



Wyoming
DEPARTMENT OF Agriculture

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The Wyoming Department of Agriculture is dedicated to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life.

September 12, 2024

Eric W. Bohnenblust, Ph.D, Chief
Minor Use and Emergency Response Branch (MUERB)
Registration Division, Office of Pesticide Programs
1200 Pennsylvania Ave. NW
Washington, DC 20460

RE: Section 18 Specific Exemption for Goltix 700 SC for the control of Palmer Amaranth in Sugar Beets

Dear Mr. Bohnenblust,

The Wyoming Department of Agriculture requests approval of the attached application for a specific exemption for the use of Meatamitron (Goltix 700 SC) for the control of Palmer Amaranth (*Amaranthus Palmeri*) on sugar beets grown in Colorado under Section 18 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended.

Thank you,

Dale Heggem
Assistant Manager, Technical Services Division
307-777-6590
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CC: Slade Franklin, WDA
Kimberly Pardue-Welch, EPA Region 8
Karina Castro, ADAMA US
Rebecca Larson, Western Sugar Cooperative
Jacob Bullinger, Wyoming Sugar Company

Equal Opportunity in Employment and Services

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REQUEST FOR SPECIFIC EXEMPTION

GOLTIX 700 SC METAMITRON on SUGAR BEETS

Submitted by the Wyoming Department of Agriculture

I. CONTACT PERSONS AND QUALIFIED EXPERTS

A. STATE CONTACT

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B. QUALIFIED EXPERT

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C. COMPANY CONTACTS

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D. REGISTRANT

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II. DESCRIPTION OF PESTICIDE REQUESTED

The active ingredient Metamitron is currently unregistered in the United States. The proposed product is available currently within the European Union under the tradename Goltix 700 SC

Pesticide Trade Name:	Goltix 700 SC
Registrant:	ADAMA
EPA Reg. No.:	N/A EPA Company no. 66222
Active Ingredient:	Metamitron (1,2,4-Triazin-5(4H)-one, 4-amino-3-methyl-6-phenyl) (58.3%, with 5.84 lbs. of Metamitron per gallon)

III. DESCRIPTION OF PROPOSED USE

A. Treatment Sites

Sugar beets grown in 7 counties in the NW, Central and SE regions of Wyoming. Sugar beets are grown under contract with Western Sugar Cooperative and Wyoming Sugar Company.

B. Method of Application

Ground application only.

C. Application Timing

Planting season spans from April 1st to May 30th in Wyoming (weather and location dependent). The proposed application season for Goltix 700 SC would therefore be between April 1st and May 30, 2025. The initial application of Goltix 700 SC would occur within 24-48 hours of planting. Applications to furrow irrigated fields may be done up to 48 hours prior to planting provided that fields are shallow tilled after application to incorporate Goltix 700 SC.

D. Rate of Application

64 fluid ounces of product per acre.

E. Maximum Number of Applications

One.

A single additional application may be made in the case of a crop failure ONLY if the field is being replanted with sugar beets.

F. Total number of acres to be treated

There are approximately 31,380 acres of sugar beets grown annually in Wyoming. Applications of Goltix 700 SC would be limited to the following counties that are experiencing Palmer Amaranth pressure: Big Horn, Fremont, Goshen, Laramie, Park, Platte and Washakie

G. Total amount of pesticide to be used

Using the maximum rate allowed by the emergency use label (64 fluid ounces per acre per year) times the number of acres to potentially be treated (31,380) results in an estimated total amount of pesticide to be used of 2,008,320 fluid ounces, or 15,690 gallons of product.

Goltix 700 SC contains 5.84 pounds of active ingredient per gallon of formulated product, which would account for a total potential 91,629.60 pounds of active ingredient applied per season (year).

Replanted fields may increase the total amount applied if they are retreated with Goltix 700 SC.

H. Other Applicable Restrictions

The draft emergency use label lists "WARNING" as the hazard word and requires a 12-hour Restricted Entry-Interval. The label also prohibits applications by ground within 100 feet of aquatic areas, prohibits cultivation within 10 feet of an aquatic area to allow for a vegetative filter strip and prohibits the use of sugar beet leaves for

food or feed. Applications may not be made during temperature inversions and must be made when wind speeds exceed 3 mph. Other rotational crops may not be planted within 30 days of the last application.

IV. ALTERNATIVE METHODS OF CONTROL

A. Herbicides

The following active ingredients are currently registered in Wyoming and labeled for use to control Palmer amaranth in sugar beets: glyphosate (only for use on glyphosate tolerant sugar beet varieties), glufosinate-ammonium (pre-plant burn-down only), dimethenamid-P, S-metolachlor and trifluralin. Other herbicides are used in sugar beets that don't list Palmer Amaranth specifically but do list "pigweed or other related species". The following discussion identifies the use pattern and reasons why the named herbicides are either ineffective or losing effectiveness on control of Palmer Amaranth.

Glyphosate

The large majority of sugar beets planted in the state are glyphosate tolerant varieties. While glyphosate has provided reliable broadleaf weed control since glyphosate-tolerant sugar beet varieties were introduced, glyphosate weed resistance in Palmer Amaranth has been confirmed in Wyoming.

Cycloate & Ethofumesate

These products are applied to sugar beet fields either prior to planting (usually incorporated) or after planting, but before sugar beet emergence. They have only demonstrated control of weeds that emerge after treatment but have no effect on weeds that were growing prior to treatment therefore it is not considered an acceptable alternative for early emerged weeds. They can provide some short-term control of Palmer Amaranth but the treatment only provides a short window of control and Palmer Amaranth quickly breaks through the short control period. An application of a post-emergence herbicide is then required to control Palmer Amaranth however the emergence of glyphosate resistant Palmer Amaranth (GRP) has increasingly made this method less effective.

Dimethenamid-P and S-metolachlor and other group 15 herbicides

The Group 15 herbicides, such as dimethenamid-P and S-metolachlor and acetochlor, all require application to sugar beets no earlier than the crop reaching the two true-leaf stage. This stage of crop growth can often take four to five weeks after planting and in that period of time early emerged Palmer Amaranth can easily reach four inches in height. Group 15 herbicides have no activity on emerged weeds, making these products ineffective alternatives.

Clopyralid

Clopyralid has demonstrated minimal control of amaranthus species and has been proven to be ineffective for control of Palmer Amaranth in field studies.

Triflurosulfuron-methyl

This herbicide has demonstrated poor control on amaranthus species in general. Additionally, Palmer Amaranth has also developed a resistance to sulfonyleureas making this product ineffective for control.

