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REQUEST FOR SPECIFIC EXEMPTION

GOLTIX 700 SC (Metamitron) on SUGAR BEETS

Submitted by the Idaho State Department of Agriculture

I. Contact Persons and Qualified Experts

A. State Contact

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II. Description of Pesticide Requested

The herbicide 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.

Registrant: **ADAMA**
Pesticide name: Goltix 700 SC
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 are grown across southern Idaho (Western, Central, and Eastern USDA districts). Commercial sugar beets in Idaho are grown under contract by members of the Amalgamated Sugar Company grower-owned cooperative ("Amalgamated Sugar").

Sugar beets are planted in at least seventeen counties in Idaho. This request will be limited to seven counties experiencing the greatest pest pressure: Canyon, Elmore, Gooding, Jerome, Minidoka, Owyhee, and Payette.

B. Method of Application

Application will be completed by ground application only.

C. Application Timing

Sugar beet planting season spans from March 20 to May 15, weather dependent. The proposed application season for metamitron would therefore be between March 21 and May 17, 2025. The initial application of metamitron would occur within 24-48 hours of planting.

D. Rate of Application

The rate will be 64 fluid ounces per acre (fl oz/a) as a pre-emergent application.

E. Maximum Number of Applications

The maximum number of applications per treatment site is two (2). One (1) application is expected per field, however, a second application is permitted for replanting due to crop failure. The product will be limited to a total maximum of 128 fluid ounces per acre applied per year.

F. Total Number of Acres Treated

There are approximately 174,000 acres of sugar beets grown annually in Idaho. A survey conducted in 2023 (Appendix F) identified Palmer amaranth in several Idaho counties putting

many potential sugar beet acres at risk. Applications of metamitron would be limited to the following counties experiencing Palmer amaranth pressure: Canyon, Elmore, Gooding, Jerome, Minidoka, Owyhee, and Payette.
ISDA requests this exemption to cover up to 14,400 acres, which represents the potential impacted acres due to projected spread (see Table 4) of Palmer amaranth in 2025 and is approximately 8% of total sugar beet acreage planted annually in Idaho.

G. Total Amount of Pesticide to be Used

Assuming only a single application is used per field, using the maximum single rate allowed by the emergency use label (64 fluid ounces per acre) times the number of acres potentially treated (14,400) results in an estimated total amount of pesticide to be used of 921,600 fluid ounces or 7,200 gallons. Goltix® 700 SC contains 5.84 pounds of active ingredient per gallon of formulated product, which would therefore account for a total potential of 42,048 pounds of active ingredient applied.

H. Other Applicable Restrictions

The draft emergency use label lists "caution" as the hazard word and requires a 4-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, to only apply during alternate years in fields adjacent to aquatic areas, and prohibits the use of sugar beet *leaves* for food or feed.

IV. Alternative Methods of Control

A. Herbicides

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

Glyphosate (Group 9, Roundup® and other generics)

All sugar beets planted in the state of Idaho contain the glyphosate resistance trait and can be treated with this product. While glyphosate has provided reliable broad leaf weed control since glyphosate resistant sugar beet varieties were introduced, glyphosate resistance in Palmer amaranth has been confirmed in Idaho. In 2023, resistance was confirmed in 74% of Idaho Palmer amaranth samples tested (Appendix F). When collected from fields showing a lack of control after glyphosate, 100% of the samples were resistant.

Cycloate (Group 8, Ro-Neet®) and ethofumesate (Group 16, Nortron® SC)

These are applied to sugar beets either before planting (usually incorporated) or soon after planting but before sugar beet emerges. They only control weeds that emerge after treatment. They can provide some short-term control of Palmer amaranth, but control will break quickly. An application of a postemergence herbicide is then required to control Palmer amaranth.

Typically, glyphosate has been applied for this postemergence control, but as previously noted, Palmer amaranth has now developed resistance to glyphosate.

Dimethenamid-P (Outlook®), S-metolachlor (Dual Magnum®), and acetachlor (Warrant®)

The Group 15 herbicides, such as dimethenamid-P, S-metolachlor, and acetochlor (chloroacetamides) all require application to sugar beet *no earlier than the two true-leaf stage*, since these herbicides will injure sugar beets if applied any earlier. This stage of crop growth can often take four to five weeks after planting to be reached, and in that period 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. Although these are applied after sugar beets emerge and become established, they will only control flushes of weed emergence that occur after these herbicides are applied. In addition, there are Palmer amaranth populations in other states that are already resistant to dimethenamid-P. Although there is no cross-resistance to other group 15 herbicides, there's a likelihood that some of the Palmer amaranth being introduced into Idaho may be resistant to dimethenamid-P.

