	1379
		273	104.2	0.48	598	270.8	0.50	1425
		319	95.2	0.34	640	310.2	0.53	1640
		230	65.2	0.34	655	322.0	0.51	1316
		Mean =	267	84.8	0.37	622	299.0	0.51	1440

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Large	Xlarge	Xlarge	Xlarge	Total
Rating Data Type	Count	Weight	Size	Count	Weight	Size	Count
Rating Unit	Number	LBs	LBs	Number	LBs	LBs	Number
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type							T1
# Subsamples, Dec.	0	1		0	1		0

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
		Count	Weight	Size	Count	Weight	Count
18	Metam Sodium Spray Check	283	70.0	0.34	624	263.8	1555
		304	104.4	0.38	825	383.2	1956
		339	99.0	0.35	740	331.2	1675
		347	94.2	0.33	710	315.2	1676
		Mean =	318	91.9	0.35	725	323.4	1715
19	Untreated Control	294	81.8	0.32	562	235.6	1546
		239	63.6	0.32	621	281.6	1555
		331	104.8	0.36	689	309.5	1908
		304	86.0	0.32	751	347.8	1656
		Mean =	292	84.1	0.33	656	293.6

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Total	M-XL	S-XL	M-XL	Medium	Large	XLarge
Rating Data Type	Weight	Weight	Size	Size	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	Sept	Sept	Sept
PRM Data Type	T2						
# Subsamples, Dec.	1						

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
1	Methyl iodide (1X Rate)	488.2	417.20	0.31	0.36	15.80	197.00
1	/Chloropicrin	577.8	517.40	0.31	0.36	4.60	256.20
		591.0	508.40	0.31	0.36	22.40	255.60
		538.9	480.90	0.32	0.37	22.80	268.90
	Mean =	549.0	480.98	0.31	0.36	16.40	244.43
2	Methyl iodide (1/2X Rate)	573.6	502.40	0.31	0.37	13.20	282.40
2	/Chloropicrin	514.0	457.80	0.31	0.36	9.40	282.80
		581.7	495.10	0.32	0.36	16.60	300.60
		650.6	595.40	0.32	0.38	16.80	416.80
	Mean =	580.0	512.67	0.32	0.37	14.00	320.65
3	Methyl iodide (1/2X Rate)	429.6	386.60	0.32	0.37	15.60	266.20
		534.6	478.00	0.31	0.36	11.40	251.20
		581.4	517.00	0.32	0.37	26.40	329.00
		563.9	509.10	0.31	0.36	20.60	345.80
	Mean =	527.4	472.67	0.31	0.37	18.50	298.05
4	PlantPro 45 (1X Rate)	571.4	509.80	0.31	0.37	9.20	291.00
4	Metam Sodium	522.5	470.50	0.30	0.35	17.80	333.90
		562.7	491.50	0.31	0.36	18.40	315.50
		479.4	435.00	0.32	0.37	17.60	337.60
	Mean =	534.0	476.70	0.31	0.36	15.75	319.50
5	PlantPro 45 (2X Rate)	454.4	381.40	0.31	0.36	12.40	262.60
5	Metam Sodium	537.6	469.00	0.31	0.35	13.00	318.60
		400.0	346.20	0.32	0.37	16.00	261.40
		512.2	465.20	0.30	0.35	20.60	352.20
	Mean =	476.0	415.45	0.31	0.36	15.50	298.70
6	Metam Sodium (Appl. Mthd #1, Drip)	541.8	462.60	0.30	0.35	15.20	309.20
		536.4	492.60	0.31	0.36	8.40	293.80
		590.4	518.60	0.33	0.39	10.00	288.40
		410.4	372.60	0.32	0.37	18.60	274.60
	Mean =	519.8	461.60	0.32	0.37	13.05	291.50

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Total	M-XL	S-XL	M-XL	Medium	Large	XLarge
Rating Data Type	Weight	Weight	Size	Size	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	Sept	Sept	Sept
PRM Data Type	T2						
# Subsamples, Dec.	1						

Trt Treatment
 No. Name

7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	486.8	424.40	0.31	0.36	9.60	24.00	273.00
9 Appl. Method #3, Shank Injected	541.2	490.80	0.31	0.37	6.00	19.80	289.80
	563.6	503.40	0.31	0.36	16.20	56.80	355.00
	517.2	467.40	0.32	0.37	17.20	47.40	315.40

Mean = 527.2 471.50 0.31 0.36 12.25 37.00 308.30

10 InLine(CA) or Telone C35 (FL)	464.8	413.80	0.34	0.40	8.80	24.60	246.40
10 + Basamid	667.4	599.80	0.32	0.38	8.40	38.20	386.60
	581.4	510.40	0.32	0.37	15.80	35.60	328.40
	528.3	474.10	0.35	0.40	15.40	36.30	323.50

Mean = 560.5 499.52 0.33 0.39 12.10 33.67 321.23

11 InLine(CA) or Telone C35 (FL)	551.8	479.80	0.31	0.36	10.80	22.60	290.60
11 + Metam Sodium	492.4	435.40	0.32	0.36	12.60	19.00	273.00
	560.5	523.50	0.32	0.37	12.80	32.40	311.70
	478.2	436.00	0.31	0.35	18.20	37.60	317.80

Mean = 520.7 468.67 0.31 0.36 13.60 27.90 298.27

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
 Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Total	M-XL	S-XL	M-XL	Medium	Large	XLarge
Rating Data Type	Weight	Weight	Size	Size	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	Sept	Sept	Sept
PRM Data Type	T2						
# Subsamples, Dec.	1						

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	
		Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	
		Total	M-XL	S-XL	M-XL	Medium	Large	
		Weight	Weight	Size	Size	Weight	Weight	
		LBs	LBs	LBs	LBs	LBs	LBs	
		to 11-8	to 11-8	to 11-8	to 11-8	Sept	Sept	
		T2						
		1						
12	InLine(CA) or Telone C35 (FL)	397.5	347.30	0.31	0.36	13.60	38.10	246.50
		465.0	416.00	0.33	0.39	12.20	24.40	256.80
		571.2	505.00	0.32	0.37	11.80	48.00	340.00
		462.4	422.00	0.31	0.37	16.00	40.80	333.40
	Mean =	474.0	422.58	0.32	0.37	13.40	37.83	294.17
13	Methyl Bromide/Chloropicrin 67/33	512.3	452.90	0.31	0.37	9.40	28.20	291.90
		526.3	472.60	0.30	0.36	10.40	26.20	315.10
		504.2	444.80	0.37	0.43	18.00	53.00	320.40
		508.6	455.80	0.31	0.36	15.60	38.20	309.60
	Mean =	512.9	456.53	0.32	0.38	13.35	36.40	309.25
14	Fosthiazate 500 EC	450.8	396.60	0.31	0.37	11.40	27.60	242.60
14	+ Metam Sodium	543.8	495.20	0.31	0.35	7.60	30.40	323.80
14	+ Chloropicrin EC	622.4	548.80	0.32	0.37	19.00	48.00	384.40
		547.9	512.30	0.34	0.39	18.00	45.80	378.50
	Mean =	541.2	488.23	0.32	0.37	14.00	37.95	332.33
15	Fosthiazate 900 EC	525.4	474.20	0.31	0.37	7.00	21.80	276.60
15	+ Metam Sodium	515.2	477.20	0.31	0.37	11.20	28.60	304.40
15	+ Chloropicrin EC	391.2	353.80	0.37	0.44	26.60	48.00	305.40
		486.0	442.20	0.33	0.38	15.60	30.20	307.80
	Mean =	479.5	436.85	0.33	0.39	15.10	32.15	298.55
16	Propargyl Bromide	552.8	482.40	0.31	0.36	7.80	19.60	278.40
		499.4	433.40	0.33	0.39	6.40	23.00	233.80
		529.6	471.00	0.32	0.37	26.40	52.00	329.60
		580.4	519.20	0.32	0.38	15.60	48.00	372.00
	Mean =	540.5	476.50	0.32	0.37	14.05	35.65	303.45
17	Chloropicrin EC + Metam Sodium	476.3	423.20	0.31	0.36	9.00	25.20	265.30
		503.0	443.60	0.44	0.53	12.00	26.00	257.40
		551.4	490.00	0.33	0.38	18.20	54.40	328.20
		480.4	443.20	0.32	0.37	19.40	32.80	336.20
	Mean =	502.8	450.00	0.35	0.41	14.65	34.60	296.77

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Total	M-XL	S-XL	M-XL	Medium	Large	XLarge
Rating Data Type	Weight	Weight	Size	Size	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	Sept	Sept	Sept
PRM Data Type	T2						
# Subsamples, Dec.	1						

Trt	Treatment
No.	Name

18	Metam Sodium Spray Check	471.2	405.60	0.31	0.36	12.20	28.40	261.60
		651.8	567.20	0.32	0.38	8.80	28.40	341.40
		589.6	526.60	0.31	0.36	22.40	37.40	338.00
		545.4	495.20	0.31	0.36	22.40	49.00	343.60
		Mean =	564.5	498.65	0.31	0.36	16.45	35.80	321.15
19	Untreated Control	457.2	388.00	0.30	0.35	11.60	39.20	259.80
		489.0	426.40	0.30	0.35	9.80	27.80	259.80
		549.7	479.50	0.31	0.37	15.40	48.80	323.70
		562.4	512.80	0.30	0.35	15.80	44.00	359.40
		Mean =	514.6	451.67	0.31	0.35	13.15	39.95

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	XLarge	Medium	Large	XLarge	Tot #/
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	30 plant
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	Number
Trt-Eval Interval	Oct	Oct	Oct	Nov	Nov	Nov	S-XL
PRM Data Type							T5
# Subsamples, Dec.							0

Trt No.	Treatment Name	Marketable Tomato Medium Weight LBs Oct	Marketable Tomato Large Weight LBs Oct	Marketable Tomato XLarge Weight LBs Oct	Marketable Tomato Medium Weight LBs Nov	Marketable Tomato Large Weight LBs Nov	Marketable Tomato XLarge Weight LBs Nov	Total #/30 plant
1	Methyl iodide (1X Rate)	37.40	38.60	44.00	33.00	15.00	6.00	1141
1	/Chloropicrin	21.40	28.40	55.20	53.60	43.80	33.40	1241
		40.00	41.80	34.40	36.20	17.00	10.00	1407
		23.00	25.20	25.60	39.60	16.40	9.40	1194
	Mean =	30.45	33.50	39.80	40.60	23.05	14.70	1246
2	Methyl iodide (1/2X Rate)	32.80	42.00	63.40	49.20	26.20	11.00	1251
2	/Chloropicrin	24.80	30.20	45.40	41.00	19.40	17.20	1128
		35.60	34.90	33.40	58.40	24.20	17.80	1353
		15.40	30.60	39.20	48.20	31.40	18.20	1272
	Mean =	27.15	34.42	45.35	49.20	25.30	16.05	1251
3	Methyl iodide (1/2X Rate)	20.00	31.80	41.00	17.80	12.60	4.40	883
		34.80	43.80	63.00	44.40	31.60	14.00	1203
		32.40	41.00	43.60	36.40	26.80	16.20	1271
		12.80	23.20	46.70	41.20	30.00	15.00	1173
	Mean =	25.00	34.95	48.58	34.95	25.25	12.40	1132
4	PlantPro 45 (1X Rate)	27.40	26.00	57.20	52.40	31.80	26.40	1197
4	Metam Sodium	11.80	26.40	39.40	33.20	18.40	11.80	1093
		30.40	39.20	34.80	47.40	25.00	8.20	1193
		14.00	15.00	16.00	25.60	21.40	10.00	1005
	Mean =	20.90	26.65	36.85	39.65	24.15	14.10	1122
5	PlantPro 45 (2X Rate)	22.40	24.40	35.60	24.60	11.80	7.60	1091
5	Metam Sodium	25.00	28.80	26.40	43.80	23.40	8.20	1206
		12.60	17.80	15.20	28.20	14.40	5.20	924
		11.60	16.40	29.60	28.60	25.40	10.20	1080
	Mean =	17.90	21.85	26.70	31.30	18.75	7.80	1075
6	Metam Sodium (Appl. Mthd #1, Drip)	22.60	26.20	36.20	44.20	19.80	12.00	1261
		29.20	29.00	69.80	37.00	24.80	12.00	1133
		25.00	39.60	82.20	50.40	27.20	11.40	1215
		19.20	17.20	31.40	20.60	9.20	7.40	842
	Mean =	24.00	28.00	54.90	38.05	20.25	10.70	1113

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	XLarge	Medium	Large	XLarge	Tot #/
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	30 plant
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	Number
Trt-Eval Interval	Oct	Oct	Oct	Nov	Nov	Nov	S-XL
PRM Data Type							T5
# Subsamples, Dec.							0

Trt No.	Treatment Name
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7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium	19.20	34.60	38.80	31.60	18.80	12.40	1008
9	Appl. Method #3, Shank Injected	32.60	40.40	56.20	34.40	22.60	15.40	1107
		24.00	26.20	28.40	46.20	22.00	7.40	1158
		18.40	23.60	52.00	35.80	17.00	11.80	1079

Mean =

10	InLine(CA) or Telone C35 (FL)	27.20	24.60	61.20	29.60	17.60	9.00	873
10	+ Basamid	25.40	27.40	44.00	52.60	33.40	31.60	1280
		25.60	28.60	50.80	37.00	27.40	17.80	1209
		23.60	33.00	41.40	26.80	18.20	13.60	1082

Mean =

11	InLine(CA) or Telone C35 (FL)	32.80	43.20	51.20	30.20	22.80	12.20	1147
11	+ Metam Sodium	25.60	22.00	34.60	32.80	24.80	25.20	1055
		27.60	36.20	92.40	27.20	20.00	10.60	1073
		23.40	19.00	43.20	19.00	13.60	7.00	984

Mean =

		27.35	30.10	55.35	27.30	20.30	13.75	1065
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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	XLarge	Medium	Large	XLarge	Tot #/
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	30/plant
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	Number
Tri-Eval Interval	Oct	Oct	Oct	Nov	Nov	Nov	S-XL
PRM Data Type							T5
# Subsamples	Dec						0

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Total
12	InLine(CA) or Telone C35 (FL)	32.80	26.40	28.80	9.00	8.60	4.00	929
		27.40	26.20	41.80	33.40	18.60	16.00	1037
		27.20	30.20	38.20	39.40	22.40	15.20	1222
		14.80	14.00	23.20	18.80	14.40	10.60	947
		Mean =	25.55	24.20	33.00	25.15	16.00	11.45	1034
13	Methyl Bromide/Chloropicrin 67/33	23.40	27.40	55.40	25.40	15.60	19.00	1104
		35.80	23.00	38.00	37.40	16.80	8.20	1197
		31.20	29.60	24.80	21.40	11.20	17.20	1091
		28.20	37.80	55.40	19.20	9.20	4.20	1155
		Mean =	29.65	29.45	43.40	25.85	13.20	12.15	1137
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	21.00	23.40	35.20	36.40	24.00	17.40	1004
		31.40	29.60	57.60	25.60	18.40	12.00	1114
		33.20	31.80	48.40	29.60	18.40	7.40	1299
		21.00	34.80	42.00	18.80	14.00	10.40	1020
		Mean =	26.65	29.90	45.80	27.60	18.70	11.80	1109
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	36.60	32.00	59.80	30.80	21.40	18.80	1091
		19.60	24.20	49.20	36.80	24.20	22.60	1030
		17.00	12.00	19.20	8.40	4.40	1.00	827
		25.40	23.00	44.00	21.40	17.00	10.20	927
		Mean =	24.65	22.80	43.05	24.35	16.75	13.15	969
16	Propargyl Bromide	31.80	37.00	53.20	40.00	21.40	22.00	1244
		30.00	36.00	54.40	40.60	27.00	13.80	1074
		28.20	29.20	50.80	24.60	13.40	4.20	1141
		20.60	31.20	47.60	26.20	18.40	8.40	1273
		Mean =	27.65	33.35	51.50	32.85	20.05	12.10	1183
17	Chloropicrin EC + Metam Sodium	22.20	33.00	51.80	24.60	16.20	12.00	940
		24.80	58.00	41.20	31.80	20.20	14.00	1018
		38.60	30.40	48.60	27.80	10.40	11.20	1118
		20.60	21.20	38.60	16.00	11.20	6.40	940
		Mean =	26.55	35.65	45.05	25.05	14.50	10.90	1004

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	XLarge	Medium	Large	XLarge	Tot #/
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	30 plant
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	Number
Trt-Eval Interval	Oct	Oct	Oct	Nov	Nov	Nov	S-XL
PRM Data Type							T5
# Subsamples, Dec.							0

Trt No.	Treatment Name	Marketable Tomato Medium Weight LBs	Marketable Tomato Large Weight LBs	Marketable Tomato XLarge Weight LBs	Marketable Tomato Medium Weight LBs	Marketable Tomato Large Weight LBs	Marketable Tomato XLarge Weight LBs	Marketable Tomato Tot #/30 plant Number
18	Metam Sodium Spray Check	22.60	24.60	38.00	37.00	17.00	8.20	1060
		23.80	43.60	61.40	47.00	32.40	20.40	1397
		33.80	30.60	45.80	40.20	31.00	13.60	1196
		23.80	18.20	34.80	39.60	27.00	14.60	1169
		Mean =	26.00	29.25	45.00	40.95	26.85	14.20	1206
19	Untreated Control	28.80	28.00	26.20	30.20	14.60	7.60	1079
		17.80	21.20	55.40	53.60	14.60	6.00	1111
		25.00	37.00	51.20	24.80	19.00	5.80	1301
		24.00	22.20	39.60	39.20	19.80	16.20	1129
		Mean =	23.90	27.10	43.10	36.95	17.00	8.90	1155

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	TotWt/	TotWt/	TotWt	M-XL	Small	Small	Medium	Medium
Rating Data Type	30 plant	30 plant	/25LB	/25LB	Count	Weight	Count	Weight
Rating Unit	LBs	LBs	Carts	Carts	Number	LBs	Number	LBs
Trt-Eval Interval	S-XL	M-XL			to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type	T6		T9					
# Subsamples, Dec.	2	2	2		0	1	0	1

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull	Cull
1	Methyl iodide (1X Rate)	332.86	284.45	2418.81	2067.00	467	46.8	25	6.9
1	/Chloropicrin	412.71	369.57	2999.06	2685.60	351	38.8	37	9.0
		432.44	372.00	3142.39	2703.20	416	43.6	39	9.6
		394.32	351.88	2865.37	2557.00	404	47.4	41	10.4
	Mean =	393.08	344.48	2856.41	2503.20	410	44.1	36	9.0
2	Methyl iodide (1/2X Rate)	391.09	342.55	2841.93	2489.20	486	50.4	36	8.2
2	/Chloropicrin	367.14	327.00	2667.90	2376.20	179	18.8	23	5.4
		415.50	353.64	3092.94	2569.80	448	43.6	41	10.6
		453.91	415.40	3459.29	3018.50	289	35.6	42	10.8
	Mean =	406.91	359.65	3015.52	2613.43	351	37.1	36	8.8
3	Methyl iodide (1/2X Rate)	299.72	269.72	2128.47	1960.00	391	40.4	21	5.6
		381.86	341.43	2774.83	2481.00	395	39.4	31	6.2
		415.29	369.29	3091.35	2683.50	374	41.0	38	9.8
		402.79	363.64	2998.30	2642.50	359	39.4	48	11.8
	Mean =	374.91	336.02	2748.24	2441.75	380	40.1	35	8.3
4	PlantPro 45 (1X Rate)	408.14	364.14	2831.03	2646.10	200	21.8	43	9.4
4	Metam Sodium	373.21	336.07	2712.02	2442.10	254	26.2	31	6.8
		383.66	335.11	2991.92	2435.20	344	38.4	48	11.6
		359.55	326.25	2549.00	2370.80	366	42.4	35	8.6
	Mean =	381.14	340.39	2770.99	2473.55	291	32.2	39	9.1
5	PlantPro 45 (2X Rate)	324.57	272.43	2251.35	1979.60	322	25.9	30	7.4
5	Metam Sodium	384.00	335.00	2790.40	2434.30	398	30.4	39	8.8
		292.68	253.32	2126.83	1840.80	368	40.1	38	9.2
		374.78	340.39	2723.40	2473.50	332	38.7	31	7.6
	Mean =	344.01	300.28	2472.99	2182.05	355	33.8	35	8.3
6	Metam Sodium (Appl. Mthd #1, Drip)	378.00	322.74	2684.37	2345.30	333	29.0	29	6.4
		392.49	360.44	2784.17	2619.20	279	30.2	30	6.8
		421.71	370.43	3139.20	2691.80	225	24.4	52	13.4
		293.14	266.14	2182.13	1934.00	150	17.2	35	8.4
	Mean =	371.34	329.94	2697.47	2397.57	247	25.2	37	8.8

01/15/02 (CAT01H)

Plot Data Summary Page 18 of 24

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	TotWt/	TotWt/	TotWt	M-XL	Small	Small	Medium	Medium
Rating Data Type	30 plant	30 plant	/25LB	/25LB	Count	Weight	Count	Weight
Rating Unit	LBs	LBs	Carts	Carts	Number	LBs	Number	LBs
Trt-Eval Interval	S-XL	M-XL			to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type	T6		T9					
# Subsamples, Dec.	2	2	2		0	1	0	1

Trt No.	Treatment Name
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7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium	331.91	289.36	2411.87	2102.70	374	40.2	29	7.0
9	Appl. Method #3, Shank Injected	386.57	350.57	2809.09	2547.50	276	32.4	45	11.6
		384.27	343.23	2996.70	2494.10	505	55.2	76	18.6
		369.43	333.86	2749.99	2426.00	359	43.6	49	12.2

Mean =

10	InLine(CA) or Telone C35 (FL)	316.91	282.14	2302.87	2050.20	320	36.6	35	8.6
10	+ Basamid	465.63	418.47	3464.12	3040.80	349	34.8	30	6.2
		415.29	364.57	3091.35	2649.20	532	51.5	54	13.6
		406.38	364.69	2809.01	2650.10	653	65.0	52	12.8

Mean =

11	InLine(CA) or Telone C35 (FL)	376.23	327.14	2733.92	2377.20	385	38.0	37	9.4
11	+ Metam Sodium	351.71	311.00	2555.79	2259.90	314	32.4	33	7.6
		400.36	373.93	2980.22	2717.20	170	20.6	38	9.0
		341.57	311.43	2542.63	2263.00	314	35.6	43	9.6

Mean =

		367.47	330.87	2703.14	2404.32	296	31.6	38	8.9
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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	TotWt/	TotWt/	TotWt/	M-XL	Small	Small	Medium	Medium
Rating Data Type	30 plant	30 plant	/25LB	/25LB	Count	Weight	Count	Weight
Rating Unit	LBs	LBs	Carts	Carts	Number	LBs	Number	LBs
Trt-Eval Interval	S-XL	M-XL			to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type	T6		T9					
# Subsamples, Dec.	2	2	2		0	1	0	1

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull	Cull
12	InLine(CA) or Telone C35 (FL)	290.85	254.12	1969.43	1846.60	416	41.0	32	7.6
		340.24	304.39	2413.57	2211.90	463	43.5	29	9.6
		408.00	360.71	3037.11	2621.20	328	37.2	42	10.0
		330.29	301.43	2458.61	2190.40	261	27.6	24	6.2
		Mean =	342.35	305.16	2469.68	2217.52	367	37.3	32	8.4
13	Methyl Bromide/Chloropicrin 67/33	365.93	323.50	2538.21	2350.80	216	20.9	32	6.6
		394.73	354.45	2731.75	2575.70	267	28.4	36	7.4
		360.14	317.71	2680.87	2308.70	457	46.8	38	9.2
		391.23	350.62	2704.26	2547.80	340	43.2	36	8.2
		Mean =	378.01	336.57	2663.77	2445.75	320	34.8	36	7.9
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	322.00	283.29	2233.51	2058.50	264	29.4	40	10.2
		388.43	353.71	2822.58	2570.30	457	43.3	46	10.6
		444.57	392.00	3309.35	2848.50	568	56.4	57	13.8
		382.26	357.42	2913.22	2597.20	255	32.6	37	9.2
		Mean =	384.31	346.60	2819.67	2518.63	386	40.4	45	10.9
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	375.29	338.71	2603.12	2461.30	135	21.9	42	10.6
		359.44	332.93	2674.13	2419.30	202	24.2	34	8.2
		279.43	252.71	2080.04	1836.40	361	57.7	36	8.6
		339.07	308.51	2584.10	2241.90	357	51.8	42	10.8
		Mean =	338.31	308.22	2485.35	2239.73	264	38.9	39	9.6
16	Propargyl Bromide	394.86	344.57	2738.87	2503.90	369	38.6	43	9.8
		356.71	309.57	2592.12	2249.60	449	40.3	30	7.2
		378.29	336.43	2815.92	2444.70	383	45.4	36	8.4
		435.30	389.40	3086.03	2829.60	319	53.0	45	10.8
		Mean =	391.29	344.99	2808.24	2506.95	380	44.3	39	9.1
17	Chloropicrin EC + Metam Sodium	324.75	288.55	2359.85	2096.80	548	55.1	41	10.2
		359.29	316.86	2610.81	2302.50	308	32.2	48	10.8
		375.95	334.09	2931.83	2427.70	618	65.4	39	9.6
		343.14	316.57	2554.32	2300.40	349	41.7	34	7.4
		Mean =	350.78	314.02	2614.20	2281.85	456	48.6	41	9.5

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	TotWt/	TotWt/	TotWt/	M-XL	Small	Small	Medium	Medium
Rating Data Type	30 plant	30 plant	/25LB	/25LB	Count	Weight	Count	Weight
Rating Unit	LBs	LBs	Carts	Carts	Number	LBs	Number	LBs
Trt-Eval Interval	S-XL	M-XL			to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type	T6		T9					
# Subsamples, Dec.	2	2	2		0	1	0	1

Trt No.	Treatment Name
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18	Metam Sodium Spray Check	321.27	276.55	2334.58	2009.60	586	59.4	30	7.8
		465.57	405.14	3383.15	2944.00	610	55.6	60	12.8
		421.14	376.14	3134.95	2733.30	364	37.8	39	10.5
		380.51	345.49	2899.93	2510.50	412	48.6	59	15.4
		Mean =	397.12	350.83	2938.15	2549.35	493	50.3	47	11.6
19	Untreated Control	318.98	270.70	2265.22	1967.10	479	48.2	25	6.2
		349.29	304.57	2538.14	2213.20	311	33.4	35	8.8
		374.80	326.93	2922.79	2375.70	398	67.1	55	12.8
		383.45	349.64	2990.32	2540.70	297	34.8	45	11.4
		Mean =	356.63	312.96	2679.12	2274.18	371	45.9	40	9.8

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Xlarge	Xlarge	Total	Total	Tot #/	TotWt/
Rating Data Type	Count	Weight	Count	Weight	Count	Weight	30 plant	30 plant
Rating Unit	Number	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type					T3	T4	T7	T8
# Subsamples, Dec.	0	1	0	1	0	1	0	1

Trt No.	Treatment Name	Cull	Cull	Cull	Cull	Cull	Cull	Cull	
1	Methyl Iodide (1X Rate)	35	9.0	53	30.6	580	93.3	395	63.6
1	/Chloropicrin	48	13.2	97	52.2	533	113.2	381	80.9
		45	15.0	79	38.6	579	106.8	424	78.1
		38	12.6	82	44.2	565	114.6	413	83.9
	Mean =	42	12.5	78	41.4	564	107.0	403	76.6
2	Methyl Iodide (1/2X Rate)	52	17.2	100	52.0	674	127.8	460	87.1
2	/Chloropicrin	33	11.0	80	44.8	315	80.0	225	57.1
		57	20.4	94	53.4	640	128.0	457	91.4
		40	13.2	119	72.8	490	132.4	342	92.4
	Mean =	46	15.4	98	55.8	530	117.0	371	82.0
3	Methyl Iodide (1/2X Rate)	21	7.6	111	56.6	544	110.2	380	76.9
		37	14.6	69	36.4	532	96.6	380	69.0
		42	17.0	77	42.2	531	110.0	379	78.6
		19	5.8	78	45.8	504	102.8	360	73.4
	Mean =	30	11.3	84	45.3	528	104.9	375	74.5
4	PlantPro 45 (1X Rate)	41	13.2	64	37.4	348	81.8	249	58.4
4	Metam Sodium	27	8.4	84	51.1	396	92.5	283	66.1
		43	14.8	90	47.8	525	112.6	358	76.8
		23	7.2	80	46.6	504	104.8	378	78.6
	Mean =	34	10.9	80	45.7	443	97.9	317	70.0
5	PlantPro 45 (2X Rate)	35	9.8	85	45.6	472	88.7	337	63.4
5	Metam Sodium	39	12.8	53	28.6	529	80.6	378	57.6
		61	21.0	66	34.0	533	104.3	390	76.3
		20	6.8	84	52.0	467	105.1	342	76.9
	Mean =	39	12.6	72	40.0	500	94.7	362	68.5
6	Metam Sodium (Appl. Mthd #1, Drip)	30	10.8	79	45.4	471	91.6	329	63.9
		19	6.2	92	48.8	420	92.0	307	67.3
		59	20.2	87	51.6	423	109.6	302	78.3
		66	15.8	90	51.0	341	92.4	244	66.0
	Mean =	44	13.3	87	49.2	414	96.4	295	68.9

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Xlarge	Xlarge	Total	Total	Tot #/	TotWt/
Rating Data Type	Count	Weight	Count	Weight	Count	Weight	30 plant	30 plant
Rating Unit	Number	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type					T3	T4	T7	T8
# Subsamples, Dec.	0	1	0	1	0	1	0	1

Trt	Treatment
No.	Name

7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium	42	14.0	65	39.6	510	100.8	348	68.7
9	Appl. Method #3, Shank Injected	46	15.3	83	48.6	450	107.9	321	77.1
		42	14.4	92	49.4	715	137.6	488	93.8
		38	12.2	97	54.4	543	122.4	388	87.4

Mean = 42 14.0 84 48.0 555 117.2 386 81.8

10	InLine(CA) or Telone C35 (FL)	39	12.8	100	59.2	494	117.2	337	79.9
10	+ Basamid	59	19.4	55	31.6	493	92.0	344	64.2
		60	19.8	120	69.8	766	154.7	547	110.5
		59	21.6	143	88.6	907	188.0	698	144.6

Mean = 54 18.4 105 62.3 665 138.0 481 99.8

11	InLine(CA) or Telone C35 (FL)	46	14.6	101	60.2	569	122.2	388	83.3
11	+ Metam Sodium	32	10.4	81	48.6	460	99.0	329	70.7
		39	13.2	77	45.7	324	88.5	231	63.2
		42	15.0	83	47.0	482	107.2	344	76.6

Mean = 40 13.3 86 50.4 459 104.2 323 73.5

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Xlarge	Xlarge	Total	Total	Tot #/	TotWt/
Rating Data Type	Count	Weight	Count	Weight	Count	Weight	30 plant	30 plant
Rating Unit	Number	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type					T3	T4	T7	T8
# Subsamples, Dec.	0	1	0	1	0	1	0	1

Trt No.	Treatment Name	Cull	Cull	Cull	Cull	Cull	Cull	Cull	
12	InLine(CA) or Telone C35 (FL)	23	7.6	105	61.4	576	117.6	421	86.0
		17	5.6	108	61.2	617	119.9	451	87.7
		39	12.4	129	73.6	538	133.2	384	95.1
		21	6.2	90	51.0	396	91.0	283	65.0
		Mean =	25	7.9	108	61.8	532	115.4	385	83.5
13	Methyl Bromide/Chloropicrin 67/33	30	9.6	79	44.0	357	81.1	255	57.9
		45	15.2	47	25.6	395	76.6	296	57.5
		52	17.8	93	50.8	640	124.6	457	89.0
		35	11.6	93	49.6	504	112.6	388	86.6
		Mean =	41	13.5	78	42.5	474	98.7	349	72.7
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	36	12.4	96	57.4	436	109.4	311	78.1
		34	10.4	79	44.2	616	108.5	440	77.5
		56	19.6	121	70.0	802	159.8	573	114.1
		24	8.2	80	47.2	396	97.2	276	67.8
		Mean =	38	12.7	94	54.7	563	118.7	400	84.4
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	29	9.0	72	41.9	278	83.4	199	59.6
		61	19.0	98	55.6	395	107.0	276	74.7
		34	12.6	92	49.2	523	128.1	374	91.5
		30	10.0	117	70.2	546	142.8	381	99.6
		Mean =	39	12.6	95	54.2	436	115.3	307	81.3
16	Propargyl Bromide	47	15.2	120	70.6	579	134.2	414	95.9
		39	12.0	84	48.4	602	107.9	430	77.1
		53	37.8	134	80.0	606	171.6	433	122.6
		57	18.2	94	50.4	515	132.4	386	99.3
		Mean =	49	20.8	108	62.3	576	136.5	416	98.7
17	Chloropicrin EC + Metam Sodium	49	14.4	135	78.6	773	158.3	527	107.9
		33	11.2	90	54.8	479	109.0	342	77.9
		50	16.4	94	54.4	801	145.8	546	99.4
		29	9.8	120	70.6	532	129.5	380	92.5
		Mean =	40	12.9	110	64.6	646	135.6	449	94.4

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Large	Xlarge	Xlarge	Total	Total	Tot #/	TotWt/
Rating Data Type	Count	Weight	Count	Weight	Count	Weight	30 plant	30 plant
Rating Unit	Number	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8	to 11-8
PRM Data Type					T3	T4	T7	T8
# Subsamples, Dec.	0	1	0	1	0	1	0	1

Trt	Treatment	No.	Name								
18	Metam Sodium Spray Check			34	10.8	87	51.4	737	129.4	503	88.2
				49	16.4	70	38.0	789	122.8	564	87.7
				40	13.4	74	47.8	517	109.5	369	78.2
				36	12.2	94	52.2	601	128.4	419	89.6
			Mean =	40	13.2	81	47.3	661	122.5	464	85.9
19	Untreated Control			45	14.6	57	30.6	606	99.6	423	69.5
				48	17.4	85	47.8	479	107.4	342	76.7
				40	50.2	83	44.6	576	174.7	393	119.1
				24	11.2	99	53.6	465	111.0	317	75.7
			Mean =	39	23.3	81	44.2	532	123.2	369	85.2

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Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/13/00	9/13/00	9/13/00	9/23/00	9/23/00	9/23/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name
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1	Methyl Iodide (1X Rate) 1 /Chloropicrin	108.85 a	450.65 a	2966.55 a	276.40 ab	701.80 ab	4405.77 b
2	Methyl Iodide (1/2X Rate) 2 /Chloropicrin	100.80 a	400.25 a	2931.63 ab	220.45 ab	714.93 ab	4865.25 ab
3	Methyl Iodide (1/2X Rate)	117.22 a	492.63 a	2453.40 ab	312.80 a	801.27 a	4444.35 b
4	PlantPro 45 (1X Rate) 4 Metam Sodium	75.18 a	353.08 a	2574.95 ab	292.98 ab	827.90 a	5299.55 ab
5	PlantPro 45 (2X Rate) 5 Metam Sodium	85.23 a	387.80 a	2635.60 ab	282.05 ab	781.25 a	4611.27 ab
6	Metam Sodium (Appl. Mthd #1, Drip)	100.00 a	363.30 a	2592.45 ab	203.92 ab	584.72 ab	4683.65 ab
7	Metam Sodium 7 Appl. Method #2, Spray/Incorporate						
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate						
9	Metam Sodium 9 Appl. Method #3, Shank Injected	92.23 a	428.50 a	2700.15 ab	187.08 b	656.25 ab	4808.55 ab
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	74.20 a	394.85 a	2473.83 ab	211.85 ab	624.13 ab	5792.10 a
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	87.85 a	349.05 a	2517.55 ab	226.95 ab	480.10 b	5043.63 ab
12	InLine(CA) or Telone C35 (FL)	112.20 a	374.58 a	2647.38 ab	204.52 ab	781.25 a	4537.95 ab
13	Methyl Bromide/Chloropicrin 67/33	90.60 a	396.77 a	2749.55 ab	231.25 ab	733.85 ab	5138.27 ab
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	97.55 a	427.67 a	2968.15 a	227.00 ab	707.00 ab	5296.30 ab