Sodium Acifluorfen

While sodium acifluorfen (trade name Ultra Blazer) is not currently registered for use on sugar beets, it was granted a Section 18 exemption in 2021 for control of Palmer Amaranth. The experience by growers in 2021 was not favorable, with limited weed control and unacceptable crop damage resulting. Agronomists, Dr. Lawrence and Dr. Kniss believe this is due in part to the soils in NE, WY and CO being exceptionally low in organic matter. Western Sugar Cooperative has stated that Ultra Blazer is no longer considered a viable alternative herbicide for Palmer Amaranth. **(See Attachment E)**

B. IPM Weed Control Alternatives

Mechanical/Manual Weed Control

Historically, sugar beet growers used mechanical cultivation followed by manual field labor using hoes to weed fields. Over the course of the last 30 years, the practicality of using manual labor has decreased with the advent of glyphosate tolerant sugar beet varieties, which allowed growers to transition to a minimum tillage system. Nearly all

acres of sugar beets in Wyoming are now planted to glyphosate tolerant varieties, and growers no longer seek out manual labor. With no demand for manual labor, labor contractors have had no incentive to dedicate migrant labor for an uncertain market. Hiring manual labor also does not make sense for glyphosate tolerant sugar beets, since the majority of other weed species are controlled, and the cost of production exceeds the economic break-even point in some years. Growers are therefore hesitant to return to mechanical/manual labor weed control due to the uncertainty of labor availability and additional costs.

Crop Rotation

There are still herbicides available in corn that will control Palmer Amaranth. However, sugar beets are highly sensitive to these corn herbicides so the required plant back restrictions for sugar beets prevents these being used in corn grown prior to sugar beets. Small grains are often included in rotation with sugar beets, and small grains can outcompete Palmer Amaranth due to establishment of these crops in the fall (winter wheat) or early spring (spring barley). However, small grain harvest typically begins in early-mid July, and Palmer Amaranth can be difficult to manage later in the summer and fall. This would allow a heavy weed seed population to be established prior to planting of sugar beets the following spring.

Biological Weed Control

As of this request, the Wyoming Department of Agriculture (WDA) is unaware of any biological control methods for Palmer Amaranth.

V. EFFICACY OF PROPOSED USE UNDER SECTION 18

The WDA was provided with four studies (**see attachments A-D**) for four years of research on Metamitron field trials by Dr's Lawrence and Kniss. There were sites were located in western Nebraska and Southeast Wyoming in order to provide relevant locations to sugar beet production areas. The studies focused on the application rates used in Europe in the 2019 and 2020 plots, but then began to include lower rates of 20, 25 and 50 fluid ounces per acre in the 2021 and 2022 trials in order to determine a lower threshold of acceptable control.

Data for 2021 and 2022 determined that acceptable control of GRP was possible using Metamitron alone at 32-50 fluid ounces per acre

with better control when ethofumisate was added to the tank mix at 32 fluid ounces per acre. The proposed emergency use label follows the existing EU label's maximum use rate of 64 fl. oz./acre.

VI. DISCUSSION OF EXPECTED RESIDUES IN FOOD

There are currently no established tolerances of Metamitron for any food commodity in the United States. The registrant has indicated they have submitted European data to EPA that was used for the EU registration, but WDA does not have access to that data.

VII. DISCUSSION OF HUMAN HEALTH AND ENVIRONMENTAL RISK INFORMATION

As of the date of submission, the WDA has received no human health or environmental risk data from the registrant but has been informed that data from the EU, for the Section 3 request for fruit thinning, has been submitted to the Agency. The draft emergency use label for Goltix 700 SC appears to have a "WARNING" signal word, with personal protective equipment requirements for applicators including long-sleeve shirt and pants, shoes, socks, and waterproof or chemical-resistant gloves. Mixers/Loaders must also wear coveralls in addition to all previously mentioned PPE. The label also states the product "May be fatal if swallowed" and "Harmful if absorbed through skin or inhaled". The label includes statements to prohibit use near aquatic sites. The environmental hazards section of the label identifies characteristics associated with chemicals detected in groundwater, i.e. the herbicide is considered leachable into groundwater especially where the water table is shallow.

A review of the label shows that there were significant precautions listed for applications in the vicinity of aquatic areas such as lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, and estuaries. While much of the sugar beet growing areas of WY are arid by geographic location, there are some rivers, creeks and irrigation canals that carry water during the period intended for application. These areas can receive heavy rainfall that would potentially lead to surface runoff into these water features. The label appears to address these concerns by both prohibiting aerial application and also prohibiting ground applications within 100 feet of the aquatic areas listed above. The label also prohibits cultivation and application within 10 feet of aquatic areas in order to allow a vegetative buffer to grow.

As Metamitron is a new active ingredient, the WDA will request it be included on the list of chemicals to be tested for in the 2024 surface and groundwater water sampling done annually in Wyoming by the USGS. Any results will be forwarded to EPA.

VIII. COORDINATION WITH OTHER AFFECTED FEDERAL, STATE, AND LOCAL AGENCIES

The WDA generally notifies other state and Federal agencies when Section 18 emergency exemptions are determined to potentially impact vulnerable populations or habitat of threatened or endangered species. In the case of the current emergency exemption, the WDA has notified the EPA Region 8 office. WDA is coordinating this request with the Colorado Department of Agriculture and the Nebraska Department of Agriculture as the environmental conditions and soil types for the areas where sugar beets are grown in Colorado and Nebraska are similar to where sugar beets are grown in Wyoming.

IX. NOTIFICATION OF REGISTRANT

The WDA has communicated with ADAMA regarding the use of Metamitron on sugar beets under an emergency exemption and has received a letter of support for the proposed emergency use.

X. ENFORCEMENT PROGRAM

The WDA has the authority granted to it by Wyoming State Statute (and associated rules) titled "The Environmental Pesticide Control Act of 1973" to ensure registration and monitoring for pesticide use in Wyoming. Wyoming Pesticide inspectors will be specifically advised to look for and review records relating to Goltix 700 SC or Metamitron during applicator and pesticide dealer reviews. The sugar beet producer representatives have indicated that growers will either apply the herbicide themselves or hire commercial applicators. Goltix 700 SC, being unregistered and otherwise unavailable in the United States, will likely be transported to Wyoming through a highly controlled distribution network by the sugar beet companies. The WDA considers this product to be a "Restricted Use Pesticide" and will require all distributors of this product to obtain a Pesticide Dealers License in Wyoming. This will require distributors to maintain additional record

keeping requirements through which the WDA can identify product sales and report back to the EPA with that information if requested.

XI. REPEAT USES

This is Wyoming's first request for a Section 18 emergency exemption for this product.

XII. PROGRESS TOWARD REGISTRATION

A company contact has indicated that a Section 3 label request for Metamitron has been submitted to EPA as a growth regulator in pome fruits. The WDA has received no additional information from the registrant on further registration plans.

XIII. INFORMATION REQUIRED FOR A SPECIFIC EXEMPTION

A. Name of the Pest

Palmer amaranth (*Amaranthus palmeri*)

B. Discussion of the Events Which Brought About the Emergency Condition

Palmer Amaranth arrived in Southeastern Wyoming within the last 10 years and was largely absent from sugar beet fields up until 5 years ago. This species grows rapidly, can produce over 100,000 seeds per plant, survives well in no-till and minimum till conditions and seeds can continue to germinate and emerge all season long. According to a company contact, within the past 5 years the presence of Palmer Amaranth has evolved from being essentially non-existent to now impacting around 50% of sugar beet acreage to various degrees.