Trifluralin (Group 3, Treflan®)

Trifluralin has a similar use pattern to Group 15 herbicides, however it cannot be applied until sugar beets are 2-6 inches tall, to control later flushes of weed emergence that occurs after application. Any exposed beet roots must also be covered with soil prior to application to reduce injury in the way of root girdling. There are Palmer amaranth populations in other states that are already resistant to trifluralin, therefore, there's a likelihood that some of the Palme amaranth being introduced into Idaho may be resistant to trifluralin.

Clopyralid (Group 4, Stinger®)
Clopyralid has demonstrated minimal control of Amaranthus species and shown no control for Palmer amaranth in Idaho fields.

Triflusulfuron-methyl (Group 2, UPBEET®)

This herbicide has poor activity on Palmer amaranth and other Amaranthus species. Palmer amaranth has also developed resistance to sulfonylureas.

B. IPM Weed Control Alternatives

The grower-owners of the Amalgamated Sugar were an early funding source for the development of an autonomous robotic weed control system built by Aigen. Field trials with this robot helped develop artificial intelligence algorithms to decipher weeds from small sugar beets in a field, thus allowing autonomous mechanical removal of weeds. This product is currently rolling out to growers across the nation and will allow non-chemical removal of weed pests such as Palmer amaranth. The main drawbacks of this technology include the speed at which the machines can move across fields and the availability of the machines. Because of the rapid growing nature of Palmer amaranth, use of these machines may not be able to keep up with the in-season growth and spread of this pest. In addition, the company is still young in its development and as such, does not have the number of products needed to supply a grower group the size of Amalgamated Sugar.

Cultural Weed Control

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). Small grains also provide additional chemical control opportunities for controlling broadleaf weeds. However, small grains are harvested as early as 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.

Conservation tillage: Many Amalgamated Sugar growers use some form of conservation tillage, including strip tillage, no-till or some other form of minimum tillage. The resulting residues on the surface can indeed serve as a physical barrier to weed establishment. Some growers also plant cover crops to prevent erosion and to compete with weeds when possible. However, despite these management practices, Palmer amaranth has still become established in these areas. Additionally, those growers who do use more conventional forms of tillage and can bury seed deep into the soil still run the risk of bringing old seed back to the surface. Seeds from Palmer amaranth can last 3-5 years in the soil profile.

Mechanical weed control: With the advent of glyphosate resistant crops, in the past decade many Idaho sugar beet growers have adopted minimum or strip till technology. This has resulted in many beneficial effects on the environment, including improved soil health, less soil loss from erosion, reduced greenhouse gas emissions, lower fuel consumption and improved water use efficiency. Many farmers have abandoned the use of their deep plowing and cultivation implements. That said, much of the surface irrigated sugar beet ground in the state (approximately 20,000 acres, predominantly in the west) still see some mechanical weed removal as fields are corrugated 1-2 times per season.

Hand-weeding: Prior to the availability of glyphosate over-the-top, hand labor was also used to control weeds growing in the rows. Cultivation of sugar beet must cease later in the season, since cultivation can damage the large beet growing underground. However, there is currently a national shortage in access to farm labor. At the same time, base wages have increased while farm income has been in decline. What's left are a few local independent farm labor crews who would not be able to keep up with demand should Palmer amaranth reach the scale that it has in Colorado and Nebraska.

Biological Weed Control: There are no available biological weed control products available for Palmer amaranth.

V. Efficacy of Proposed Use Under Section 18

ISDA was provided with six studies (attached, see appendices A-F) encompassing four years of research on metamitron field trials completed by Drs. Albert Adjesiwor (University of Idaho), Joel Felix (Oregon State University), Nevin Lawrence (University of Nebraska), Andrew Kniss (University of Wyoming), and Clarke Alder, MS Weed Scientist at Amalgamated Sugar. Field trial sites included locations in Kimberly, ID, Nyssa, OR, Ontario, OR, western Nebraska and southern Wyoming, which all share similar soil compositions and climates. These professionals' work demonstrates that acceptable control of Palmer was achieved using metamitron alone at any treatment level through the 4-true leaf stage (Appendix A). In addition, EPA granted a Section 18 for use of metamitron in Nebraska and Colorado for growers in the Western Sugar Cooperative during the 2024 growing season (Appendix G). Reports from a grower representative of Western Sugar are favorable for

safety and effectiveness of metamitron – so much so that application to EPA has already been made for another Section 18 for 2025 to cover the same area with the addition of areas within the state of Wyoming.