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/13/00	9/13/00	9/13/00	9/23/00	9/23/00	9/23/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	92.40 a	312.80 a	2148.82 ab	256.67 ab	649.38 ab	5187.70 ab
16	Propargyl Bromide	110.77 a	391.60 a	2046.38 b	221.95 ab	701.72 ab	5649.55 ab
17	Chloropicrin EC + Metam Sodium	99.27 a	338.67 a	2300.95 ab	235.73 ab	679.90 ab	4889.42 ab
18	Metam Sodium Spray Check	96.30 a	416.98 a	2846.15 ab	281.67 ab	641.08 ab	4996.35 ab
19	Untreated Control	93.88 a	371.98 a	2549.40 ab	203.40 ab	798.45 a	4514.50 ab
LSD (P=.05)		54.852	163.620	746.702	93.458	224.505	1106.531
Standard Deviation		38.388	114.495	522.512	65.398	157.099	774.305
CV		39.92	29.26	20.14	27.27	22.51	15.64
Replicate F		9.592	9.846	18.304	23.976	25.566	2.165
Replicate Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.1043
Treatment F		0.390	0.589	1.028	1.277	1.283	1.114
Treatment Prob(F)		0.9787	0.8762	0.4459	0.2502	0.2468	0.3697

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT01Hm)

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Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	
PRM Data Type	10/7/00	10/7/00	10/7/00	10/21/00	10/21/00	10/21/00	
# Subsamples, Dec.	2	2	2	2	2	2	
Trt No.	Treatment Name						
1	Methyl Iodide (1X Rate)	393.73 a	1014.15 a	1408.40 a	875.40 a	732.53 ab	878.10 a-d
1	/Chloropicrin						
2	Methyl Iodide (1/2X Rate)	434.05 a	1030.32 a	1691.50 a	645.67 abc	729.58 ab	827.75 bcd
2	/Chloropicrin						
3	Methyl Iodide (1/2X Rate)	447.10 a	1078.55 a	1768.30 a	543.35 abc	727.27 ab	999.82 a-d
4	PlantPro 45 (1X Rate)	400.75 a	781.08 a	1134.80 a	413.50 c	602.38 b	1036.43 a-d
4	Metam Sodium						
5	PlantPro 45 (2X Rate)	272.55 a	708.08 a	1041.38 a	465.72 bc	429.85 b	484.17 d
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)	333.85 a	710.30 a	1728.13 a	661.08 abc	798.45 ab	1529.07 a
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium	325.73 a	776.30 a	1326.65 a	626.15 abc	865.20 ab	1228.15 abc
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)	304.48 a	722.78 a	1436.85 a	767.15 abc	817.38 ab	1507.40 a
10	+ Basamid						
11	InLine(CA) or Telone C35 (FL)	423.95 a	804.43 a	1825.52 a	673.23 abc	771.63 ab	1373.25 ab
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)	395.77 a	739.53 a	1276.15 a	662.73 abc	541.28 b	619.70 cd
13	Methyl Bromide/Chloropicrin 67/33	455.77 a	913.03 a	1474.88 a	800.27 ab	680.13 ab	1157.97 abc
14	Fosthiazate 500 EC	417.83 a	952.25 a	1535.70 a	660.75 abc	580.13 b	1118.98 a-d
14	+ Metam Sodium						
14	+ Chloropicrin EC						

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	10/7/00	10/7/00	10/7/00	10/21/00	10/21/00	10/21/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name
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15	Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	363.27 a	655.02 a	1304.23 a	636.35 abc	529.65 b	1217.88 abc
16	Propargyl Bromide	443.65 a	980.80 a	1663.53 a	689.38 abc	793.80 ab	1404.60 ab
17	Chloropicrin EC + Metam Sodium	346.25 a	743.52 a	1388.10 a	728.53 abc	1184.28 a	1202.83 abc
18	Metam Sodium Spray Check	394.30 a	794.90 a	1293.05 a	650.15 abc	737.97 ab	1363.15 ab
19	Untreated Control	457.77 a	786.55 a	1575.12 a	448.78 bc	587.17 b	810.70 bcd
LSD (P=.05)		164.367	397.690	738.426	302.232	430.952	555.460
Standard Deviation		115.017	278.287	516.721	211.489	301.563	388.688
CV		29.58	33.34	35.32	32.84	42.34	35.22
Replicate F		9.629	4.249	1.022	9.604	15.076	16.967
Replicate Prob(F)		0.0001	0.0097	0.3914	0.0001	0.0001	0.0001
Treatment F		0.947	0.891	0.756	1.329	1.278	2.420
Treatment Prob(F)		0.5253	0.5827	0.7236	0.2195	0.2494	0.0094

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Total	Total	Total
PRM Data Type	11/4/00	11/4/00	11/4/00	Season	Season	Season
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	997.03 d	942.65 abc	807.17 a	2345.70 b	3089.50 c	10665.80 ab
16	Propargyl Bromide	1377.68 bcd	1157.90 abc	760.20 a	2843.43 ab	4025.82 abc	11524.25 ab
17	Chloropicrin EC + Metam Sodium	1015.47 d	810.63 bc	662.50 a	2425.20 b	3757.00 abc	10443.83 ab
18	Metam Sodium Spray Check	1673.38 ab	1513.00 a	873.35 a	3095.77 ab	4103.98 ab	11372.10 ab
19	Untreated Control	1496.82 a-d	940.60 abc	536.02 a	2700.68 ab	3484.75 bc	9985.72 ab
LSD (P=.05)		516.487	510.487	551.524	635.853	807.508	2143.622
Standard Deviation		361.417	357.218	385.934	444.944	565.062	1500.020
CV		25.96	31.04	49.49	16.11	14.92	13.77
Replicate F		5.283	3.637	3.434	6.192	5.462	3.476
Replicate Prob(F)		0.0031	0.0191	0.0241	0.0012	0.0026	0.0230
Treatment F		2.521	1.613	0.639	1.944	1.801	1.048
Treatment Prob(F)		0.0069	0.1015	0.8360	0.0389	0.0593	0.4271

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT01Hm)

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Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value
Crop Code	Tomato
Part Rated	TIMXL
Rating Data Type	Dollar/A
Rating Unit	25lb ctn
Trt-Eval Interval	Total
PRM Data Type	Season
# Subsamples, Dec.	

Trt No.	Treatment Name
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1	Methyl Iodide (1X Rate)	18138.45	ab
1	/Chloropicrin		
2	Methyl Iodide (1/2X Rate)	19002.75	a
2	/Chloropicrin		
3	Methyl Iodide (1/2X Rate)	17841.25	ab
4	PlantPro 45 (1X Rate)	17688.03	ab
4	Metam.Sodium		
5	PlantPro 45 (2X Rate)	15075.08	b
5	Metam Sodium		
6	Metam Sodium (Appl. Mthd #1, Drip)	17692.55	ab
7	Metam Sodium		
7	Appl. Method #2, Spray/Incorporate		
8	Metam Sodium		
8	Appl. Method #2, Spray/Incorporate		
9	Metam Sodium	17359.57	ab
9	Appl. Method #3, Shank Injected		
10	InLine(CA) or Telone C35 (FL)	19133.35	a
10	+ Basamid		
11	InLine(CA) or Telone C35 (FL)	17688.50	ab
11	+ Metam Sodium		
12	InLine(CA) or Telone C35 (FL)	15591.80	ab
13	Methyl Bromide/Chloropicrin 67/33	17474.35	ab
14	Fosthiazate 500 EC	17925.03	ab
14	+ Metam Sodium		
14	+ Chloropicrin EC		

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson.
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value
Crop Code	Tomato
Part Rated	TIMXL
Rating Data Type	Dollar/A
Rating Unit	25lb ctn
Trt-Eval Interval	Total
PRM Data Type	Season
# Subsamples, Dec.	

Trt	Treatment
No.	Name

15	Fosthiazate 900 EC	16101.03	ab
15	+ Metam Sodium		
15	+ Chloropicrin EC		
16	Propargyl Bromide	18393.50	ab
17	Chloropicrin EC + Metam Sodium	16626.00	ab
18	Metam Sodium Spray Check	18571.82	ab
19	Untreated Control	16171.13	ab
LSD (P=.05)		2980.153	
Standard Deviation		2085.390	
CV		11.96	
Replicate F		3.966	
Replicate Prob(F)		0.0132	
Treatment F		1.245	
Treatment Prob(F)		0.2711	

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/13/00	9/13/00	9/13/00	9/23/00	9/23/00	9/23/00	10/7/00	10/7/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value
1	Methyl Iodide (1X Rate)	115.90	370.60	2207.30	236.30	499.40	3448.40	296.30
1	/Chloropicrin	42.00	279.80	3134.50	65.40	342.60	4559.30	290.10
		119.60	590.70	3316.30	416.30	982.60	4536.50	504.60
		157.90	561.50	3208.10	387.60	982.60	5078.90	483.90
	Mean =	108.85	450.65	2966.55	276.40	701.80	4405.77	393.73
2	Methyl Iodide (1/2X Rate)	98.10	337.90	2474.30	196.20	493.50	4304.50	367.10
2	/Chloropicrin	65.40	348.30	1918.40	154.20	635.30	5313.00	303.60
		102.80	491.00	3134.50	285.00	921.80	3662.40	755.70
		136.90	423.80	4199.30	246.40	809.10	6181.10	309.80
	Mean =	100.80	400.25	2931.63	220.45	714.93	4865.25	434.05
3	Methyl Iodide (1/2X Rate)	127.80	451.70	1723.20	228.10	626.60	4404.60	270.20
		56.10	468.20	1764.20	210.20	685.10	4198.10	587.00
		186.90	593.80	2934.70	429.80	946.70	4366.20	681.50
		98.10	456.80	3391.50	383.10	946.70	4808.50	249.70
	Mean =	117.22	492.63	2453.40	312.80	801.27	4444.35	447.10
4	PlantPro 45 (1X Rate)	84.10	165.60	1455.90	130.80	417.30	6515.10	404.90
4	Metam Sodium	65.40	485.30	2161.10	350.40	903.10	5917.10	357.60
		58.00	299.80	3223.70	352.30	1082.10	3638.60	521.70
		93.20	461.60	3459.10	338.40	909.10	5127.40	318.80
	Mean =	75.18	353.08	2574.95	292.98	827.90	5299.55	400.75
5	PlantPro 45 (2X Rate)	88.80	279.80	2466.50	200.90	573.00	3986.30	337.40
5	Metam Sodium	65.40	388.20	2209.60	238.20	529.40	5991.90	310.40
		81.40	503.00	2438.90	301.50	1052.80	3292.30	276.50
		105.30	380.20	3427.40	387.60	969.80	5174.60	165.90
	Mean =	85.23	387.80	2635.60	282.05	781.25	4611.27	272.55
6	Metam Sodium (Appl. Mthd #1, Drip)	104.90	329.00	2509.50	241.80	681.40	4933.90	290.00
		33.50	456.20	2807.40	167.50	555.10	4893.80	262.70
		107.40	416.80	2654.90	126.10	417.30	4727.50	371.10
		154.20	251.20	2398.00	280.30	685.10	4179.40	411.60
	Mean =	100.00	363.30	2592.45	203.92	584.72	4683.65	333.85

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/13/00	9/13/00	9/13/00	9/23/00	9/23/00	9/23/00	10/7/00	10/7/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name
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7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	98.10	288.90	1978.40	115.90	398.30	4839.60	77.30	561.80
9 Appl. Method #3, Shank Injected	51.40	279.80	2586.40	88.80	311.40	5381.50	512.80	887.60
	102.60	648.60	3215.50	258.60	981.00	4702.90	334.90	936.40
	116.80	496.70	3020.30	285.00	934.30	4310.20	377.90	719.40

Mean = 92.23 | 428.50 2700.15 187.08 656.25 4808.55 325.73 776.30

10 InLine(CA) or Telone C35 (FL)	31.20	239.80	1122.70	165.00	469.70	5053.60	257.60	428.10
10 + Basamid	59.30	513.10	3000.30	132.30	602.30	7032.80	217.50	355.90
	65.40	325.40	2335.20	303.60	753.70	5917.10	452.10	859.50
	140.90	501.10	3437.10	246.50	670.80	5164.90	290.70	1247.60

Mean = 74.20 394.85 2473.83 211.85 624.13 5792.10 304.48 722.78

11 InLine(CA) or Telone C35 (FL)	75.80	174.40	1651.40	165.00	481.60	5749.20	380.00	1096.90
11 + Metam Sodium	112.10	319.70	2500.80	182.20	242.90	4708.80	377.90	588.60
	32.70	342.60	2161.10	266.30	635.30	5873.50	600.50	934.30
	130.80	559.50	3756.90	294.30	560.60	3843.00	337.40	597.90

Mean = 87.85 349.05 2517.55 226.95 480.10 5043.63 423.95 804.43

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/13/00	9/13/00	9/13/00	9/23/00	9/23/00	9/23/00	10/7/00	10/7/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value
12	InLine(CA) or Telone C35 (FL)	124.40	418.20	1549.90	201.00	759.30	4243.00	497.70
		81.40	280.70	1982.70	210.60	472.20	4727.90	241.90
		88.80	331.20	3322.90	186.90	1133.60	4864.50	546.60
		154.20	468.20	3734.00	219.60	759.90	4316.40	296.90
		Mean =	112.20	374.58	2647.38	204.52	781.25	4537.95	395.77
13	Methyl Bromide/Chloropicrin 67/33	51.40	354.00	2517.90	168.20	492.10	5010.90	269.90
		34.30	347.70	3189.30	220.70	477.40	5572.10	297.60
		130.80	559.50	2677.80	289.60	1040.20	4503.30	681.50
		145.90	325.90	2613.20	246.50	925.70	5466.80	574.10
		Mean =	90.60	396.77	2749.55	231.25	733.85	5138.27	455.77
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	93.40	291.20	1735.70	172.80	541.90	4341.30	222.70
		28.00	182.70	2923.30	149.50	747.40	5611.90	512.80
		177.50	668.00	3362.90	266.30	766.10	6079.10	560.10
		91.30	568.80	3850.70	319.40	772.60	5152.90	375.70
		Mean =	97.55	427.67	2968.15	227.00	707.00	5296.30	417.83
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	65.40	291.20	2232.40	98.10	361.30	5225.80	418.40
		41.10	184.00	1572.60	214.50	669.20	6217.60	316.40
		130.80	513.90	2392.30	490.50	934.30	4154.50	276.70
		132.30	262.10	2398.00	223.60	632.70	5152.90	441.60
		Mean =	92.40	312.80	2148.82	256.67	649.38	5187.70	363.27
16	Propargyl Bromide	51.40	154.20	2209.60	130.80	442.20	5362.80	425.10
		42.00	262.60	1604.40	107.40	429.80	4546.90	479.10
		266.30	747.90	2255.30	350.40	803.50	5082.50	445.30
		83.40	401.70	2116.20	299.20	1131.40	7606.00	425.10
		Mean =	110.77	391.60	2046.38	221.95	701.72	5649.55	443.65
17	Chloropicrin EC + Metam Sodium	89.20	272.50	2005.60	111.50	451.90	4625.60	225.40
		98.10	314.00	1724.30	182.20	467.10	4833.40	215.90
		107.00	414.20	1951.10	298.80	1165.30	5315.20	586.10
		102.80	354.00	3522.80	350.40	635.30	4783.50	357.60
		Mean =	99.27	338.67	2300.95	235.73	679.90	4889.42	346.25

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctr	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/13/00	9/13/00	9/13/00	9/23/00	9/23/00	9/23/00	10/7/00	10/7/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value
18	Metam Sodium Spray Check	107.00	327.00	1896.60	165.00	487.50	4399.60	264.10
		51.40	388.20	3494.20	154.20	460.90	5574.60	296.90
		135.50	439.60	2826.20	387.70	685.10	5381.50	620.80
		91.30	513.10	3167.60	419.80	930.80	4629.70	395.40
		Mean =	96.30	416.98	2846.15	281.67	641.08	4996.35	394.30
19	Untreated Control	118.60	435.00	2041.10	146.00	717.90	3911.80	461.30
		60.70	142.70	1690.00	168.20	710.10	5014.00	377.90
		71.30	408.80	2907.60	272.00	1004.80	4334.20	547.50
		124.90	501.40	3558.90	227.40	761.00	4798.00	444.40
		Mean =	93.88	371.98	2549.40	203.40	798.45	4514.50	457.77

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Total
PRM Data Type	10/7/00	10/21/00	10/21/00	10/21/00	11/4/00	11/4/00	11/4/00	Season
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value
1	Methyl Iodide (1X Rate)	1327.80	1257.50	832.40	1150.50	1308.00	817.50	3214.00
1	/Chloropicrin	1785.50	597.90	847.10	1457.50	2225.70	2500.80	3221.20
		1425.00	1215.50	906.00	545.50	1539.80	994.30	3795.90
		1095.30	430.70	344.60	358.90	1684.50	959.20	3144.50
	Mean =	1408.40	875.40	732.53	878.10	1689.50	1317.95	3343.90
2	Methyl Iodide (1/2X Rate)	2080.90	954.20	832.40	1431.40	1950.10	1427.90	3565.80
2	/Chloropicrin	1474.10	738.10	1208.30	1191.20	1702.50	1107.60	2963.80
		1609.00	616.60	330.10	168.20	2425.00	1381.70	4185.10
		1602.00	273.80	547.50	520.20	1954.90	1751.10	2921.70
	Mean =	1691.50	645.67	729.58	827.75	2008.13	1417.07	3409.10
3	Methyl Iodide (1/2X Rate)	1804.80	538.40	766.50	369.60	721.90	702.70	1886.50
		1764.80	812.80	1096.20	2032.10	1843.70	1804.20	3509.80
		1764.80	569.90	710.10	672.70	1511.50	1530.10	3379.50
		1738.80	252.30	336.30	924.90	1710.80	1712.90	2693.90
	Mean =	1768.30	543.35	727.27	999.82	1446.98	1437.47	2867.42
4	PlantPro 45 (1X Rate)	1899.70	719.40	660.20	1443.50	2175.80	1815.60	3515.00
4	Metam Sodium	955.00	56.10	946.70	1471.50	1378.60	1050.60	2208.00
		1248.50	633.20	475.60	642.10	1878.80	1362.50	3443.90
		436.00	245.30	327.00	588.60	1116.20	1282.90	2111.90
	Mean =	1134.80	413.50	602.38	1036.43	1637.35	1377.90	2819.70
5	PlantPro 45 (2X Rate)	1422.20	579.30	610.40	574.60	1021.50	673.70	2227.80
5	Metam Sodium	882.40	738.10	573.00	658.70	1818.70	1336.00	3170.90
		638.00	220.10	293.50	229.70	1199.50	842.20	2079.00
		1222.90	325.40	242.50	473.70	1216.50	1485.60	2200.70
	Mean =	1041.38	465.72	429.85	484.17	1314.05	1084.38	2419.60
6	Metam Sodium (Appl. Mthd #1, Drip)	1044.40	629.70	961.20	1067.70	1792.70	1104.20	3059.10
		1861.00	1033.60	1161.30	2498.00	1573.90	1450.50	3071.10
		3000.10	654.00	872.00	1709.70	2092.80	1553.00	3351.50
		1007.00	327.00	199.30	840.90	855.40	525.30	2028.40
	Mean =	1728.13	661.08	798.45	1529.07	1578.70	1158.25	2877.53

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Total
PRM Data Type	10/7/00	10/21/00	10/21/00	10/21/00	11/4/00	11/4/00	11/4/00	Season
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	872.00	749.10	1308.00	1418.00	1252.50	1024.60	737.20	2293.00
9 Appl. Method #3, Shank Injected	1650.60	812.80	1332.90	1709.70	1428.40	1290.40	959.20	2894.20
	1050.40	606.40	309.20	481.60	1831.20	1199.00	440.00	3133.70
	1733.60	336.30	510.70	1303.30	1486.60	970.60	735.00	2602.50

Mean = 1326.65 626.15 865.20 1228.15 1499.67 1121.15 717.85 2730.85

10 InLine(CA) or Telone C35 (FL)	1476.50	856.10	891.80	2100.20	1173.20	959.20	535.10	2483.20
10 + Basamid	922.70	857.80	1192.40	1765.80	2133.40	1862.60	1922.50	3400.30
	1671.30	569.90	635.30	1303.30	1536.40	1564.40	1108.70	2927.40
	1676.90	784.80	550.00	860.30	1198.40	1119.10	912.30	2661.30

Mean = 1436.85 767.15 817.38 1507.40 1510.35 1376.33 1119.65 2868.05

11 InLine(CA) or Telone C35 (FL)	1436.80	936.40	1105.80	1484.90	1197.00	1242.60	725.40	2754.20
11 + Metam Sodium	726.70	672.70	585.50	1443.50	1362.00	1416.00	1569.60	2706.80
	3290.80	457.80	1009.00	2032.10	1129.40	1141.90	660.20	2486.80
	1847.80	626.00	386.20	532.50	789.00	776.50	436.00	2177.40

Mean = 1825.52 673.23 771.63 1373.25 1119.35 1144.25 847.80 2531.30

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Total
PRM Data Type	10/7/00	10/21/00	10/21/00	10/21/00	11/4/00	11/4/00	11/4/00	Season
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value
12	InLine(CA) or Telone C35 (FL)	1212.30	880.50	587.00	430.70	382.80	503.00	2086.40
		1286.70	976.20	880.50	1263.30	1420.70	1087.90	2930.80
		1671.30	513.90	411.10	420.40	1636.00	1278.90	2972.10
		934.30	280.30	286.50	364.40	780.60	822.20	1731.50
		Mean =	1276.15	662.73	541.28	619.70	1055.03	923.00	2430.20
13	Methyl Bromide/Chloropicrin 67/33	1671.30	719.40	859.50	1625.70	1054.70	890.70	2263.60
		937.40	1344.00	1007.20	1530.40	1630.60	1007.20	3527.20
		1110.80	513.90	411.10	238.20	888.60	639.50	1071.30
		2180.00	623.80	442.70	1237.60	858.60	565.70	2448.90
		Mean =	1474.88	800.27	680.13	1157.97	1108.13	775.77	2686.02
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	1204.20	672.70	510.70	840.90	1511.50	1370.30	2673.10
		1785.50	756.80	722.50	1625.70	1063.00	1050.60	2510.10
		1733.60	775.50	710.10	1051.10	1229.10	1050.50	3008.40
		1419.50	438.00	377.20	958.20	762.50	780.70	1986.80
Mean =	1535.70	660.75	580.13	1118.98	1141.53	1063.03	2544.60	
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	1671.30	1130.50	934.30	1934.00	1278.90	1221.80	2991.30
		1155.90	456.30	644.90	1806.90	1492.50	1349.60	2520.70
		737.00	411.10	174.40	350.40	348.80	251.20	1657.80
		1652.70	547.50	365.00	780.20	867.90	948.00	2213.00
Mean =	1304.23	636.35	529.65	1217.88	997.03	942.65	2345.70	
16	Propargyl Bromide	1827.00	896.90	747.40	1261.30	1661.00	1221.80	3165.20
		1090.00	738.10	1121.10	2340.40	1685.90	1541.60	3052.50
		1775.10	700.70	809.70	1163.20	1021.50	765.10	2784.20
		1962.00	421.80	497.00	853.50	1142.30	1103.10	2371.80
		Mean =	1663.53	689.38	793.80	1404.60	1377.68	1157.90	2843.43
17	Chloropicrin EC + Metam Sodium	1535.90	677.80	737.20	1391.20	975.10	882.90	2078.90
		1152.30	859.50	2778.00	1331.40	1320.50	1153.30	2676.20
		1545.80	909.70	761.00	1163.80	1101.90	566.80	3003.40
		1318.40	467.10	460.90	924.90	664.40	639.50	1942.30
		Mean =	1388.10	728.53	1184.28	1202.83	1015.47	810.63	2425.20

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Total
PRM Data Type	10/7/00	10/21/00	10/21/00	10/21/00	11/4/00	11/4/00	11/4/00	Season
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name
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18	Metam Sodium Spray Check	971.10	642.10	582.70	1230.70	1466.50	926.50	487.50	2644.70
		1692.10	700.70	1345.40	2018.10	1951.60	1849.90	1270.60	3154.80
		1505.20	719.40	597.90	1177.20	1669.30	1769.90	847.10	3532.60
		1003.80	538.40	425.90	1026.60	1606.10	1505.70	888.20	3051.00
		Mean =	1293.05	650.15	737.97	1363.15	1673.38	1513.00	873.35	3095.77
19	Untreated Control	628.70	675.30	997.70	944.50	1224.90	814.20	462.40	2626.10
		2045.00	308.30	423.50	1121.10	2225.70	833.60	373.70	3140.80
		2249.40	356.70	451.90	387.90	983.00	1035.50	344.80	2230.50
		1377.40	454.80	475.60	789.30	1553.70	1079.10	963.20	2805.30
		Mean =	1575.12	448.78	587.17	810.70	1496.82	940.60	536.02	2700.68

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato
Part Rated	Large	Xlarge	TtIMXL
Rating Data Type	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Total	Total	Total
PRM Data Type	Season	Season	Season
# Subsamples, Dec.	2	2	

Trt No.	Treatment Name	Value	Value	Value
1	Methyl Iodide (1X Rate)	3616.80	8490.60	15321.40
1	/Chloropicrin	4661.60	13017.20	20900.00
		4794.40	10461.30	19051.60
		3795.30	10340.90	17280.80
	Mean =	4217.03	10577.50	18138.45
2	Methyl Iodide (1/2X Rate)	4340.20	10945.10	18851.10
2	/Chloropicrin	3804.10	10968.00	17735.90
		4507.40	9682.80	18375.30
		4517.20	13609.80	21048.70
	Mean =	4292.23	11301.42	19002.75
3	Methyl Iodide (1/2X Rate)	3423.60	8569.90	13880.00
		5277.70	10631.10	19418.60
		5163.50	10747.40	19290.40
		4284.20	11798.00	18776.00
	Mean =	4537.25	10436.60	17841.25
4	PlantPro 45 (1X Rate)	3778.10	12958.60	20251.70
4	Metam Sodium	3908.90	11239.70	17356.70
		4611.20	9240.50	17295.60
		3471.10	10265.10	15848.10
	Mean =	3942.33	10925.97	17688.03
5	PlantPro 45 (2X Rate)	2818.90	8922.90	13969.60
5	Metam Sodium	3742.30	10253.30	17166.50
		3323.20	6930.80	12333.00
		3681.00	10949.50	16831.20
	Mean =	3391.35	9264.13	15075.08
6	Metam Sodium (Appl. Mthd #1, Drip)	3550.40	10285.50	16895.00
		4139.90	12825.80	20036.90
		4455.00	12802.30	20608.80
		2315.00	8886.10	13229.50
	Mean =	3615.07	11199.93	17692.55

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Oceanside, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato
Part Rated	Large	Xlarge	TtIMXL
Rating Data Type	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Total	Total	Total
PRM Data Type	Season	Season	Season
# Subsamples, Dec.	2	2	

Trt	Treatment
No.	Name

- 7 Metam Sodium
- 7 Appl. Method #2, Spray/Incorporate

Mean =

- 8 Metam Sodium
- 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	3581.60	9845.20	15719.80
9 Appl. Method #3, Shank Injected	4102.00	12287.40	19283.70
	4074.10	9890.30	17098.10
	3631.80	11102.40	17336.70

Mean = 3847.38 10781.33 17359.57

10 InLine(CA) or Telone C35 (FL)	2988.60	10288.10	15759.90
10 + Basamid	4526.30	14644.00	22570.60
	4138.40	12335.70	19401.50
	4088.60	12051.50	18801.40

Mean = 3935.48 12329.83 19133.35

11 InLine(CA) or Telone C35 (FL)	4101.40	11047.70	17903.30
11 + Metam Sodium	3152.70	10949.30	16808.80
	4063.10	14017.70	20567.50
	2880.70	10416.20	15474.40

Mean = 3549.47 11607.72 17688.50

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato
Part Rated	Large	Xlarge	TtlMXL
Rating Data Type	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Total	Total	Total
PRM Data Type	Season	Season	Season
# Subsamples, Dec.	2	2	

Trt No.	Treatment Name	Value	Value	Value
12	InLine(CA) or Telone C35 (FL)	3090.50	7691.10	12868.10
		3314.70	10281.60	16527.10
		4257.20	11226.00	18455.30
		2775.90	10009.30	14516.70
		Mean =	3359.58	9802.00	15591.80
13	Methyl Bromide/Chloropicrin 67/33	3231.60	12009.20	17504.40
		3212.20	11765.50	18504.90
		3724.70	9601.30	15830.40
		3829.50	11779.30	18057.70
		Mean =	3499.50	11288.83	17474.35
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	3424.20	9205.80	15303.10
		3544.10	12693.80	18748.00
		4147.70	12687.60	19843.70
		3804.40	12014.10	17805.30
Mean =	3730.10	11650.32	17925.03	
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	3602.70	12234.50	18828.50
		3468.20	12127.90	18116.80
		2303.50	7696.40	11657.80
		2983.60	10604.40	15801.00
Mean =	3089.50	10665.80	16101.03	
16	Propargyl Bromide	3733.50	12031.00	18929.70
		4196.00	10441.20	17689.70
		3883.00	10537.70	17204.90
		4290.80	13087.10	19749.70
Mean =	4025.82	11524.25	18393.50	
17	Chloropicrin EC + Metam Sodium	3263.10	10271.80	15613.80
		5338.40	9913.30	17927.90
		3692.10	10641.90	17337.40
		2734.40	10948.30	15624.90
Mean =	3757.00	10443.83	16626.00	

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1 Investigator: Mike Nelson
Location: Oceanside, CA Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato
Part Rated	Large	Xlarge	TtlMXL
Rating Data Type	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Total	Total	Total
PRM Data Type	Season	Season	Season
# Subsamples, Dec.	2	2	

Trt Treatment
No. Name

18 Metam Sodium Spray Check	2983.60	8985.60	14613.90
	5072.10	14049.60	22276.50
	4473.70	11737.20	19743.50
	3886.50	10716.00	17653.40

Mean = 4103.98 11372.10 18571.82

19 Untreated Control	3494.10	7988.40	14108.70
	2782.60	10243.90	16167.30
	4211.90	10224.00	16666.30
	3450.40	11486.60	17742.20

Mean = 3484.75 9985.72 16171.13

Appendix III

Statistical Analyses Printouts of Efficacy Evaluation Data (ANOVA, DMRT), Tustin Trial

- A. Treatment Effects on Buried Fungal Pathogen (*Rhizoctonia solani*), Buried Citrus Nematode (*Tylenchulus semipenetrans*) and Buried Weed Seed Packets (*P. annua* and *P. oleracea*)

- B. Treatment Effects on:
 - Plant Height
 - Plant Vigor
 - Incidence of Low Vigor / Dead Tomato Plants

- C. Treatment Effects on Marketable and Cull Fruit Yield and Crop Value

Appendix III - A

Statistical Analyses Data Printouts: Tustin Trial

Treatment Effects on Buried Fungal Pathogen (*Rhizoctonia solani*), Buried Citrus Nematode (*Tylenchulus semipenetrans*) and Buried Weed Seed Packets (*P. annua* and *P. oleracea*)

01/23/02 (CAT02R)

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Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	06/09/00

Trt No.	Treatment Name						
15	Fosthiazate 900 EC						
15	+ Metam Sodium						
15	+ Chloropicrin EC						
16	Propargyl Bromide						
17	<u>Chloropicrin EC</u> + Metam Sodium						19.00 ab
18	Metam Sodium Spray Check	0.00 c	0.00 b	0.00 a	0.00 a	0.00 a	0.25 a
19	Untreated Control	0.00 c	0.00 b	0.00 a	0.00 a	0.00 a	0.00 b
LSD (P=.05)		44.928	45.021	10.688	0.000	0.000	0.260
Standard Deviation		30.547	30.610	7.246	0.000	0.000	0.177
CV		71.45	185.52	579.66	0.0	0.0	565.69
Replicate F		1.319	0.370	0.952	0.000	0.000	1.000
Replicate Prob(F)		0.2948	0.7752	0.4343	1.0000	1.0000	0.4123
Treatment F		7.436	2.957	0.952	0.000	0.000	1.000
Treatment Prob(F)		0.0002	0.0254	0.4904	1.0000	1.0000	0.4586

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00	06/12/00

Trt Treatment
No. Name

15 Fosthiazate 900 EC								
15 + Metam Sodium								
15 + Chloropicrin EC								
16 Propargyl Bromide						65.00 a	23.25 a	0.00 a
17 Chloropicrin EC + Metam Sodium	29.25 a	0.00 a	11.25 a	2.50 a	20.75 a			
18 Metam Sodium Spray Check								
19 Untreated Control	0.00 a	0.00 a	0.00 a	0.00 a	0.00 a	0.00 a	0.00 a	0.00 a
LSD (P=.05)	32.293	16.725	12.567	5.391	27.845	65.170	36.873	17.178
Standard Deviation	20.190	10.456	7.857	3.371	17.409	41.874	23.692	11.037
CV	130.78	261.41	159.12	299.61	234.07	122.98	331.36	315.35
Replicate F	4.448	1.000	0.368	0.609	0.980	0.808	0.527	0.917
Replicate Prob(F)	0.0354	0.4363	0.7779	0.6259	0.4443	0.5156	0.6728	0.4645
Treatment F	2.236	2.341	2.188	0.609	1.277	2.289	0.652	2.011
Treatment Prob(F)	0.1533	0.1414	0.1591	0.6259	0.3399	0.1251	0.6371	0.1624

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/12/00	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00

Trt No.	Treatment Name
---------	----------------

1	Methyl Iodide (1X Rate)							
1	/Chloropicrin							
2	Methyl Iodide (1/2X Rate)							
2	/Chloropicrin							
3	Methyl Iodide (0.7X Rate)							
3	/Chloropicrin							
4	PlantPro 45 (1X Rate)							
4	Metam Sodium							
5	PlantPro 45 (2X Rate)							
5	Metam Sodium							
6	Metam Sodium (Appl. Mthd #1, Drip)	2.25 a	25.00 a	10.50 a				
7	Metam Sodium							
7	Appl. Method #2, Spray/Incorporate							
8	Metam Sodium							
8	Appl. Method #2, Spray/Incorporate							
9	Metam Sodium							
9	Appl. Method #3, Shank Injected							
10	InLine(CA) or Telone C35 (FL)							
10	+ Basamid							
11	InLine(CA) or Telone C35 (FL)							
11	+ Metam Sodium							
12	InLine(CA) or Telone C35 (FL)	0.00 a	0.00 b	0.00 a				
13	Methyl Bromide/Chloropicrin 67/33	0.00 a	0.00 b	0.00 a	57.50 a	5.00 a	0.00 a	0.00 a
14	Fosthiazate 500 EC				0.00 b	0.00 a	0.00 a	2.00 a
14	+ Metam Sodium							
14	+ Chloropicrin EC							

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/12/00	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00