Additionally, the loss of other registered post-emergence herbicides in sugar beet (following the widespread adoption of glyphosate-resistant sugar beets) has reduced the different chemical modes of action available to sugar beet producers in Wyoming. For example, Betamix (Desmedipham plus phenmedipham) was previously available for postemergence control of various broadleaf weeds, including *Amaranthus* (pigweed) species, in sugar beets. The federal registration of Betamix Herbicide, as well as several other sugar beet

specific herbicides, were canceled in 2014. Economic weed control in sugar beets now relies heavily on the use of glyphosate but the development of GRP has intensified the Palmer Amaranth issue.

Palmer Amaranth has been positively identified to exist in all counties covered by this request by either the University of Wyoming or by County Weed & Pest programs. The lack of widespread and economical control options equates to a certainty that this species will continue to spread at a rapid pace and based on surveys conducted by the University of Nebraska-Lincoln (UNL) the additional spread of GRP is almost a certainty. Beginning in 2017, UNL researchers conducted surveys of sugar beet fields for glyphosate resistance in Palmer amaranth. In the first year six of 44 randomly selected samples of Palmer Amaranth were found to be resistant to glyphosate. Additional surveys have been conducted each year since and while data is not readily available for the most recent years, estimates have been made by the University of Nebraska Weed Management Specialist that the number of fields found with GRP populations has doubled every year since 2017. Estimates provided by the sugar beet growers indicate that approximately 59% of all sugar beet fields were infested with GRP in 2022.

C. Discussion of Anticipated Risks to Threatened and Endangered Species

Three endangered or threatened plant species have been identified with possible habitat in counties where sugar beets are grown: Ute Ladies'-Tresses Orchid (Goshen and Laramie), Colorado Butterfly Plant (Platte and Laramie) and Desert Yellowhead (Fremont). The Ute Ladies'-Tresses Orchid typically inhabits uncultivated grasslands or riparian/wetland habitats between 5,100 – 6,850 feet. A majority of sugar beet fields in the two listed counties are not found near areas that the Ute Ladies'-Tresses Orchid typically inhabits. The Colorado Butterfly Plant typically inhabits uncultivated grasslands or riparian/wetland habitats between 5,800 – 6,400 feet. A majority of sugar beet fields in the two listed counties are not found near areas that the Colorado Butterfly Plant typically inhabits. The Desert Yellowhead inhabits barren outcrops of white silty clay and sandstone, all of which are generally not close to irrigated row crop areas that produce sugar beets. The WDA does not anticipate any off-site drift or movement of Metamitron used under the emergency exemption that will impact known or historical habitat for these three species.

D. Harvest Date

Harvest of sugar beets in Wyoming typically starts between September 1st and October 1st, extending into November, depending on the location in the state and weather.

E. DISCUSSION OF SIGNIFICANT ECONOMIC LOSS

Data shown in the following tables was provided by the Vice-President for Science and Government Affairs for Western Sugar Growers Cooperative, Rebecca Larson, PhD. In her communication with the WDA, Dr. Larson explained that the economic impact of Palmer Amaranth on sugar beets is primarily due to yield loss rather than loss in the sugar content of the beet root.

Table 1. Crop value and normal net revenue in fields without GRP for past five years (data for 2021, 2022, and 2023 provided by Western Sugar Cooperative)

Year	Yield (Tons/A) ¹	Price/Ton	Gross Revenue (\$/A)	Cost of Production (\$/A) ²	Net Revenue \$/A
2023	29.0	\$41.00	\$1,189.00	\$1,122.14	\$66.86
2022	30.0	\$43.75	\$1,312.50	\$1,345.00	\$(32.50)
2021	31.9	\$46.00	\$1,467.40	\$1,170.00	\$297.40
2020	30.72	\$44.50	\$1,367.04	\$1,171.00	\$196.04
2019	25.67	\$42.46	\$1,089.95	\$1,171.00	\$(81.05)

NOTES: ¹ Assumptions are based on historical yields and prices and NO glyphosate resistant Palmer amaranth in field. ² Cost of production validated by USDA-FSA during WHIP+ calculations for 2018/2019 crop year.

Table 2: Crop value and net revenue for fields with GRP for past five years (data for 2021, 2022 and 2023 provided by Western Sugar Cooperative)

Year	Yield (Tons/A) ¹	Price/Ton	Gross Revenue (\$/A)	Cost of Production (\$/A) ²	Net Revenue \$/A
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Year	Yield (Tons/A) ¹	Price/Ton	Gross Revenue (\$/A)	Cost of Production (\$/A) ²	Net Revenue \$/A
2023	21.0	\$41.00	\$861.00	\$1322.14	\$(461.14)
2022	21.0	\$43.75	\$918.75	\$1,545.00	\$(626.25)
2021	25.52	\$46.00	\$1,173.92	\$1,170.00	\$3.92
2020	25.61	\$44.50	\$1,139.65	\$1,171.00	\$(31.35)
2019	18.25	\$42.46	\$774.90	\$1,171.00	\$(396.10)

NOTES: ¹ Yields are based on harvest reports from weed infested fields, but only take into account those fields, not fields without GRP. ² Cost of production validated by USDA-FSA during WHIP+ calculations for 2018/2019 crop year; 2022 reflects inflation impacts plus additional control measures on cost of production. Worst case scenario for increase to cost of production would be \$500/A in all control measures for GRP fields.

Table 3: Tier 1 Economic Analysis: Yield Loss Due to GRP (GRP fields) (Data represent assumptions used for Table 1, and actual yield data provided by Western Sugar Cooperative.)

Year	Normal Yield (Tons/A)	GRP Fields Yield (Tons/A)	Yield Reduction (Tons/A)	Percent Yield Reduction
2023	29.0	21.0	8.0	27.6%
2022	30.0	21.0	9.0	30.0%
2021	31.9	25.52	6.38	20.0%
2020	30.72	25.61	5.11	16.63%
2019	25.67	18.25	7.42	28.9%
5-yr AVE	29.458	22.276	7.182	24.38%

NOTES: Growers have indicated the number of GRP fields has doubled in each year since 2017 to a point where 65% of all planted acres in 2022 and 2023 was estimated to be infested.

Based on the data shown in Table 3, Tier 1 analysis for simple yield loss demonstrates at least 20% loss in all three of the last three years with a five-year average of 24.38%.

TABLE 4: Tier 2 Economic Analysis: Gross Revenue Loss
(Using same assumptions as in Tables 1 and 2.)

Year	Gross Revenue ¹ (\$/A)	Gross Revenue ² (\$/A)	Revenue Gain/Loss (\$/A)	Percent Loss
2023	\$1,189.00	\$861.00	\$(328.00)	27.6%
2022	\$1,312.50	\$918.75	\$(393.75)	30.0%
2021	\$1,467.40	\$1,173.92	\$(293.48)	20.0%
2020	\$1,367.04	\$1,139.65	\$(227.39)	16.6%
2019	\$1,089.95	\$774.9	\$(315.05)	28.9%
5-yr AVE	\$1,285.18	\$981.09	\$(311.04304.09)	25.1%

NOTES: ¹ Normal gross revenue in fields without GRP. ² Gross revenue in GRP fields.