The proposed emergency use label follows an existing EU label's maximum use rate of 64 fl oz/acre.

VI. Discussion of Expected Residues in Food

As of the date of this submission, there are no established tolerances of metamitron for any food commodity in the US. ADAMA will be sending EPA relevant information regarding residue information.

VII. Discussion of Human Health and Environmental Risk Information

As of the date of this submission, ISDA has not received any data from the registrant regarding human health or environmental risks. ISDA was told EU data for a Section 3 request for pome fruit thinning was submitted to the Agency. The draft emergency use label for Goldtix 700 SC appears to have a caution signal word, with personal protective equipment requirements including shoes, socks, long sleeves, and gloves and states the product is "harmful if swallowed". The label includes statements to prohibit use near aquatic sites.

A copy of the draft label was submitted to Tom Bassista, Idaho Fish and Game Technical Assistance Program Coordinator for review. From review of that label, Idaho Fish and Game stated it believes it is unlikely that any wildlife species would be impacted from the use of metamitron given the mechanical nature of sugar beet production (appendix O).

VIII. Coordination with Other Affected Federal, State, and Local Agencies

ISDA has worked closely with its neighboring state lead agency, Oregon Department of Agriculture regarding this request. A copy of this request will be provided to the local Idaho Office of the U.S. Fish and Wildlife Service, Idaho Fish and Game, and EPA Region 10.

IX. Notification of Registrant

ADAMA will send its acknowledgement to EPA directly.

X. Enforcement Program

ISDA has adequate pesticide enforcement rules and regulations, as proven through our cooperative agreement with EPA, under FIFRA Sections 22, 23, 24, 25, and 26.

XI. Repeat Uses

This is Idaho’s first request for this product.

XII. Progress Toward Registration

The registrant has indicated that a section 3 request for metamitron has been submitted to EPA as a growth regulator for in pome fruits and plans for a section 3 request for use on sugar beet to follow. ISDA has received no additional insight from the registrant on further registration plans.

XIII. Information Required for a Specific Exemption

A. Name of Pest

Palmer amaranth (*Amaranthus palmeri*)

B. Discussion of the Events Which Brought the Emergency Condition

The first Palmer amaranth plant was identified and confirmed in Western Idaho in 2022. Additional acreage was discovered and confirmed through laboratory testing in 2023 resulting in a full-scale survey conducted in late summer/fall 2023 (Appendix F). This species grows rapidly, can produce over 100,000 seeds per plant and survives well in no-till and minimum till conditions. Seeds can continue to germinate and emerge season-long. According to a grower representative from Western Sugar Cooperative, within four years, the presence of Palmer amaranth evolved from non-existent to impacting over 66% of sugar beet acreage within the cooperative's growing area in Colorado, Nebraska, and Wyoming. This is not surprising as a single field with viable Palmer amaranth seed can be easily transferred to several others via equipment at harvest, like the spread of weeds such as kochia (*Bassia scopara*), Russian thistle (*Salsola iberica*), and other Amaranthus species that persist through crop harvest. Currently, Palmer amaranth has been positively identified and is impacting approximately 3,600 acres across Southern Idaho with an additional 543 acres in Eastern Oregon near the Idaho/Oregon border. Consulting with Dr. Albert Adjesiwor (University of Idaho), and Dr. Joel Felix (Oregon State University it stands to reason that Palmer amaranth spread could follow a similar pattern to that of Western Sugar. These five states (Oregon, Idaho, Wyoming, Colorado, and Western Nebraska) share similar silt loam soils with low organic matter, climate, crop rotation such as corn, beans, onions, and small grains, and cultural practices such as irrigated farming and an array of tillage types. This is evident in the consistency of the sugar beet crops across both Western Sugar's and Amalgamated Sugar's growing areas. Furthermore, many growers farm in both Idaho and Oregon, making the spread of weed seeds between the two likely.