Trt No.	Treatment Name							
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC				0.00 b	0.00 a	0.00 a	0.00 a
16	Propargyl Bromide	0.00 a	7.50 ab	0.00 a				
17	Chloropicrin EC + Metam Sodium							
18	Metam Sodium Spray Check							
19	Untreated Control	0.00 a	0.00 b	0.00 a	0.00 b	0.00 a	0.00 a	0.00 a
LSD (P=.05)		3.271	22.209	15.266	40.451	7.997	0.000	3.199
Standard Deviation		2.102	14.270	9.809	25.290	5.000	0.000	2.000
CV		467.1	219.54	467.1	175.93	400.0	0.0	400.0
Replicate F		0.917	1.531	0.917	1.000	1.000	0.000	1.000
Replicate Prob(F)		0.4645	0.2614	0.4645	0.4363	0.4363	1.0000	0.4363
Treatment F		0.917	2.308	0.917	5.169	1.000	0.000	1.000
Treatment Prob(F)		0.4881	0.1229	0.4881	0.0238	0.4363	1.0000	0.4363

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/19/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt Treatment

No. Name

1	Methyl Iodide (1X Rate)						
1	/Chloropicrin						
2	Methyl Iodide (1/2X Rate)						
2	/Chloropicrin						
3	Methyl Iodide (0.7X Rate)						
3	/Chloropicrin						
4	PlantPro 45 (1X Rate)	7.50	a	0.00	a	4.75	a
4	Metam Sodium	0.00	a	5.50	a	2.75	a
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)						
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium						
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)						
10	+ Basamid						
11	InLine(CA) or Telone C35 (FL)						
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)						
13	Methyl Bromide/Chloropicrin 67/33	0.00	a	57.50	a	5.00	a
13		0.00	a	0.00	a	0.00	a
13		0.00	a	0.00	a	0.00	a
14	Fosthiazate 500 EC	0.00	a				
14	+ Metam Sodium						
14	+ Chloropicrin EC						

01/23/02 (CAT02R)

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Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/19/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name						
15	<u>Fosthiazate 900 EC</u>	2.50	a				
15	+ Metam Sodium						
15	+ Chloropicrin EC						
16	Propargyl Bromide						
17	Chloropicrin EC + Metam Sodium						
18	Metam Sodium Spray Check						
19	Untreated Control	0.00	a	0.00	a	0.00	a
	LSD (P=.05)	3.999		57.892		9.990	
	Standard Deviation	2.500		33.458		5.774	
	CV	400.0		154.42		346.41	
	Replicate F	1.000		0.486		1.000	
	Replicate Prob(F)	0.4363		0.7041		0.4547	
	Treatment F	1.000		3.491		2.858	
	Treatment Prob(F)	0.4363		0.0987		0.4219	

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	06/09/00	06/09/00

Trt No.	Treatment Name							
---------	----------------	--	--	--	--	--	--	--

1	Methyl Iodide (1X Rate)	100.00	0.00	0.00	0.00	0.00	0.00	
1	/Chloropicrin	89.00	0.00	0.00	0.00	0.00	0.00	
		100.00	0.00	0.00	0.00	0.00	0.00	
		60.00	0.00	0.00	0.00	0.00	0.00	
	Mean =	87.25	0.00	0.00	0.00	0.00	0.00	

2	Methyl Iodide (1/2X Rate)	0.00	0.00	0.00	0.00	0.00	0.00	
2	/Chloropicrin	89.00	18.00	0.00	0.00	0.00	0.00	
		100.00	0.00	0.00	0.00	0.00	0.00	
		100.00	100.00		0.00	0.00	0.00	
	Mean =	72.25	29.50	0.00	0.00	0.00	0.00	

3	Methyl Iodide (0.7X Rate)	0.00	0.00	0.00	0.00	0.00	0.00	
3	/Chloropicrin	0.00	0.00	0.00	0.00	0.00	0.00	
		100.00	90.00	40.00	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00	0.00	0.00	
	Mean =	25.00	22.50	10.00	0.00	0.00	0.00	

4	PlantPro 45 (1X Rate)						0.00	10.00
4	Metam Sodium						56.00	11.00
							100.00	78.00
							90.00	11.00
	Mean =						61.50	27.50

5	PlantPro 45 (2X Rate)							
5	Metam Sodium							
	Mean =							

6	Metam Sodium (Appl. Mthd #1, Drip)							
	Mean =							

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	06/09/00	06/09/00

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	100.00	100.00	0.00	0.00	0.00	0.00
9 Appl. Method #3, Shank Injected	100.00	100.00	0.00	0.00	0.00	0.00
	100.00	100.00	0.00	0.00	0.00	0.00
	100.00	0.00	0.00	0.00	0.00	0.00

Mean = 100.00 75.00 0.00 0.00 0.00 0.00

10 InLine(CA) or Telone C35 (FL)	0.00	0.00	0.00	0.00	0.00	0.00
10 + Basamid	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00

Mean = 0.00 0.00 0.00 0.00 0.00 0.00

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)

Mean =

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00	06/12/00	06/12/00

Trt No.	Treatment Name
---------	----------------

1 Methyl Iodide (1X Rate)
 1 /Chloropicrin

Mean =

2 Methyl Iodide (1/2X Rate)
 2 /Chloropicrin

Mean =

3 Methyl Iodide (0.7X Rate)
 3 /Chloropicrin

Mean =

4 PlantPro 45 (1X Rate)
 4 Metam Sodium

0.00	0.00	0.00	0.00
0.00	9.00	0.00	0.00
20.00	10.00	0.00	36.00
44.00	15.00	8.00	0.00

Mean = 16.00 8.50 2.00 9.00

5 PlantPro 45 (2X Rate)
 5 Metam Sodium

Mean =

6 Metam Sodium (Appl. Mthd #1, Drip)

0.00	10.00	20.00	9.00
0.00	20.00	0.00	0.00
100.00	0.00	0.00	0.00
91.00	0.00	50.00	0.00

Mean = 47.75 7.50 17.50 2.25

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00	06/12/00	06/12/00

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00

Mean = 0.00 0.00 0.00 0.00

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00	06/12/00	06/12/00

Trt No.	Treatment Name							
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13	Methyl Bromide/Chloropicrin 67/33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	100.00	0.00	0.00
		0.00	0.00	0.00	0.00	30.00	20.00	0.00
		0.00	0.00	0.00	0.00	100.00	0.00	0.00
Mean =		0.00	0.00	0.00	0.00	57.50	5.00	0.00

- 14 Fosthiazate 500 EC
- 14 + Metam Sodium
- 14 + Chloropicrin EC

Mean =

- 15 Fosthiazate 900 EC
- 15 + Metam Sodium
- 15 + Chloropicrin EC

Mean =

- 16 Propargyl Bromide

100.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00
100.00	93.00	0.00	0.00

Mean = 65.00 23.25 0.00 0.00

17	Chloropicrin EC + Metam Sodium	0.00	22.00	10.00	0.00
		0.00	23.00	0.00	0.00
		0.00	0.00	0.00	20.00
		0.00	0.00	0.00	63.00

Mean = 0.00 11.25 2.50 20.75

- 18 Metam Sodium Spray Check

Mean =

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00

Trt No.	Treatment Name
---------	----------------

1	Methyl Iodide (1X Rate)
1	/Chloropicrin

Mean =

2	Methyl Iodide (1/2X Rate)
2	/Chloropicrin

Mean =

3	Methyl Iodide (0.7X Rate)
3	/Chloropicrin

Mean =

4	PlantPro 45 (1X Rate)
4	Metam Sodium

Mean =

5	PlantPro 45 (2X Rate)
5	Metam Sodium

Mean =

6	Metam Sodium (Appl. Mthd #1, Drip)	50.00	42.00
		50.00	0.00
		0.00	0.00
		0.00	0.00

Mean = 25.00 10.50

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00

Trt No.	Treatment Name
---------	----------------

7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium
9	Appl. Method #3, Shank Injected

Mean =

10	InLine(CA) or Telone C35 (FL)
10	+ Basamid

Mean =

11	InLine(CA) or Telone C35 (FL)
11	+ Metam Sodium

Mean =

12	InLine(CA) or Telone C35 (FL)	0.00	0.00
		0.00	0.00
		0.00	0.00

Mean = 0.00 0.00

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00	06/19/00

Trt No.	Treatment Name
---------	----------------

13	Methyl Bromide/Chloropicrin 67/33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	100.00	0.00	0.00	0.00	0.00
		0.00	0.00	30.00	20.00	0.00	0.00	0.00
		0.00	0.00	100.00	0.00	0.00	0.00	0.00
	Mean =	0.00	0.00	57.50	5.00	0.00	0.00	0.00
14	Fosthiazate 500 EC			0.00	0.00	0.00	0.00	0.00
14	+ Metam Sodium			0.00	0.00	0.00	0.00	0.00
14	+ Chloropicrin EC			0.00	0.00	0.00	8.00	0.00
				0.00	0.00	0.00	0.00	0.00
	Mean =			0.00	0.00	0.00	2.00	0.00
15	Fosthiazate 900 EC			0.00	0.00	0.00	0.00	0.00
15	+ Metam Sodium			0.00	0.00	0.00	0.00	0.00
15	+ Chloropicrin EC			0.00	0.00	0.00	0.00	10.00
				0.00	0.00	0.00	0.00	0.00
	Mean =			0.00	0.00	0.00	0.00	2.50
16	Propargyl Bromide	0.00	0.00					
		30.00	0.00					
		0.00	0.00					
		0.00	0.00					
	Mean =	7.50	0.00					
17	Chloropicrin EC + Metam Sodium							
	Mean =							
18	Metam Sodium Spray Check							
	Mean =							

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name
---------	----------------

1	Methyl iodide (1X Rate)
1	/Chloropicrin

Mean =

2	Methyl iodide (1/2X Rate)
2	/Chloropicrin

Mean =

3	Methyl iodide (0.7X Rate)
3	/Chloropicrin

Mean =

4	PlantPro 45 (1X Rate)
4	Metam Sodium

30.00	0.00	11.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	22.00	11.00
0.00	0.00	8.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00

Mean = 7.50 0.00 4.75 0.00 5.50 2.75

5	PlantPro 45 (2X Rate)
5	Metam Sodium

Mean =

6	Metam Sodium (Appl. Mthd #1, Drip)
---	------------------------------------

Mean =

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name
---------	----------------

7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium
9	Appl. Method #3, Shank Injected

Mean =

10	InLine(CA) or Telone C35 (FL)
10	+ Basamid

Mean =

11	InLine(CA) or Telone C35 (FL)
11	+ Metam Sodium

Mean =

12	InLine(CA) or Telone C35 (FL)
----	-------------------------------

Mean =

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt Treatment

No. Name

13	Methyl Bromide/Chloropicrin 67/33	0.00	0.00	0.00	0.00	0.00	0.00
		100.00	0.00	0.00	0.00	0.00	0.00
		30.00	20.00	0.00	0.00	0.00	0.00
		100.00	0.00	0.00	0.00	0.00	0.00
	Mean =	57.50	5.00	0.00	0.00	0.00	0.00

- 14 Fosthiazate 500 EC
- 14 + Metam Sodium
- 14 + Chloropicrin EC

Mean =

- 15 Fosthiazate 900 EC
- 15 + Metam Sodium
- 15 + Chloropicrin EC

Mean =

- 16 Propargyl Bromide

Mean =

- 17 Chloropicrin EC + Metam Sodium

Mean =

- 18 Metam Sodium Spray Check

Mean =

01/23/02 (CAT02R)

Plot Data Summary Page 16 of 16

Plant Sciences, Inc.

Field Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani	R.Solani
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt Treatment
No. Name

19	Untreated Control	0.00	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00
	Mean =	0.00	0.00	0.00	0.00	0.00	0.00

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	Nematode INT 6	Nematode INT 12	Nematode INT 18	Nematode INT 24	Nematode INT 30	Nematode INT 36
Rating Data Type	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00

Trt No.	Treatment Name
---------	----------------

1	Methyl Iodide (1X Rate)	11.00 c	0.00 b	1.00 b	15.00 b	6.50 c	15.00 c
1	/Chloropicrin						
2	Methyl Iodide (1/2X Rate)	3.00 c	1.00 b	13.33 b	18.67 b	61.33 bc	28.00 c
2	/Chloropicrin						
3	Methyl Iodide (0.7X Rate)	4.00 c	1.33 b	9.33 b	14.00 b	37.00 bc	65.00 c
3	/Chloropicrin						
4	PlantPro 45 (1X Rate)						
4	Metam Sodium						
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)						
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium	1.00 c	119.00 ab	560.00 a	169.33 b	114.00 abc	309.00 ab
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)	108.00 bc	298.00 ab	548.00 a	108.00 b	251.00 ab	134.00 bc
10	+ <u>Basamid</u>						
11	InLine(CA) or Telone C35 (FL)						
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)						
13	Methyl Bromide/Chloropicrin 67/33	2.00 c	2.00 b	2.67 b	0.00 b	0.00 c	6.00 c
14	Fosthiazate 500 EC						
14	+ Metam Sodium						
14	+ Chloropicrin EC						
15	Fosthiazate 900 EC						
15	+ Metam Sodium						
15	+ Chloropicrin EC						

01/15/02 (CAT02N)

AOV Means Table Page 2 of 10

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00

Trt No.	Treatment Name
---------	----------------

16 Propargyl Bromide

17 Chloropicrin EC + Metam Sodium

18 Metam Sodium Spray Check	611.00 a	414.00 a	538.00 a	490.00 a	324.00 a	503.00 a
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19 Untreated Control	378.00 ab	120.00 ab	282.00 ab	153.00 b	202.00 abc	135.33 bc
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LSD (P=.05)	293.875	304.215	441.779	215.085	201.864	224.697
Standard Deviation	198.567	204.771	293.182	142.739	134.660	149.891
CV	142.09	171.48	120.01	117.97	108.18	100.32

Replicate F	0.553	0.937	0.254	0.046	0.747	0.177
Replicate Prob(F)	0.6525	0.4431	0.8574	0.9864	0.5396	0.9104
Treatment F	5.388	2.381	3.362	5.258	3.245	5.377
Treatment Prob(F)	0.0016	0.0655	0.0231	0.0034	0.0242	0.0026

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT02N)

AOV Means Table Page 3 of 10

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00

Trt No.	Treatment Name	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
1	Methyl Iodide (1X Rate)							
1	/Chloropicrin							
2	Methyl Iodide (1/2X Rate)							
2	/Chloropicrin							
3	Methyl Iodide (0.7X Rate)							
3	/Chloropicrin							
4	<u>PlantPro 45 (1X Rate)</u>	120.00	184.00	103.00	117.33	98.00	251.00	a
4	Metam Sodium							
5	PlantPro 45 (2X Rate)							
5	Metam Sodium							
6	Metam Sodium (Appl. Mthd #1, Drip)							19.00 a
7	Metam Sodium							
7	Appl. Method #2, Spray/Incorporate							
8	Metam Sodium							
8	Appl. Method #2, Spray/Incorporate							
9	Metam Sodium							
9	Appl. Method #3, Shank Injected							
10	InLine(CA) or Telone C35 (FL)							
10	+ Basamid							
11	InLine(CA) or Telone C35 (FL)							
11	+ Metam Sodium							
12	InLine(CA) or Telone C35 (FL)							0.00 a
13	Methyl Bromide/Chloropicrin 67/33	2.00	2.00	2.67	0.00	0.00	6.00	2.00 a
14	Fosthiazate 500 EC							
14	+ Metam Sodium							
14	+ Chloropicrin EC							
15	Fosthiazate 900 EC							
15	+ Metam Sodium							
15	+ Chloropicrin EC							

01/15/02 (CAT02N)

AOV Means Table Page 4 of 10

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00

Trt Treatment
No. Name

16 Propargyl Bromide							2.67 a
17 Chloropicrin EC + Metam Sodium	278.00 a	270.00 a	109.00 a	114.00 ab	95.00 a	260.00 a	
18 Metam Sodium Spray Check							
19 Untreated Control	550.67 a	256.00 a	126.00 a	369.00 a	105.00 a	86.00 b	
LSD (P=.05)	763.799	276.356	64.317	324.423	119.614	122.895	45.187
Standard Deviation	456.733	159.716	39.444	187.496	71.526	62.608	24.856
CV	192.17	89.73	46.31	124.93	96.01	41.53	420.09
Replicate F	0.602	0.497	0.902	0.727	1.545	0.234	0.720
Replicate Prob(F)	0.6339	0.6976	0.4813	0.5720	0.2855	0.8684	0.5818
Treatment F	1.080	2.381	8.021	2.762	1.942	16.032	0.501
Treatment Prob(F)	0.4175	0.1684	0.0085	0.1339	0.2113	0.0108	0.6979

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT02N)

AOV Means Table Page 6 of 10

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	Nematode INT 12	Nematode INT 18	Nematode INT 24	Nematode INT 30	Nematode INT 36	Nematode INT 6	Nematode INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/12/00	06/12/00	06/12/00	06/12/00	06/12/00	06/19/00	06/19/00

Trt Treatment No. Name

16 Propargyl Bromide	0.00 a	66.00 a		62.67 bc	36.00 a		
17 Chloropicrin EC + Metam Sodium							
18 Metam Sodium Spray Check							
19 Untreated Control						159.50 a	131.50 a
LSD (P=.05)	339.287	211.985	470.887	69.590	276.146	63.508	216.397
Standard Deviation	212.124	107.994	209.282	38.279	122.731	38.948	132.711
CV	156.26	99.23	179.56	51.44	117.07	50.31	135.71
Replicate F	1.913	0.260	0.163	1.993	0.488	1.818	2.923
Replicate Prob(F)	0.1980	0.8515	0.9146	0.2336	0.7145	0.2219	0.1001
Treatment F	2.165	2.772	1.139	9.100	2.542	12.859	1.094
Treatment Prob(F)	0.1621	0.1748	0.4284	0.0181	0.2319	0.0020	0.4059

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/19/00	06/19/00	06/19/00	06/19/00	08/03/00	08/03/00	08/03/00

Trt Treatment
No. Name

1	Methyl iodide (1X Rate)						
1	/Chloropicrin						
2	Methyl iodide (1/2X Rate)						
2	/Chloropicrin						
3	Methyl iodide (0.7X Rate)						
3	/Chloropicrin						
4	<u>PlantPro 45 (1X Rate)</u>				154.00 a	209.00 ab	148.00 a
4	Metam Sodium						
5	PlantPro 45 (2X Rate)						
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)						
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium						
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)						
10	+ Basamid						
11	InLine(CA) or Telone C35 (FL)						
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)						
13	Methyl Bromide/Chloropicrin 67/33	2.67 a	0.00 b	0.00 a	6.00 b	2.00 a	2.00 b
14	<u>Fosthiazate 500 EC</u>	65.50 a	64.50 ab	95.50 a	93.00 ab		
14	+ Metam Sodium						
14	+ Chloropicrin EC						
15	<u>Fosthiazate 900 EC</u>	95.00 a	101.00 a	174.50 a	114.50 a		
15	+ Metam Sodium						
15	+ Chloropicrin EC						

01/15/02 (CAT02N)

AOV Means Table Page 8 of 10

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/19/00	06/19/00	06/19/00	06/19/00	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name
---------	----------------

16 Propargyl Bromide

17 Chloropicrin EC + Metam Sodium

18 Metam Sodium Spray Check

19 Untreated Control	89.50 a	55.00 ab	57.50 a	63.50 ab	190.00 a	291.00 a	173.00 a
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LSD (P=.05)	102.626	71.718	165.234	89.310	196.154	223.573	233.910
Standard Deviation	62.938	42.886	98.806	53.405	113.365	129.211	128.666
CV	99.64	77.8	120.68	77.12	98.29	77.22	119.26
Replicate F	0.864	0.716	0.524	0.297	2.715	2.506	0.516
Replicate Prob(F)	0.4982	0.5729	0.6796	0.8267	0.1376	0.1559	0.6891
Treatment F	1.808	3.792	2.194	3.107	3.099	5.315	2.044
Treatment Prob(F)	0.2236	0.0665	0.1767	0.0981	0.1190	0.0470	0.2245

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	Nematode INT 24	Nematode INT 30	Nematode INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name
1	Methyl Iodide (1X Rate) 1 /Chloropicrin
2	Methyl Iodide (1/2X Rate) 2 /Chloropicrin
3	Methyl Iodide (0.7X Rate) 3 /Chloropicrin
4	PlantPro 45 (1X Rate) 4 Metam Sodium
5	PlantPro 45 (2X Rate) 5 Metam Sodium
6	Metam Sodium (Appl. Mthd #1, Drip)
7	Metam Sodium 7 Appl. Method #2, Spray/Incorporate
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate
9	Metam Sodium 9 Appl. Method #3, Shank Injected
10	InLine(CA) or Telone C35 (FL) 10 + Basamid
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium
12	InLine(CA) or Telone C35 (FL)
13	Methyl Bromide/Chloropicrin 67/33 0.00 a 0.00 b 6.00 a
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC
15	Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36
Rating Data Type	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup
Rating Date	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name
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16 Propargyl Bromide

17 Chloropicrin EC + Metam Sodium

18 Metam Sodium Spray Check

19 Untreated Control	293.33 a	182.00 a	189.00 a
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LSD (P=.05)	387.742	171.312	412.000
Standard Deviation	172.329	87.274	209.890
CV	112.06	75.02	107.45

Replicate F	0.057	0.662	0.394
Replicate Prob(F)	0.9790	0.6173	0.7646
Treatment F	2.918	5.360	3.367
Treatment Prob(F)	0.1978	0.0738	0.1388

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	Nematode INT 6	Nematode INT 12	Nematode INT 18	Nematode INT 24	Nematode INT 30	Nematode INT 36	Nematode INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	06/09/00

Trt No.	Treatment Name	Nematode INT 6	Nematode INT 12	Nematode INT 18	Nematode INT 24	Nematode INT 30	Nematode INT 36	Nematode INT 6
1	Methyl iodide (1X Rate)	0.00	0.00	0.00	4.00	12.00	24.00	
1	/Chloropicrin	0.00	0.00	4.00	56.00	4.00	28.00	
		44.00		0.00	0.00	6.00	8.00	
		0.00	0.00	0.00	0.00	4.00	0.00	
	Mean =	11.00	0.00	1.00	15.00	6.50	15.00	
2	Methyl iodide (1/2X Rate)	0.00	0.00	24.00	48.00	184.00	112.00	
2	/Chloropicrin	12.00	0.00	0.00	0.00		0.00	
		0.00	0.00	16.00	8.00	0.00	0.00	
		0.00	4.00			0.00	0.00	
	Mean =	3.00	1.00	13.33	18.67	61.33	28.00	
3	Methyl iodide (0.7X Rate)	0.00	0.00	12.00	20.00	32.00	28.00	
3	/Chloropicrin	16.00	4.00	16.00	4.00	48.00	88.00	
		0.00	0.00	0.00	4.00	0.00	0.00	
		0.00			28.00	68.00	144.00	
	Mean =	4.00	1.33	9.33	14.00	37.00	65.00	
4	PlantPro 45 (1X Rate)							4.00
4	Metam Sodium							308.00
								48.00
	Mean =							120.00
5	PlantPro 45 (2X Rate)							
5	Metam Sodium							
	Mean =							
6	Metam Sodium (Appl. Mthd #1, Drip)							
	Mean =							

01/15/02 (CAT02N)

Plot Data Summary Page 2 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	06/09/00

Trt No.	Treatment Name
---------	----------------

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	0.00	0.00	1120.00		240.00	336.00
9 Appl. Method #3, Shank Injected	4.00	236.00	328.00	52.00	152.00	128.00
	0.00	60.00		64.00	4.00	388.00
	0.00	180.00	232.00	392.00	60.00	384.00

Mean = 1.00 119.00 560.00 169.33 114.00 309.00

10 InLine(CA) or Telone C35 (FL)	128.00	0.00	128.00	80.00	84.00	
10 + Basamid	84.00	364.00	888.00	96.00	280.00	
	204.00	116.00	376.00	52.00	240.00	80.00
	16.00	712.00	800.00	204.00	400.00	188.00

Mean = 108.00 298.00 548.00 108.00 251.00 134.00

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)

Mean =

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	Nematode INT 6	Nematode INT 12	Nematode INT 18	Nematode INT 24	Nematode INT 30	Nematode INT 36	Nematode INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	06/09/00
Trt Treatment							
No. Name							
13 Methyl Bromide/Chloropicrin 67/33	0.00	0.00					0.00
	8.00	0.00	0.00	0.00	0.00	12.00	8.00
	0.00	0.00	8.00	0.00	0.00	0.00	0.00
	0.00	8.00	0.00				0.00
Mean =	2.00	2.00	2.67	0.00	0.00	6.00	2.00
14 Fosthiazate 500 EC							
14 + Metam Sodium							
14 + Chloropicrin EC							
Mean =							
15 Fosthiazate 900 EC							
15 + Metam Sodium							
15 + Chloropicrin EC							
Mean =							
16 Propargyl Bromide							
Mean =							
17 Chloropicrin EC + Metam Sodium							796.00
							68.00
							92.00
							156.00
Mean =							278.00
18 Metam Sodium Spray Check	1332.00	36.00	20.00	524.00	712.00	340.00	
	424.00	364.00	540.00	720.00	260.00	664.00	
	156.00	1016.00	772.00	600.00	248.00	852.00	
	532.00	240.00	820.00	116.00	76.00	156.00	
Mean =	611.00	414.00	538.00	490.00	324.00	503.00	

01/15/02 (CAT02N)

Plot Data Summary Page 4 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 6	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	05/22/00	06/09/00

Trt No.	Treatment Name	Nematode INT 6	Nematode INT 12	Nematode INT 18	Nematode INT 24	Nematode INT 30	Nematode INT 36	Nematode INT 6
19	Untreated Control	264.00	92.00	68.00	80.00	188.00	180.00	72.00
								1524.00
			116.00				104.00	56.00
		492.00	152.00	496.00	226.00	216.00	122.00	
	Mean =	378.00	120.00	282.00	153.00	202.00	135.33	550.67

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00

Trt No.	Treatment Name
---------	----------------

1 Methyl iodide (1X Rate)
1 /Chloropicrin

Mean =

2 Methyl iodide (1/2X Rate)
2 /Chloropicrin

Mean =

3 Methyl iodide (0.7X Rate)
3 /Chloropicrin

Mean =

4 PlantPro 45 (1X Rate)
4 Metam Sodium

156.00	184.00	152.00	132.00	252.00
212.00	92.00		28.00	172.00
	56.00	40.00	108.00	332.00
	80.00	160.00	124.00	248.00

Mean = 184.00 103.00 117.33 98.00 251.00

5 PlantPro 45 (2X Rate)
5 Metam Sodium

Mean =

6 Metam Sodium (Appl. Mthd #1, Drip)

0.00	20.00
76.00	640.00
0.00	32.00
0.00	332.00

Mean = 19.00 256.00

01/15/02 (CAT02N)

Plot Data Summary Page 6 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00

Trt No.	Treatment Name
---------	----------------

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)	0.00	20.00
		328.00
		4.00
		788.00

Mean = 0.00 285.00

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00

Trt Treatment
No. Name

13 Methyl Bromide/Chloropicrin 67/33	0.00					0.00	0.00
	0.00	0.00	0.00	0.00	12.00	8.00	0.00
	0.00	8.00	0.00	0.00	0.00	0.00	0.00
	8.00	0.00				0.00	8.00

Mean = 2.00 2.67 0.00 0.00 6.00 2.00 2.00

14 Fosthiazate 500 EC
14 + Metam Sodium
14 + Chloropicrin EC

Mean =

15 Fosthiazate 900 EC
15 + Metam Sodium
15 + Chloropicrin EC

Mean =

16 Propargyl Bromide

8.00	0.00
	0.00
0.00	0.00
0.00	0.00

Mean = 2.67 0.00

17 Chloropicrin EC + Metam Sodium

444.00	120.00	116.00	132.00	260.00
152.00	44.00	96.00	40.00	
188.00	156.00	124.00	84.00	
296.00	116.00	120.00	124.00	

Mean = 270.00 109.00 114.00 95.00 260.00

18 Metam Sodium Spray Check

Mean =

01/15/02 (CAT02N)

Plot Data Summary Page 8 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 12	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/09/00	06/09/00	06/09/00	06/09/00	06/09/00	06/12/00	06/12/00

Trt No.	Treatment Name	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
19	Untreated Control	140.00	792.00	288.00	80.00		
		68.00	136.00	360.00	84.00	136.00	
		556.00	112.00	244.00	12.00	96.00	
		144.00	116.00	80.00	36.00	32.00	
	Mean =	256.00	126.00	369.00	105.00	86.00	

01/15/02 (CAT02N)

Plot Data Summary Page 9 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/12/00	06/12/00	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00

Trt Treatment

No. Name

1 Methyl iodide (1X Rate)

1 /Chloropicrin

Mean =

2 Methyl iodide (1/2X Rate)

2 /Chloropicrin

Mean =

3 Methyl iodide (0.7X Rate)

3 /Chloropicrin

Mean =

4 PlantPro 45 (1X Rate)

4 Metam Sodium

Mean =

5 PlantPro 45 (2X Rate)

5 Metam Sodium

Mean =

6 Metam Sodium (Appl. Mthd #1, Drip)

208.00	112.00	80.00	320.00
160.00	40.00		
168.00	320.00	168.00	12.00
	36.00	52.00	260.00

Mean = 178.67 127.00 100.00 197.33

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/12/00	06/12/00	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)	200.00	84.00	100.00	124.00
	340.00		164.00	224.00
	24.00	104.00	192.00	120.00
		480.00	84.00	252.00
	Mean =	188.00	222.67	135.00	180.00

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/12/00	06/12/00	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00

Trt Treatment
No. Name

13	Methyl Bromide/Chloropicrin 67/33	0.00	0.00	0.00	12.00	8.00	0.00	0.00
		8.00	0.00	0.00	0.00	0.00	0.00	8.00
		0.00						0.00
	Mean =	2.67	0.00	0.00	6.00	2.67	2.67	2.67
14	Fosthiazate 500 EC					40.00	28.00	38.00
14	+ Metam Sodium					16.00	20.00	68.00
14	+ Chloropicrin EC					12.00	16.00	120.00
						92.00	588.00	36.00
	Mean =					40.00	163.00	65.50
15	Fosthiazate 900 EC					86.00	76.00	68.00
15	+ Metam Sodium					86.00	72.00	256.00
15	+ Chloropicrin EC					144.00	22.00	10.00
						114.00	206.00	46.00
	Mean =					107.50	94.00	95.00
16	Propargyl Bromide			68.00				
				80.00				
		112.00						
		20.00		40.00	36.00			
	Mean =	66.00		62.67	36.00			
17	Chloropicrin EC + Metam Sodium							
	Mean =							
18	Metam Sodium Spray Check							
	Mean =							

01/15/02 (CAT02N)

Plot Data Summary Page 12 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 18	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/12/00	06/12/00	06/12/00	06/12/00	06/19/00	06/19/00	06/19/00

Trt Treatment
No. Name

19	Untreated Control				74.00	68.00	74.00
					152.00	174.00	88.00
					172.00	20.00	116.00
					240.00	264.00	80.00
	Mean =				159.50	131.50	89.50

01/15/02 (CAT02N)

Plot Data Summary Page 13 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	Nematode INT 24	Nematode INT 30	Nematode INT 36	Nematode INT 6	Nematode INT 12	Nematode INT 18	Nematode INT 24
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/19/00	06/19/00	06/19/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt Treatment
No. Name

- 1 Methyl iodide (1X Rate)
- 1 /Chloropicrin

Mean =

- 2 Methyl iodide (1/2X Rate)
- 2 /Chloropicrin

Mean =

- 3 Methyl iodide (0.7X Rate)
- 3 /Chloropicrin

Mean =

- 4 PlantPro 45 (1X Rate)
- 4 Metam Sodium

104.00	172.00	196.00	92.00
292.00	428.00	116.00	112.00
152.00	172.00	196.00	308.00
68.00	64.00	84.00	160.00

Mean =

- 5 PlantPro 45 (2X Rate)
- 5 Metam Sodium

Mean =

- 6 Metam Sodium (Appl. Mthd #1, Drip)

Mean =

01/15/02 (CAT02N)

Plot Data Summary Page 14 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/19/00	06/19/00	06/19/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt Treatment

No. Name

7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
 9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
 10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
 11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)

Mean =

01/15/02 (CAT02N)

Plot Data Summary Page 15 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/19/00	06/19/00	06/19/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name
---------	----------------

13	Methyl Bromide/Chloropicrin 67/33	0.00	0.00	12.00	0.00	0.00		
		0.00	0.00	0.00	8.00	0.00	0.00	0.00
					0.00	0.00	8.00	0.00
					0.00	8.00	0.00	
	Mean =	0.00	0.00	6.00	2.00	2.00	2.67	0.00
14	Fosthiazate 500 EC	36.00	44.00	102.00				
14	+ Metam Sodium	94.00	120.00	100.00				
14	+ Chloropicrin EC	28.00	8.00	76.00				
		100.00	210.00	94.00				
	Mean =	64.50	95.50	93.00				
15	Fosthiazate 900 EC	56.00	76.00	36.00				
15	+ Metam Sodium	54.00	110.00	120.00				
15	+ Chloropicrin EC	168.00	378.00	228.00				
		126.00	134.00	74.00				
	Mean =	101.00	174.50	114.50				
16	Propargyl Bromide							
	Mean =							
17	Chloropicrin EC + Metam Sodium							
	Mean =							
18	Metam Sodium Spray Check							
	Mean =							

01/15/02 (CAT02N)

Plot Data Summary Page 16 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode	Nematode
Part Rated	INT 24	INT 30	INT 36	INT 6	INT 12	INT 18	INT 24
Rating Data Type	Count	Count	Count	Count	Count	Count	Count
Rating Unit	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup	1/4 cup
Rating Date	06/19/00	06/19/00	06/19/00	08/03/00	08/03/00	08/03/00	08/03/00

Trt No.	Treatment Name						
19	Untreated Control	72.00	46.00	80.00	128.00	156.00	332.00
		16.00	20.00	40.00	524.00	600.00	452.00
		42.00	80.00	52.00	68.00	92.00	96.00
		90.00	84.00	82.00	40.00	316.00	116.00
	Mean =	55.00	57.50	63.50	190.00	291.00	293.33

01/15/02 (CAT02N)

Plot Data Summary Page 17 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode
Part Rated	INT 30	INT 36
Rating Data Type	Count	Count
Rating Unit	1/4 cup	1/4 cup
Rating Date	08/03/00	08/03/00

Trt Treatment

No. Name

1 Methyl Iodide (1X Rate)

1 /Chloropicrin

Mean =

2 Methyl Iodide (1/2X Rate)

2 /Chloropicrin

Mean =

3 Methyl Iodide (0.7X Rate)

3 /Chloropicrin

Mean =

4 PlantPro 45 (1X Rate)

120.00 292.00

4. Metam Sodium

308.00 256.00

80.00 252.00

160.00 764.00

Mean = 167.00 391.00

5 PlantPro 45 (2X Rate)

5 Metam Sodium

Mean =

6 Metam Sodium (Appl. Mthd #1, Drip)

Mean =

01/15/02 (CAT02N)

Plot Data Summary Page 18 of 20

Plant Sciences, Inc.
Nematode Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode
Part Rated	INT 30	INT 36
Rating Data Type	Count	Count
Rating Unit	1/4 cup	1/4 cup
Rating Date	08/03/00	08/03/00

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium
9 Appl. Method #3, Shank Injected

Mean =

10 InLine(CA) or Telone C35 (FL)
10 + Basamid

Mean =

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)

Mean =

01/15/02 (CAT02N)

Plot Data Summary Page 19 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode
Part Rated	INT 30	INT 36
Rating Data Type	Count	Count
Rating Unit	1/4 cup	1/4 cup
Rating Date	08/03/00	08/03/00

Trt Treatment

No. Name

13	Methyl Bromide/Chloropicrin 67/33	0.00	12.00
		0.00	0.00
	Mean =	0.00	6.00
14	Fosthiazate 500 EC		
14	+ Metam Sodium		
14	+ Chloropicrin EC		
	Mean =		
15	Fosthiazate 900 EC		
15	+ Metam Sodium		
15	+ Chloropicrin EC		
	Mean =		
16	Propargyl Bromide		
	Mean =		
17	Chloropicrin EC + Metam Sodium		
	Mean =		
18	Metam Sodium Spray Check		
	Mean =		

01/15/02 (CAT02N)

Plot Data Summary Page 20 of 20

Plant Sciences, Inc.