Based on the data shown in Table 4, Tier 2 analysis for percentage of loss in gross revenue shows loss exceeded 20% in two of the last three years, with a 5-year average also above the 20% loss target.

Table 5: Tier 3 Economic Analysis: Loss of Net Operating Revenue (Change in net revenue comparing sugar beet fields with and without GRP.)

Year	Normal Net Revenue (Table 1)	Fields with Resistant Weeds Net Revenue (Table 2)	Change in Net Revenue	Percent Change in Net Revenue <u>Loss</u>
2023	\$66.86	\$(461.14)	\$(528.00)	790%
2022	\$(32.50)	\$(626.25)	\$(593.75)	1,827%
2021	\$297.40	\$3.92	\$(293.48)	98.7%
2020	\$196.04	\$(31.35)	\$(227.39)	115%
2019	\$(81.05)	\$(396.10)	\$(315.05)	389%

Showing the net revenue for fields with no GRP in Table 1 and the net revenue for fields with GRP in Table 2 allows a comparison of the increase or decrease in net revenue between those fields, as well as how large that change in net revenue was on a percentage basis. Tier 3 analysis in Table 5 indicates net operating revenue losses increased between normal fields and GRP infested fields more than 50% in all of the last five years.

ATTACHMENTS

- A. Western Sugar Cooperative Research Committee Report for Research Funding (Evaluation of Metamitron for sugar beet safety and weed control – 2019)
- B. Western Sugar Cooperative Research Committee Report for Research Funding (Evaluation of Metamitron for sugar beet safety and weed control – 2019, 2020)
- C. Western Sugar Cooperative Research Committee Report for Research Funding (Evaluation of Metamitron efficacy under different irrigation systems – 2020, 2021)
- D. Western Sugar Cooperative Research Committee Report for Research Funding (Evaluation of early season weed control potential of Metamitron across diverse sugar beet production regions – 2022)
- E. Western Sugar Cooperative Research Committee Report for Research Funding (Evaluation of Acifluorfen (Ultra Blazer) in sugar beet – 2021, 2022)
- F. Proposed label for Goltix 700 SC as provided by ADAMA
- G. Letter of Support from Wyoming sugar beet growers
- H. Letter of support from ADAMA (registrant)

GOLTIX 700 SC

UNREGISTERED PRODUCT. FOR EMERGENCY EXEMPTION USE ONLY

This pesticide is **ONLY** approved for sale, distribution, and use under FIFRA Section 18, Emergency Exemptions, on sugarbeets for the control of glyphosate tolerant Palmer amaranth in Colorado, Idaho, Nebraska, Oregon, and Wyoming.

This product may only be used at or after planting, as a pre-emergence treatment.

ACTIVE INGREDIENT:	%w/w
Metamitron(1,2,4-Triazin-5(4H)-one, 4-amino-3-methyl-6-phenyl)*.....	58.3%
OTHER INGREDIENTS:	41.7%
Total	100.0%

*Contains 5.84 lbs. of metamitron (CAS No. 41394-05-2) per gallon.
Goltix 700 SC is a suspension concentrate (SC)

KEEP OUT OF REACH OF CHILDREN WARNING / AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

Manufactured for:
Makhteshim Agan of North America, Inc. d/b/a ADAMA
8601 Six Forks Road, Suite 300
Raleigh, NC 27615
How can we help? 1-866-406-6262

Emergency Exemption Nos.:

EPA Est. No. 37429-GA-1

Effective Dates: March 30 to May 31, 2025

Following the use period, unused product must be returned to the distributor or ADAMA, and all product must be returned to ADAMA by August 31, 2025.

NET CONTENTS: _____

FIRST AID

IF SWALLOWED:	<ul style="list-style-type: none">- Call a poison control center or doctor immediately for treatment advice.- Have person sip a glass of water if able to swallow.- Do not induce vomiting unless told to do so by a poison control center or doctor.- Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">- Take off contaminated clothing.- Rinse skin immediately with plenty of water for 15-20 minutes.- Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none">- Move person to fresh air.- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.- Call a poison control center or doctor for treatment advice.
Note to Physician: No specific antidote. Treat symptomatically.	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-877-250-9291 for emergency medical treatment information.	

In case of spills, fire, leaks or accident call 1-800-535-5053

Optional Text for Label Booklet: [For additional precautionary, handling and use statements, see inside of this booklet.]

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS WARNING

May be fatal if swallowed. Harmful if absorbed through skin or inhaled. Avoid breathing spray mist. Avoid contact with skin, eyes, or clothing. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers (other than mixers and loaders) must wear:

- Long-sleeve shirt and long pants
- Socks
- Shoes
- Waterproof gloves or chemical-resistant gloves such as: Barrier Laminate, Butyl Rubber \geq 14 mils, Nitril Rubber \geq 14 mils, Neoprene Rubber \geq 14 mils, Natural Rubber \geq 14 mils, Polyethylene, Polyvinyl Chloride (PVC) \geq 14 mils, Viton \geq 14 mils.

Mixers/Loaders must wear coveralls in addition to the above PPE.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENTS

When handlers use enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if they become saturated and the pesticide contacts the body and if pesticide gets inside. Then bathe thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This chemical has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

USE RESTRICTIONS

Goltix 700 SC is only approved for use in the following states/counties:

State	Counties
Colorado	Adams, Boulder, Larimer, Logan, Morgan, Phillips, Sedgewick, Washington, Weld and Yuma
Idaho	
Nebraska	Banner, Box Butte, Chase, Cheyenne, Dawes, Deuel, Garden, Keith, Kimball, Morrill, Perkins, Scotts Bluff, Sheridan and Sioux
Oregon	Malheur
Wyoming	Big Horn, Fremont, Goshen, Laramie, Park, Platte, and Washakie

- **DO NOT** make more than one application of Goltix 700 SC per year. A single additional application can be made in the event of crop failure.
- **DO NOT** apply Goltix 700 SC through any type of irrigation system.
- **DO NOT** apply by aircraft.
- **DO NOT** apply this product when wind velocity exceeds 15 mph.

- **DO NOT** make ground applications during temperature inversions (need at least 3 mph wind).
- **DO NOT** use sugarbeet leaves for food or feed.
- **When spraying in the vicinity of aquatic areas such as lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, and estuaries:**
 - Apply only during alternate years in fields adjacent to aquatic areas.
 - **DO NOT** apply by ground within 100 feet of aquatic areas.
 - **DO NOT** cultivate within 10 feet of an aquatic area to allow growth of a vegetative filter strip.

AGRICULTURE USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), notification to workers, and restricted-entry interval. The requirements in this box apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours**.

PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water), is:

- Long-sleeve shirt and long pants
- Socks
- Shoes
- Waterproof or chemical-resistant gloves.

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.