Additionally, the loss of other registered post-emergence herbicides in sugar beet following the widespread adoption of glyphosate resistant sugar beet has added to the difficulty in controlling Palmer amaranth. For example, Betamix® (Desmedipham plus phenmedipham) was previously available for control of various broadleaf weeds in sugar beet, applied postemergence to both sugar beets and weeds, including Amaranthus (pigweed) species. The federal registration of Betamix® Herbicide was canceled in 2014. Economic levels of weed control in sugar beets now rely heavily on the use of glyphosate.

Finally, the development of resistance to glyphosate and acetolatacate (ALS) inhibitors, or HRAC group 2 herbicides, in Palmer Amaranth has intensified this crisis. Glyphosate resistance was confirmed in Idaho Palmer amaranth in 2023, with 74% of collected samples testing as resistant to glyphosate and 22% testing resistant to ALS inhibitors (Appendix H). When samples were collected from fields showing lack of control after glyphosate treatment, resistance the chemistry was confirmed in 100% of those samples.

C. Discussion of Anticipated Risks to Threatened and Endangered Species, Beneficial Organisms, or the Environment that would be remedied by the proposed use of the Pesticide.

With the advent of glyphosate resistant crops, in the past decade many Idaho sugar beet growers have adopted minimum or strip till technology. This has resulted in many beneficial effects on the environment, including improved soil health, less soil loss from erosion, reduced greenhouse gas emissions, lower fuel consumption and improved water use efficiency. The lack of adequately

available herbicides to control Palmer amaranth in the future may require growers to either stop producing sugar beets or increase the use of cultivation and tillage to control weed infestations in sugar beets. This would have a negative effect on soil health and soil conservation and would also increase greenhouse gas emissions.

D. Discussion of Anticipated Economic Loss

Data shown in the following tables was provided by Weed Scientist for Amalgamated Sugar, Clarke Alder. As a grower-owned cooperative, Amalgamated Sugar has detailed field-by-field records of sugar beet yields. This is used to determine payment back to growers after processing the harvested beets into sugar. Amalgamated Sugar had their field staff work closely with farmers in Idaho to identify occurrences of Palmer amaranth in the state during 2023. With current data, approximately 3,600 acres are potentially impacted by Palmer amaranth in Idaho (Appendix I). Sugar beet acres containing Palmer amaranth in 2024 are being monitored for yield impacts at harvest. The number of Idaho impacted acres rest near the beginning ("year 1") of what could be a 4-year cycle toward a significant crop-loss event if Idaho follows the same trend as Colorado, Nebraska, and Wyoming. If the trend continues, "year 2" would increase to approximately 10,400 acres potentially being impacted.

In communication with ISDA, Clarke Alder explained that sugar beet losses due to weed infestation is primarily a yield loss situation, although quality can also be affected to a lesser extent as competition for nutrients occurs.

Table 1. Crop value[1] and gross revenue in fields without Palmer amaranth (past 7 years) in Idaho.

Year	*Yield (T/A)*	*Price ($/T)*	*Gross Revenue ($/A)*
2024	39.2	$63.92	$2,505.66
2023	40	$70.15	$2,806.00
2022	38.1	$67.00	$2,552.70
2021	39.5	$60.00	$2,370.00
2020	40.5	$53.50	$2,166.75
2019	39	$50.90	$1,985.10
2018	40.5	$46.00	$1,863.00

[1]Price per ton ($/T) is based on NASS data for all but 2023 and 2024 (numbers not available yet). 2023 $/T data was provided by the cooperative based on near year-end actuals to be reported into NASS. The 2024 $/T date was provided by the cooperative based on pre-campaign projections.

Table 2. Four-year projected crop value and gross revenue in fields containing Palmer amaranth[2] (data provided by Amalgamated Sugar).