Nematode Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Nematode	Nematode
Part Rated	INT 30	INT 36
Rating Data Type	Count	Count
Rating Unit	1/4 cup	1/4 cup
Rating Date	08/03/00	08/03/00

Trt Treatment

No. Name

19	Untreated Control	284.00	280.00
		184.00	300.00
		136.00	68.00
		124.00	108.00
	Mean =	182.00	189.00

01/03/02 (CAT02Sm)

AOV Means Table Page 1 of 2

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in TomatoesTrial ID: CA-T-00-2
Location: Tustin, CAInvestigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt No.	Treatment Name		
---------	----------------	--	--

1	Methyl Iodide (1X Rate)	100.00	a	96.75	a
1	/Chloropicrin				
2	Methyl Iodide (1/2X Rate)	31.75	cd	75.00	ab
2	/Chloropicrin				
3	Methyl Iodide (0.7X Rate)	100.00	a	96.50	a
3	/Chloropicrin				
4	<u>PlantPro 45 (1X Rate)</u>	22.50	d	59.00	bc
4	Metam Sodium				
5	PlantPro 45 (2X Rate)				
5	Metam Sodium				
6	Metam Sodium (Appl. Mthd #1, Drip)	100.00	a	100.00	a
7	Metam Sodium				
7	Appl. Method #2, Spray/Incorporate				
8	Metam Sodium				
8	Appl. Method #2, Spray/Incorporate				
9	Metam Sodium	60.00	bc	64.67	b
9	Appl. Method #3, Shank Injected				
10	InLine(CA) or Telone C35 (FL)	76.75	ab	62.50	bc
10	+ <u>Basamid</u>				
11	InLine(CA) or Telone C35 (FL)				
11	+ Metam Sodium				
12	InLine(CA) or Telone C35 (FL)	97.50	a	15.75	de
13	Methyl Bromide/Chloropicrin 67/33	91.75	ab	80.75	ab
14	<u>Fosthiazate 500 EC</u>	0.75	d	6.75	e
14	+ Metam Sodium				
14	+ Chloropicrin EC				
15	<u>Fosthiazate 900 EC</u>	4.00	d	5.75	e
15	+ Metam Sodium				
15	+ Chloropicrin EC				

01/03/02 (CAT02Sm)

AOV Means Table Page 2 of 2

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt No.	Treatment Name	B.Grass	Purslane
16	Propargyl Bromide	100.00 a	100.00 a
17	Chloropicrin EC + Metam Sodium	96.75 a	96.75 a
18	Metam Sodium Spray Check	3.25 d	56.50 bc
19	Untreated Control	29.25 cd	36.13 cd
LSD (P=.05)		31.047	25.430
Standard Deviation		21.726	17.795
CV		35.65	28.02
Replicate F		1.657	2.731
Replicate Prob(F)		0.1912	0.0561
Treatment F		14.194	14.482
Treatment Prob(F)		0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/03/02 (CAT02Sm)

Plot Data Summary Page 1 of 4

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt No.	Treatment Name	B.Grass	Purslane
1	Methyl Iodide (1X Rate) /Chloropicrin	100.00	97.00
		100.00	97.00
		100.00	93.00
		100.00	100.00
		Mean =	100.00	96.75
2	Methyl Iodide (1/2X Rate) /Chloropicrin	7.00	40.00
		100.00	100.00
		13.00	60.00
		7.00	100.00
		Mean =	31.75	75.00
3	Methyl Iodide (0.7X Rate) /Chloropicrin	100.00	100.00
		100.00	93.00
		100.00	93.00
		100.00	100.00
		Mean =	100.00	96.50
4	PlantPro 45 (1X Rate) Metam Sodium	30.00	43.00
		27.00	50.00
		33.00	53.00
		0.00	90.00
		Mean =	22.50
5	PlantPro 45 (2X Rate) Metam Sodium		
		Mean =	
6	Metam Sodium (Appl. Mthd #1, Drip)	100.00	100.00
		100.00	100.00
		100.00	100.00
		100.00	100.00
		Mean =	100.00	100.00

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt No.	Treatment Name
---------	----------------

7	Metam Sodium
7	Appl. Method #2, Spray/Incorporate

Mean =

8	Metam Sodium
8	Appl. Method #2, Spray/Incorporate

Mean =

9	Metam Sodium	80.00	57.00
9	Appl. Method #3, Shank Injected	0.00	37.00
		100.00	100.00

Mean = 60.00 64.67

10	InLine(CA) or Telone C35 (FL)	100.00	70.00
10	+ Basamid	100.00	57.00
		100.00	93.00
		7.00	30.00

Mean = 76.75 62.50

11	InLine(CA) or Telone C35 (FL)
11	+ Metam Sodium

Mean =

12	InLine(CA) or Telone C35 (FL)	100.00	20.00
		100.00	3.00
		93.00	10.00
		97.00	30.00

Mean = 97.50 15.75

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt	Treatment
No.	Name

13	Methyl Bromide/Chloropicrin 67/33	100.00	100.00
		100.00	100.00
		67.00	33.00
		100.00	90.00
	Mean =	91.75	80.75
14	Fosthiazate 500 EC	3.00	0.00
14	+ Metam Sodium	0.00	17.00
14	+ Chloropicrin EC	0.00	0.00
		0.00	10.00
	Mean =	0.75	6.75
15	Fosthiazate 900 EC	3.00	10.00
15	+ Metam Sodium	0.00	13.00
15	+ Chloropicrin EC	3.00	0.00
		10.00	0.00
	Mean =	4.00	5.75
16	Propargyl Bromide	100.00	100.00
		100.00	100.00
		100.00	100.00
		100.00	100.00
	Mean =	100.00	100.00
17	Chloropicrin EC + Metam Sodium	97.00	97.00
		100.00	100.00
		90.00	97.00
		100.00	93.00
	Mean =	96.75	96.75
18	Metam Sodium Spray Check	3.00	53.00
		3.00	40.00
		7.00	33.00
		0.00	100.00
	Mean =	3.25	56.50

01/03/02 (CAT02Sm)

Plot Data Summary Page 4 of 4

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane
Part Rated	Capsul	Capsul
Rating Data Type	Mortality	Mortality
Rating Unit	Percent	Percent

Trt No.	Treatment Name	B.Grass	Purslane
19	Untreated Control	48.50	38.50
		48.50	27.00
		20.00	22.30
		0.00	56.70
	Mean =	29.25	36.13

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated Part Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Rating Data Type	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Unit	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Date	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
# Subsamples, Dec.	05/22/00	05/22/00	06/09/00	06/09/00	06/12/00	06/12/00	06/19/00	06/19/00
	1	1	1	1	1	1	1	1

Trt No.	Treatment Name
---------	----------------

15	<u>Fosthiazate 900 EC</u>						4.0 b	5.8 b
15	+ Metam Sodium							
15	+ Chloropicrin EC							
16	Propargyl Bromide					100.0 a	100.0 a	
17	<u>Chloropicrin EC</u> + Metam Sodium			96.8 a	96.8 a			
18	Metam Sodium Spray Check	3.3 c	56.5 b					
19	Untreated Control	0.0 c	48.5 b	63.5 a	41.0 b		0.0 b	5.0 b
LSD (P=.05)		42.75	33.91	38.09	41.18	12.65	26.77	15.87
Standard Deviation		28.98	22.99	23.81	25.75	7.91	16.74	9.49
CV		50.02	31.64	34.7	37.11	8.13	22.58	39.35
Replicate F		0.938	1.966	1.624	1.736	1.527	1.193	0.913
Replicate Prob(F)		0.4409	0.1516	0.2515	0.2290	0.2732	0.3665	0.4821
Treatment F		8.213	2.413	8.183	3.603	0.968	22.801	90.360
Treatment Prob(F)		0.0001	0.0578	0.0061	0.0588	0.4492	0.0002	0.0001

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/22/00	05/22/00	06/09/00	06/09/00	06/12/00	06/12/00	06/19/00	06/19/00
# Subsamples, Dec.	1	1	1	1	1	1	1	1

Trt No.	Treatment Name	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
1	Methyl Iodide (1X Rate)	100.0	97.0						
1	/Chloropicrin	100.0	97.0						
		100.0	93.0						
		100.0	100.0						
	Mean =	100.0	96.8						
2	Methyl Iodide (1/2X Rate)	7.0	40.0						
2	/Chloropicrin	100.0	100.0						
		13.0	60.0						
		7.0	100.0						
	Mean =	31.8	75.0						
3	Methyl Iodide (0.7X Rate)	100.0	100.0						
3	/Chloropicrin	100.0	93.0						
		100.0	93.0						
		100.0	100.0						
	Mean =	100.0	96.5						
4	PlantPro 45 (1X Rate)			30.0	43.0				
4	Metam Sodium			27.0	50.0				
				33.0	53.0				
				0.0	90.0				
	Mean =			22.5	59.0				
5	PlantPro 45 (2X Rate)								
5	Metam Sodium								
	Mean =								
6	Metam Sodium (Appl. Mthd #1, Drip)					100.0	100.0		
						100.0	100.0		
						100.0	100.0		
						100.0	100.0		
	Mean =					100.0	100.0		

02/05/02 (CAT01Sm)

Plot Data Summary Page 2 of 4

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/22/00	05/22/00	06/09/00	06/09/00	06/12/00	06/12/00	06/19/00	06/19/00
# Subsamples, Dec.	1	1	1	1	1	1	1	1

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	80.0	57.0
9 Appl. Method #3, Shank Injected	0.0	37.0
	100.0	100.0

Mean = 60.0 64.7

10 InLine(CA) or Telone C35 (FL)	100.0	70.0
10 + Basamid	100.0	57.0
	100.0	93.0
	7.0	30.0

Mean = 76.8 62.5

11 InLine(CA) or Telone C35 (FL)
11 + Metam Sodium

Mean =

12 InLine(CA) or Telone C35 (FL)	100.0	20.0
	100.0	3.0
	93.0	10.0
	97.0	30.0

Mean = 97.5 15.8

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/22/00	05/22/00	06/09/00	06/09/00	06/12/00	06/12/00	06/19/00	06/19/00
# Subsamples, Dec.	1	1	1	1	1	1	1	1

Trt No.	Treatment Name	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
13	Methyl Bromide/Chloropicrin 67/33	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
		67.0	33.0	67.0	33.0	67.0	33.0	67.0	33.0
		100.0	90.0	100.0	90.0	100.0	90.0	100.0	90.0
	Mean =	91.8	80.8	91.8	80.8	91.8	80.8	91.8	80.8
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC							3.0	0.0
								0.0	17.0
								0.0	0.0
								0.0	10.0
	Mean =							0.8	6.8
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC							3.0	10.0
								0.0	13.0
								3.0	0.0
								10.0	0.0
	Mean =							4.0	5.8
16	Propargyl Bromide					100.0	100.0		
						100.0	100.0		
						100.0	100.0		
						100.0	100.0		
	Mean =					100.0	100.0		
17	Chloropicrin EC + Metam Sodium			97.0	97.0				
				100.0	100.0				
				90.0	97.0				
				100.0	93.0				
	Mean =			96.8	96.8				
18	Metam Sodium Spray Check	3.0	53.0						
		3.0	40.0						
		7.0	33.0						
		0.0	100.0						
	Mean =	3.3	56.5						

02/05/02 (CAT01Sm)

Plot Data Summary Page 4 of 4

Plant Sciences, Inc.

Planted Seed Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-1

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
Part Rated	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul	Capsul
Rating Data Type	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality	Mortality
Rating Unit	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Rating Date	05/22/00	05/22/00	06/09/00	06/09/00	06/12/00	06/12/00	06/19/00	06/19/00
# Subsamples, Dec.	1	1	1	1	1	1	1	1

Trt	Treatment	No.	Name	B.Grass	Purslane	B.Grass	Purslane	B.Grass	Purslane
19	Untreated Control			0.0	50.0	97.0	27.0		
				0.0	47.0	97.0	7.0		
				0.0	27.0	60.0	30.0	0.0	10.0
				0.0	70.0	0.0	100.0	0.0	0.0
			Mean =	0.0	48.5	63.5	41.0	0.0	5.0

Appendix III - B

Statistical Analyses Data Printouts: Tustin Trial

Treatment Effects on:

- Plant Height

- Plant Vigor

- Incidence of Low Vigor / Dead Tomato Plants

01/30/02 (CAT02P)

AOV Means Table Page 1 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Rating
Rating Unit	Inch	Count	Count	Percent		
Rating Date	07/20/00	07/20/00	07/20/00	07/20/00	07/20/00	08/19/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2	0	1

Trt No.	Treatment Name	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
1	Methyl iodide (1X Rate)/Chloropicrin	19.00 ab	3 bcd	87 ab	3.40 cd	3 abc	3.5 ab
2	Methyl iodide (1/2X Rate)/Chloropicrin	19.28 ab	4 a-d	89 ab	3.95 a-d	4 a	4.5 ab
3	Methyl iodide (0.7XRate) 3 /Chloropicrin	19.60 a	3 bcd	89 a	3.65 a-d	4 a	4.0 ab
4	PlantPro 45 (1X Rate) + Metam Sodium	18.78 ab	5 a-d	86 abc	5.48 a-d	4 abc	4.5 ab
5	PlantPro 45 (2X Rate) + Metam Sodium	18.50 ab	5 a-d	88 ab	5.39 a-d	3 abc	4.3 ab
6	Metam Sodium (Appl. Method #1, Drip)	18.30 ab	9 ab	84 abc	11.34 ab	3 bc	4.8 a
7	Metam Sodium (Appl. Method #2, Spray/Incorporate)						
8	Metam Sodium (Appl. Method #2, Spray/Incorporate)						
9	Metam Sodium (Appl. Method #3, Shank Injected)	18.00 ab	10 a	85 abc	11.52 a	2 c	3.3 b
10	InLine(CA) or Telone C35 (FL) + Basamid	18.43 ab	6 a-d	81 c	7.00 a-d	3 abc	3.5 ab
11	InLine(CA) or Telone C35 (FL) + Metam Sodium	17.33 b	10 a	84 abc	11.50 a	2 c	3.8 ab
12	InLine(CA) or Telone C35 (FL)	17.51 b	8 abc	81 c	10.20 abc	2 c	3.8 ab
13	Methyl Bromide/Chloropicrin 67/33	18.90 ab	3 cd	88 ab	2.87 cd	4 ab	3.5 ab
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	18.85 ab	5 a-d	87 ab	5.79 a-d	4 abc	4.5 ab
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	18.22 ab	3 bcd	86 abc	3.48 bcd	3 abc	4.1 ab
16	Propargyl Bromide	18.99 ab	4 a-d	83 bc	5.04 a-d	3 abc	4.5 ab
17	Chloropicrin EC + Metam Sodium	18.41 ab	4 a-d	87 ab	4.32 a-d	4 abc	4.3 ab
18	Metam Sodium Spray Check	19.52 a	2 d	87 ab	1.72 d	4 ab	4.0 ab
19	Untreated Control	18.21 ab	3 cd	83 bc	3.04 cd	4 a	4.3 ab

01/30/02 (CAT02P)

AOV Means Table Page 2 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total		Rating	Rating
Rating Unit	Inch	Count	Count	Percent		
Rating Date	07/20/00	07/20/00	07/20/00	07/20/00	07/20/00	08/19/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2	0	1

Trt No.	Treatment Name	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
LSD (P=.05)		1.633	5.3	5.1	6.709	1.4	1.12
Standard Deviation		1.143	3.7	3.5	4.694	0.9	0.78
CV		6.15	75.79	4.14	80.05	28.89	19.36
Replicate F		1.334	1.222	1.420	1.189	0.803	1.567
Replicate Prob(F)		0.2744	0.3119	0.2485	0.3237	0.4985	0.2096
Treatment F		1.228	1.983	2.255	1.947	2.537	1.283
Treatment Prob(F)		0.2823	0.0347	0.0154	0.0386	0.0066	0.2467

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/30/02 (CAT02P)

AOV Means Table Page 3 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	
PRM Data Type				T2		T3
# Subsamples, Dec.	1			2		2

Trt No.	Treatment Name	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight
1	Methyl iodide (1X Rate)/Chloropicrin	56.9 bc	5.00 b	88.50 a	5.64 b	4.25 abc	37.94 ab
2	Methyl iodide (1/2X Rate)/Chloropicrin	59.0 abc	5.50 b	89.00 a	6.18 b	4.00 a-d	39.14 a
3	Methyl iodide (0.7XRate)	55.5 c	14.50 ab	89.00 a	16.29 ab	3.00 bcd	37.55 ab
3	/Chloropicrin						
4	PlantPro 45 (1X Rate) + Metam Sodium	58.3 abc	3.50 b	83.50 abc	4.14 b	4.00 a-d	38.51 ab
5	PlantPro 45 (2X Rate) + Metam Sodium	56.8 bc	7.00 b	88.00 a	7.95 b	3.00 bcd	37.63 ab
6	Metam Sodium (Appl. Method #1, Drip)	60.9 a	8.50 b	80.00 bc	10.68 b	4.25 abc	39.59 a
7	Metam Sodium (Appl. Method #2, Spray/Incorporate)						
8	Metam Sodium (Appl. Method #2, Spray/Incorporate)						
9	Metam Sodium (Appl. Method #3, Shank Injected)	55.8 c	6.50 b	84.50 abc	7.76 b	3.67 a-d	36.81 b
10	InLine(CA) or Telone C35 (FL) + Basamid	56.3 bc	15.00 ab	77.50 c	19.22 ab	2.50 d	37.34 ab
11	InLine(CA) or Telone C35 (FL) + Metam Sodium	55.3 c	33.00 a	84.50 abc	39.85 a	2.75 cd	36.29 b
12	InLine(CA) or Telone C35 (FL)	55.6 c	4.50 b	86.00 ab	5.30 b	3.00 bcd	36.57 b
13	Methyl Bromide/Chloropicrin 67/33	56.1 c	5.00 b	89.00 a	5.62 b	4.50 ab	37.51 ab
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	57.8 abc	5.00 b	85.50 ab	5.86 b	4.50 ab	38.30 ab
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	57.1 abc	8.50 b	86.00 ab	9.82 b	3.25 a-d	37.67 ab
16	Propargyl Bromide	59.3 abc	1.00 b	84.00 abc	1.15 b	4.75 a	39.12 a
17	Chloropicrin EC + Metam Sodium	60.1 ab	2.50 b	86.00 ab	2.87 b	4.25 abc	39.27 a
18	Metam Sodium Spray Check	55.8 c	19.50 ab	87.50 ab	22.17 ab	3.50 a-d	37.64 ab
19	Untreated Control	58.8 abc	13.50 ab	86.00 ab	15.22 ab	2.75 cd	38.48 ab

01/30/02 (CAT02P)

AOV Means Table Page 4 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total		Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	
PRM Data Type				T2		T3
# Subsamples, Dec.	1			2		2

Trt	Treatment
No.	Name

LSD (P=.05)	3.36	20.822	6.715	24.768	1.333	1.911
Standard Deviation	2.35	9.822	3.168	11.683	0.933	1.337
CV	4.1	105.68	3.7	106.93	25.61	3.52
Replicate F	4.434	4.390	1.293	4.145	4.224	3.816
Replicate Prob(F)	0.0080	0.0524	0.2723	0.0587	0.0100	0.0158
Treatment F	2.183	1.295	1.986	1.321	2.406	2.082
Treatment Prob(F)	0.0195	0.3059	0.0903	0.2923	0.0101	0.0263

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/30/02 (CAT02P)

AOV Means Table Page 5 of 6

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	2

Trt No.	Treatment Name	%LowVigor	Vigor
1	Methyl Iodide (1X Rate)/Chloropicrin	5.36 b	3.66 abc
2	Methyl Iodide (1/2X Rate)/Chloropicrin	6.46 b	4.25 a
3	Methyl Iodide (0.7XRate)	11.24 b	3.75 abc
3	/Chloropicrin		
4	PlantPro 45 (1X Rate) + Metam Sodium	4.69 b	4.00 a
5	PlantPro 45 (2X Rate) + Metam Sodium	6.53 b	3.50 abc
6	Metam Sodium (Appl. Method #1, Drip)	14.39 ab	3.83 ab
7	Metam Sodium (Appl. Method #2, Spray/Incorporate)		
8	Metam Sodium (Appl. Method #2, Spray/Incorporate)		
9	Metam Sodium (Appl. Method #3, Shank Injected)	9.57 b	3.00 bc
10	InLine(CA) or Telone C35 (FL) + Basamid	14.19 ab	3.00 bc
11	InLine(CA) or Telone C35 (FL) + Metam Sodium	27.03 a	2.83 c
12	InLine(CA) or Telone C35 (FL)	6.12 b	3.00 bc
13	Methyl Bromide/Chloropicrin 67/33	2.81 b	4.00 a
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	7.31 b	4.17 a
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	6.07 b	3.54 abc
16	Propargyl Bromide	3.29 b	4.09 a
17	Chloropicrin EC + Metam Sodium	3.49 b	4.00 a
18	Metam Sodium Spray Check	11.66 b	3.83 ab
19	Untreated Control	9.39 b	3.75 abc

01/30/02 (CAT02P)

A0V Means Table Page 6 of 6

Plant Sciences, Inc.
Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
 Location: Tustin, CA

Investigator: Mike Nelson
 Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	2

Trt	Treatment
No.	Name

LSD (P=.05)	13.959	0.815
Standard Deviation	6.585	0.570
CV	74.82	15.59
Replicate F	1.875	1.967
Replicate Prob(F)	0.1898	0.1318
Treatment F	1.610	2.488
Treatment Prob(F)	0.1754	0.0079

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Rating
Rating Unit	Inch	Count	Count	Percent		
Rating Date	07/20/00	07/20/00	07/20/00	07/20/00	07/20/00	08/19/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2	0	1

Trt No.	Treatment Name	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
1	Methyl iodide (1X Rate)/Chloropicrin	18.72	4	88	4.55	2	5.0
		16.96	5	89	5.62	3	3.0
		18.84	3	87	3.45	3	1.0
		21.48	0	85	0.00	5	5.0
		Mean =	19.00	3	87	3.40	3	3.5
2	Methyl iodide (1/2X Rate)/Chloropicrin	19.56	1	89	1.12	4	4.0
		18.28	11	89	12.36	4	4.0
		20.24	0	90	0.00	5	5.0
		19.04	2	86	2.33	4	5.0
		Mean =	19.28	4	89	3.95	4	4.5
3	Methyl iodide (0.7XRate) 3 /Chloropicrin	18.48	9	89	10.11	3	4.0
		20.32	2	89	2.25	5	4.0
		19.88	1	89	1.12	4	4.0
		19.72	1	89	1.12	5	4.0
		Mean =	19.60	3	89	3.65	4
4	PlantPro 45 (1X Rate) + Metam Sodium	18.20	9	86	10.47	3	4.0
		20.24	0	81	0.00	5	5.0
		17.68	8	87	9.20	2	5.0
		19.00	2	89	2.25	4	4.0
		Mean =	18.78	5	86	5.48	4	4.5
5	PlantPro 45 (2X Rate) + Metam Sodium	18.64	2	88	2.27	4	4.0
		18.76	7	88	7.95	4	4.0
		16.68	6	89	6.74	2	4.0
		19.92	4	87	4.60	3	5.0
		Mean =	18.50	5	88	5.39	3	4.3
6	Metam Sodium (Appl. Method #1, Drip)	18.80	5	84	5.95	3	4.0
		15.92	23	76	30.26	1	5.0
		20.00	4	88	4.55	3	5.0
		18.48	4	87	4.60	3	5.0
		Mean =	18.30	9	84	11.34	3	4.8

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total		Rating	Rating
Rating Unit	Inch	Count	Count	Percent		
Rating Date	07/20/00	07/20/00	07/20/00	07/20/00	07/20/00	08/19/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2	0	1

Trt No.	Treatment Name
---------	----------------

7 Metam Sodium (Appl. Method #2, Spray/Incorporate)

Mean =

8 Metam Sodium (Appl. Method #2, Spray/Incorporate)

Mean =

9 Metam Sodium (Appl. Method #3, Shank Injected)	17.64	13	82	15.85	1	4.0
	18.44	6	87	6.90	4	3.0
	17.28	12	87	13.79	1	3.0
	18.64	8	84	9.52	2	3.0

Mean = 18.00 10 85 11.52 2 3.3

10 InLine(CA) or Telone C35 (FL) + Basamid	18.88	5	81	6.17	2	3.0
	17.64	9	74	12.16	3	3.0
	20.24	2	88	2.27	4	4.0
	16.96	6	81	7.41	3	4.0

Mean = 18.43 6 81 7.00 3 3.5

11 InLine(CA) or Telone C35 (FL) + Metam Sodium	18.00	12	82	14.63	2	4.0
	15.76	12	87	13.79	1	3.0
	18.88	4	81	4.94	3	5.0
	16.68	11	87	12.64	2	3.0

Mean = 17.33 10 84 11.50 2 3.8

12 InLine(CA) or Telone C35 (FL)	18.32	5	83	6.02	3	4.0
	17.76	7	89	7.87	3	3.0
	16.96	8	78	10.26	2	5.0
	17.00	12	72	16.67	1	3.0

Mean = 17.51 8 81 10.20 2 3.8

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Rating
Rating Unit	Inch	Count	Count	Percent		
Rating Date	07/20/00	07/20/00	07/20/00	07/20/00	07/20/00	08/19/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2	0	1

Trt No.	Treatment Name	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
		Inch	Count	Count	Percent	Rating	Rating
		07/20/00	07/20/00	07/20/00	07/20/00	07/20/00	08/19/00
13	Methyl Bromide/Chloropicrin 67/33	18.92	0	89	0.00	3	4.0
		19.60	0	89	0.00	5	3.0
		18.68	3	88	3.41	4	3.0
		18.40	7	87	8.05	4	4.0
	Mean =	18.90	3	88	2.87	4	3.5
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	17.28	7	86	8.14	3	4.0
		18.92	8	85	9.41	4	5.0
		18.64	3	90	3.33	3	4.0
		20.56	2	88	2.27	4	5.0
	Mean =	18.85	5	87	5.79	4	4.5
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	18.92	2	85	2.35	4	4.5
		17.24	2	87	2.30	4	3.0
		19.20	6	88	6.82	2	5.0
		17.52	2	82	2.44	3	4.0
	Mean =	18.22	3	86	3.48	3	4.1
16	Propargyl Bromide	20.44	3	87	3.45	4	5.0
		17.56	6	81	7.41	2	4.0
		17.76	8	86	9.30	2	5.0
		20.20	0	77	0.00	4	4.0
	Mean =	18.99	4	83	5.04	3	4.5
17	Chloropicrin EC + Metam Sodium	17.12	2	88	2.27	4	5.0
		18.60	5	84	5.95	4	4.0
		18.36	5	88	5.68	3	4.0
		19.56	3	89	3.37	3	4.0
	Mean =	18.41	4	87	4.32	4	4.3
18	Metam Sodium Spray Check	19.92	1	88	1.14	5	3.0
		18.68	1	87	1.15	4	4.0
		19.68	1	86	1.16	4	5.0
		19.80	3	87	3.45	3	4.0
	Mean =	19.52	2	87	1.72	4	4.0

01/30/02 (CAT02P)

Plot Data Summary Page 4 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Rating
Rating Unit	Inch	Count	Count	Percent		
Rating Date	07/20/00	07/20/00	07/20/00	07/20/00	07/20/00	08/19/00
PRM Data Type				T1		
# Subsamples, Dec.	2	0	0	2	0	1

Trt No.	Treatment Name	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	Vigor
19	Untreated Control	18.60	2	90	2.22	4	4.0
		17.52	4	82	4.88	4	3.0
		18.64	2	81	2.47	5	5.0
		18.08	2	77	2.60	4	5.0
		Mean =	18.21	3	83	3.04	4	4.3

01/30/02 (CAT02P)

Plot Data Summary Page 5 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	
PRM Data Type				T2		T3
# Subsamples, Dec.	1			2		2

Trt No.	Treatment Name	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight
		Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
		Average	Number	Total	Percent	Rating	Average
		Inch	Count	Count	Percent		Inch
		10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	
					T2		T3
					2		2
1	Methyl iodide (1X Rate)/Chloropicrin	55.0	4.00	88.00	4.55	5.00	36.86
		56.5	6.00	89.00	6.74	4.00	36.73
		55.0				3.00	36.92
		61.0				5.00	41.24
	Mean =	56.9	5.00	88.50	5.64	4.25	37.94
2	Methyl iodide (1/2X Rate)/Chloropicrin	57.0	11.00	89.00	12.36	2.00	38.28
		61.0	0.00	89.00	0.00	5.00	39.64
		60.0				5.00	40.12
		58.0				4.00	38.52
	Mean =	59.0	5.50	89.00	6.18	4.00	39.14
3	Methyl iodide (0.7XRate)	55.5	12.00	89.00	13.48	2.00	36.99
3	/Chloropicrin	55.5	17.00	89.00	19.10	3.00	37.91
		53.0				3.00	36.44
		58.0				4.00	38.86
	Mean =	55.5	14.50	89.00	16.29	3.00	37.55
4	PlantPro 45 (1X Rate) + Metam Sodium	58.0	5.00	86.00	5.81	4.00	38.10
		62.0	2.00	81.00	2.47	5.00	41.12
		55.0				3.00	36.34
		58.0				4.00	38.50
	Mean =	58.3	3.50	83.50	4.14	4.00	38.51
5	PlantPro 45 (2X Rate) + Metam Sodium	60.0	12.00	88.00	13.64	2.00	39.32
		55.0	2.00	88.00	2.27	3.00	36.88
		55.0				3.00	35.84
		57.0				4.00	38.46
	Mean =	56.8	7.00	88.00	7.95	3.00	37.63
6	Metam Sodium (Appl. Method #1, Drip)	59.0	8.00	84.00	9.52	4.00	38.90
		61.0	9.00	76.00	11.84	4.00	38.46
		59.0				4.00	39.50
		64.5				5.00	41.49
	Mean =	60.9	8.50	80.00	10.68	4.25	39.59

01/30/02 (CAT02P)

Plot Data Summary Page 6 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	
PRM Data Type				T2		T3
# Subsamples, Dec.	1			2		2

Trt Treatment
No. Name

7 Metam Sodium (Appl. Method #2, Spray/Incorporate)

Mean =

8 Metam Sodium (Appl. Method #2, Spray/Incorporate)

Mean =

9 Metam Sodium (Appl. Method #3, Shank Injected)

55.0	8.00	82.00	9.76	3.00	36.32
53.5	5.00	87.00	5.75	3.00	35.97
59.0				5.00	38.14

Mean =

10 InLine(CA) or Telone C35 (FL) + Basamid

54.0	18.00	81.00	22.22	1.00	36.44
58.0	12.00	74.00	16.22	3.00	37.82
54.0				2.00	37.12
59.0				4.00	37.98

Mean =

11 InLine(CA) or Telone C35 (FL) + Metam Sodium

50.0	55.00	82.00	67.07	1.00	34.00
56.0	11.00	87.00	12.64	3.00	35.88
58.0				3.00	38.44
57.0				4.00	36.84

Mean =

12 InLine(CA) or Telone C35 (FL)

56.0	6.00	83.00	7.23	4.00	37.16
57.0	3.00	89.00	3.37	3.00	37.38
54.5				2.00	35.73
55.0				3.00	36.00

Mean =

55.6	4.50	86.00	5.30	3.00	36.57
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01/30/02 (CAT02P)

Plot Data Summary Page 7 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeight	LowVigor	Plant#	%LowVigor	Vigor	PlantHeight
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total	Percent	Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	
PRM Data Type				T2		T3
# Subsamples, Dec.	1			2		2
<hr/>						
Trt No.	Treatment Name					
13	Methyl Bromide/Chloropicrin 67/33	57.0	5.00	89.00	5.62	37.96
		55.5	5.00	89.00	5.62	37.55
		55.0				36.84
		57.0				37.70
	Mean =	56.1	5.00	89.00	5.62	37.51
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	57.0	4.00	86.00	4.65	37.14
		58.5	6.00	85.00	7.06	38.71
		55.0				36.82
		60.5				40.53
	Mean =	57.8	5.00	85.50	5.86	38.30
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	58.5	4.00	85.00	4.71	38.71
		51.5	13.00	87.00	14.94	34.37
		57.0				38.10
		61.5				39.51
	Mean =	57.1	8.50	86.00	9.82	37.67
16	Propargyl Bromide	58.5	2.00	87.00	2.30	39.47
		61.0	0.00	81.00	0.00	39.28
		59.0				38.38
		58.5				39.35
	Mean =	59.3	1.00	84.00	1.15	39.12
17	Chloropicrin EC + Metam Sodium	58.5	4.00	88.00	4.55	37.81
		61.5	1.00	84.00	1.19	40.05
		60.0				39.18
		60.5				40.03
	Mean =	60.1	2.50	86.00	2.87	39.27
18	Metam Sodium Spray Check	50.0	37.00	88.00	42.05	34.96
		58.5	2.00	87.00	2.30	38.59
		55.0				37.34
		59.5				39.65
	Mean =	55.8	19.50	87.50	22.17	37.64

01/30/02 (CAT02P)

Plot Data Summary Page 8 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	PlantHeigt	LowVigor	Plant#	%LowVigor	Vigor	PlantHeigt
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Rating Data Type	Average	Number	Total		Rating	Average
Rating Unit	Inch	Count	Count	Percent		Inch
Rating Date	10/04/00	10/04/00	10/04/00	10/04/00	10/04/00	
PRM Data Type				T2		T3
# Subsamples, Dec.	1			2		2
Trt No.	Treatment Name					
19	Untreated Control	56.0	23.00	90.00	25.56	1.00
		59.5	4.00	82.00	4.88	4.00
		59.5				2.00
		60.0				4.00
	Mean =	58.8	13.50	86.00	15.22	2.75
						38.48

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	2

Trt Treatment
No. Name

1	Methyl Iodide (1X Rate)/Chloropicrin	4.55	4.00
		6.18	3.33
			2.33
			5.00
		Mean =	5.36	3.66
2	Methyl Iodide (1/2X Rate)/Chloropicrin	6.74	3.33
		6.18	4.33
			5.00
			4.33
		Mean =	6.46	4.25
3	Methyl Iodide (0.7XRate) /Chloropicrin	11.80	3.00
		10.68	4.00
			3.67
			4.33
		Mean =	11.24	3.75
4	PlantPro 45 (1X Rate) + Metam Sodium	8.14	3.67
		1.24	5.00
			3.33
			4.00
		Mean =	4.69	4.00
5	PlantPro 45 (2X Rate) + Metam Sodium	7.95	3.33
		5.11	3.67
			3.00
			4.00
		Mean =	6.53	3.50
6	Metam Sodium (Appl. Method #1, Drip)	7.74	3.67
		21.05	3.33
			4.00
			4.33
		Mean =	14.39	3.83

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	2

Trt No.	Treatment Name
---------	----------------

7 Metam Sodium (Appl. Method #2, Spray/Incorporate)

Mean =

8 Metam Sodium (Appl. Method #2, Spray/Incorporate)

Mean =

9 Metam Sodium (Appl. Method #3, Shank Injected)	12.81	2.67
	6.32	3.33
		3.00

Mean = 9.57 3.00

10 InLine(CA) or Telone C35 (FL) + Basamid	14.19	2.00
	14.19	3.00
		3.33
		3.67

Mean = 14.19 3.00

11 InLine(CA) or Telone C35 (FL) + Metam Sodium	40.85	2.33
	13.22	2.33
		3.67
		3.00

Mean = 27.03 2.83

12 InLine(CA) or Telone C35 (FL)	6.63	3.67
	5.62	3.00
		3.00
		2.33

Mean = 6.12 3.00

01/30/02 (CAT02P)

Plot Data Summary Page 11 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in TomatoesTrial ID: CA-T-00-2
Location: Tustin, CAInvestigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	2

Trt Treatment
No. Name

13	Methyl Bromide/Chloropicrin 67/33	2.81	4.00
		2.81	4.00
			4.00
			4.00
	Mean =	2.81	4.00
14	Fosthiazate 500 EC + Metam Sodium+Chloropicrin EC	6.39	4.00
		8.23	4.33
			3.67
			4.67
	Mean =	7.31	4.17
15	Fosthiazate 900 EC + Metam Sodium+Chloropicrin EC	3.53	4.17
		8.62	3.00
			3.33
			3.67
	Mean =	6.07	3.54
16	Propargyl Bromide	2.88	4.67
		3.70	3.67
			3.67
			4.33
	Mean =	3.29	4.09
17	Chloropicrin EC + Metam Sodium	3.41	4.33
		3.57	4.33
			3.67
			3.67
	Mean =	3.49	4.00
18	Metam Sodium Spray-Check	21.59	3.00
		1.73	4.00
			4.33
			4.00
	Mean =	11.66	3.83

01/30/02 (CAT02P)

Plot Data Summary Page 12 of 12

Plant Sciences, Inc.