APPLICATION INSTRUCTIONS

Rate and Timing

Apply GOLTIX 700 SC herbicide, with ground application equipment, after planting and prior to crop emergence, as a single pre-emergent (PRE) application at 64 fl oz product/a (2.92 lb ai/a). Apply GOLTIX 700 SC with at least 10 gallons of water per acre.

Incorporate, after ground application, with a ¼ to ½ inch of irrigation or rainfall within 48 hours.

For Fields with Furrow Irrigation:

If no rain is in the forecast within 48 hours of target planting date, do the following on the same day (best) or within no more than 48 hours:

1. Apply GOLTIX 700 SC at 64 fl oz/a to the field, prior to planting sugarbeets.
2. Do a shallow tillage to incorporate GOLTIX 700 SC into the soil.
3. Plant sugarbeets.

Recommendations

- Prior to GOLTIX 700 SC application, it is recommended to kill all emerged vegetation in the field with tillage or a burndown herbicide application. If large weeds are present prior to Goltix 700 SC

application, it is recommended that tillage is used to eliminate large weeds prior to applying Goltix 700 SC so large dead weeds do not prevent Goltix 700 SC from reaching the soil during application.

- For best season-long weed control results, it is recommended that a group 15 herbicide is applied at 2 true leaves. Additional group 15 herbicides may be needed at 6-10 TL to maintain weed control.

Rotational Crop Restrictions

DO NOT plant rotational crops within 30 days of the last application of Goltix 700 SC.

Replanting Instructions

If the initial planting of sugarbeet fails to produce a uniform stand, sugarbeet may be replanted in fields treated with GOLTIX 700 SC alone. When tank mixing with a labeled product, refer to the replant instructions for that product. **DO NOT** replant treated fields with any crop at intervals inconsistent with the “**Rotational Crop Restrictions**” section of this label. Where a tank mix is used, refer to the product’s labels for any additional replant instructions.

If sugarbeet is replanted in fields where GOLTIX 700 SC was previously applied, an additional application of GOLTIX 700 SC may be applied at 64 fl oz/a to the field, prior to emergence.

Tank Mix Instructions

GOLTIX 700 SC may be applied in tank mix combinations with labeled rates of other products provided these other products are labeled for the same timing and method of application for the sugarbeet to be treated. The tank mix partner must be used in accordance with the label limitations and precautions. No label dosage rates may be exceeded. GOLTIX 700 SC cannot be mixed with any product containing a label prohibition against such mixing. It is the pesticide user’s responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Compatibility Testing

A jar test is recommended prior to tank mixing to ensure compatibility of GOLTIX 700 SC and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe for approximately 30 minutes. If mixture balls-up, forms flakes, sludges, gels, oily films or layers, or other precipitates, it is not a compatible tank mix combination.

Cleaning Instructions

After using GOLTIX 700 SC, triple rinse the spray equipment and clean with a commercial tank cleaner before using equipment for new application. Make sure any rinsate or foam is thoroughly removed from spray tank and boom. Rinsate may be disposed following the pesticide disposal directions on this label.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE:

Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL:

Open dumping is prohibited. Pesticide wastes are toxic. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the hazardous waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING:

NONREFILLABLE CONTAINERS:

Rigid, Nonrefillable containers that are too large to shake (i.e. with capacities greater than 5 gallons or 50 pounds).

Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

LIMITATION OF WARRANTY AND LIABILITY

Read the entire directions for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES** and **LIMITATIONS OF LIABILITY**.

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of ADAMA. All such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: To the extent consistent with applicable law, ADAMA makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of ADAMA is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, ADAMA disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

LIMITATIONS OF LIABILITY: To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at ADAMA's election, the replacement of product.

DRAFT – 30Aug24

Mr. Dale Heggem,

We are writing in hopes the Wyoming Department of Agriculture will request the Environmental Protection Agency (EPA) grant an Emergency Exemption for the use of Metamitron (European tradename: Goltix® Gold) on sugar beets as permitted under Section 18 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). This request follows successful use on ~33,000 acres in 2024 in the Colorado and Nebraska through the same program. The product was highly efficacious and imparted zero crop injury. Over the past five years, Colorado and Nebraska have seen rapid emergence and establishment of Palmer amaranth (*Amaranthus palmeri*, Palmer) that was unable to be controlled with any available tools until access to metamitron was granted. This weed has now been found on sugarbeet production fields in the southeastern part of Wyoming as well as a few northern counties producing sugarbeets. This is an extremely prolific weed species causing significant economic losses necessitating an urgent and non-routine need for a Section 18, despite the current local pressure level.

Although metamitron is currently unregistered in the United States, it is in the EPA Docket (#693119) to be labeled for use on apple/pear is expected soon. Of additional note, metamitron has been used extensively in sugar beet production in Europe since the 1990s and other regions of the world for decades, alone and premixed with ethofumesate (European tradename: Torero®). Notably, in 2020, the European Food Safety Authority conducted a renewed safety analysis on this product to standards that meet or exceed EPA requirements. Western Sugar has also supported crop safety and efficacy studies with metamitron since 2018 at local universities across our four states of operation with consistent and outstanding results. This data has been shared with the Nebraska Department of Agriculture directly and we are including those communications along with this request. Dr. Nevin Lawrence is available to discuss these results and provide any written support necessary (nlawrence2@unl.edu). As demonstrated with limited commercial use in 2024, metamitron fills a key gap in our toolbox and continued access through a Section 18 is essential for our growers as it is an effective and safe pre-emergence herbicide.

The manufacturer, Adama, recognizes the crisis situation our farmers are facing due to Palmer and are fully supportive of this Section 18 request. They have shared extensive data with the Office of Pesticide Programs at EPA and the Office of Pest Management Policy at USDA.

EPA has informed us that more time is required when considering approval for an unregistered product and has kindly asked that submissions be received before September 1, 2024. We are here to support the process and offer any assistance that may be required.

Risks posed by Palmer

Five years ago, Palmer was largely absent from sugar beet production in the state. In a matter of a few short years, isolated occurrence of the weed has evolved to total crop loss. This is unsurprising as the weed: 1) grows rapidly (2-3 inches per day and can go from germination to seed set in under two weeks), 2) can produce a minimum of 100,000 seeds per plant, 3) survives best in no-till and minimum till conditions (a common practice for Colorado producers) where the small seed stays at the perfect depth for germination and emergence and 4) can emerge all season long¹. Since Palmer is so effective

¹ Ward, S.M., T.M. Webster, and L.E. Steckel. 2013. Palmer amaranth (*Amaranthus palmeri*): A Review. Weed Technology. 27(1):12-27.

at competing with crops for resources (nutrients, water, sunlight, etc.) yield can easily be reduced 79-91% when Palmer is present^{2,3}. Sugar beet is more susceptible to yield loss from Palmer than corn, soybean, or dry edible bean⁴. Due to its short lifecycle, expansive genetic diversity and out-crossing² there is also risk for herbicide resistance development within the population as shown by the recent identification of a Palmer population in Kansas with resistance to five different modes of action⁵; therefore, the best stewardship for controlling this emerging pest is to use multiple herbicide modes of action in a tank mix, with herbicides preventing emergence of the weed species as most desirable.