Plant Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in TomatoesTrial ID: CA-T-00-2
Location: Tustin, CAInvestigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	%LowVigor	Vigor
Crop Code	Tomato	Tomato
Rating Data Type	Average	Average
Rating Unit	Percent	Rating
Rating Date		
PRM Data Type	T4	T5
# Subsamples, Dec.	2	2

Trt Treatment

No. Name

19	Untreated Control	13.89	3.00
		4.88	3.67
			4.00
			4.33
	Mean =	9.39	3.75

Appendix III - C

Statistical Analyses Data Printouts: Tustin Trial

Treatment Effects on Marketable and Cull Fruit Yield and Crop Value

01/15/02 (CAT02H)

AOV Means Table Page 1 of 14

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Large	XLarge	Small	Medium	Large
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	Aug	Aug	Aug	Aug	Sept	Sept	Sept
PRM Data Type							
# Subsamples, Dec.							

Trt No.	Treatment Name	0.06	0.19	2.56	32.38	1.00	7.00	23.90
1	Methyl Iodide (1X Rate) 1 /Chloropicrin	ab	b	a	ab	a	ab	ab
2	Methyl Iodide (1/2X Rate) 2 /Chloropicrin	b	ab	ab	ab	a	ab	ab
3	Methyl Iodide (0.7X Rate) 3 /Chloropicrin	b	b	a	ab	a	ab	ab
4	PlantPro 45 (1X Rate) 4 Metam Sodium	b	b	ab	ab	a	b	b
5	PlantPro 45 (2X Rate) 5 Metam Sodium	b	b	ab	a	a	ab	ab
6	Metam Sodium (Appl. Mthd #1, Drip)	ab	b	ab	ab	a	ab	ab
7	Metam Sodium 7 Appl. Method #2, Spray/Incorporate							
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate							
9	Metam Sodium 9 Appl. Method #3, Shank Injected	ab	b	b	ab	a	ab	ab
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	a	b	ab	ab	a	a	a
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	b	b	a	ab	a	ab	ab
12	InLine(CA) or Telone C35 (FL)	b	b	ab	ab	a	ab	ab
13	Methyl Bromide/Chloropicrin 67/33	b	b	ab	b	a	ab	ab
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	b	b	ab	ab	a	ab	ab

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Large	XLarge	Small	Medium	Large
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	Aug	Aug	Aug	Aug	Sept	Sept	Sept
PRM Data Type							
# Subsamples, Dec.							

Trt Treatment
No. Name

15 Fosthiazate 900 EC	0.06 ab	0.19 b	1.19 ab	35.50 ab	1.52 a	5.30 ab	25.30 ab
15 + Metam Sodium							
15 + Chloropicrin EC							
16 Propargyl Bromide	0.13 ab	0.13 b	1.69 ab	37.13 ab	0.88 a	5.05 ab	18.02 b
17 Chloropicrin EC + Metam Sodium	0.06 ab	0.31 b	2.00 ab	31.50 ab	0.52 a	6.15 ab	24.35 ab
18 Metam Sodium Spray Check	0.06 ab	0.56 b	2.13 ab	31.00 ab	1.02 a	5.17 ab	25.60 ab
19 Untreated Control	0.00 b	1.25 a	1.25 ab	35.38 ab	1.10 a	5.30 ab	24.35 ab
LSD (P=.05)	0.143	0.589	1.450	14.339	1.161	3.601	10.081
Standard Deviation	0.100	0.412	1.015	10.034	0.812	2.520	7.054
CV	248.16	106.77	58.37	29.96	80.99	43.61	29.45
Replicate F	1.065	1.261	6.867	1.991	3.565	2.226	1.190
Replicate Prob(F)	0.3729	0.2985	0.0006	0.1279	0.0208	0.0972	0.3234
Treatment F	1.152	1.934	1.138	1.015	0.628	0.798	1.144
Treatment Prob(F)	0.3387	0.0401	0.3499	0.4584	0.8452	0.6802	0.3447

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT02H)

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	XLarge	Small	Medium	Large	XLarge	Small
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Count
Rating Unit	LBs	LBs	LBs	LBs	LBs	Number
Trt-Eval Interval	Sept	Oct	Oct	Oct	Oct	to 10-30
PRM Data Type						
# Subsamples, Dec.						

Trt Treatment
No. Name

15 Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	211.48 ab	46.50 ab	299.00 ab	115.90 ab	274.97 abc	307.50 ab
16 Propargyl Bromide	205.93 ab	54.60 ab	378.00 a	141.05 ab	288.63 ab	334.25 ab
17 Chloropicrin EC + Metam Sodium	209.65 ab	50.80 ab	318.75 ab	128.75 ab	288.95 ab	313.50 ab
18 Metam Sodium Spray Check	208.05 ab	42.85 ab	344.85 ab	127.00 ab	246.10 abc	268.25 ab
19 Untreated Control	219.25 ab	43.50 ab	310.05 ab	127.05 ab	290.35 ab	299.00 ab
LSD (P=.05)	53.078	19.874	89.532	28.839	76.610	117.801
Standard Deviation	37.142	13.907	62.651	20.181	53.608	82.433
CV	18.01	28.7	19.29	15.98	20.21	26.8
Replicate F	40.424	13.197	10.470	12.427	5.089	18.056
Replicate Prob(F)	0.0001	0.0001	0.0001	0.0001	0.0039	0.0001
Treatment F	1.019	0.913	1.039	0.967	1.608	1.120
Treatment Prob(F)	0.4543	0.5603	0.4360	0.5053	0.1032	0.3648

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Small	Medium	Medium	Medium	Large	Large
Rating Data Type	Size	Weight	Count	Weight	Size	Count	Weight
Rating Unit	LBs	LBs	Number	LBs	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.		2			2		2

Trt No.	Treatment Name	0.17 ab	55.22 ab	410.50 a	100.70 a	0.25 bc	418.75 a	148.48 ab
1	Methyl Iodide (1X Rate) 1 /Chloropicrin							
2	Methyl Iodide (1/2X Rate) 2 /Chloropicrin	0.17 ab	52.52 ab	408.50 a	105.20 a	0.26 abc	404.25 a	140.85 ab
3	Methyl Iodide (0.7X Rate) 3 /Chloropicrin	0.16 ab	49.72 ab	424.25 a	88.80 a	0.21 c	383.25 a	133.82 b
4	PlantPro 45 (1X Rate) 4 Metam Sodium	0.17 ab	46.63 ab	393.75 a	101.75 a	0.26 abc	416.00 a	151.75 ab
5	PlantPro 45 (2X Rate) 5 Metam Sodium	0.15 ab	46.30 ab	369.50 a	97.45 a	0.26 abc	431.50 a	146.22 ab
6	Metam Sodium (Appl. Mthd #1, Drip)	0.16 ab	59.35 ab	420.00 a	110.10 a	0.26 abc	479.75 a	171.10 a
7	Metam Sodium 7 Appl. Method #2, Spray/Incorporate							
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate							
9	Metam Sodium 9 Appl. Method #3, Shank Injected	0.16 ab	49.72 ab	402.00 a	106.35 a	0.27 ab	401.50 a	138.58 ab
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	0.16 ab	53.28 ab	378.25 a	103.00 a	0.27 ab	484.00 a	166.27 ab
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	0.16 ab	35.65 b	335.75 a	86.93 a	0.26 abc	428.25 a	150.40 ab
12	InLine(CA) or Telone C35 (FL)	0.19 a	41.58 ab	357.25 a	95.20 a	0.27 ab	461.00 a	159.92 ab
13	Methyl Bromide/Chloropicrin 67/33	0.17 ab	62.45 a	422.25 a	111.38 a	0.27 ab	430.75 a	151.18 ab
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	0.16 ab	45.50 ab	412.50 a	108.48 a	0.26 abc	444.00 a	160.13 ab

01/15/02 (CAT02H)

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Small	Medium	Medium	Medium	Large	Large
Rating Data Type	Size	Weight	Count	Weight	Size	Count	Weight
Rating Unit	LBs	LBs	Number	LBs	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.		2			2		2

Trt No.	Treatment Name	0.16	ab	48.10	ab	365.50	a	94.95	a	0.26	abc	412.75	a	142.40	ab
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC														
16	Propargyl Bromide	0.17	ab	55.60	ab	440.50	a	113.55	a	0.26	abc	458.00	a	160.77	ab
17	Chloropicrin EC + Metam Sodium	0.17	ab	51.40	ab	391.00	a	112.50	a	0.31	a	440.00	a	155.10	ab
18	Metam Sodium Spray Check	0.16	ab	43.95	ab	417.00	a	104.35	a	0.25	bc	448.00	a	154.75	ab
19	Untreated Control	0.15	b	44.60	ab	375.00	a	96.63	a	0.26	abc	428.50	a	152.67	ab
	LSD (P=.05)	0.033		19.821		93.048		23.426		0.043		92.365		28.964	
	Standard Deviation	0.023		13.870		65.111		16.393		0.030		64.633		20.268	
	CV	14.24		28.02		16.46		16.04		11.57		14.91		13.33	
	Replicate F	0.797		14.051		12.835		9.905		0.734		9.022		10.775	
	Replicate Prob(F)	0.5018		0.0001		0.0001		0.0001		0.5367		0.0001		0.0001	
	Treatment F	0.536		0.920		0.749		0.952		1.316		0.708		0.954	
	Treatment Prob(F)	0.9138		0.5530		0.7308		0.5206		0.2268		0.7718		0.5177	

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Large	Xlarge	Xlarge	Xlarge	Total	Total
Rating Data Type	Size	Count	Weight	Size	Count	Weight
Rating Unit	LBs	Number	LBs	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type					T1	T2
# Subsamples, Dec.				2		2

Trt No.	Treatment Name	0.35 a	931.25 abc	521.95 ab	0.56 ab	2017.00 ab	807.36 abc
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC						
16	Propargyl Bromide	0.35 a	955.00 ab	531.68 ab	0.56 ab	2187.75 ab	861.56 ab
17	Chloropicrin EC + Metam Sodium	0.36 a	973.00 ab	530.10 ab	0.55 abc	2117.50 ab	849.05 abc
18	Metam Sodium Spray Check	0.35 a	894.50 abc	485.15 abc	0.54 abc	2027.75 ab	788.15 abc
19	Untreated Control	0.36 a	981.25 ab	544.97 ab	0.55 ab	2083.75 ab	838.83 abc
	LSD (P=.05)	0.033	153.969	90.510	0.026	274.632	105.052
	Standard Deviation	0.023	107.741	63.335	0.018	192.176	73.511
	CV	6.57	11.68	12.54	3.32	9.33	9.09
	Replicate F	1.260	5.050	6.967	20.156	15.358	6.128
	Replicate Prob(F)	0.2985	0.0040	0.0006	0.0001	0.0001	0.0013
	Treatment F	0.425	1.595	1.649	1.455	1.075	1.701
	Treatment Prob(F)	0.9681	0.1069	0.0918	0.1573	0.4034	0.0791

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT02H)

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	M-XL	M-XL	S-XL	M-XL	S-XL	M-XL
Rating Data Type	Count	Weight	Size	Size	/25lbs	25/lbs
Rating Unit	Number	LBs	LBs	LBs	Carts	Carts
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type						
# Subsamples, Dec.			2	2	2	2

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
15	Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	1709.50 ab	759.28 abc	0.33 ab	0.29 ab	5866.83 abc	5517.40 abc
16	Propargyl Bromide	1853.50 ab	805.96 ab	0.33 ab	0.29 ab	6260.69 ab	5856.66 ab
17	Chloropicrin EC + Metam Sodium	1804.00 ab	797.66 ab	0.35 a	0.30 a	6169.76 abc	5796.35 ab
18	Metam Sodium Spray Check	1759.50 ab	744.21 abc	0.32 b	0.28 b	5727.22 abc	5407.94 abc
19	Untreated Control	1784.75 ab	794.23 ab	0.33 ab	0.29 ab	6095.46 abc	5771.37 ab
LSD (P=.05)		230.898	103.065	0.016	0.014	763.367	748.938
Standard Deviation		161.573	72.121	0.011	0.010	534.173	524.076
CV		9.22	9.5	3.46	3.44	9.09	9.5
Replicate F		8.844	6.194	7.008	7.395	6.129	6.194
Replicate Prob(F)		0.0001	0.0012	0.0005	0.0004	0.0013	0.0012
Treatment F		1.103	1.741	0.893	1.015	1.701	1.741
Treatment Prob(F)		0.3786	0.0706	0.5807	0.4587	0.0791	0.0705

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT02H)

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Plant Sciences, Inc.
Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
 Location: Tustin, CA

Investigator: Mike Nelson
 Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Small	Medium	Medium	Large	Large	Xlarge
Rating Data Type	Count	Weight	Count	Weight	Count	Weight	Count
Rating Unit	Number	Lbs	Number	Lbs	Number	Lbs	Number
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.		2		2		2	

Trt No.	Treatment Name							
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	87.50 a	10.27 a	37.50 a	9.68 a	47.00 ab	15.33 abc	125.50 abc
16	Propargyl Bromide	59.75 a	7.95 a	43.75 a	11.15 a	40.25 ab	13.57 bc	124.25 abc
17	Chloropicrin EC + Metam Sodium	108.50 a	12.77 a	31.50 a	8.60 a	54.75 ab	18.73 ab	111.75 bc
18	Metam Sodium Spray Check	92.25 a	12.98 a	41.75 a	10.10 a	60.50 a	21.67 a	130.25 abc
19	Untreated Control	110.25 a	13.22 a	34.25 a	8.73 a	44.25 ab	15.75 abc	157.25 a
LSD (P=.05)		60.615	7.436	21.472	5.087	17.085	5.590	36.747
Standard Deviation		42.416	5.204	15.025	3.559	11.955	3.912	25.714
CV		44.44	43.87	39.1	35.05	25.62	24.26	21.27
Replicate F		33.073	22.989	1.690	2.659	2.177	3.140	8.634
Replicate Prob(F)		0.0001	0.0001	0.1816	0.0587	0.1029	0.0337	0.0001
Treatment F		0.657	0.587	0.533	0.849	1.399	1.736	1.544
Treatment Prob(F)		0.8194	0.8781	0.9155	0.6266	0.1827	0.0716	0.1234

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

01/15/02 (CAT02H)

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in TomatoesTrial ID: CA-T-00-2
Location: Tustin, CAInvestigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato
Part Rated	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight
Rating Unit	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30
PRM Data Type		T3	T4
# Subsamples, Dec.	2	2	2

Trt Treatment
No. Name

1 Methyl iodide (1X Rate) 1 /Chloropicrin	57.43 bc	272.25 a	92.63 bc
2 Methyl iodide (1/2X Rate) 2 /Chloropicrin	66.68 abc	293.75 a	108.68 abc
3 Methyl iodide (0.7X Rate) 3 /Chloropicrin	75.20 abc	322.25 a	118.40 abc
4 PlantPro 45 (1X Rate) 4 Metam Sodium	75.82 abc	276.00 a	108.60 abc
5 PlantPro 45 (2X Rate) 5 Metam Sodium	73.35 abc	291.00 a	106.13 abc
6 Metam Sodium (Appl. Mthd #1, Drip)	80.90 ab	351.25 a	122.15 abc
7 Metam Sodium 7 Appl. Method #2, Spray/Incorporate			
8 Metam Sodium 8 Appl. Method #2, Spray/Incorporate			
9 Metam Sodium 9 Appl. Method #3, Shank Injected	66.85 abc	302.50 a	102.93 abc
10 InLine(CA) or Telone C35 (FL) 10 + Basamid	61.25 bc	335.00 a	107.82 abc
11 InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	50.63 c	256.25 a	85.40 c
12 InLine(CA) or Telone C35 (FL)	65.60 abc	312.25 a	107.90 abc
13 Methyl Bromide/Chloropicrin 67/33	60.10 bc	297.50 a	97.40 abc
14 Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	71.95 abc	271.00 a	105.60 abc

01/15/02 (CAT02H)

AOV Means Table Page 14 of 14

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in TomatoesTrial ID: CA-T-00-2
Location: Tustin, CAInvestigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato
Part Rated	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight
Rating Unit	Lbs	Number	Lbs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30
PRM Data Type		T3	T4
# Subsamples, Dec.	2	2	2

Trt Treatment
No. Name

15 Fosthiazate 900 EC	75.22 abc	297.50 a	110.50 abc
15 + Metam Sodium			
15 + Chloropicrin EC			
16 Propargyl Bromide	66.13 abc	268.00 a	98.80 abc
17 Chloropicrin EC + Metam Sodium	64.70 abc	306.50 a	104.80 abc
18 Metam Sodium Spray Check	78.88 abc	324.75 a	123.63 ab
19 Untreated Control	93.03 a	346.00 a	130.73 a
LSD (P=.05)	24.187	86.902	31.666
Standard Deviation	16.925	60.810	22.158
CV	24.31	20.18	20.56
Replicate F	8.254	6.260	2.259
Replicate Prob(F)	0.0002	0.0011	0.0935
Treatment F	1.414	0.845	1.051
Treatment Prob(F)	0.1755	0.6311	0.4246

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Large	XLarge	Small	Medium	Large
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	Aug	Aug	Aug	Aug	Sept	Sept	Sept
PRM Data Type							
# Subsamples, Dec.							

Trt No.	Treatment Name	0.25	0.50	1.50	3.50	0.80	4.40	11.40
1	Methyl Iodide (1X Rate)	0.25	0.50	3.50	28.00	0.80	4.40	11.40
1	/Chloropicrin	0.00	0.00	3.50	41.00	1.00	3.20	22.60
		0.00	0.25	0.75	35.50	0.80	9.80	27.20
		0.00	0.00	2.50	25.00	1.40	10.60	34.40
	Mean =	0.06	0.19	2.56	32.38	1.00	7.00	23.90
2	Methyl Iodide (1/2X Rate)	0.00	1.00	1.50	38.00	0.00	2.00	17.10
2	/Chloropicrin	0.00	0.50	2.50	19.00	1.10	2.60	16.40
		0.00	0.25	1.50	33.50	0.80	10.60	31.60
		0.00	1.00	0.00	24.50	1.20	4.80	21.80
	Mean =	0.00	0.69	1.38	28.75	0.78	5.00	21.72
3	Methyl Iodide (0.7X Rate)	0.00	0.00	1.50	35.00	0.40	7.00	17.60
3	/Chloropicrin	0.00	0.50	3.00	22.50	0.60	6.80	19.00
		0.00	0.00	2.00	33.50	0.50	3.80	22.00
		0.00	0.00	3.00	25.00	1.60	5.60	23.00
	Mean =	0.00	0.13	2.38	29.00	0.77	5.80	20.40
4	PlantPro 45 (1X Rate)	0.00	0.00	4.00	50.00	0.00	2.20	9.20
4	Metam Sodium	0.00	0.75	1.50	14.00	1.10	1.20	18.40
		0.00	0.50	1.50	31.00	0.80	8.00	25.00
		0.00	0.25	0.75	44.00	0.20	2.40	18.60
	Mean =	0.00	0.38	1.94	34.75	0.53	3.45	17.80
5	PlantPro 45 (2X Rate)	0.00	0.00	1.50	41.00	1.60	6.60	27.40
5	Metam Sodium	0.00	1.50	2.00	38.00	0.60	4.60	19.60
		0.00	0.00	1.75	50.00	0.60	7.60	38.20
		0.00	0.25	0.75	44.00	0.80	5.20	23.00
	Mean =	0.00	0.44	1.50	43.25	0.90	6.00	27.05
6	Metam Sodium (Appl. Mthd #1, Drip)	0.25	0.00	1.50	69.00	1.10	8.20	19.40
		0.00	0.00	2.50	25.50	2.60	3.20	15.40
		0.00	1.25	0.75	25.50	0.70	6.40	24.20
		0.00	0.25	1.25	27.00	0.60	3.20	20.80
	Mean =	0.06	0.38	1.50	36.75	1.25	5.25	19.95

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Large	XLarge	Small	Medium	Large
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	Aug	Aug	Aug	Aug	Sept	Sept	Sept
PRM Data Type							
# Subsamples, Dec.							

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	0.00	0.00	1.00	38.50	0.60	4.80	16.00
9 Appl. Method #3, Shank Injected	0.00	0.25	1.00	38.00	1.60	6.00	22.00
	0.25	0.25	0.25	35.50	0.80	6.20	26.20
	0.00	0.00	0.00	31.50	0.60	7.20	21.00

Mean = 0.06 0.13 0.56 35.88 0.90 6.05 21.30

10 InLine(CA) or Telone C35 (FL)	0.25	0.25	1.50	42.00	1.10	5.00	22.40
10 + Basamid	0.25	0.25	2.50	21.50	4.60	10.20	28.00
	0.25	0.00	1.25	55.00	1.30	11.40	31.00
	0.00	0.00	0.75	45.00	0.00	9.00	46.60

Mean = 0.19 0.13 1.50 40.88 1.75 8.90 32.00

11 InLine(CA) or Telone C35 (FL)	0.00	0.50	3.00	40.50	0.80	4.20	26.20
11 + Metam Sodium	0.00	0.25	3.00	41.00	2.60	10.40	25.60
	0.00	0.00	2.00	37.00	1.00	7.20	31.20
	0.00	0.50	3.00	32.00	0.80	3.60	26.40

Mean = 0.00 0.31 2.75 37.63 1.30 6.35 27.35

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Large	XLarge	Small	Medium	Large
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Rating Unit	LBs	LBs	LBs	LBs	LBs	LBs	LBs
Trt-Eval Interval	Aug	Aug	Aug	Aug	Sept	Sept	Sept
PRM Data Type							
# Subsamples, Dec.							

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
12	InLine(CA) or Telone C35 (FL)	0.00	0.25	2.00	19.00	1.00	4.40
		0.00	0.25	3.00	41.00	1.90	7.60
		0.00	0.25	0.25	31.50	0.70	4.40
		0.00	0.25	0.75	19.00	0.70	4.00
		Mean =	0.00	0.25	1.50	27.63	1.08	5.10
13	Methyl Bromide/Chloropicrin 67/33	0.00	0.25	1.00	29.00	2.20	7.00
		0.00	1.00	3.00	15.00	0.40	3.60
		0.00	0.50	1.00	25.50	1.40	13.00
		0.00	0.50	2.50	30.00	0.00	1.40
		Mean =	0.00	0.56	1.88	24.88	1.00	6.25
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	0.00	0.25	1.00	38.00	0.80	6.20
		0.00	1.00	3.00	15.00	0.60	4.00
		0.00	0.50	1.00	25.50	0.40	7.20
		0.00	0.50	2.50	30.00	1.20	7.00
		Mean =	0.00	0.56	1.88	27.13	0.75	6.10
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	0.00	0.00	0.50	50.00	0.80	3.80
		0.00	0.25	2.00	43.50	3.00	8.00
		0.00	0.00	0.75	29.50	0.10	4.80
		0.25	0.50	1.50	19.00	2.20	4.60
		Mean =	0.06	0.19	1.19	35.50	1.52	5.30
16	Propargyl Bromide	0.50	0.25	2.50	36.00	1.00	6.00
		0.00	0.25	2.50	46.50	2.00	6.80
		0.00	0.00	1.50	36.00	0.40	3.60
		0.00	0.00	0.25	30.00	0.10	3.80
		Mean =	0.13	0.13	1.69	37.13	0.88	5.05
17	Chloropicrin EC + Metam Sodium	0.00	0.25	0.50	26.00	0.40	5.00
		0.25	0.75	3.00	39.00	0.00	4.20
		0.00	0.00	0.50	32.00	0.50	9.20
		0.00	0.25	4.00	29.00	1.20	6.20
		Mean =	0.06	0.31	2.00	31.50	0.52

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Large	XLarge	Small	Medium	Large
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Weight	Weight
Rating Unit	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs
Trt-Eval Interval	Aug	Aug	Aug	Aug	Sept	Sept	Sept
PRM Data Type							
# Subsamples, Dec.							

Trt No.	Treatment Name	Small	Medium	Large	XLarge	Small	Medium	Large
18	Metam Sodium Spray Check	0.00	1.00	5.50	22.00	1.40	7.60	39.60
		0.00	1.00	2.00	28.00	2.40	5.50	21.80
		0.25	0.00	0.75	41.00	0.10	4.20	21.60
		0.00	0.25	0.25	33.00	0.20	3.40	19.40
		Mean =	0.06	0.56	2.13	31.00	1.02	5.17	25.60
19	Untreated Control	0.00	0.25	0.25	40.00	1.60	8.00	31.60
		0.00	0.75	3.50	45.50	0.10	4.20	16.20
		0.00	2.50	0.50	32.00	0.80	3.80	17.20
		0.00	1.50	0.75	24.00	1.90	5.20	32.40
		Mean =	0.00	1.25	1.25	35.38	1.10	5.30	24.35

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	XLarge	Small	Medium	Large	XLarge	Small	Small
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Count	Size
Rating Unit	LBs	LBs	LBs	LBs	LBs	Number	LBs
Trt-Eval Interval	Sept	Oct	Oct	Oct	Oct	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.							

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
1	Methyl Iodide (1X Rate)	170.20	43.00	273.80	113.00	265.00	0.17
1	/Chloropicrin	158.40	52.00	346.80	153.00	297.40	0.17
		306.00	51.40	288.40	101.60	170.60	0.16
		267.60	70.20	432.00	120.40	200.10	0.16
	Mean =	225.55	54.15	335.25	122.00	233.27	0.17
2	Methyl Iodide (1/2X Rate)	223.20	55.20	221.60	110.20	175.80	0.16
2	/Chloropicrin	150.00	63.60	435.20	140.60	359.00	0.17
		289.60	37.60	274.20	80.60	175.40	0.16
		215.40	50.60	413.40	139.60	275.40	0.17
	Mean =	219.55	51.75	336.10	117.75	246.40	0.17
3	Methyl Iodide (0.7X Rate)	206.80	34.40	235.20	110.40	240.20	0.17
3	/Chloropicrin	167.60	60.20	423.40	133.80	305.70	0.13
		218.00	29.00	406.80	93.40	219.00	0.16
		230.00	72.20	364.45	106.60	185.00	0.16
	Mean =	205.60	48.95	357.46	111.05	237.48	0.16
4	PlantPro 45 (1X Rate)	106.00	37.80	218.00	111.20	306.40	0.18
4	Metam Sodium	180.20	75.40	439.80	170.60	379.10	0.16
		277.60	37.60	361.00	125.80	254.40	0.17
		193.60	33.60	324.80	120.40	250.00	0.15
	Mean =	189.35	46.10	335.90	132.00	297.48	0.17
5	PlantPro 45 (2X Rate)	202.00	40.20	282.60	111.80	262.20	0.17
5	Metam Sodium	166.70	50.60	320.60	126.60	302.40	0.14
		308.00	34.80	306.20	106.20	190.00	0.17
		275.00	56.00	326.00	126.00	311.80	0.13
	Mean =	237.93	45.40	308.85	117.65	266.60	0.15
6	Metam Sodium (Appl. Mthd #1, Drip)	241.40	49.90	292.20	129.20	322.80	0.18
		139.80	63.00	316.00	169.20	322.40	0.13
		306.60	38.00	280.20	115.50	257.00	0.18
		203.00	81.20	481.40	184.60	316.60	0.15
	Mean =	222.70	58.02	342.45	149.63	304.70	0.16

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	XLarge	Small	Medium	Large	XLarge	Small	Small
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Count	Size
Rating Unit	LBs	LBs	LBs	LBs	LBs	Number	LBs
Trt-Eval Interval	Sept	Oct	Oct	Oct	Oct	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.							

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	163.00	49.00	305.80	145.00	225.20	285.00	0.17
9 Appl. Method #3, Shank Injected	146.00	63.60	449.60	123.20	152.20	440.00	0.15
	254.60	32.20	263.80	82.00	176.60	220.00	0.15
	285.40	50.20	359.60	116.60	227.00	301.00	0.17

Mean = 212.25 48.75 344.70 116.70 195.25 311.50 0.16

10 InLine(CA) or Telone C35 (FL)	164.40	37.40	262.40	114.60	338.10	235.00	0.17
10 + Basamid	133.00	70.20	276.00	168.00	314.80	478.00	0.16
	279.20	38.20	259.00	95.00	185.40	242.00	0.16
	226.20	59.40	345.40	153.40	227.40	392.00	0.15

Mean = 200.70 51.30 285.70 132.75 266.43 336.75 0.16

11 InLine(CA) or Telone C35 (FL)	225.80	27.00	148.40	95.80	260.20	172.00	0.16
11 + Metam Sodium	84.80	47.20	341.80	146.80	223.40	303.00	0.16
	230.60	32.00	270.20	124.60	257.00	200.00	0.17
	208.60	31.20	259.80	114.00	267.40	208.00	0.15

Mean = 187.45 34.35 255.05 120.30 252.00 220.75 0.16

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	XLarge	Small	Medium	Large	XLarge	Small	Small
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Count	Size
Rating Unit	LBs	LBs	LBs	LBs	LBs	Number	LBs
Trt-Eval Interval	Sept	Oct	Oct	Oct	Oct	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.							

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
12	InLine(CA) or Telone C35 (FL)	162.20	55.40	298.00	160.00	323.80	0.26
		128.80	50.00	269.80	111.80	303.80	0.16
		277.20	27.20	278.80	111.00	316.60	0.17
		141.80	29.40	256.20	156.40	371.20	0.16
		Mean =	177.50	40.50	275.70	134.80	328.85	0.19
13	Methyl Bromide/Chloropicrin 67/33	160.00	80.20	423.00	153.80	202.60	0.17
		130.00	87.00	446.40	125.80	208.00	0.16
		179.20	38.20	266.00	83.80	137.40	0.17
		176.00	40.40	264.20	128.80	320.80	0.17
		Mean =	161.30	61.45	349.90	123.05	217.20	0.17
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	161.00	39.60	259.60	129.40	238.20	0.16
		153.80	56.40	322.40	127.20	339.20	0.16
		240.60	23.20	344.40	117.20	239.20	0.17
		293.80	59.80	446.00	146.40	285.00	0.16
		Mean =	212.30	44.75	343.10	130.05	275.40	0.16
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	163.90	61.20	298.40	115.80	321.80	0.17
		124.40	75.60	364.60	115.60	173.00	0.15
		327.60	31.60	307.00	88.00	207.40	0.15
		230.00	17.60	226.00	144.20	397.70	0.16
		Mean =	211.48	46.50	299.00	115.90	274.97	0.16
16	Propargyl Bromide	149.70	51.80	350.60	148.80	269.40	0.18
		139.00	65.40	462.80	174.00	330.00	0.16
		273.60	44.00	286.40	86.60	237.10	0.17
		261.40	57.20	412.20	154.80	318.00	0.16
		Mean =	205.93	54.60	378.00	141.05	288.63	0.17
17	Chloropicrin EC + Metam Sodium	123.00	66.60	154.00	152.20	305.60	0.16
		161.80	72.20	437.60	139.40	363.40	0.16
		315.80	35.00	274.80	105.80	238.60	0.18
		238.00	29.40	408.60	117.60	248.20	0.17
		Mean =	209.65	50.80	318.75	128.75	288.95

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	XLarge	Small	Medium	Large	XLarge	Small	Small
Rating Data Type	Weight	Weight	Weight	Weight	Weight	Count	Size
Rating Unit	Lbs	Lbs	Lbs	Lbs	Lbs	Number	Lbs
Trt-Eval Interval	Sept	Oct	Oct	Oct	Oct	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.							