Failure to provide adequate control during every crop rotation, not only creates risk for the grower experiencing Palmer pressure in their current crop but creates risk for their whole operation. Furthermore, unchecked Palmer spreads quickly and will eventually pose a risk to all other growers in the state, regardless of size or production practice as seen in other parts of the United States⁶. More integrated production systems and those employing regenerative agricultural practices, such as reliance on grazing and natural fertilizers are at substantially higher risk for Palmer introduction through manure^{7,8,9}. Although predictive models are far from perfect, testing suggests the spread of Palmer will be further exacerbated by climate change⁶, making access to emergency tools more urgent. In 2022, Colorado had the highest red flag warnings on record¹⁰ and Nebraska experienced the highest number in 16 years.¹¹ These changes to climatic conditions are also responsible for the movement of Palmer seeds across the eastern plains. Climate change is also resulting in more extreme conditions in the spring which can force crop replants making weeds even more difficult to control.

Economic impact of Palmer

Despite aggressive weed control measures and proper agrichemical stewardship, Palmer has proven difficult to control with available tools. In roughly five years, presence of Palmer has gone from being completely absent to impacting over 80% of acres (~56K/71K) in Colorado and Nebraska to varying degrees. Over 38% of the acres (~27K/71K) are experiencing high pressure imparting a 30% yield loss (\$450/acre assuming \$45/ton payment and average yield of 30 tons/acre). Growers did not gain access

² Bomgardner, Melody (2019) Palmer amaranth, the king of weeds, cripples new herbicides. Chemical and Engineering News. 97(31)

³ Legleiter, T and B. Johnson. 2013. Palmer Amaranth Biology, Identification, and Management. Purdue Weed Science. [Palmer Amaranth Biology, Identification, and Management WS-51 \(purdue.edu\)](#)

⁴ Shultz WR, Lawrence NC. 2020. Interference of Amaranthus Palmeri in Sugar Beet. Joint WSSA-WSWS Annual Meeting, Maui, HI

⁵ Kumar, V. et al. 2019. Confirmation of 2, 4-D resistance and identification of multiple resistance in a Kansas Palmer amaranth (*Amaranthus palmeri*) population. Pest Management Science. 75(11): 2925-2933.

⁶ Runquist, R.D.B., et al. 2019. Species distribution models throughout the invasion history of Palmer amaranth predict regions at risk of future invasion and reveal challenges with modeling rapidly shifting geographic ranges. Nature Scientific Reports. 9:2426 [s41598-018-38054-9.pdf](#)

⁷ [Palmer amaranth in manure: What can you do? \(umn.edu\)](#)

⁸ [Steps to keep Palmer amaranth out of your operation | Agronomic Crops Network \(osu.edu\)](#)

⁹ [Palmer amaranth Seeds in Manure – What Can You Do? | UNL Water](#)

¹⁰ [Denver Weather: Record Breaking Red Flag Warning For Fire Danger On Thursday - CBS Colorado \(cbsnews.com\)](#)

¹¹ <https://www.klkntv.com/highest-number-of-red-flag-warnings-for-nebraska-in-16-years/>

to metamiltron in 2023 and despite having more optimal environmental conditions for weed control (higher humidity, earlier planting, and fewer replanted acres), a minimum of two tons per acre were lost across all acres in Colorado and Nebraska costing farmers over \$8M in lost revenue. Field by field losses varied substantially with some growers in the eastern region of the state losing over \$1,200 in revenue per acre in 2023. Further complicating the economic impact is the cost of trying to control the weed: hand labor (\$200-300/acre), cultivation and mowing (\$20-30/acre), and inclusion of lay-by chemicals (\$250-350/acre). Growers facing high pressure have exercised all these options totaling \$300-\$700/acre and still resulting in ineffective control [see appendix, financial impact table]. Prior to accessing metamiltron, the Western Sugar Cooperative agricultural staff estimated over 1,000 acres were so infested with palmer they were unharvestable. That is a more than \$2.2M in lost revenue that is not covered by crop insurance.

This pressure imparts direct and significant economic losses, but also threatens the long-term survival of the beet sugar industry in the state. Since Palmer is so prolific, lacking tools for control in one crop in rotation can take years to rectify through aggressive whole-farm management. For growers who rent ground, they can't always control decisions made in years they don't contract acreage and may be refused access to necessary ground based on the perceived risk of introducing sugar beets into rotation. With access to metamiltron, sugarbeet acreage in the impacted regions of Colorado and Nebraska grew 3,000 acres compared to 2023 contracted acreage. Furthermore, crop losses from pest and disease pressure are not coverable losses by crop insurance, therefore growers are left with no safety net if they lose their crop from Palmer and may have no option, but to not plant sugarbeets. All our sugarbeets are produced and processed in a farmer-owned cooperative structure. The farmer-owned factories need to have the necessary throughput to cover fixed costs. Western Sugar Cooperative operates as a net proceeds organization, so lower throughput caused by Palmer-driven yield losses and fewer harvested acres financially impacts all grower members in Montana, Wyoming, Nebraska, and Colorado, even when Palmer may not be present on their farm.

In addition to severe economic consequences for farmers across the state, there are also serious and negative environmental outcomes that contribute to climate change that occur because of Palmer. The weed competition greatly reduces land use efficiency, drives up greenhouse gas emissions, and reduces biodiversity¹².

Alternative control options

Aggressive measures have been implemented to attempt to manage Palmer, including 1) diverse crop rotation, 2) use of a holistic farm planning and management, 3) best management practices for agrichemical application included rotating herbicide modes of action and tank mixing diverse active ingredients, 4) use of hand labor, and 5) mechanical removal of the weeds.

Chemical control option

Sugar beet is a niche crop, planted on just over one million acres in the United States, therefore only a handful of chemistries are labeled for use. A group 8 (cycloate) and a group 16

¹² Willett, Walter, et al (2019) Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems. The Lancet Commissions. 393(10170): 447-492.

(ethofumesate) herbicide are labeled for use in sugar beet pre-crop emergence. A group 9 (glyphosate) and a group 4 (clopyralid) herbicide are labeled post-crop emergence. Of these, only glyphosate exhibits some limited control over Palmer; the limited efficacy is demonstrated by increased presence of the pest season-long regardless of herbicide(s) used. Scientists at Colorado State University are characterizing why there is a lack of efficacy of the group 9 herbicide (Dr. Todd Gaines, personal communication). Several group 15 herbicides (s-metolachlor, dimethenamid-P, and acetochlor) are labeled in sugar beet for control of Palmer. However, with the low organic matter in the western U.S., all group 15 products can only be applied after sugar beet has reached the two-true leaf stage due to the risk of severe crop injury. Additionally, group 15 herbicides have no activity on emerged weeds, they must be applied to the soil prior to weed germination. As Palmer emerges as early as April in Colorado and Nebraska, a two-true leaf application of a group 15 herbicide is not efficacious. **As previous mentioned Palmer is very invasive⁷ and prone to mutation¹, therefore reliance on one moderate mode of action is not a feasible control strategy for this newly emergent pest, hence this emergency exemption request.** There is an urgent need for a product that can control the first flush of weeds, since registered products that can control emerged Palmer are essentially ineffective. As mentioned earlier, climate change is further exacerbating issues controlling Palmer. An example includes the late May freeze that occurred across Nebraska in 2022. Two nights below freezing killed 9,474 acres of sugar beets. These extreme weather events forced late spring replanting into fields where Palmer was already emerged/emerging with no means of control. In many instances, the weeds quickly outcompeted the crop leading to field abandonment.

A Section 18 Emergency Exemption for Acifluorfen (tradename: Ultra Blazer[®]) was granted by EPA in 2020, for use in Colorado and Nebraska. That product was approved for over-the-top application to sugar beet for the control of Palmer. Unfortunately, the product exhibits some crop safety issues for sugar beet, therefore was restricted from applying until the crop reached 8-10 true leaves. Additionally, Acifluorfen needs to be applied before Palmer reaches 4 inches in height to effectively kill the weed. For Western Sugar Cooperative producers, these two restrictions for product safety and efficacy, respectively, never aligned therefore the product was ineffective. This product will eventually be labeled for use on sugar beet, so WSC continues to fund studies at several universities to determine if there is a method to improve efficacy of the product. However, after years of investigation, Drs. Nevin Lawrence and Andrew Kniss have noted no rate or timing of application will make this product effective in our production region. For an herbicide to be considered effective, it must have greater than 90% control. Ultra Blazer[®] averages less than 70% control, which is essentially zero efficacy against Palmer. The data from these studies has been provided to OPMP and EPA and justify why applying for a Section 18 for Acifluorfen is not an effective solution for this emergency situation.

Alternate application methods to apply agrichemicals during sugar beet production that are incompatible with the crop have also been explored. Wicker wipers were evaluate for gramoxone application directly to the Palmer. This requires taking advantage of a height differential between the weeds and the crop which imparts significant yield loss (5-10 tons/acre). Furthermore, in instances of very high pressure, the wicker wiper does not get

adequate coverage so there are a significant number of escapes. There is a special art to applying a contact herbicide, like gramoxone, to effectively cover and kill the weeds, without dripping onto and injuring the crop. Therefore, some wicker wiper applications only assist in stopping seed set, but don't kill the weeds.

Crop rotation

There are herbicides that effectively control Palmer in corn (e.g., Acuron[®], a four-component product containing atrazine, bicyclopyrone, mesotrione and S-metolachlor), a common rotational crop with sugar beet in the state. However, the fact sugar beets (and dry beans) are part of the farming rotation makes use effective herbicides (including most group 2, 5, and 27 herbicides) impossible because of label plant back restrictions (18-months).

Holistic farm management

Recognizing the threat from these weed species, the grower-owners of the cooperative funded development of a holistic whole farm planning calculator¹³ by weed scientists at the Universities of Wyoming and Nebraska. This easily accessible application allows growers to plan crop and chemical rotations to best optimize long-term weed management. Despite usage of this tool, Palmer is still emerging as a new, prevalent pest. As mentioned above, there are a significant number of sugar beet producers that rent land for this particular crop and have no control of the agrichemical usage in rotation.

Physical barriers

Most Western Sugar growers use conservation tillage, including 50% of acres managed through strip tillage and no tillage. Therefore, most acres have residue that serves as a physical barrier to weed establishment. This practice has documented soil health benefits, but also can further promote issues with Palmer. The lack of soil tillage leaves a large seed bank at the soil surface where conditions are most conducive to germination and emergence.² Some growers, when crop rotation, seasonality and water access permit, plant cover crops that compete with weeds. However, this is more effective with weeds that emerge once, and early in the season, such as kochia and is much less effective with a season-long emerger like Palmer. Furthermore, that ground coverage with residue may impede the efficacy of any lay-by products applied by preventing good soil absorption.

Physical removal

In absence of chemical control, weeds can be managed through physical removal using hand labor or mechanical cultivation. There is a national shortage in access to farm labor¹⁴. Limited access to farm labor in Nebraska is further exacerbated by the fact a majority of farms are fully mechanized and haven't used hand labor in over a decade, meaning fewer laborers are attracted to these regions for agricultural employment. This shortage in workforce has been

¹³ [Herbicide Resistance Risk Calculator: A New Resistance Management Tool | CropWatch | University of Nebraska–Lincoln \(unl.edu\)](#)

¹⁴ [Another Year of Farm Labor Shortages \(fb.org\)](#)

combined with an increase in base wages¹⁵ while farm income has been on the decline¹⁶. This makes hand labor a non-option for widespread control of Palmer in sugar beet production. When able to find workers, this practice ranges between \$200-300/acre per trip through the field.

Mechanical removal of weeds was common with conventional sugar beet production. Controlling broadleaf weeds in a broadleaf crop¹⁷ is incredibly difficult and therefore micro-rate herbicides often provided incomplete control. Therefore, use of mechanical cultivators was common. However, when producers were able to attain better weed management, many growers made a wholesale change in production practice to adopt no-till or strip till technology and therefore have gotten rid of tillage and plowing implements on the farm. Abandoning conventional tillage has been central to enabling beneficial environmental outcomes. Greenhouse gas emissions are 50% lower, fuel consumption has been reduced by 50%, water use efficiency is up 30% and soil health is vastly improved under conservation tillage¹⁸. Therefore, it was incredibly hard for some Western Sugar growers to go out and purchase brand new cultivators (as several did in 2022) to manage Palmer since it works against their climate smart initiatives. Furthermore, this technique only provides control of weeds in between rows, not within, so with high enough weed pressure significant yield loss is still observed. Also disturbing the soil to remove weeds, requires additional application of lay-by products to prevent a new flush of emergence.

Another mechanical means of dealing with Palmer is using mowing. Much like wicker wiping, farmers must wait for a height differential between the crop and the weeds, imparting yield impacts. In theory, mowing removes some competition for sunlight, allowing the chance for the crop to close the canopy and hinder new weed emergence. It should also prevent seed set by removing meristematic tissues. However, in practice, this approach is counterproductive. The mowing causes the weed to become bushier and seedier.

Lastly, a limited number of growers have purchased and implemented usage of weed zappers. These implements can be very fickle in terms of efficacy, working best in early mornings or immediately after irrigation when the weeds are full of water, less effective in dry, afternoon conditions where only the portion of the weed above the point of electrocution may die. Again, this technique comes with significant yield impacts since once again the grower needs to wait for a height differential between the weeds and the crop. The weed zappers are also incredibly expensive (\$90-110K) and require high horsepower tractors (300 HP) not available to all producers.