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
18	Metam Sodium Spray Check	144.80	40.40	261.80	83.60	151.60	0.17
		123.80	65.80	367.00	180.20	313.00	0.17
		280.00	34.60	370.80	115.20	239.60	0.16
		283.60	30.60	379.80	129.00	280.20	0.16
		Mean =	208.05	42.85	344.85	127.00	268.25	0.16
19	Untreated Control	253.40	15.00	240.00	115.40	317.00	0.05
		130.20	88.00	372.80	126.00	438.00	0.20
		233.60	39.40	333.80	125.60	242.00	0.17
		259.80	31.60	293.60	141.20	199.00	0.17
		Mean =	219.25	43.50	310.05	127.05	299.00	0.15

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Medium	Medium	Large	Large	Large
Rating Data Type	Weight	Count	Weight	Size	Count	Weight	Size
Rating Unit	LBs	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.	2			2		2	

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
		Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
		Small	Medium	Medium	Medium	Large	Large
		Weight	Count	Weight	Size	Count	Size
		LBs	Number	LBs	LBs	Number	LBs
		to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
1	Methyl iodide (1X Rate)	44.10	310.00	79.50	0.26	366.00	127.90
1	/Chloropicrin	53.00	418.00	87.20	0.21	507.00	179.10
		52.20	360.00	96.30	0.27	370.00	129.60
		71.60	554.00	139.80	0.25	432.00	157.30
	Mean =	55.22	410.50	100.70	0.25	418.75	148.48
2	Methyl iodide (1/2X Rate)	55.20	285.00	75.40	0.26	366.00	128.80
2	/Chloropicrin	64.70	507.00	128.90	0.25	464.00	159.50
		38.40	333.00	89.30	0.27	318.00	113.70
		51.80	509.00	127.20	0.25	469.00	161.40
	Mean =	52.52	408.50	105.20	0.26	404.25	140.85
3	Methyl iodide (0.7X Rate)	34.80	310.00	81.20	0.26	375.00	129.50
3	/Chloropicrin	60.80	509.00	84.10	0.17	452.00	155.80
		29.50	449.00	112.40	0.25	331.00	117.40
		73.80	429.00	77.50	0.18	375.00	132.60
	Mean =	49.72	424.25	88.80	0.21	383.25	133.82
4	PlantPro 45 (1X Rate)	37.80	260.00	65.00	0.25	298.00	124.40
4	Metam Sodium	76.50	511.00	132.00	0.26	553.00	190.50
		38.40	444.00	115.30	0.26	427.00	152.30
		33.80	360.00	94.70	0.26	386.00	139.80
	Mean =	46.63	393.75	101.75	0.26	416.00	151.75
5	PlantPro 45 (2X Rate)	41.80	348.00	88.80	0.25	464.00	140.70
5	Metam Sodium	51.20	387.00	101.90	0.26	431.00	148.20
		35.40	354.00	96.20	0.27	410.00	146.20
		56.80	389.00	102.90	0.26	421.00	149.80
	Mean =	46.30	369.50	97.45	0.26	431.50	146.22
6	Metam Sodium (Appl. Mthd #1, Drip)	51.30	375.00	98.80	0.26	414.00	150.10
		65.60	422.00	112.00	0.26	547.00	187.10
		38.70	344.00	89.30	0.26	401.00	140.50
		81.80	539.00	140.30	0.26	557.00	206.70
	Mean =	59.35	420.00	110.10	0.26	479.75	171.10

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Medium	Medium	Large	Large	Large
Rating Data Type	Weight	Count	Weight	Size	Count	Weight	Size
Rating Unit	LBs	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.	2			2		2	

Trt No.	Treatment Name
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7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	49.60	363.00	104.00	0.29	468.00	162.00	0.35
9 Appl. Method #3, Shank Injected	65.20	511.00	128.70	0.25	423.00	146.20	0.35
	33.30	323.00	84.90	0.26	305.00	108.50	0.36
	50.80	411.00	107.80	0.26	410.00	137.60	0.34

Mean =

10 InLine(CA) or Telone C35 (FL)	38.80	332.00	80.90	0.24	478.00	138.50	0.29
10 + Basamid	75.10	422.00	134.30	0.32	590.00	198.50	0.34
	39.80	314.00	82.00	0.26	354.00	127.30	0.36
	59.40	445.00	114.80	0.26	514.00	200.80	0.39

Mean =

11 InLine(CA) or Telone C35 (FL)	27.80	218.00	55.10	0.25	356.00	125.00	0.35
11 + Metam Sodium	49.80	456.00	117.50	0.26	510.00	175.40	0.34
	33.00	353.00	94.60	0.27	435.00	157.80	0.36
	32.00	316.00	80.50	0.25	412.00	143.40	0.35

Mean =

35.65	335.75	86.93	0.26	428.25	150.40	0.35
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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Medium	Medium	Large	Large	Large
Rating Data Type	Weight	Count	Weight	Size	Count	Weight	Size
Rating Unit	LBs	Number	LBs	LBs	Number	LBs	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.	2			2		2	

Trt No.	Treatment Name	Weight	Count	Weight	Size	Count	Weight
12	InLine(CA) or Telone C35 (FL)	56.40	371.00	95.90	0.26	525.00	180.20
		51.90	347.00	89.30	0.26	421.00	143.80
		27.90	353.00	99.70	0.28	400.00	143.30
		30.10	358.00	95.90	0.27	498.00	172.40
		Mean =	41.58	357.25	95.20	0.27	461.00	159.92
13	Methyl Bromide/Chloropicrin 67/33	82.40	501.00	114.90	0.23	527.00	182.80
		87.40	522.00	134.40	0.26	450.00	156.40
		39.60	352.00	91.50	0.26	336.00	119.60
		40.40	314.00	104.70	0.33	410.00	145.90
		Mean =	62.45	422.25	111.38	0.27	430.75	151.18
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	40.40	339.00	89.50	0.26	424.00	162.60
		57.00	395.00	105.80	0.27	438.00	153.00
		23.60	397.00	103.30	0.26	411.00	143.80
		61.00	519.00	135.30	0.26	503.00	181.10
		Mean =	45.50	412.50	108.48	0.26	444.00	160.13
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	62.00	353.00	90.20	0.26	413.00	145.70
		78.60	470.00	121.10	0.26	438.00	149.00
		31.70	343.00	89.40	0.26	303.00	107.40
		20.10	296.00	79.10	0.27	497.00	167.50
		Mean =	48.10	365.50	94.95	0.26	412.75	142.40
16	Propargyl Bromide	53.30	435.00	110.70	0.25	517.00	178.60
		67.40	537.00	139.10	0.26	568.00	197.10
		44.40	325.00	83.20	0.26	287.00	99.90
		57.30	465.00	121.20	0.26	460.00	167.50
		Mean =	55.60	440.50	113.55	0.26	458.00	160.77
17	Chloropicrin EC + Metam Sodium	67.00	235.00	103.90	0.44	597.00	173.90
		72.50	485.00	126.80	0.26	357.00	160.00
		35.50	364.00	96.60	0.26	385.00	136.90
		30.60	480.00	122.70	0.26	421.00	149.60
		Mean =	51.40	391.00	112.50	0.31	440.00

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Plot Data Summary Page 12 of 24

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Small	Medium	Medium	Medium	Large	Large	Large
Rating Data Type	Weight	Count	Weight	Size	Count	Weight	Size
Rating Unit	Lbs	Number	Lbs	Lbs	Number	Lbs	Lbs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.	2				2		2

Trt No.	Treatment Name	Weight	Count	Weight	Size	Count	Weight	Size
18	Metam Sodium Spray Check	41.80	333.00	84.20	0.25	410.00	128.70	0.31
		68.20	495.00	113.90	0.23	591.00	204.00	0.34
		35.00	418.00	110.20	0.26	385.00	137.60	0.36
		30.80	422.00	109.10	0.26	406.00	148.70	0.37
		Mean =	43.95	417.00	104.35	0.25	448.00	154.75	0.35
19	Untreated Control	16.60	310.00	75.70	0.24	425.00	147.30	0.35
		88.10	423.00	108.40	0.26	417.00	145.70	0.35
		40.20	381.00	100.70	0.26	404.00	143.30	0.35
		33.50	386.00	101.70	0.26	468.00	174.40	0.37
		Mean =	44.60	375.00	96.63	0.26	428.50	152.67	0.36

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Xlarge	Xlarge	Total	Total	M-XL	M-XL
Rating Data Type	Count	Weight	Size	Count	Weight	Count	Weight
Rating Unit	Number	LBs	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type				T1	T2		
# Subsamples, Dec.		2			2		

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
1	Methyl Iodide (1X Rate)	772.00	463.20	0.60	1702.00	714.65	1448.00
1	/Chloropicrin	956.00	496.80	0.52	2198.00	816.10	1881.00
		927.00	512.10	0.55	1983.00	790.10	1657.00
		910.00	492.70	0.54	2332.00	861.40	1896.00
	Mean =	891.25	491.20	0.55	2053.75	795.56	1720.50
2	Methyl Iodide (1/2X Rate)	796.00	437.00	0.55	1786.00	696.40	1447.00
2	/Chloropicrin	975.00	528.00	0.54	2324.00	881.10	1946.00
		809.00	498.50	0.62	1705.00	739.85	1460.00
		959.00	515.30	0.54	2241.00	855.70	1937.00
	Mean =	884.75	494.70	0.56	2014.00	793.26	1697.50
3	Methyl Iodide (0.7X Rate)	855.00	482.00	0.56	1744.00	727.50	1540.00
3	/Chloropicrin	928.00	495.80	0.53	2351.00	796.50	1889.00
		823.00	470.50	0.57	1783.00	729.80	1603.00
		814.00	440.00	0.54	2079.00	723.85	1618.00
	Mean =	855.00	472.08	0.55	1989.25	744.41	1662.50
4	PlantPro 45 (1X Rate)	825.00	462.40	0.56	1597.00	689.60	1383.00
4	Metam Sodium	1095.00	573.30	0.52	2629.00	972.25	2159.00
		1002.00	563.00	0.56	2093.00	869.00	1873.00
		925.00	487.60	0.53	1898.00	755.80	1671.00
	Mean =	961.75	521.58	0.54	2054.25	821.66	1771.50
5	PlantPro 45 (2X Rate)	903.00	505.20	0.56	1956.00	776.50	1715.00
5	Metam Sodium	914.00	507.10	0.56	2108.00	808.40	1732.00
		941.00	548.00	0.58	1914.00	825.75	1705.00
		1114.00	630.80	0.57	2362.00	940.20	1924.00
	Mean =	968.00	547.78	0.57	2085.00	837.71	1769.00
6	Metam Sodium (Appl. Mthd #1, Drip)	1086.00	633.20	0.58	2166.00	933.35	1875.00
		979.00	487.70	0.50	2436.00	852.40	1948.00
		1039.00	589.10	0.57	1996.00	857.50	1784.00
		1006.00	546.60	0.54	2653.00	975.30	2102.00
	Mean =	1027.50	564.15	0.55	2312.75	904.64	1927.25

01/15/02 (CAT02H)

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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Xlarge	Xlarge	Total	Total	M-XL	M-XL
Rating Data Type	Count	Weight	Size	Count	Weight	Count	Weight
Rating Unit	Number	LBS	LBS	Number	LBS	Number	LBS
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type				T1	T2		
# Subsamples, Dec.		2			2		

Trt Treatment
No. Name

7 Metam Sodium
7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	771.00	426.70	0.55	1887.00	742.30	1602.00	692.70
9 Appl. Method #3, Shank Injected	690.00	336.20	0.49	2064.00	676.25	1624.00	611.05
	830.00	466.70	0.56	1678.00	693.25	1458.00	660.00
	949.00	543.90	0.57	2071.00	840.10	1770.00	789.30

Mean = 810.00 443.38 0.54 1925.00 737.97 1613.50 688.26

10 InLine(CA) or Telone C35 (FL)	971.00	544.50	0.56	2016.00	802.60	1781.00	763.85
10 + Basamid	925.00	469.30	0.51	2415.00	877.10	1937.00	802.05
	933.00	519.60	0.56	1843.00	768.60	1601.00	728.85
	914.00	498.60	0.55	2265.00	873.55	1873.00	814.15

Mean = 935.75 508.00 0.54 2134.75 830.46 1798.00 777.22

11 InLine(CA) or Telone C35 (FL)	958.00	526.50	0.55	1704.00	734.40	1532.00	706.60
11 + Metam Sodium	680.00	349.20	0.51	1949.00	691.85	1646.00	642.05
	963.00	524.60	0.55	1951.00	810.00	1751.00	777.00
	958.00	508.00	0.53	1894.00	763.90	1686.00	731.90

Mean = 889.75 477.08 0.53 1874.50 750.04 1653.75 714.39

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Xlarge	Xlarge	Total	Total	M-XL	M-XL
Rating Data Type	Count	Weight	Size	Count	Weight	Count	Weight
Rating Unit	Number	LBs	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type				T1	T2		
# Subsamples, Dec.		2			2		

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
12	InLine(CA) or Telone C35 (FL)	964.00	505.00	0.52	2073.00	837.45	1860.00
		896.00	473.60	0.53	1991.00	758.55	1664.00
		1140.00	625.30	0.55	2058.00	896.10	1893.00
		1001.00	532.00	0.53	2049.00	830.30	1857.00
		Mean =	1000.25	533.97	0.53	2042.75	830.60	1818.50
13	Methyl Bromide/Chloropicrin 67/33	760.00	391.60	0.51	2267.00	771.65	1788.00
		738.00	353.00	0.48	2244.00	731.20	1710.00
		626.00	342.10	0.55	1551.00	592.80	1314.00
		954.00	526.80	0.55	1916.00	817.80	1678.00
		Mean =	769.50	403.38	0.52	1994.50	728.36	1622.50
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	781.00	437.20	0.56	1794.00	729.65	1544.00
		960.00	508.00	0.53	2149.00	823.80	1793.00
		967.00	505.30	0.52	1916.00	776.00	1775.00
		1120.00	608.80	0.54	2519.00	986.20	2142.00
		Mean =	957.00	514.83	0.54	2094.50	828.91	1813.50
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	961.00	535.70	0.56	2086.00	833.60	1727.00
		658.00	340.90	0.52	2102.00	689.55	1566.00
		948.00	564.50	0.60	1806.00	792.95	1594.00
		1158.00	646.70	0.56	2074.00	913.35	1951.00
		Mean =	931.25	521.95	0.56	2017.00	807.36	1709.50
16	Propargyl Bromide	840.00	455.10	0.54	2092.00	797.65	1792.00
		993.00	515.50	0.52	2516.00	919.05	2098.00
		931.00	546.70	0.59	1805.00	774.20	1543.00
		1056.00	609.40	0.58	2338.00	955.35	1981.00
		Mean =	955.00	531.68	0.56	2187.75	861.56	1853.50
17	Chloropicrin EC + Metam Sodium	831.00	454.60	0.55	2073.00	799.35	1663.00
		1072.00	564.20	0.53	2370.00	923.40	1914.00
		1056.00	586.40	0.56	2007.00	855.40	1805.00
		933.00	515.20	0.55	2020.00	818.05	1834.00
		Mean =	973.00	530.10	0.55	2117.50	849.05	1804.00

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Xlarge	Xlarge	Total	Total	M-XL	M-XL
Rating Data Type	Count	Weight	Size	Count	Weight	Count	Weight
Rating Unit	Number	LBs	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type				T1	T2		
# Subsamples, Dec.		2			2		

Trt No.	Treatment Name	Marketable	Marketable	Marketable	Marketable	Marketable	Marketable
18	Metam Sodium Spray Check	600.00	318.40	0.53	1595.00	573.10	531.30
		914.00	464.80	0.51	2413.00	850.90	782.70
		1011.00	560.60	0.56	2032.00	843.30	808.35
		1053.00	596.80	0.57	2071.00	885.30	854.50
		Mean =	894.50	485.15	0.54	2027.75	788.15	744.21
19	Untreated Control	953.00	535.80	0.56	2005.00	775.30	758.70
		823.00	430.10	0.52	2101.00	772.25	684.15
		1049.00	594.60	0.57	2076.00	878.80	838.60
		1100.00	619.40	0.56	2153.00	928.95	895.45
		Mean =	981.25	544.97	0.55	2083.75	838.83	794.23

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	S-XL	M-XL	S-XL	M-XL	Small	Small	Medium
Rating Data Type	Size	Size	/25lbs	25/lbs	Count	Weight	Count
Rating Unit	LBs	LBs	Carts	Carts	Number	LBs	Number
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.	2	2	2	2	2	2	
Trt No.	Treatment Name						
1	Methyl Iodide (1X Rate)	0.34	0.30	5193.12	4873.03	89.00	25.00
1	/Chloropicrin	0.31	0.27	5930.33	5545.19	175.00	35.00
		0.33	0.29	5741.39	5362.07	40.00	6.60
		0.33	0.29	6259.51	5739.21	79.00	11.80
	Mean =	0.33	0.29	5781.09	5379.88	95.75	12.25
2	Methyl Iodide (1/2X Rate)	0.33	0.29	5060.51	4659.39	210.00	38.00
2	/Chloropicrin	0.33	0.28	6402.66	5932.51	91.00	9.50
		0.35	0.31	5376.24	5097.20	41.00	6.20
		0.32	0.28	6218.09	5841.67	45.00	6.80
	Mean =	0.33	0.29	5764.37	5382.69	96.75	15.13
3	Methyl Iodide (0.7X Rate)	0.34	0.29	5286.50	5033.62	79.00	10.80
3	/Chloropicrin	0.29	0.26	5787.90	5346.09	211.00	24.10
		0.34	0.29	5303.21	5088.85	24.00	3.90
		0.31	0.27	5259.98	4723.70	70.00	10.50
	Mean =	0.32	0.28	5409.40	5048.06	96.00	12.33
4	PlantPro 45 (1X Rate)	0.35	0.31	5011.09	4736.41	80.00	10.10
4	Metam Sodium	0.32	0.28	7065.02	6509.12	137.00	16.80
		0.34	0.29	6314.73	6035.69	44.00	6.50
		0.32	0.29	5492.15	5246.53	41.00	5.60
	Mean =	0.33	0.29	5970.75	5631.94	75.50	9.75
5	PlantPro 45 (2X Rate)	0.32	0.28	5642.57	5338.82	56.00	7.60
5	Metam Sodium	0.32	0.29	5874.37	5502.32	198.00	19.90
		0.34	0.30	6000.45	5743.21	33.00	5.40
		0.33	0.30	6832.12	6419.37	87.00	10.80
	Mean =	0.33	0.29	6087.38	5750.93	93.50	10.93
6	Metam Sodium (Appl. Mthd #1, Drip)	0.35	0.30	6782.34	6409.93	198.00	23.00
		0.31	0.28	6194.11	5717.41	164.00	19.80
		0.34	0.29	6231.17	5949.95	27.00	4.20
		0.33	0.29	7087.18	6492.77	83.00	10.00
	Mean =	0.33	0.29	6573.70	6142.51	118.00	14.25

Plant Sciences, Inc.
Yield Evaluation of Alternatives to Methyl Bromide for
Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
 Location: Tustin, CA

Investigator: Mike Nelson
 Study Dir.: Dr. Michael Nelson

Character Rated	Marketable	Marketable	Marketable	Marketable	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	S-XL	M-XL	S-XL	M-XL	Small	Small	Medium
Rating Data Type	Size	Size	/25lbs	25/lbs	Count	Weight	Count
Rating Unit	LBs	LBs	Carts	Carts	Number	LBs	Number
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type							
# Subsamples, Dec.	2	2	2	2		2	

Trt Treatment
 No. Name

7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	0.34	0.30	5394.05	5033.62	213.00	15.20	29.00
9 Appl. Method #3, Shank Injected	0.31	0.27	4914.08	4440.30	80.00	9.60	35.00
	0.33	0.29	5037.62	4796.00	50.00	8.20	51.00
	0.34	0.29	6104.73	5735.58	49.00	7.20	48.00

Mean = 0.33 0.29 5362.62 5001.37 98.00 10.05 40.75

10 InLine(CA) or Telone C35 (FL)	0.31	0.27	5832.23	5550.64	115.00	15.00	28.00
10 + Basamid	0.33	0.29	6373.59	5828.23	267.00	27.20	37.00
	0.34	0.29	5585.16	5296.31	51.00	7.30	103.00
	0.34	0.30	6347.80	5916.16	64.00	7.50	38.00

Mean = 0.33 0.29 6034.69 5647.83 124.25 14.25 51.50

11 InLine(CA) or Telone C35 (FL)	0.33	0.29	5336.64	5134.63	160.00	20.10	47.00
11 + Metam Sodium	0.32	0.28	5027.44	4665.56	102.00	12.20	26.00
	0.34	0.29	5886.00	5646.20	41.00	6.00	27.00
	0.32	0.28	5551.01	5318.47	53.00	7.20	42.00

Mean = 0.33 0.29 5450.27 5191.22 89.00 11.38 35.50

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Large	Xlarge	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight	Count	Weight	Count	Weight
Rating Unit	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type						T3	T4
# Subsamples, Dec.	2		2		2	2	2

Trt No.	Treatment Name	Cull	Cull	Cull	Cull	Cull	Cull
1	Methyl iodide (1X Rate)	6.40	40.00	13.40	101.00	59.40	255.00
1	/Chloropicrin	8.70	54.00	18.00	82.00	45.70	346.00
		9.20	37.00	13.70	124.00	67.60	233.00
		13.20	27.00	9.20	99.00	57.00	255.00
	Mean =	9.38	39.50	13.57	101.50	57.43	272.25
2	Methyl iodide (1/2X Rate)	12.50	26.00	10.10	135.00	74.60	419.00
2	/Chloropicrin	11.60	49.00	17.20	80.00	44.60	263.00
		12.30	42.00	14.60	89.00	57.50	194.00
		16.70	34.00	12.50	158.00	90.00	299.00
	Mean =	13.28	37.75	13.60	115.50	66.68	293.75
3	Methyl iodide (0.7X Rate)	8.60	47.00	16.60	146.00	90.80	301.00
3	/Chloropicrin	13.90	70.00	24.20	130.00	68.80	462.00
		7.70	48.00	17.60	137.00	84.20	239.00
		17.40	49.00	17.50	101.00	57.00	287.00
	Mean =	11.90	53.50	18.98	128.50	75.20	322.25
4	PlantPro 45 (1X Rate)	7.30	21.00	6.80	128.00	81.40	258.00
4	Metam Sodium	10.00	62.00	21.50	129.00	91.90	364.00
		9.60	52.00	17.70	116.00	64.10	249.00
		4.40	44.00	14.80	131.00	65.90	233.00
	Mean =	7.82	44.75	15.20	126.00	75.82	276.00
5	PlantPro 45 (2X Rate)	11.00	24.00	8.90	126.00	70.60	248.00
5	Metam Sodium	6.20	41.00	13.40	85.00	49.40	345.00
		12.30	34.00	11.70	152.00	89.60	268.00
		10.00	41.00	13.90	140.00	83.80	303.00
	Mean =	9.88	35.00	11.98	125.75	73.35	291.00
6	Metam Sodium (Appl. Mthd #1, Drip)	4.60	46.00	15.80	148.00	87.20	410.00
		8.80	52.00	17.20	82.00	53.50	332.00
		16.20	60.00	20.10	168.00	95.70	317.00
		7.50	52.00	17.80	182.00	87.20	346.00
	Mean =	9.27	52.50	17.72	145.00	80.90	351.25

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Large	Xlarge	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight	Count	Weight	Count	Weight
Rating Unit	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type						T3	T4
# Subsamples, Dec.	2		2		2	2	2

Trt No.	Treatment Name
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- 7 Metam Sodium
- 7 Appl. Method #2, Spray/Incorporate

Mean =

- 8 Metam Sodium
- 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	8.50	30.00	10.30	85.00	47.50	357.00	81.50
9 Appl. Method #3, Shank Injected	9.00	44.00	15.00	88.00	44.70	247.00	78.30
	12.90	65.00	21.20	146.00	84.50	312.00	126.80
	12.20	43.00	15.00	154.00	90.70	294.00	125.10

Mean =

10 InLine(CA) or Telone C35 (FL)	6.80	40.00	13.30	98.00	61.60	281.00	96.70
10 + Basamid	10.00	56.00	19.10	58.00	29.00	418.00	85.30
	27.20	65.00	23.70	165.00	100.70	384.00	158.90
	9.90	54.00	19.30	101.00	53.70	257.00	90.40

Mean =

11 InLine(CA) or Telone C35 (FL)	11.60	49.00	15.20	118.00	72.20	374.00	119.10
11 + Metam Sodium	7.20	47.00	16.10	61.00	29.80	236.00	65.30
	7.30	41.00	14.00	99.00	58.10	208.00	85.40
	10.30	35.00	11.90	77.00	42.40	207.00	71.80

Mean =

	9.10	43.00	14.30	88.75	50.63	256.25	85.40
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Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Large	Xlarge	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight	Count	Weight	Count	Weight
Rating Unit	LBs	Number	LBs	Number	LBs	Number	LBs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type						T3	T4
# Subsamples, Dec.	2		2		2	2	2

Trt No.	Treatment Name						
12	InLine(CA) or Telone C35 (FL)	12.30	60.00	20.30	93.00	51.50	337.00
		7.60	45.00	15.80	97.00	48.90	353.00
		16.90	51.00	18.00	153.00	88.40	300.00
		9.90	61.00	21.10	126.00	73.60	259.00
		Mean =	11.67	54.25	18.80	117.25	65.60	312.25
13	Methyl Bromide/Chloropicrin 67/33	9.60	27.00	10.30	84.00	44.30	309.00
		8.80	43.00	15.00	73.00	38.20	383.00
		9.00	49.00	16.70	133.00	73.20	249.00
		7.10	51.00	19.30	144.00	84.70	249.00
		Mean =	8.63	42.50	15.32	108.50	60.10	297.50
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	10.40	34.00	11.80	98.00	51.60	254.00
		6.40	49.00	17.00	134.00	75.80	309.00
		10.90	32.00	11.50	119.00	73.00	203.00
		9.70	63.00	21.00	150.00	87.40	318.00
Mean =	9.35	44.50	15.32	125.25	71.95	271.00	
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	6.80	31.00	10.90	108.00	62.30	274.00
		11.30	41.00	11.80	86.00	44.90	337.00
		13.10	52.00	17.20	181.00	111.10	318.00
		7.50	64.00	21.40	127.00	82.60	261.00
Mean =	9.68	47.00	15.33	125.50	75.22	297.50	
16	Propargyl Bromide	12.00	27.00	9.50	105.00	55.10	269.00
		9.00	55.00	19.80	109.00	49.90	258.00
		9.30	44.00	13.20	144.00	82.50	259.00
		14.30	35.00	11.80	139.00	77.00	286.00
		Mean =	11.15	40.25	13.57	124.25	66.13	268.00
17	Chloropicrin EC + Metam Sodium	9.70	62.00	16.10	93.00	53.50	401.00
		3.80	44.00	16.10	118.00	69.20	326.00
		12.20	56.00	22.80	116.00	68.40	254.00
		8.70	57.00	19.90	120.00	67.70	245.00
		Mean =	8.60	54.75	18.73	111.75	64.70	306.50

01/15/02 (CAT02H)

Plot Data Summary Page 24 of 24

Plant Sciences, Inc.

Yield Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Cull	Cull	Cull	Cull	Cull	Cull	Cull
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Large	Xlarge	Xlarge	Total	Total
Rating Data Type	Weight	Count	Weight	Count	Weight	Count	Weight
Rating Unit	Lbs	Number	Lbs	Number	Lbs	Number	Lbs
Trt-Eval Interval	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30	to 10-30
PRM Data Type						T3	T4
# Subsamples, Dec.	2		2		2	2	2

Trt No.	Treatment Name
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18	Metam Sodium Spray Check	15.40	95.00	32.60	198.00	127.80	539.00	202.00
		10.50	55.00	20.60	84.00	46.80	316.00	95.00
		8.60	42.00	16.20	125.00	74.20	239.00	104.80
		5.90	50.00	17.30	114.00	66.70	205.00	92.70
		Mean =	10.10	60.50	21.67	130.25	78.88	324.75	123.63
19	Untreated Control	9.40	28.00	9.80	146.00	89.40	338.00	124.60
		6.00	45.00	16.20	138.00	75.60	412.00	117.90
		10.40	47.00	17.10	164.00	99.20	316.00	136.30
		9.10	57.00	19.90	181.00	107.90	318.00	144.10
		Mean =	8.73	44.25	15.75	157.25	93.03	346.00	130.73

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA.

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	8/28/00	8/28/00	8/28/00	9/4/00	9/4/00	9/4/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
1	Methyl Iodide (1X Rate) 1 /Chloropicrin	9.54 b	167.59 a	2352.58 a	31.06 abc	157.86 b	2053.58 a
2	Methyl Iodide (1/2X Rate) 2 /Chloropicrin	34.97 ab	89.93 abc	2089.17 a	11.44 bc	175.84 b	2193.10 a
3	Methyl Iodide (0.7X Rate) 3 Chloropicrin	6.36 b	155.32 a	2107.33 a	31.07 abc	189.83 b	1818.14 a
4	PlantPro 45 (1X Rate) 4 Metam Sodium	19.08 b	126.71 ab	2525.17 a	35.97 abc	185.83 b	2256.32 a
5	PlantPro 45 (2X Rate) 5 Metam Sodium	22.25 b	98.10 abc	3142.83 a	9.81 c	135.88 b	2219.26 a
6	Metam Sodium (Appl. Mthd #1, Drip) 7 Metam Sodium 7 Appl. Method #2, Spray/Incorporate	19.07 b	98.10 abc	2670.50 a	22.89 abc	89.92 b	2358.78 a
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate						
9	Metam Sodium 9 Appl. Method #3, Shank Injected	12.72 b	36.79 bc	2516.08 a	45.78 abc	157.86 b	2073.20 a
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	6.36 b	98.10 abc	2970.25 a	49.05 ab	417.63 a	2524.46 a
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	15.90 b	179.85 a	2734.08 a	55.59 a	183.84 b	1772.36 a
12	InLine(CA) or Telone C35 (FL)	12.72 b	98.10 abc	2007.42 a	32.70 abc	155.86 b	2160.40 a
13	Methyl Bromide/Chloropicrin 67/33	7.00 b	9.00 c	10.00 b	24.53 abc	211.81 b	1903.16 a
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	28.61 b	122.63 ab	1971.08 a	14.72 bc	219.80 b	2735.92 a

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	8/28/00	8/28/00	8/28/00	9/4/00	9/4/00	9/4/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	9.54 b	77.66 abc	2579.67 a	34.33 abc	263.76 ab	2307.55 a
16	Propargyl Bromide	6.36 b	110.36 abc	2697.75 a	27.80 abc	130.88 b	2756.63 a
17	Chloropicrin EC + Metam Sodium	15.90 b	130.80 ab	2289.00 a	42.51 abc	165.85 b	2097.18 a
18	Metam Sodium Spray Check	28.61 b	138.97 ab	2252.67 a	41.69 abc	187.83 b	1988.18 a
19	Untreated Control	63.58 a	81.75 abc	2570.58 a	29.43 abc	139.88 b	2118.98 a
	LSD (P=.05)	30.083	93.907	1034.166	31.532	173.435	877.130
	Standard Deviation	21.051	65.712	723.667	22.065	121.363	613.780
	CV	112.34	61.39	31.16	69.42	65.08	27.95
	Replicate F	1.152	6.281	1.931	0.075	1.034	8.048
	Replicate Prob(F)	0.3378	0.0011	0.1371	0.9730	0.3858	0.0002
	Treatment F	1.883	1.748	3.536	1.356	1.382	0.836
	Treatment Prob(F)	0.0466	0.0692	0.0004	0.2044	0.1909	0.6401

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/23/00	9/23/00	9/23/00	10/7/00	10/7/00	10/7/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
1	Methyl Iodide (1X Rate) 1 /Chloropicrin	197.83 ab	797.38 ab	7780.41 ab	691.95 a	3021.42 ab	12702.13 a
2	Methyl Iodide (1/2X Rate) 2 /Chloropicrin	152.05 ab	692.46 ab	7379.29 abc	680.14 a	3299.36 ab	13835.73 a
3	Methyl Iodide (0.7X Rate) 3 Chloropicrin	158.60 ab	625.51 ab	7146.03 abc	661.25 a	2916.78 ab	14142.75 a
4	PlantPro 45 (1X Rate) 4 Metam Sodium	76.85 b	525.59 b	5999.35 abc	559.70 a	3211.07 ab	15866.77 a
5	PlantPro 45 (2X Rate) 5 Metam Sodium	186.39 ab	945.26 a	8154.28 a	434.54 a	2298.76 b	14693.20 a
6	Metam Sodium (Appl. Mthd #1, Drip) 7 Metam Sodium 7 Appl. Method #2, Spray/Incorporate	148.79 ab	707.45 ab	7350.95 abc	750.99 a	2910.24 ab	15797.73 a
8	Metam Sodium 8 Appl. Method #2, Spray/Incorporate						
9	Metam Sodium 9 Appl. Method #3, Shank Injected	153.69 ab	763.40 ab	7503.55 abc	531.36 a	2844.84 ab	14031.93 a
10	InLine(CA) or Telone C35 (FL) 10 + Basamid	241.98 a	861.33 ab	6226.07 abc	776.97 a	3564.22 a	14509.72 a
11	InLine(CA) or Telone C35 (FL) 11 + Metam Sodium	152.06 ab	909.29 ab	6400.47 abc	725.01 a	3616.54 a	13773.97 a
12	InLine(CA) or Telone C35 (FL)	134.07 ab	787.38 ab	5578.61 bc	680.14 a	2835.03 ab	15532.50 a
13	Methyl Bromide/Chloropicrin 67/33	179.85 ab	837.35 ab	5129.53 c	609.29 a	3619.81 a	12011.80 a
14	Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	184.76 ab	907.29 ab	6520.37 abc	606.93 a	2785.98 ab	13843.00 a

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	9/23/00	9/23/00	9/23/00	10/7/00	10/7/00	10/7/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	138.98 ab	747.42 ab	6912.77 abc	609.29 a	2871.00 ab	14251.75 a
16	Propargyl Bromide	137.34 ab	589.54 ab	6221.71 abc	481.77 a	2851.38 ab	14137.30 a
17	Chloropicrin EC + Metam Sodium	158.60 ab	807.37 ab	7043.57 abc	569.15 a	2704.23 ab	15081.97 a
18	Metam Sodium Spray Check	127.53 ab	835.35 ab	7082.81 abc	569.15 a	2978.91 ab	13050.93 a
19	Untreated Control	143.88 ab	833.35 ab	7440.33 abc	588.04 a	3067.19 ab	15296.33 a
	LSD (P=.05)	112.365	343.583	2131.353	363.950	1035.117	4304.046
	Standard Deviation	78.628	240.425	1491.434	254.678	724.333	3011.796
	CV	50.0	31.03	21.88	41.13	23.96	21.11
	Replicate F	3.181	1.393	35.366	5.060	11.682	5.089
	Replicate Prob(F)	0.0322	0.2564	0.0001	0.0040	0.0001	0.0039
	Treatment F	0.804	0.933	1.172	0.534	0.926	0.501
	Treatment Prob(F)	0.6743	0.5389	0.3229	0.9150	0.5467	0.9343

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	10/14/00	10/14/00	10/14/00	10/28/00	10/28/00	10/28/00
# Subsamples, Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
1	Methyl Iodide (1X Rate)	170.04 b	585.38 b	1404.28 b	4374.53 abc	5343.57 abc	3413.85 abc
1	/Chloropicrin						
2	Methyl Iodide (1/2X Rate)	198.38 b	732.54 b	1595.03 b	4702.99 abc	4484.28 c	2969.13 bc
2	/Chloropicrin						
3	Methyl Iodide (0.7X Rate)	187.16 b	771.78 b	1438.80 b	3772.85 bc	4368.38 c	2009.94 c
3	Chloropicrin						
4	PlantPro 45 (1X Rate)	191.30 b	837.19 ab	2234.50 b	4766.93 abc	5603.36 abc	4218.26 abc
4	Metam Sodium						
5	PlantPro 45 (2X Rate)	231.44 b	663.86 b	1787.60 b	4470.45 abc	5783.21 abc	3470.53 abc
5	Metam Sodium						
6	Metam Sodium (Appl. Mthd #1, Drip)	285.76 ab	1219.81 a	2648.70 ab	4796.00 abc	6912.27 a	4434.08 abc
7	Metam Sodium						
7	Appl. Method #2, Spray/Incorporate						
8	Metam Sodium						
8	Appl. Method #2, Spray/Incorporate						
9	Metam Sodium	210.19 b	627.89 b	1685.87 b	5258.16 ab	5903.11 abc	4582.32 abc
9	Appl. Method #3, Shank Injected						
10	InLine(CA) or Telone C35 (FL)	259.78 ab	797.95 b	1620.47 b	4185.60 abc	5279.63 abc	3876.00 abc
10	+ Basamid						
11	InLine(CA) or Telone C35 (FL)	210.19 b	640.97 b	1860.27 b	3514.16 c	4412.34 c	3213.29 abc
11	+ Metam Sodium						
12	InLine(CA) or Telone C35 (FL)	403.85 a	984.35 ab	3636.97 a	3886.21 abc	6106.94 abc	5672.30 a
13	Methyl Bromide/Chloropicrin 67/33	224.36 b	637.70 b	1387.93 b	5051.79 ab	4632.16 bc	2860.13 bc
14	Fosthiazate 500 EC	188.93 b	647.51 b	2219.97 b	4938.43 abc	6198.86 abc	4739.27 ab
14	+ Metam Sodium						
14	+ Chloropicrin EC						

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	10/14/00	10/14/00	10/14/00	10/28/00	10/28/00	10/28/00
# Subsamples; Dec.	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	229.08 b	582.11 b	2096.43 b	4168.16 abc	5043.82 abc	4359.96 abc
16	Propargyl Bromide	262.14 ab	807.76 b	2278.10 b	5383.15 a	6802.36 ab	5469.57 ab
17	Chloropicrin EC + Metam Sodium	257.42 ab	742.35 b	1954.73 b	5144.80 ab	6078.96 abc	4752.35 ab
18	Metam Sodium Spray Check	203.10 b	667.14 b	1616.83 b	4781.47 abc	5695.28 abc	3858.56 abc
19	Untreated Control	181.85 b	585.38 b	2325.33 b	4287.33 abc	5691.28 abc	4172.48 abc
	LSD (P=.05)	135.367	376.924	1164.067	1287.165	1901.173	2201.411
	Standard Deviation	94.724	263.756	814.567	900.706	1330.363	1540.458
	CV	41.34	35.78	40.98	19.76	23.97	38.47
	Replicate F	2.177	3.655	1.858	7.774	2.718	3.168
	Replicate Prob(F)	0.1029	0.0188	0.1493	0.0002	0.0548	0.0327
	Treatment F	1.378	1.558	1.906	1.429	1.370	1.517
	Treatment Prob(F)	0.1929	0.1186	0.0436	0.1685	0.1971	0.1326

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Total
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Total	Total	Total	Total
PRM Data Type	Season	Season	Season	Season
# Subsamples, Dec.	2	2	2	2

Trt No.	Treatment Name
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15	Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	5188.02 ab	9577.15 ab	32250.16 a	47015.33 abc
16	Propargyl Bromide	6297.64 a	11280.04 ab	33291.29 a	50868.96 ab
17	Chloropicrin EC + Metam Sodium	6186.10 ab	10615.05 ab	32989.90 a	49791.05 ab
18	Metam Sodium Spray Check	5747.46 ab	10488.05 ab	29624.71 ab	45860.23 abc
19	Untreated Control	5285.03 ab	10389.76 ab	33666.98 a	49341.77 abc
LSD (P=.05)		1303.819	2077.376	6142.936	7220.031
Standard Deviation		912.359	1453.663	4298.577	5052.284
CV		16.26	14.01	13.66	10.65
Replicate F		10.292	10.859	2.087	5.111
Replicate Prob(F)		0.0001	0.0001	0.1144	0.0038
Treatment F		1.159	0.976	1.397	1.563
Treatment Prob(F)		0.3330	0.4964	0.1834	0.1169

Means followed by same letter do not significantly differ (P=.05, Duncan's New MRT)

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	8/28/00	8/28/00	8/28/00	9/4/00	9/4/00	9/4/00	9/23/00	9/23/00	9/23/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value	Value	
1	Methyl Iodide (1X Rate)	25.43	228.90	2034.67	13.08	79.93	2302.10	130.80	375.71	5118.63
1	/Chloropicrin	0.00	228.90	2979.33	26.16	111.90	2136.42	78.48	791.38	4769.83
		12.72	49.05	2579.67	26.16	191.83	1473.69	294.30	895.30	11867.90
		0.00	163.50	1816.67	58.86	247.78	2302.10	287.76	1127.12	9365.26
	Mean =	9.54	167.59	2352.58	31.06	157.86	2053.58	197.83	797.38	7780.41
2	Methyl Iodide (1/2X Rate)	50.87	98.10	2761.33	19.62	255.77	1866.10	45.78	427.67	7865.43
2	/Chloropicrin	25.43	163.50	1380.67	6.54	103.91	1866.10	78.48	551.57	4673.91
		12.72	98.10	2434.33	6.54	191.83	2903.79	340.08	1071.16	9722.78
		50.87	0.00	1780.33	13.08	151.86	2136.42	143.88	719.44	7255.03
	Mean =	34.97	89.93	2089.17	11.44	175.84	2193.10	152.05	692.46	7379.29
3	Methyl Iodide (0.7X Rate)	0.00	98.10	2543.33	26.16	95.91	1142.33	202.74	607.53	7874.15
3	Chloropicrin	25.43	196.20	1635.00	13.08	191.83	2153.86	209.28	567.56	5153.51
		0.00	130.80	2434.33	19.62	135.88	1979.46	104.64	743.42	7525.35
		0.00	196.20	1816.67	65.40	335.70	1996.90	117.72	583.54	8031.11
	Mean =	6.36	155.32	2107.33	31.07	189.83	1818.14	158.60	625.51	7146.03
4	PlantPro 45 (1X Rate)	0.00	261.60	3633.33	6.54	135.88	1691.69	65.40	231.82	2929.92
4	Metam Sodium	38.15	98.10	1017.33	19.62	119.89	2755.54	19.62	615.52	5101.19
		25.43	98.10	2252.67	71.94	207.81	2145.14	189.66	791.38	9958.22
		12.72	49.05	3197.33	45.78	279.75	2432.90	32.70	463.64	6008.07
	Mean =	19.08	126.71	2525.17	35.97	185.83	2256.32	76.85	525.59	5999.35
5	PlantPro 45 (2X Rate)	0.00	98.10	2979.33	0.00	135.88	2493.94	215.82	959.25	6313.27
5	Metam Sodium	76.30	130.80	2761.33	39.24	191.83	1778.90	111.18	591.54	5489.23
		0.00	114.45	3633.33	0.00	135.88	3418.27	248.52	1390.91	10010.54
		12.72	49.05	3197.33	0.00	79.93	1185.93	170.04	839.34	10804.06
	Mean =	22.25	98.10	3142.83	9.81	135.88	2219.26	186.39	945.26	8154.28
6	Metam Sodium (Appl. Mthd #1, Drip)	0.00	98.10	5014.00	19.62	55.95	1927.14	248.52	719.44	8597.91
		0.00	163.50	1853.00	39.24	95.91	1735.30	65.40	519.59	4359.99
		63.58	49.05	1853.00	6.54	135.88	3854.27	202.74	831.35	9513.50
		12.72	81.75	1962.00	26.16	71.94	1918.42	78.48	759.41	6932.39
	Mean =	19.07	98.10	2670.50	22.89	89.92	2358.78	148.79	707.45	7350.95

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	8/28/00	8/28/00	8/28/00	9/4/00	9/4/00	9/4/00	9/23/00	9/23/00	9/23/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2	2

Trt No.	Treatment Name
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7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	0.00	65.40	2797.67	58.86	119.89	1883.54	98.10	519.59	5223.27
9 Appl. Method #3, Shank Injected	38.15	65.40	2834.00	26.16	103.91	1316.73	111.18	599.53	5737.75
	0.00	16.35	2325.33	32.70	119.89	3243.87	268.14	1103.14	10525.02
	12.72	0.00	2107.33	65.40	287.74	1848.66	137.34	831.35	8528.15

Mean =

10 InLine(CA) or Telone C35 (FL)	12.72	98.10	3052.00	26.16	215.81	2868.91	137.34	679.47	4298.95
10 + Basamid	12.72	163.50	1562.33	98.10	223.80	1386.49	235.44	895.30	4412.31
	0.00	81.75	3996.67	52.32	271.76	3636.27	320.46	967.24	8536.87
	0.00	49.05	3270.00	19.62	959.14	2206.18	274.68	903.29	7656.15

Mean =

11 InLine(CA) or Telone C35 (FL)	25.43	196.20	2943.00	39.24	87.92	1805.06	98.10	959.25	8039.83
11 + Metam Sodium	12.72	196.20	2979.33	85.02	191.83	723.77	255.06	831.35	2973.51
	0.00	130.80	2688.67	52.32	223.80	2511.38	183.12	1023.20	7542.79
	25.43	196.20	2325.33	45.78	231.79	2049.22	71.94	823.36	7045.75

Mean =

	15.90	179.85	2734.08	55.59	183.84	1772.36	152.06	909.29	6400.47
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Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	8/28/00	8/28/00	8/28/00	9/4/00	9/4/00	9/4/00	9/23/00	9/23/00	9/23/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value	Value	
12	InLine(CA) or Telone C35 (FL)	12.72	130.80	1380.67	45.78	103.91	1944.58	98.10	623.51	5127.35
		12.72	196.20	2979.33	0.00	135.88	1866.10	248.52	1023.20	3749.59
		12.72	16.35	2289.00	39.24	311.72	3191.55	104.64	967.24	8894.38
		12.72	49.05	1380.67	45.78	71.94	1639.37	85.02	535.58	4543.11
		Mean =	12.72	98.10	2007.42	32.70	155.86	2160.40	134.07	787.38	5578.61
13	Methyl Bromide/Chloropicrin 67/33	7.00	9.00	10.00	26.16	167.85	2406.74	202.74	951.26	4569.27
		7.00	9.00	10.00	19.62	287.74	2153.86	98.10	815.36	3514.15
		7.00	9.00	10.00	39.24	271.76	1386.49	385.86	1119.13	6426.63
		7.00	9.00	10.00	13.08	119.89	1665.53	32.70	463.64	6008.07
		Mean =	7.00	9.00	10.00	24.53	211.81	1903.16	179.85	837.35	5129.53
14	Fosthiazate 500 EC + Metam Sodium + Chloropicrin EC	12.72	65.40	2761.33	6.54	271.76	2720.66	196.20	1015.21	4298.95
		50.87	196.20	1090.00	6.54	103.91	2319.54	124.26	807.37	4386.15
		25.43	65.40	1853.00	13.08	263.76	3409.55	222.36	759.41	7080.63
		25.43	163.50	2180.00	32.70	239.79	2493.94	196.20	1047.18	10315.74
Mean =	28.61	122.63	1971.08	14.72	219.80	2735.92	184.76	907.29	6520.37	
15	Fosthiazate 900 EC + Metam Sodium + Chloropicrin EC	0.00	32.70	3633.33	26.16	471.58	2873.26	98.10	703.45	4272.79
		12.72	130.80	3161.00	45.78	247.78	1665.53	215.82	1007.21	3758.31
		0.00	49.05	2143.67	32.70	223.80	3278.75	124.26	519.59	11004.62
		25.43	98.10	1380.67	32.70	111.90	1412.65	117.72	759.41	8615.35
Mean =	9.54	77.66	2579.67	34.33	263.76	2307.55	138.98	747.42	6912.77	
16	Propargyl Bromide	12.72	163.50	2616.00	26.16	235.79	2873.26	170.04	855.33	3653.67
		12.72	163.50	3379.00	19.62	71.94	1691.69	202.74	751.41	4368.71
		0.00	98.10	2616.00	45.78	103.91	2537.54	71.94	367.71	9391.42
		0.00	16.35	2180.00	19.62	111.90	3924.03	104.64	383.70	7473.03
		Mean =	6.36	110.36	2697.75	27.80	130.88	2756.63	137.34	589.54	6221.71
17	Chloropicrin EC + Metam Sodium	12.72	32.70	1889.33	45.78	151.86	1979.46	117.72	695.46	3383.35
		38.15	196.20	2834.00	26.16	103.91	1316.73	111.18	599.53	5737.75
		0.00	32.70	2325.33	32.70	119.89	3243.87	268.14	1103.14	10525.02
		12.72	261.60	2107.33	65.40	287.74	1848.66	137.34	831.35	8528.15
		Mean =	15.90	130.80	2789.00	42.51	165.85	2097.18	158.60	807.37	7043.57

01/15/02 (CAT02Hm)

Plot Data Summary Page 4 of 12

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large	Xlarge
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	8/28/00	8/28/00	8/28/00	9/4/00	9/4/00	9/4/00	9/23/00	9/23/00	9/23/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value	Value
18	Metam Sodium Spray Check	50.87	359.70	1598.67	85.02	335.70	985.37	163.50	5327.91
		50.87	130.80	2034.67	3.27	87.92	1639.37	176.58	3758.31
		0.00	49.05	2979.33	58.86	239.79	3104.35	78.48	9103.67
		12.72	16.35	2398.00	19.62	87.92	2223.62	91.56	10141.34
		Mean =	28.61	138.97	2252.67	41.69	187.83	1988.18	127.53	7082.81
19	Untreated Control	12.72	16.35	2906.67	45.78	79.93	2206.18	215.82	8842.07
		38.15	228.90	3306.33	58.86	231.79	1796.34	78.48	3880.39
		127.17	32.70	2325.33	6.54	103.91	2049.22	117.72	8135.75
		76.30	49.05	1744.00	6.54	143.87	2424.18	163.50	8903.11
		Mean =	63.58	81.75	2570.58	29.43	139.88	2118.98	143.88	7440.33

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	10/7/00	10/7/00	10/7/00	10/14/00	10/14/00	10/14/00	10/28/00	10/28/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value
1	Methyl Iodide (1X Rate)	264.50	1870.40	14431.60	56.68	484.00	1395.20	3941.44
1	/Chloropicrin	831.29	3636.16	15826.80	198.38	667.14	1453.33	3615.89
		453.43	2315.11	9344.93	179.49	327.03	683.07	4232.11
		1218.59	4263.99	11205.20	245.61	863.35	2085.53	5708.69
	Mean =	691.95	3021.42	12702.13	170.04	585.38	1404.28	4374.53
2	Methyl Iodide (1/2X Rate)	727.38	2877.54	10216.93	245.61	510.16	1017.33	3011.31
2	/Chloropicrin	802.95	3348.41	19227.60	245.61	1177.30	2616.00	6022.61
		349.52	2066.60	10013.47	37.79	248.54	683.07	4080.96
		840.73	4904.90	15884.93	264.51	994.16	2063.73	5697.07
	Mean =	680.14	3299.36	13835.73	198.38	732.54	1595.03	4702.99
3	Methyl Iodide (0.7X Rate)	736.82	3099.89	14097.33	217.27	745.62	1366.13	3139.20
3	Chloropicrin	831.29	4407.87	19351.13	226.72	784.86	1337.07	3162.45
		358.96	1648.04	12644.00	198.38	850.27	1773.07	5627.31
		717.93	2511.31	10478.53	106.28	706.38	1278.93	3162.45
	Mean =	661.25	2916.78	14142.75	187.16	771.78	1438.80	3772.85
4	PlantPro 45 (1X Rate)	358.96	3361.49	16960.40	207.83	588.65	1482.40	2953.17
4	Metam Sodium	878.52	4630.22	19823.47	245.61	1177.30	3255.47	6173.76
		670.70	2825.22	14024.67	226.72	954.92	2136.40	5104.11
		330.63	2027.36	12658.53	85.02	627.89	2063.73	4836.69
	Mean =	559.70	3211.07	15866.77	191.30	837.19	2234.50	4766.93
5	PlantPro 45 (2X Rate)	519.55	2458.99	15143.73	217.27	667.14	1409.73	3871.68
5	Metam Sodium	538.45	2210.47	16350.00	245.61	575.57	1642.27	4604.16
		245.61	1386.45	9824.53	141.70	575.57	1148.13	4673.92
		434.54	3139.13	17454.53	321.19	837.19	2950.27	4732.05
	Mean =	434.54	2298.76	14693.20	231.44	663.86	1787.60	4470.45
6	Metam Sodium (Appl. Mthd #1, Drip)	736.82	2707.50	17352.80	311.74	1334.27	2848.53	3976.32
		1228.04	3701.56	17062.13	425.10	1726.70	2848.53	4290.24
		443.98	2288.95	13719.47	179.49	627.89	2063.73	3976.32
		595.13	2942.94	15056.53	226.72	1190.38	2834.00	6941.12
	Mean =	750.99	2910.24	15797.73	285.76	1219.81	2640.70	4796.00

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	10/7/00	10/7/00	10/7/00	10/14/00	10/14/00	10/14/00	10/28/00	10/28/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name
---------	----------------

7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	557.34	3243.77	11190.67	141.70	732.54	1831.20	4906.45	6730.42
9 Appl. Method #3, Shank Injected	340.07	2825.22	18137.60	160.59	484.00	1773.07	6464.43	7098.12
	746.27	2851.38	14097.33	236.17	680.22	857.47	3871.68	4140.57
	481.77	2458.99	12702.13	302.29	614.81	2281.73	5790.08	5643.32

Mean = 531.36 2844.84 14031.93 210.19 627.89 1685.87 5258.16 5903.11

10 InLine(CA) or Telone C35 (FL)	585.68	2995.26	17796.07	236.17	758.70	1962.00	3383.36	4572.21
10 + Basamid	1483.09	4839.50	17977.73	358.97	719.46	1337.07	4929.71	6634.50
	179.48	2223.55	9955.33	103.91	313.95	1424.27	3755.41	4492.28
	859.63	4198.59	12309.73	340.08	1399.68	1758.53	4673.92	5419.51

Mean = 776.97 3564.22 14509.72 259.78 797.95 1620.47 4185.60 5279.63

11 InLine(CA) or Telone C35 (FL)	670.70	3675.40	16742.40	198.38	588.65	1438.80	1860.27	2445.97
11 + Metam Sodium	972.98	4604.06	11960.93	245.61	784.86	1424.27	4708.80	5147.73
	708.48	3073.73	12745.73	245.61	562.49	2267.20	3906.56	5515.43
	547.89	3112.97	13646.80	151.15	627.89	2310.80	3581.01	4540.24

Mean = 725.01 3616.54 13773.97 210.19 640.97 1860.27 3514.16 4412.34

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	10/7/00	10/7/00	10/7/00	10/14/00	10/14/00	10/14/00	10/28/00	10/28/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt Treatment
No. Name

12 InLine(CA) or Telone C35 (FL)	425.09	2249.71	10870.93	519.57	1517.41	7295.73	4139.09	8185.22
	557.34	2956.02	16059.33	188.93	745.62	1962.00	3813.55	4412.34
	708.48	2472.07	16974.93	273.95	523.24	2078.27	4313.49	5211.68
	1029.66	3662.32	18224.80	632.93	1151.14	3211.87	3278.72	6618.52
	Mean =	680.14	2835.03	15532.50	403.85	984.35	3636.97	3886.21	6106.94
13 Methyl Bromide/Chloropicrin 67/33	793.50	4420.95	10841.87	103.91	654.05	1293.47	5150.61	6090.95
	774.61	4394.79	12048.13	236.17	601.73	1046.40	6301.65	3948.73
	415.64	2602.86	8269.47	245.61	654.05	944.67	3720.53	2717.75
	453.43	3060.65	16887.73	311.74	640.97	2267.20	5034.35	5771.22
	Mean =	609.29	3619.81	12011.80	224.36	637.70	1387.93	5051.79	4632.16
14 Fosthiazate 500 EC 14 + Metam Sodium 14 + Chloropicrin EC	802.95	2956.02	12396.93	170.04	667.14	2499.73	3627.52	5915.10
	651.80	2982.18	17062.13	311.74	732.54	2441.60	4673.92	5627.34
	311.73	2053.52	10856.40	132.25	588.65	2049.20	5011.09	6138.91
	661.25	3152.21	15056.53	141.70	601.73	1889.33	6441.17	7114.10
Mean =	606.93	2785.98	13843.00	188.93	647.51	2219.97	4938.43	6198.86
15 Fosthiazate 900 EC 15 + Metam Sodium 15 + Chloropicrin EC	547.89	2929.86	16190.13	179.49	536.32	1962.00	4127.47	5019.84
	982.43	3832.36	9519.33	415.65	549.41	2049.20	4836.69	3884.78
	217.27	1203.33	9461.20	113.36	392.43	2107.33	4511.15	5083.79
	689.59	3518.44	21836.33	207.83	850.27	2267.20	3197.33	6186.87
Mean =	609.29	2871.00	14251.75	229.08	582.11	2096.43	4168.16	5043.82
16 Propargyl Bromide	755.71	4133.19	14257.20	311.74	732.54	2252.67	4755.31	5947.07
	623.46	3780.04	16742.40	217.27	1072.65	1773.07	6638.83	7977.39
	255.05	1975.04	12774.80	141.70	287.78	2383.47	4139.09	4156.56
	292.84	1517.25	12774.80	377.87	1138.05	2703.20	5999.36	9128.44
	Mean =	481.77	2851.38	14137.30	262.14	807.76	2278.10	5383.15	6802.36
17 Chloropicrin EC + Metam Sodium	708.48	2681.34	15390.80	330.63	1190.38	2906.67	4453.01	7433.84
	340.07	2825.22	18137.60	160.59	484.00	1773.07	6464.43	7098.12
	746.27	2851.38	14097.33	236.17	680.22	857.47	3871.68	4140.57
	481.77	2458.99	12702.13	302.29	614.81	2281.73	5790.08	5643.32
	Mean =	569.15	2704.23	15081.97	257.42	742.35	1954.73	5144.80	6078.96

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2
Location: Tustin, CA

Investigator: Mike Nelson
Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Medium	Large	Xlarge	Medium	Large	Xlarge	Medium	Large
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
PRM Data Type	10/7/00	10/7/00	10/7/00	10/14/00	10/14/00	10/14/00	10/28/00	10/28/00
# Subsamples, Dec.	2	2	2	2	2	2	2	2

Trt No.	Treatment Name	Value	Value	Value	Value	Value	Value	Value	Value
18	Metam Sodium Spray Check	472.32	2825.22	8618.27	179.49	732.54	828.40	3592.64	2334.07
		1029.66	4669.46	17120.27	292.85	1020.32	2150.93	4615.79	7449.83
		425.09	1961.96	12251.60	179.49	353.19	1758.53	5418.03	6378.71
		349.52	2458.99	14213.60	160.59	562.49	1729.47	5499.41	6618.52
		Mean =	569.15	2978.91	13050.93	203.10	667.14	1616.83	4781.47	5695.28
19	Untreated Control	510.11	3139.13	13428.80	198.38	510.16	1932.93	3046.19	4764.05
		462.88	3126.05	13036.40	94.47	392.43	1351.60	5325.01	5771.22
		368.41	2184.31	17352.80	236.17	863.35	3066.53	4743.68	6314.77
		1010.77	3819.28	17367.33	198.38	575.57	2950.27	4034.45	5915.10
		Mean =	588.04	3067.19	15296.33	181.85	585.38	2325.33	4287.33	5691.28

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Total
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Total	Total	Total	Total
PRM Data Type	10/28/00	Season	Season	Season	Season
# Subsamples, Dec.	2	2	2	2	2

Trt Treatment
No. Name

1	Methyl iodide (1X Rate)	4115.80	4428.30	9168.43	29194.53	42791.27
1	/Chloropicrin	5197.07	4750.20	12380.30	32064.85	49195.36
		2842.69	5196.38	8664.82	28533.98	42395.19
		1499.83	7519.52	10004.81	28092.92	45617.25
	Mean =	3413.85	5473.60	10054.59	29471.57	44999.77
2	Methyl iodide (1/2X Rate)	1848.62	4093.29	8826.48	25299.61	38219.39
2	/Chloropicrin	5092.43	7177.99	11033.81	34718.64	52930.44
		2459.02	4825.78	7278.35	27973.02	40077.15
		2476.46	7002.87	10719.09	31418.87	49140.82
	Mean =	2969.13	5774.98	9464.43	29852.53	45091.95
3	Methyl iodide (0.7X Rate)	2389.26	4322.19	8760.75	29158.20	42241.14
3	Chloropicrin	1831.18	4464.62	10474.94	31298.25	46237.81
		1796.30	6308.91	7906.24	27909.07	42124.23
		2023.02	4169.78	8899.55	25443.49	38512.82
	Mean =	2009.94	4816.38	9010.37	28452.26	42279.00
4	PlantPro 45 (1X Rate)	4586.68	3591.90	8611.04	30921.09	43124.03
4	Metam Sodium	5362.75	7369.83	13168.73	37214.02	57752.57
		2790.37	6284.92	10302.04	33082.20	49669.17
		4133.24	5341.72	9820.96	30174.08	45336.75
	Mean =	4218.26	5647.09	10475.69	32847.84	48970.63
5	PlantPro 45 (2X Rate)	2999.65	4824.33	9424.23	31041.73	45290.28
5	Metam Sodium	4778.51	5604.04	10400.13	32524.11	48528.27
		3400.77	5309.75	9681.51	31072.25	46063.50
		2703.17	5668.72	10150.88	37975.57	53795.16
	Mean =	3470.53	5351.71	9914.19	33153.41	48419.30
6	Metam Sodium (Appl. Mthd #1, Drip)	3906.52	5293.02	10291.91	39145.50	54730.43
		4220.44	6048.02	13079.42	31894.09	51021.53
		3470.53	4863.57	9594.98	34289.20	48747.75
		6138.82	7878.50	14741.29	34645.96	57265.76
	Mean =	4434.08	6020.78	11926.90	34993.69	52941.37

01/15/02 (CAT02Hm)

Plot Data Summary Page 10 of 12

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Total
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Total	Total	Total	Total
PRM Data Type	10/28/00	Season	Season	Season	Season
# Subsamples, Dec.	2	2	2	2	2

Trt No.	Treatment Name
---------	----------------

7 Metam Sodium
 7 Appl. Method #2, Spray/Incorporate

Mean =

8 Metam Sodium
 8 Appl. Method #2, Spray/Incorporate

Mean =

9 Metam Sodium	4011.16	5762.45	11404.36	26657.73	43824.55
9 Appl. Method #3, Shank Injected	7795.60	7135.13	11168.92	37311.35	55615.40
	2860.13	5154.95	8909.73	33676.62	47741.31
	3662.36	6787.78	9836.21	30919.63	47543.63

Mean = 4582.32 6210.08 10329.81 32141.33 48681.22

10 InLine(CA) or Telone C35 (FL)	5772.58	4379.61	9308.66	35445.31	49133.57
10 + Basamid	4272.76	7116.21	13457.92	30792.46	51366.59
	2511.34	4411.59	8341.46	29661.07	42414.12
	2947.33	6167.92	12923.82	29820.92	48912.67

Mean = 3876.00 5518.83 11007.96 31429.94 47956.74

11 InLine(CA) or Telone C35 (FL)	871.99	2888.48	7931.62	31546.77	42366.88
11 + Metam Sodium	3418.21	6278.38	11734.27	23182.09	41194.73
	4394.84	5096.10	10514.94	31881.74	47492.77
	4168.12	4419.57	9510.68	31313.49	45243.74

Mean = 3213.29 4670.63 9922.88 29481.02 44074.53

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Total
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Total	Total	Total	Total
PRM Data Type	10/28/00	Season	Season	Season	Season
# Subsamples, Dec.	2	2	2	2	2

Trt No.	Treatment Name
---------	----------------

12	InLine(CA) or Telone C35 (FL)	6435.30	5238.53	12796.04	32916.49	50951.06
		4865.71	4819.24	9447.49	31184.14	45450.86
		4743.63	5450.71	9500.49	37942.87	52894.07
		6644.58	5083.01	12083.10	35506.33	52672.43
	Mean =	5672.30	5147.87	10956.78	34387.46	50492.11
13	Methyl Bromide/Chloropicrin 67/33	3104.29	6287.83	12343.20	24112.24	42743.27
		2424.14	7473.75	10222.78	22167.68	39864.21
		924.31	4828.69	7423.69	19619.27	31871.65
		4987.79	5867.10	10201.73	33778.33	49847.16
	Mean =	2860.13	6114.34	10047.85	24919.38	41081.57
14	Fosthiazate 500 EC	2895.01	4814.15	10883.36	27296.49	42994.00
14	+ Metam Sodium	6173.70	5811.86	10427.76	33364.13	49603.75
14	+ Chloropicrin EC	5371.47	5712.32	9862.39	30434.95	46009.66
		4516.92	7494.82	12300.37	36234.47	56029.66
	Mean =	4739.27	5958.29	10868.47	31832.51	48659.27
15	Fosthiazate 900 EC	6278.34	4979.11	9690.12	34846.53	49515.76
15	+ Metam Sodium	1203.35	6507.28	9637.82	21040.63	37185.73
15	+ Chloropicrin EC	4203.00	4998.73	7466.56	31984.20	44449.49
		5755.14	4266.97	11514.11	41129.27	56910.35
	Mean =	4359.96	5188.02	9577.15	32250.16	47015.33
16	Propargyl Bromide	3679.80	6029.86	12049.28	29071.01	47150.15
		6557.38	7712.82	13798.78	34174.35	55685.96
		2485.18	4653.57	6978.21	31926.81	43558.59
		9155.91	6794.33	12293.87	37992.97	57081.17
	Mean =	5469.57	6297.64	11280.04	33291.29	50868.96
17	Chloropicrin EC + Metam Sodium	4691.31	5666.53	12181.95	30051.99	47900.48
		7795.60	7135.13	11285.21	37311.35	55731.69
		2860.13	5154.95	8924.27	33676.62	47755.84
		3662.36	6787.78	10068.79	30919.63	47776.20
	Mean =	4752.35	6186.10	10615.05	32989.90	49791.05

Plant Sciences, Inc.

Market Value Evaluation of Alternatives to Methyl Bromide for Pre-Plant Soil Fumigation in Tomatoes

Trial ID: CA-T-00-2

Investigator: Mike Nelson

Location: Tustin, CA

Study Dir.: Dr. Michael Nelson

Character Rated	Value	Value	Value	Value	Value
Crop Code	Tomato	Tomato	Tomato	Tomato	Tomato
Part Rated	Xlarge	Medium	Large	Xlarge	Total
Rating Data Type	Dollar/A	Dollar/A	Dollar/A	Dollar/A	Dollar/A
Rating Unit	25lb ctn	25lb ctn	25lb ctn	25lb ctn	25lb ctn
Trt-Eval Interval	Week of	Total	Total	Total	Total
PRM Data Type	10/28/00	Season	Season	Season	Season
# Subsamples, Dec.	2	2	2	2	2

Trt Treatment
No. Name

18	Metam Sodium Spray Check	1883.50	4536.57	7794.34	19082.25	31413.15
		4168.12	6161.74	14127.21	30668.21	50957.16
		4080.92	6159.94	9600.77	32980.46	48741.18
		5301.71	6131.60	10429.91	35767.94	52329.45
		Mean =	3858.56	5747.46	10488.05	29624.71	45860.23
19	Untreated Control	2703.17	4027.17	9690.89	31729.15	45447.21
		4918.03	6052.40	10140.67	27958.46	44151.53
		4185.56	5581.52	10078.95	36882.66	52543.13
		4883.15	5479.04	11648.52	38097.64	55225.20
		Mean =	4172.48	5285.03	10389.76	33666.98	49341.77

Appendix IV

**California Irrigation Management Information System (CIMIS),
Daily Weather Data**

A. Oceanside: CIMIS Station #49, Oceanside, San Diego Co., CA

B. Tustin: CIMIS Station #75, Irvine, Orange Co., CA

Appendix IV - A

Oceanside: CIMIS Station #49, Oceanside, San Diego Co., CA

May - November, 2000

Daily Weather Data for Station # 49 Oceanside
in Region -SCV- South Coast/Valley

CIMIS Project

2000
DATE ETo PRECIP SOLAR VAPOR AIR TEMP. REL. HUM. DEW WIND WIND AVE
in. in. Ly/dy mBars --Fahrenheit-- --%-- F mph mi F

5/ 1 Mo	0.20	0.00	1667	13.3	78	49	64	82	44	66	52	1.2	28	71
5/ 2 Tu	0.19	0.00	1640	13.9	79	48	63	82	46	70	53	1.2	28	71
5/ 3 We	0.18	0.00	1613	15.2	74	57	65	82	60	72	56	1.2	28	72
5/ 4 Th	0.07	0.00	1280	15.3	69	62	65	78	68	73	56	1.2	28	72
5/ 5 Fr	0.10	0.00	1342	14.8	71	61	64	81	62	72	55	1.2	28	71
5/ 6 Sa	0.17	0.00	1573	14.0	70	55	63	81	61	70	53	1.1	28	71

-----TOTALS:-----|-----AVERAGES:-----

6 Day	0.91	0.00	1519	14.4	74	55	64	81	57	70	54	1.2	28	71
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5/ 7 Su	0.18	0.00	1626	14.0	73	53	64	81	56	69	54	1.2	28	72
5/ 8 Mo	0.07	0.00	1289	15.2	72	56	65	81	63	73	56	1.2	28	72
5/ 9 Tu	0.17	0.00	1556	15.5	72	55	65	82	63	73	56	1.2	29	71
5/10 We	0.16	0.00	1523	14.0	70	58	65	76	60	68	54	1.3	30	72
5/11 Th	0.18	0.00	1631	10.8	71	49	61	80	36	59	47	1.2	29	72
5/12 Fr	0.21	0.00	1695	9.4	82	42	63	82	16	48	43	1.2	29	72
5/13 Sa	0.20	0.00	1690	11.0	78	41	60	82	28	61	47	1.2	28	72

-----TOTALS:-----|-----AVERAGES:-----

WEEK	1.17	0.00	1573	12.8	74	51	63	80	46	65	51	1.2	29	72
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5/14 Su	0.19	0.00	1665	12.1	72	49	61	82	48	66	49	1.2F	29F	72
5/15 Mo	0.16	0.00	1560	12.6	71	47	60	82	57	72	51	1.2F	29F	72
5/16 Tu	0.17	0.00	1745	11.5	68	52	62	80	49	61	48	1.3	31	72
5/17 We	0.19	0.00	1665	12.0	70	46	60	82	55	69	49	1.2F	28F	72
5/18 Th	0.19	0.00	1663	13.2	72	48	61	82	58	71	52	1.2F	28F	72
5/19 Fr	0.17	0.00	1564	14.7	78	51	64	82	56	73	55	1.2F	28F	73
5/20 Sa	0.19	0.00	1649	14.8	72	53	63	82	65	76	55	1.2F	29F	73

-----TOTALS:-----|-----AVERAGES:-----

WEEK	1.27	0.00	1644	13.0	72	49	61	82	55	70	51	1.2	29	72
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5/21 Su	0.18	0.00	1593	15.3	74	53	64	82	64	75	56	1.2F	29F	74
5/22 Mo	0.10	0.00	1358	15.5	69	61	64	80	68	75	56	1.2F	28F	74
5/23 Tu	0.05	0.00	1216	15.4	70	62	65	81	66	74	56	1.2	28	73
5/24 We	0.04	0.00	1199	15.5	69	62	64	82	67	75	56	1.2	28	72
5/25 Th	0.04	0.00	1173	15.5	69	61	64	82	66	75	56	1.2	28	71
5/26 Fr	0.22	0.00	1837F	--S	74	32	68	81	58	--Q	--Q	4.8	114	72
5/27 Sa	0.23	0.00	1683	15.6	79	53	66	82	55	71	57	3.8	91	73

-----TOTALS:-----|-----AVERAGES:-----

WEEK	0.85	0.00	1437	15.5	72	55	65	81	63	74	56	2.1	50	73
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5/28 Su	0.23	0.00	1683	16.4	82F	55	67	82	55	73	58	3.8	90	75
5/29 Mo	0.18	0.00	1574	16.2	74	60	65	83	66	76	58	3.8	92	75
5/30 Tu	0.20	0.00	1609	15.5	72	62	66	80	62	71	56	4.2	100	76
5/31 We	0.23	0.00	1681	14.4	73	56	66	80	57	66	54	4.3	104	76

-----TOTALS:-----|-----AVERAGES:-----

4 Day	0.84	0.00	1637	15.7	75	58	66	81	60	71	57	4.0	97	75
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-----TOTALS:-----|-----AVERAGES:-----

MONTH	5.03	0.01	1556	14.1	73	53	64	81	56	70	54	1.8	42	73
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Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa

----- QUALITY CONTROL FLAGS -----
A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 49 Oceanside in Region -SCV- South Coast/Valley CIMIS Project

Table with columns: DATE, ETo, PRECIP, SOLAR RAD, VAPOR AVE, AIR TEMP MAX MIN AVE, REL. HUM. MAX MIN AVE, DEW PT, WIND AVE, WIND RUN, WIND SOIL. Includes daily data for June 1-30 and weekly/monthly totals.