¹⁵ [Farm Labor: Wage Rate by Type by Year, US \(usda.gov\)](https://www.usda.gov/economic-outlook/articles/farm-labor-wage-rate-by-type-by-year-us)

¹⁶ [USDA ERS - Farming and Farm Income](https://www.ers.usda.gov/topics/farm-income/)

¹⁷ Schweizer, E.E. (1981) Broadleaf Weed Interference in Sugarbeets (*Beta vulgaris*). Weed Science. 29(1): 128-133.

¹⁸ [Environmental impact assessment of sugar beet and sugar cane grown in the United States - Research Database - University of Hertfordshire \(herts.ac.uk\)](https://www.herts.ac.uk/research-database/)

Proposed use of Metamitron

Extensive field evaluation of metamitron has been conducted across the Rocky Mountain west headed by Drs. Nevin Lawrence and Andrew Kniss of the University of Nebraska and Wyoming, respectively. The product shows exceptional crop safety and efficacy against Palmer. Metamitron fills a critical gap in Palmer control measures as it would be the only pre-emergence product available to growers to manage this devastating weed. Unlike Acifluorfen, even high rates don't impart any crop injury. Of additional note and benefit, application of metamitron does not prevent replanting of sugarbeet, since it is not phytotoxic to the emerging sugarbeets. Following a year of commercial use under a Section 18 label in 2024, the crop safety, efficacy, and economic benefit have been demonstrated at scale.

Metamitron, applied at high rates (110 fl. oz.), keeps Palmer from emerging for more than six weeks. However, it is also effective at rates as low as 32 fl. oz. The only difference in efficacy between the rates tested by Dr. Nevin Lawrence is how long the product provides protection (e.g. lower rates last for a shorter period of time). Although ethofumesate has no direct activity against Palmer, years of investigation have shown it increases the activity of metamitron against Palmer when applied in a tank-mix. Therefore, we feel confident following the EU label requirements (64 fl. oz.) in combination with 48 fl. oz. of ethofumesate will control Palmer through the two-true leaf stage allowing the farmers to control the weed season long by overlapping residuals with several available Group 15s (e.g. Warrant, Dual or Outlook). This program is key for resistance management in this species highly prone to herbicide resistance development. As sugar beet is very quick to emerge, application should take place within 24-48 hours of planting.

Details of the proposed usage in Wyoming can be found in the table below.

Maximum individual application rate	64 fl. oz./acre
Maximum total application rate	64 fl. oz./acre
Anticipated application timing	April 1 st -May 30 th
Anticipated number of acres treated in the state	~10,000
Anticipated counties with application(s) occurring (number of acres for each county in parentheses following county name)	Big Horn (3653), Goshen (1000), Laramie (800), Park (1000), Platte (1000), Fremont (1610), Washakie (8598)

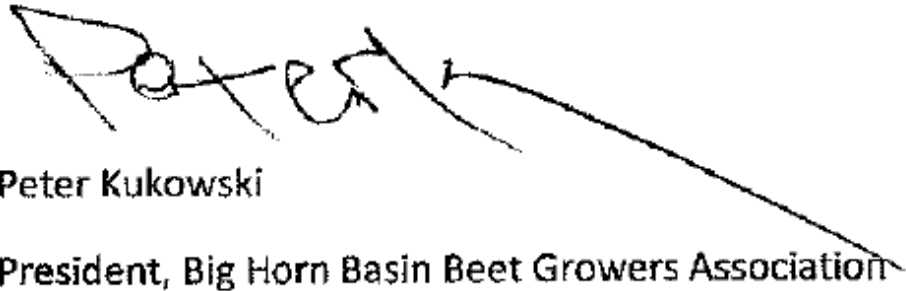
Residue concerns from Metamitron usage in sugar beet production

As mentioned, Goltix® is used extensively across the European Union and elsewhere in the world in sugar beet production. Rates of up to 2 liters per hectare per application and a total of 5 liters per hectare per season at 6-day intervals are allowed.¹⁹ Application is allowed through canopy closure²⁰. Although no root or tuber crops have been through full residue assessment with this product in the United States, extensive research and regulatory reviews have been conducted elsewhere, therefore one could extrapolate safe in the United States as well. We firmly believe the risk is minimal and the overall benefit far outweighs risk.

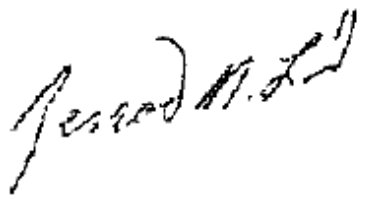
¹⁹ [goltix700sc_tcm54-23317.pdf](#)

²⁰ [Goltix® 70 SC | ADAMA](#)

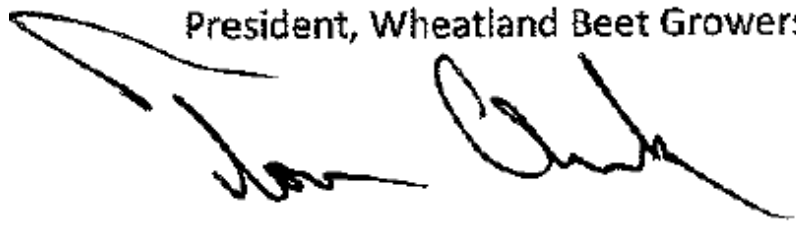
Sincerely,



Peter Kukowski
President, Big Horn Basin Beet Growers Association



Jerrod (Butch) Lind
President, Wheatland Beet Growers Association



Tom Clark
Chairman, Board of Directors for Wyoming Sugar Company



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August 22, 2024

Dale Heggem
Assistant Manager
Technical Services Division
Wyoming Department of Agriculture
2219 Carey Avenue
Cheyenne, WY 82002

**RE: Request for Specific Exemption
Metamitron on Sugarbeets**

Dear Mr. Heggem,

On behalf of Makhteshim Agan of North America, Inc. (d/b/a ADAMA), I hereby submit a Letter of Support for the approval of this request for Specific Exemption by the Wyoming Department of Agriculture for the use of Goltix 700 SC, containing metamitron as the active ingredient, on sugarbeets. Please see required information below in support of the Specific Exemption.

Acknowledgement by Registrant (40 CFR 166.20(a)(9))

Adequate quantities of product are expected to be available in time for application of Goltix 700 SC on sugarbeets during the 2025 season. ADAMA and EPA have been in discussion regarding import of technical material, production timing, and general support of the Specific Exemption request.

Progress Toward Registration (40 CFR 166.25(b)(2)(ii))

ADAMA has previously submitted to EPA an application for registration of metamitron as a fruit thinner in apple and pear. This new active ingredient application is currently under review at EPA. In support of the Specific Exemption, ADAMA has provided EPA with available product chemistry, toxicity, and residue data. ADAMA continues to investigate the data necessary to support a Section 3 registration and will engage in discussions with EPA during the time period outlined in 40 CFR 162.25(b)(2)(ii).

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Please contact me at karina.castro@adama.com or (919) 256-9322 if you have any questions.

A handwritten signature in blue ink, appearing to read 'Karina Castro', is positioned above the typed name.

Karina Castro
Federal and State Regulatory Manager
ADAMA