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa

QUALITY CONTROL FLAGS A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 49 Oceanside CIMIS Project
in Region -SCV- South Coast/Valley

2000 DATE	ETo in.	PRECIP in.	SOLAR RAD Ly/dy	VAPOR AVE mBars	AIR TEMP. --Fahrenheit--			REL. HUM. -----%			DEW PT F	WIND AVE mph	WIND RUN mi	WIND SOIL F
7/ 1 Sa	0.23	0.00	674	16.2	77	58	68	81	57	70	58	3.9	93	82
--TOTALS:--			--AVERAGES:--											
1 Day	0.23	0.00	674	16.2	77	58	68	81	57	70	58	3.9	93	82
7/ 2 Su	0.22	0.00	666	16.3	78	60	68	80	56	69	58	3.9	94	81
7/ 3 Mo	0.22	0.00	628	16.2	76	63	69	75	56	66	58	4.1	99	81
7/ 4 Tu	0.23	0.00	685	14.8	74	60	67	79	54	65	55	4.0	97	81
7/ 5 We	0.22	0.00	658	14.6	75	53	66	81	53	67	55	3.7	90	81
7/ 6 Th	0.22	0.00	671	14.5	76	51	64	82	54	70	55	3.7	89	80
7/ 7 Fr	0.22	0.00	657	15.7	76	59	68	81	55	67	57	4.0	96	80
7/ 8 Sa	0.21	0.00	608	14.9	75	56	67	80	56	66	55	4.1	99	81
--TOTALS:--			--AVERAGES:--											
WEEK	1.53	0.00	653	15.3	76	58	67	80	55	67	56	3.9	95	81
7/ 9 Su	0.14	0.00	451	14.7	75	56	65	81	56	70	55	3.3	80	80
7/10 Mo	0.18	0.00	559	15.2	76	59	67	80	56	67	56	3.7	88	79
7/11 Tu	0.17	0.00	517	15.3	75	56	67	81	58	68	56	3.7	90	79
7/12 We	0.21	0.00	607	15.5	76	56	67	81	58	69	56	4.0	97	79
7/13 Th	0.22	0.00	915F	--S	76	32F	70	82	57	--Q	--Q	5.7	137	79
7/14 Fr	0.22	0.00	640	17.0	78	58	69	81	56	70	59	4.1	97	80
7/15 Sa	0.22	0.00	624	17.1	77	65	70	79	58	69	59	4.0	96	80
--TOTALS:--			--AVERAGES:--											
WEEK	1.37	0.00	616	15.8	76	55	68	81	57	69	57	4.1	98	79
7/16 Su	0.21	0.00	629	15.9	76	59	68	81	57	68	57	4.0	96	81
7/17 Mo	0.23	0.00	674	16.5	77	60	69	81	55	68	58	4.3	104	81
7/18 Tu	0.23	0.00	688	16.5	81	55	69	82	52	69	58	3.8	92	81
7/19 We	0.24	0.00	684	17.5	84	56	71	82	50	68	60	4.0	95	81
7/20 Th	0.22	0.00	654	18.2	79	64	70	82	60	72	61	4.3	103	82
7/21 Fr	0.18	0.00	539	17.6	77	61	69	80	62	72	60	3.6	87	82
7/22 Sa	0.22	0.00	599	17.2	87	59	70	81	41	68	59	3.5	84	82
--TOTALS:--			--AVERAGES:--											
WEEK	1.54	0.00	638	17.1	80	59	69	81	54	69	59	3.9	94	81
7/23 Su	0.23	0.00	653	18.3	83	60	71	81	55	70	61	3.7	89	82
7/24 Mo	0.22	0.00	613	18.0	83	59	70	82	51	72	61	3.7	88	82
7/25 Tu	0.22	0.00	629	18.1	80	61	70	82	58	72	61	3.6	86	82
7/26 We	0.21	0.00	606	17.5	78	60	69	80	60	71	60	4.0	96	82
7/27 Th	0.21	0.00	627	17.4	79	60	69	82	60	73	60	3.9	93	82
7/28 Fr	0.20	0.00	571	18.4	81	62	70	82	62	74	61	4.2	100	82
7/29 Sa	0.15	0.00	442	19.1	81	67	72	79	59	72	62	3.8	91	82
--TOTALS:--			--AVERAGES:--											
WEEK	1.44	0.00	592	18.1	81	61	70	81	58	72	61	3.8	92	82
7/30 Su	0.20	0.00	554	18.9	81	68	71	79	62	72	62	3.8	92	82
7/31 Mo	0.21	0.00	548	18.7	92	67	74	79	41	65	62	3.8	91	82
--TOTALS:--			--AVERAGES:--											
2 Day	0.40	0.00	551	18.8	87	67	73	79	51	69	62	3.8	92	82
--TOTALS:--			--AVERAGES:--											
MONTH	6.51	0.00	622	16.7	79	59	69	81	56	69	58	3.9	94	81

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa

 QUALITY CONTROL FLAGS -----
 A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
 H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 49 Oceanside in Region -SCV- South Coast/Valley CIMIS Project

2000 SOLAR VAPOR AIR TEMP. REL. HUM. DEW WIND WIND AVE DATE ETo PRECIP RAD AVE MAX MIN AVE MAX MIN AVE PT AVE RUN SOIL in. in. Ly/dy mBars --Fahrenheit-- -----%----- F mph mi F

Table with 14 columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, PT, AVE, RUN, SOIL. Rows for dates 8/1 Tu to 8/5 Sa.

TOTALS: --- AVERAGES: --- 5 Day 1.09 0.00 595 19.4 84 65 74 81 51 69 63 4.0 96 83

Table with 14 columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, PT, AVE, RUN, SOIL. Rows for dates 8/6 Su to 8/12 Sa.

TOTALS: --- AVERAGES: --- WEEK 1.54 0.00 606 17.8 83 60 72 82 49 67 60 4.0 95 83

Table with 14 columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, PT, AVE, RUN, SOIL. Rows for dates 8/13 Su to 8/19 Sa.

TOTALS: --- AVERAGES: --- WEEK 1.50 0.00 628 19.0 84 58 73 82 53 70 62 3.9 93 83

Table with 14 columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, PT, AVE, RUN, SOIL. Rows for dates 8/20 Su to 8/26 Sa.

TOTALS: --- AVERAGES: --- WEEK 1.40 0.00 570 18.8 80 65 72 80 58 70 62 3.8 91 83

Table with 14 columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, PT, AVE, RUN, SOIL. Rows for dates 8/27 Su to 8/31 Th.

TOTALS: --- AVERAGES: --- 5 Day 0.57 0.01 335 17.5 75 66 70 78 61 70 60 3.5 85 80

TOTALS: --- AVERAGES: --- MONTH 6.09 0.01 557 18.5 82 63 72 81 54 69 61 3.8 92 82

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa QUALITY CONTROL FLAGS A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 49 Oceanside in Region -SCV- South Coast/Valley CIMIS Project

Table with columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, DEW, WIND, WIND, AVE, SOIL. Rows include daily data for 9/1-9/30, weekly totals, and monthly averages.

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa
QUALITY CONTROL FLAGS
A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 49 Oceanside in Region -SCV- South Coast/Valley CIMIS Project

Table with columns: DATE, ETo, PRECIP, SOLAR VAPOR, AIR TEMP., REL. HUM., DEW PT, WIND AVE, WIND RUN, WIND SOIL. Includes weekly and monthly totals and averages.

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa
QUALITY CONTROL FLAGS
A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 49 Oceanside in Region -SCV- South Coast/Valley CIMIS Project

Table with columns: DATE, ETo in., PRECIP in., SOLAR RAD Ly/dy, VAPOR AVE mBars, AIR TEMP MAX MIN AVE --Fahrenheit--, REL. HUM. MAX MIN AVE ----%----, DEW PT F, WIND AVE mph, WIND RUN mi, AVE SOIL F. Includes daily data from 11/1 to 11/30 and weekly totals.

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa

QUALITY CONTROL FLAGS

A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Appendix IV - B

Tustin: CIMIS Station #75, Irvine, Orange Co., CA

May - November, 2000

Daily Weather Data for Station # 75 Irvine in Region -SCV- South Coast/Valley CIMIS Project

2000 SOLAR VAPOR AIR TEMP. REL. HUM. DEW WIND WIND AVE DATE ETo PRECIP RAD AVE MAX MIN AVE MAX MIN AVE PT AVE RUN SOIL in. in. Ly/dy mBars --Fahrenheit-- -----%----- F mph mi F

Table with columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, PT, AVE, RUN, SOIL. Rows include daily data for May 1-31, weekly averages, and monthly totals.

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa

QUALITY CONTROL FLAGS A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 75 Irvine in Region -SCV- South Coast/Valley CIMIS Project

Table with columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, MAX, MIN, AVE, PT, AVE, RUN, SOIL. Rows include daily data from 6/1 to 6/30, weekly totals, and monthly averages.

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa
QUALITY CONTROL FLAGS
A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 75 Irvine in Region -SCV- South Coast/Valley CIMIS Project

Table with columns: DATE, ETo, PRECIP, RAD, AVE, MAX, MIN, AVE, REL. HUM., DEW, WIND, WIND, AVE, SOIL. Rows include daily data for 7/1 Sa through 7/29 Sa, weekly totals, and monthly totals.

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa
QUALITY CONTROL FLAGS
A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 75 Irvine
 in Region -SCV- South Coast/Valley

CIMIS Project

2000 SOLAR VAPOR AIR TEMP. REL. HUM. DEW WIND WIND AVE

DATE ETo PRECIP RAD AVE MAX MIN AVE MAX MIN AVE PT AVE RUN SOIL
 in. in. Ly/dy mBars --Fahrenheit-- -----%----- F mph mi F

8/ 1 Tu	0.22	0.00	577	19.0	89	65	76	85	39	61	62	3.4	81	80
8/ 2 We	0.21	0.00	555	19.1	86	66	75	87	42	65	62	3.8	90	80
8/ 3 Th	0.22	0.00	599	18.7	85	65	74	87	43	66	62	3.6	87	81
8/ 4 Fr	0.22	0.00	594	19.4	88	62	73	88	48	69	63	3.8	91	81
8/ 5 Sa	0.22	0.00	622	19.0	86	60	72	87	52	70	62	3.4	82	81
TOTALS:-----			--AVERAGES:-----											
5 Day	1.09	0.00	589	19.0	87	64	74	87	45	66	62	3.6	86	81
8/ 6 Su	0.20	0.00	593	19.3	81	63	70	90	59	76	63	3.9	93	81
8/ 7 Mo	0.19	0.00	562	18.3	79	61	69	86	62	75	61	4.0	96	81
8/ 8 Tu	0.21	0.00	594	18.1	84	62	71	86	52	71	61	3.6	87	81
8/ 9 We	0.19	0.00	509	17.1	85	61	71	91	44	65	59	3.3	79	81
8/10 Th	0.24	0.00	721	--S	92	32F	82	73	32	--Q	--Q	4.1	99	81
8/11 Fr	0.24	0.00	613	15.6	92	60	76	82	30	51	57	3.8	91	80
8/12 Sa	0.22	0.00	600	17.5	90	59	74	87	37	62	60	3.7	88	81
TOTALS:-----			--AVERAGES:-----											
WEEK	1.50	0.00	599	17.7	86	57	73	85	45	67	60	3.8	90	81
8/13 Su	0.22	0.00	591	17.6	89	59	72	85	39	66	60	4.0	96	80
8/14 Mo	0.21	0.00	557	19.0	88	64	74	84	38	66	62	3.5	83	80
8/15 Tu	0.21	0.00	571	19.2	86	63	74	86	48	66	62	3.3	80	80
8/16 We	0.22	0.00	558	17.2	92	63	76	83	35	56	59	3.5	83	81
8/17 Th	0.22	0.00	574	17.5	89	64	75	86	41	58	60	4.2	100	81
8/18 Fr	0.22	0.00	586	17.2	88	61	73	87	36	62	59	3.6	87	81
8/19 Sa	0.22	0.00	608	16.2	86	59	72	82	40	62	58	3.7	89	81
TOTALS:-----			--AVERAGES:-----											
WEEK	1.52	0.00	578	17.7	88	62	74	85	40	62	60	3.7	88	81
8/20 Su	0.21	0.00	608	16.7	83	57	69	90	49	70	58	4.1	99	80
8/21 Mo	0.20	0.00	585	18.0	80	63	70	88	57	72	61	4.2	101	82
8/22 Tu	0.18	0.00	540	18.0	79	63	69	84	57	73	60	3.5	84	83
8/23 We	0.20	0.00	558	18.6	81	64	71	85	56	72	61	3.8	92	83
8/24 Th	0.18	0.00	514	19.6	81	66	72	85	58	73	63	3.5	85	83
8/25 Fr	0.16	0.00	461	19.2	82	64	71	86	55	73	62	3.4	81	83
8/26 Sa	0.19	0.00	558	18.2	81	61	70	88	56	73	61	3.2	78	83
TOTALS:-----			--AVERAGES:-----											
WEEK	1.31	0.00	546	18.3	81	62	70	86	55	72	61	3.7	89	82
8/27 Su	0.14	0.00	417	18.2	78	61	69	87	59	76	61	3.7	90	83
8/28 Mo	0.09	0.01	284	18.3	76	65	68	85	66	77	61	3.8	91	82
8/29 Tu	0.01	0.00	80	17.8	67	64	65	87	77	83	60	2.9	70	81
8/30 We	0.07	0.01	224	17.0	73	63	67	88	66	75	59	3.0	71	81
8/31 Th	0.15	0.00	439	15.5	74	61	67	78	55	68	56	4.0	95	81
TOTALS:-----			--AVERAGES:-----											
5 Day	0.45	0.02	289	17.3	74	63	67	85	65	76	59	3.5	83	82
TOTALS:-----			--AVERAGES:-----											
MONTH	5.87	0.02	531	18.0	84	61	72	86	49	68	60	3.7	88	81

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=c mph*.447=m/s mBars*.1=kPa

QUALITY CONTROL FLAGS

A-hist. ave. C-not collected. E-one sensor hist. ave. F-out of normal range
 H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 75 Irvine CIMIS Project
in Region -SCV- South Coast/Valley

2000 DATE	ETo in.	PRECIP in.	SOLAR RAD Ly/dy	VAPOR AVE mBars	AIR TEMP. --Fahrenheit--		REL. HUM. -----%			DEW PT F	WIND AVE mph	WIND RUN mi	AVE SOIL F
9/ 1 Fr	0.18	0.00	530	14.7	74	57	66	83	46	68	55	4.1	99 81
9/ 2 Sa	0.18	0.00	535	14.3	76	57	66	85	46	66	54	4.3	102 81
TOTALS:			AVERAGES:										
2 Day	0.36	0.00	532	14.5	75	57	66	84	46	67	55	4.2	101 81
9/ 3 Su	0.18	0.00	540	14.1	77	55	65	85	43	66	54	4.0	96 81
9/ 4 Mo	0.18	0.00	535	14.0	80	54	66	82	45	65	54	3.8	92 80
9/ 5 Tu	0.19	0.00	542	13.1	83	54	67	81	34	57	52	3.8	91 80
9/ 6 We	0.20	0.00	536	12.8	88	54	69	76	31	53	51	3.9	94 80
9/ 7 Th	0.15	0.01	98		--S 81	--S 70	83	34	--Q	--Q		2.4	57 81
9/ 8 Fr	0.17	0.00	519	14.9	79	53	65	90	39	70	55	3.4	82 80
9/ 9 Sa	0.16	0.00	491	13.4	80	50	63	91	27	67	52	3.8	90 81
TOTALS:			AVERAGES:										
WEEK	1.24	0.01	466	13.7	81	53	67	84	36	63	53	3.6	86 80
9/10 Su	0.17	0.00	523	14.4	83	51	65	92	39	69	54	3.6	86 82
9/11 Mo	0.22	0.00	522	9.9	94	53	72	70	14	37	44	3.8	91 82
9/12 Tu	0.22	0.00	477	9.6	92	61	77	47	16	31	44	3.5	83 82
9/13 We	0.20	0.00	481	13.6	90	64	76	87	18	44	53	3.6	87 82
9/14 Th	0.16	0.00	489	20.4	84	63	72	87	57	75	64	3.6	86 83
9/15 Fr	0.17	0.00	479	19.7	89	63	73	91	49	71	63	3.4	81 83
9/16 Sa	0.19	0.00	476	17.8	94	61	77	76	38	56	60	3.4	82 84F
TOTALS:			AVERAGES:										
WEEK	1.33	0.00	493	15.1	89	59	73	79	33	55	55	3.5	85 83
9/17 Su	0.18	0.00	478	19.5	94	63	75	87	37	66	63	3.9	94 84F
9/18 Mo	0.16	0.00	457	18.4	85	61	71	92	50	72	61	3.1	73 83F
9/19 Tu	0.15	0.00	446	18.7	81	60	69	91	58	77	62	3.7	88 83F
9/20 We	0.14	0.00	414	18.0	77	65	69	82	62	75	61	5.0	119 83F
9/21 Th	0.03	0.00	98	17.4	69	65	67	88	72	78	60	4.2	102 82
9/22 Fr	0.07	0.11	211	16.4	71	62	66	91	57	76	58	4.8	116 82
9/23 Sa	0.07	0.00	286	15.5	74	57	66	86	54	72	56	3.7	89 88F
TOTALS:			AVERAGES:										
WEEK	0.78	0.11	342	17.7	79	62	69	88	56	74	60	4.1	97 83
9/24 Su	0.15	0.00	462	16.0	81	54	66	88	48	74	57	4.0	96 88F
9/25 Mo	0.16	0.00	468	16.4	86	55	69	89	41	68	58	3.7	88 89F
9/26 Tu	0.14	0.00	446	17.9	80	60	68	91	56	75	60	3.9	94 89F
9/27 We	0.06	0.00	210	17.4	73	64	67	83	68	77	60	3.8	92 89F
9/28 Th	0.08	0.00	268	17.7	74	64	68	85	66	76	60	3.2	78 90F
9/29 Fr	0.11	0.00	381	17.1	74	59	67	86	63	76	59	3.1	74 90F
9/30 Sa	0.09	0.00	318	16.6	76	58	66	88	62	77	58	3.0	72 90F
TOTALS:			AVERAGES:										
WEEK	0.79	0.00	365	17.0	78	59	67	87	58	75	59	3.5	85 89
TOTALS:			AVERAGES:										
MONTH	4.50	0.12	424	15.9	81	58	69	84	46	67	57	3.7	89 84

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=C mph*.447=m/s mBars*.1=kPa
 ----- QUALITY CONTROL FLAGS -----
 A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
 H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 75 Irvine
 in Region -SCV- South Coast/Valley CIMIS Project

2000 SOLAR VAPOR AIR TEMP. REL. HUM. DEW WIND WIND AVE
 DATE ETo PRECIP RAD AVE MAX MIN AVE MAX MIN AVE PT AVE RUN SOIL
 in. in. Ly/dy mBars --Fahrenheit-- -----%----- F mph mi F

10/ 1	Su	0.11	0.00	371	17.4	77	57	66	90	64	81	60	3.2	76	88F
10/ 2	Mo	0.12	0.00	390	17.0	78	58	66	90	55	77	59	3.4	81	88F
10/ 3	Tu	0.09	0.00	295	16.9	74	63	66	86	64	78	59	3.7	88	88F
10/ 4	We	0.01	0.00	46	--S	67	32F	65	91	76	--Q	--Q	1.8F	43F	88F
10/ 5	Th	0.09	0.00	293	17.3	74	64	67	83	66	76	59	3.8	90	89F
10/ 6	Fr	0.00	0.00	60	17.4	66	64	65	87	81	84	60	2.4	57	89F
10/ 7	Sa	0.03	0.00	123	16.8	70	58	65	86	67	79	58	3.3	80	88F

-----TOTALS:-----|-----AVERAGES:-----
 WEEK 0.47 0.00 | 225 17.1 72 56 66 87 67 79 59 3.1 74 88

10/ 8	Su	0.07	0.00	258	15.7	73	56	63	89	61	79	57	2.9	69	88F
10/ 9	Mo	0.08	0.00	262	16.0	73	59	64	90	61	78	57	3.3	79	88F
10/10	Tu	0.11	0.01	324	13.0	67	52	62	83	52	70	52	5.3	126	87F
10/11	We	0.10	0.02	348	11.7	66	51	57	84	53	73	49	3.9	93	86F
10/12	Th	0.10	0.00	346	11.4	67	50	58	83	53	69	48	3.5	84	86F
10/13	Fr	0.12	0.00	392	11.3	75	48	60	84	42	64	48	3.6	86	85F
10/14	Sa	0.13	0.00	396	11.3	77	51	62	74	41	59	48	3.6	87	85F

-----TOTALS:-----|-----AVERAGES:-----
 WEEK 0.71 0.03 | 332 12.9 71 52 61 84 52 70 51 3.7 89 86

10/15	Su	0.12	0.00	380	12.8	75	51	62	83	49	68	51	3.6	87	85F
10/16	Mo	0.11	0.00	379	14.4	77	50	62	92	50	76	54	3.2	77	86F
10/17	Tu	0.11	0.00	373	15.4	78	53	64	92	53	77	56	3.2	76	87F
10/18	We	0.05	0.00	220	16.2	74	57	64	89	63	81	58	3.1	73	87F
10/19	Th	0.10	0.00	327	15.8	74	57	64	88	61	77	57	3.1	75	87F
10/20	Fr	0.07	0.00	273	16.4	72	59	63	91	71	84	58	3.7	89	87F
10/21	Sa	0.08	0.00	245	15.1	72	59	64	85	57	73	56	4.8	116	87F

-----TOTALS:-----|-----AVERAGES:-----
 WEEK 0.64 0.00 | 314 15.2 74 55 63 89 58 77 56 3.5 85 86

10/22	Su	0.15	0.00	319	8.3	80	53	66	86	16	38	40	4.9	117	85F
10/23	Mo	0.09	0.00	225	11.4	76	61	67	82	24	50	48	3.5	83	84F
10/24	Tu	0.10	0.00	354	13.8	73	55	63	85	50	70	53	3.5	84	86F
10/25	We	0.11	0.00	351	11.5	73	53	61	80	43	62	48	3.6	86	85F
10/26	Th	0.06	0.08	200	12.8	66	54	59	89	50	74	51	2.9	70	86F
10/27	Fr	0.04	0.70	195	13.2	64	54	58	88	65	81	52	2.5	59	84F
10/28	Sa	0.05	0.00	207	13.1	66	52	59	86	63	77	52	2.6	63	83F

-----TOTALS:-----|-----AVERAGES:-----
 WEEK 0.59 0.78 | 265 12.0 71 55 62 85 44 65 49 3.3 80 85

10/29	Su	0.05	0.39	182	13.1	65	54	59	91	59	78	52	3.9	93	83F
10/30	Mo	0.09	0.00	322	11.5	65	50	57	91	52	73	48	3.6	86	83F
10/31	Tu	0.09	0.00	351	11.5	67	49	58	84	52	71	48	3.6	87	83F

-----TOTALS:-----|-----AVERAGES:-----
 3 Day 0.23 0.39 | 285 12.0 66 51 58 89 54 74 49 3.7 89 83

-----TOTALS:-----|-----AVERAGES:-----
 MONTH 2.63 1.20 | 284 14.0 72 54 62 86 55 73 53 3.4 83 86

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=C mph*.447=m/s mBars*.1=kPa
 ----- QUALITY CONTROL FLAGS -----
 A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
 H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Daily Weather Data for Station # 75 Irvine
in Region -SCV- South Coast/Valley

CIMIS Project

2000 SOLAR VAPOR AIR TEMP. REL. HUM. DEW WIND WIND AVE
DATE ETo PRECIP RAD AVE MAX MIN AVE MAX MIN AVE PT AVE RUN SOIL
in. in. Ly/dy mBars --Fahrenheit-- % F mph mi F

11/ 1	We	0.10	0.00	350	10.4	70	47	57	82	38	66	46	3.7	89	83F
11/ 2	Th	0.10	0.00	333	10.2	72	47	60	78	34	59	45	3.3	78	83F
11/ 3	Fr	0.17	0.00	350	5.3	76	48	65	62	15	25	28	5.7	137	83F
11/ 4	Sa	0.13	0.00	271	6.3	76	52	64	52	18	31	33	4.3	104	81F

-----TOTALS:-----|-----AVERAGES:-----
4 Day 0.50 0.00 326 8.0 73 49 61 69 26 45 38 4.2 102 82

11/ 5	Su	0.08	0.00	281	11.5	67	48	60	82	45	66	48	3.9	94	81F
11/ 6	Mo	0.04	0.00	194	12.6	65	50	58	87	65	78	51	3.2	76	81F
11/ 7	Tu	0.17	0.00	344	4.4	72	49	61	88	11	24	24	6.9	166	81F
11/ 8	We	0.11	0.00	335	7.5	70	45	58	83	18	46	37	4.2	100	79F
11/ 9	Th	0.07	0.00	256	10.8	64	51	56	80	61	71	47	5.0	121	79F
11/10	Fr	0.07	0.00	252	9.3	60	47	53	85	50	67	43	4.3	104	79F
11/11	Sa	0.07	0.03	291	8.2	60	42	50	86	43	66	39	3.2	78	79F

-----TOTALS:-----|-----AVERAGES:-----
WEEK 0.61 0.03 279 9.2 65 47 57 84 42 60 41 4.4 106 80

11/12	Su	0.11	0.00	332	5.6	64	41	52	73	25	42	30	4.5	108	79F
11/13	Mo	0.10	0.00	325	5.6	65	38	50	72	24	45	30	3.8	91	77F
11/14	Tu	0.06	0.00	261	8.0	60	39	49	82	52	66	39	3.3	80	76F
11/15	We	0.07	0.00	306	7.7	61	40	49	83	41	66	38	3.2	77	76F
11/16	Th	0.08	0.00	300	7.8	62	41	50	83	37	62	38	3.3	80	75F
11/17	Fr	0.16	0.00	310	3.3	68	41	59	83	12	20	17	7.3	175	76F
11/18	Sa	0.13	0.00	312	4.1	71	43	58	43	13	25	22	4.7	112	75F

-----TOTALS:-----|-----AVERAGES:-----
WEEK 0.71 0.00 307 6.0 64 40 53 74 29 47 31 4.3 103 76

11/19	Su	0.11	0.00	317	4.7	76	43	57	50	13	30	26	3.7	88	75F
11/20	Mo	0.09	0.00	231	5.3	76	45	60	42	18	30	28	3.1	74	75F
11/21	Tu	0.10	0.00	282	8.0	75	52	61	80	18	44	39	3.2	78	76F
11/22	We	0.06	0.00	219	10.4	63	46	55	80	62	71	45	4.3	104	76F
11/23	Th	0.07	0.00	285	10.5	67	46	54	88	49	74	46	3.2	78	--S
11/24	Fr	0.06	0.00	270	10.4	67	44	53	89	52	75	46	3.1	75	--S
11/25	Sa	0.07	0.00	274	10.5	73	44	55	87	41	70	46	3.1	75	--S

-----TOTALS:-----|-----AVERAGES:-----
WEEK 0.55 0.00 268 8.5 71 46 56 74 36 56 39 3.4 81 75

11/26	Su	0.08	0.00	282	8.8	75	42	56	79	30	58	41	2.9	70	--S
11/27	Mo	0.08	0.00	276	9.0	73	44	56	78	37	59	42	3.0	72	--S
11/28	Tu	0.08	0.00	19	--S	71	32	55	75	36	--Q	--Q	3.1	73	--S
11/29	We	0.05	0.00	245	11.1	66	44	53	91	60	81	47	3.0	73	--S
11/30	Th	0.04	0.00	205	11.1	65	45	52	92	60	84	47	2.8	68	--S

-----TOTALS:-----|-----AVERAGES:-----
5 Day 0.33 0.00 205 10.0 70 41 54 83 45 71 44 3.0 71 --

-----TOTALS:-----|-----AVERAGES:-----
MONTH 2.70 0.03 277 8.2 68 45 56 77 36 55 38 3.9 93 78

Ly/day*.484=W/sq.m in.*25.4=mm (F-32)*5/9=C mph*.447=m/s mBars*.1=kPa

QUALITY CONTROL FLAGS

A-hist. ave. C-not collected E-one sensor hist. ave. F-out of normal range
H-missing hourly I-ignore M-missing Q-related sensor miss. S-not in service

Appendix V

Soil Characterization Data from the Oceanside and Tustin Trial Sites

MAY-02-2000 16:15

P.02

MISSION RESOURCE CONSERVATION DISTRICT

990 East Mission Road
Fallbrook, California 92028
(760) 728-1332

P.O. Box 1777
Fallbrook, CA 92088-1777
Fax (760) 723-5316
e-mail - missnrcd@tfb.com

Plant Sciences
Attn: Doug Diaz
2439 E. Mission Road
Fallbrook, CA 92028-1802

Date Sampled: 4/24/00
Date Received: 4/25/00
Date Completed: 4/26/00

Soil Analysis Sample: OCEANSIDE

Parameter	Results
% SAND	34.0
% SILT	52.0
% CLAY	14.0
<i>Silt Loam</i>	

Analyzed By: af

Verified By: aa

MISSION RESOURCE CONSERVATION DISTRICT

990 East Mission Road
Fallbrook, California 92028
(760) 728-1332

P.O. Box 1777
Fallbrook, CA 92088-1777
Fax (760) 723-5316
e-mail - missnrcc@tfb.com

Plant Sciences
Attn: Doug Diaz
2439 E. Mission Road
Fallbrook, CA 92028-1802

Date Sampled: 4/24/00
Date Received: 4/25/00
Date Completed: 5/2/00

Soil Analysis

Sample: ~~JRVINE~~ Tustin

Parameter	Results
% SAND	30.0
% SILT	34.0
% CLAY	36.0
<i>Clay Loam</i>	

Analyzed By: af

Verified By: ac

Appendix VI

**Average Market Tomato Prices Used for Crop Value Calculations, for
each of the Oceanside and Tustin Trial Harvest Events**

Average Market Prices for Fresh Market Tomatoes, Used for Crop Value Calculations for the Oceanside Trial Harvest Events
(Source: Market News Service, Fresno, Ca)

(Prices Quoted in U.S. Dollars per 25 pound carton)

Sept 13, 2000			Sept 23, 2000			Oct 7, 2000			Oct 21, 2000			Nov 4, 2000		
Size			Size			Size			Size			Size		
Med	Lg	XLg	Med	Lg	XLg	Med	Lg	XLg	Med	Lg	XLg	Med	Lg	XLg
4.50	5.50	5.50	4.50	6.00	6.00	6.50	9.00	10.00	9.00	12.00	13.50	8.00	11.00	12.00

Average Market Prices for Fresh Market Tomatoes, Used for Crop Value Calculations for the Tustin Trial Harvest Events
(Source: Market News Service, Fresno, Ca)

(Prices Quoted in U.S. Dollars per 25 pound carton)

Aug 28, 2000			Sept 4, 2000			Sept 23, 2000			Oct 7, 2000			Oct 14, 2000			Oct 28, 2000		
Size			Size			Size			Size			Size			Size		
Med	Lg	XLg	Med	Lg	XLg	Med	Lg	XLg	Med	Lg	XLg	Med	Lg	XLg	Med	Lg	XLg
7.00	9.00	10.00	4.50	5.50	6.00	4.50	5.50	6.00	6.50	9.00	10.00	6.50	9.00	10.00	8.00	11.00	12.00

Appendix VII

**Pre- and Post-Application Nematode Count Data from Nematodes, Inc.,
for both the Oceanside and Tustin Trial Sites**

NEMATODES, INC.
 1577 W. FRONT ST. STE B
 SELMA, CALIFORNIA 93662
 (559) 891-9073 VOICE
 (559) 891-9075 FAX NEM #200813

ROOT KNOT
(Meloidogyne)

DAGGER
(Xiphinema)

STUNT

SAMPLE NO.	DATE ANAL.								
	07/03/00								
1. A1		NPN							
2. A2		NPN							
3. A3		NPN							
4. A4		NPN							
5. A5		NPN							
6. A6				2					
7. A7		SAMPLE MISSING							
8. A8		SAMPLE MISSING							
9. A9		NPN							
10. A10		NPN							
11. A11		NPN							
12. A12		NPN							
13. A13		NPN							
14. A14		NPN							
15. A15		NPN							
16. A16		NPN							
17. A17		NPN							

PLANT SCIENCES, INC.

NPN=NO PLANT PARASITIC NEMATODE LARVAE WERE FOUND IN THIS SAMPLE.

TRIAL LOCATION: Oceanside, San Diego Co., CA

PAGE 1 OF 5

AMOUNT SOIL ANAL 500 GRAMS/SAMPLE

CROP OPEN

*PLEASE NOTE INFORMATION ON BACK OF THIS REPORT.

SIEVING & MIST EXTRACTION
 @ 33% EXTRACTION EFFICIENCY
 MULTIPLY ABOVE NUMBERS X 3=100%

NEMATODES, INC.

1577 W. FRONT ST. STE. B
SELMA, CALIFORNIA 93662
(559) 891-9073 VOICE
(559) 891-9075 FAX

NEM #200813

ROOT KNOT
(Meloidogyne)
DAGGER
(Xiphinema)

SAMPLE NO.	DATE ANAL.								
	07/03/00								
18. A18		NPN							
19. A19		NPN							
20. B1		NPN							
21. B2		NPN							
22. B3		NPN							
23. B4		NPN							
24. B5		NPN							
25. B6		NPN							
26. B7		SAMPLE MISSING							
27. B8		SAMPLE MISSING							
28. B9		NPN							
29. B10		NPN							
30. B11		NPN							
31. B12		NPN							
32. B13		NPN							
33. B14		NPN							
34. B15		NPN							

PLANT SCIENCES, INC.

PAGE 2 OF 5

AMOUNT SOIL ANAL. 500 GRAMS/SAMPLE

CROP OPEN

*PLEASE NOTE INFORMATION ON BACK OF THIS REPORT.

SIEVING & MIST EXTRACTION
@ 33% EXTRACTION EFFICIENCY
MULTIPLY ABOVE NUMBERS X 3=100%

NEMATODES, INC.

1577 W FRONT ST. STE. B
SELMA, CALIFORNIA 93662
(559) 891-9073 VOICE
(559) 891-9075 FAX NEM #200813

ROOT KNOT
(Meloidogyne)

DAGGER
(Xiphinema)

SAMPLE NO.	DATE ANAL.									
	07/03/00									
35.	B16	NPN								
36.	B17	NPN								
37.	B18	NPN								
38.	B19	NPN								
39.	D1	NPN								
40.	D2	NPN								
41.	D3	NPN								
42.	D4	NPN								
43.	D5	NPN								
44.	D6	NPN								
45.	D7	SAMPLE MISSING								
46.	D8	SAMPLE MISSING								
47.	D9	NPN								
48.	D10	NPN								
49.	D11	NPN								
50.	D12	NPN								
51.	D13	NPN								

PLANT SCIENCES, INC.

PAGE 3 OF 5

AMOUNT SOIL ANAL. 500 GRAMS/SAMPLE

CROP OPEN

*PLEASE NOTE INFORMATION ON BACK OF THIS REPORT.

SIEVING & MIST EXTRACTION
@ 33% EXTRACTION EFFICIENCY
MULTIPLY ABOVE NUMBERS X 3=100%

NEMATODES, INC.

1577 W. FRONT ST. STE. B
SELMA, CALIFORNIA 93662
(559) 891-9073 VOICE
(559) 891-9075 FAX NEM #200813

ROOT KNOT
(Meloidogyne)

DAGGER
(Xiphinema)

SAMPLE NO.	DATE ANAL.									
	07/03/00									
52.	D14	NPN								
53.	D15	NPN								
54.	D16	NPN								
55.	D17	NPN								
56.	D18	NPN								
57.	D19	NPN								
58.	C1	NPN								
59.	C2	NPN								
60.	C3	NPN								
61.	C4	NPN								
62.	C5	NPN								
63.	C6	NPN								
64.	C7	SAMPLE MISSING								
65.	C8	SAMPLE MISSING								
66.	C9	NPN								
67.	C10	NPN								
68.	C11	NPN								

PLANT SCIENCES, INC.

AMOUNT SOIL ANAL. 1 KILOGRAM/SAMPLE

CROP OPEN

*PLEASE NOTE INFORMATION ON BACK OF THIS REPORT.

SIEVING & SUGAR FLOTATION
@ 25% EXTRACTION EFFICIENCY
MULTIPLY ABOVE NUMBERS X 4=100%