Year	*Yield (T/A)[3]*	*Yield with Palmer[2] (T/A)*	*Projected Yield Reduction (%)*	*Price[3] ($/T)*	*Gross Revenue with Palmer ($/A)*
2028	39.5	27.7	30	$58.78	$1,628.21
2027	39.5	27.7	30	$58.78	$1,628.21
2026	39.5	34.3	13	$58.78	$2,016.15
2025	39.5	36.7	7	$58.78	$2,157.23
2024	39.2	37.6	4[4]	$63.92	$2,403.39
2023	40	40	0	$70.15	$2,806.00

[2]Projection of Palmer amaranth impact severity based on trends experienced at Western Sugar Cooperative 2017-2022 and conversations with Grower Representative of Western Sugar Cooperative. Support can be found in EPA document EPA-HQ-OPP-2023-0147-0002 Table 2. Crop value and gross revenue in fields with palmer for the last 7 years.
[3]Projected data: yield and price per ton based on 7-year average yield and price 2018-2024. Data for 2018-2022 directly from NASS, 2023 and 2024 provided by Amalgamated Sugar (footnote 1).
[4]Based on Amalgamated Sugar Ag Staff reports regarding severity of current Palmer infestation in sugar beets during 2024 season.

Table 3. Net revenue analysis projection for 2024-2027 product years (data provided by Amalgamated Sugar).

Net Revenue Analysis

Year		*Without Palmer Amaranth*	*With Palmer Amaranth*	*% Change*
2027	**Net Revenue ($/A)**	**$192.17**	**($701.43)**	**-465%**
	Gross Revenue ($/A)	$2,321.81	$1,628.21	**-30%**
	Total Operating Costs ($/A)[5]	$2,129.64	$2,329.64	
	Herbicide/Weed Management Costs ($/A)[6]	122.68	322.68	
2026	**Net Revenue ($/A)**	**$233.93**	**($271.73)**	**-216%**
	Gross Revenue ($/A)	$2,321.81	$2,016.15	-13%
	Total Operating Costs ($/A)	$2,087.88	$2,287.88	
	Herbicide/Weed Management Costs ($/A)	113.59	313.59	
2025	**Net Revenue ($/A)**	**$274.87**	**($89.71)**	**-133%**
	Gross Revenue ($/A)	$2,321.81	$2,157.23	-7%
	Total Operating Costs ($/A)	$2,046.94	$2,246.94	
	Herbicide/Weed Management Costs ($/A)	$105.18	$305.18	
2024	**Net Revenue ($/A)**	**$498.86**	**$196.59**	**-61%**
	Gross Revenue ($/A)	$2,505.66	$2,403.39	-4%
	Total Operating Costs ($/A)	$2,006.80	$2,206.80	
	Herbicide/Weed Management Costs ($/A)	$97.39	$297.39	

[5]Operating Costs from 2022 Sugarbeet Enterprise Budget: Southwestern Idaho, University of Idaho Department of Agricultural Economics and Rural Sociology. Operating costs already include herbicide/weed management costs. Operating costs are expected to increase by 2% each year based on U of I Enterprise Budget from 2013-2022.

[6]Herbicide costs in Idaho are typically around $100 and are costs expected to rise at least 8% per year based on values growers paid for agrichemicals in Idaho from 2019-2024. Prices provided by two large agrichemical companies in Idaho. Resistant Palmer amaranth increases the costs of weed management by $200 per acre using a conservative estimate. A worse case scenario would increase cost of production up to $500 per acre if using every available tool to control Palmer including but not limited to hand labor.

Table 4. Projected spread of Palmer amaranth in Idaho[7].

Year	*Acres Impacted*	*% Total Sugar beet acres*
2027	116,128	66%
2026	58,064	33%
2025	14,516	8%
2024	3,629	2%
2023	0	0%

[7]Projection model based on documented reports from Western Sugar Cooperative for Wyoming, Colorado, and Nebraska stating that approximately 66% of sugar beet acres were affected within a 4-year period. 3,629 acres are confirmed in Idaho as of 8/15/24. Yearly increase assumes one sugar beet field with viable Palmer amaranth seeds can spread to three others in rotation via harvest equipment, tillage equipment or other natural means. In year 4, many sugar beet fields will already be infected, slowing the rate of increase.

XIV. Appendix List

A. **Snake River Sugar Research and Seed Alliance Report for Research Funding**
Evaluation of metamitron for sugar beet safety and weed control - 2020

B. **Snake River Sugar Research and Seed Alliance Report for Research Funding**
Evaluation of PRE/POST combinations of metamitron - 2020

C. **Snake River Sugar Research and Seed Alliance Report for Research Funding**
Evaluation of metamitron efficacy under different irrigation systems - 2020

D. **Snake River Sugar Research and Seed Alliance Report for Research Funding**
Evaluation of rotational crop restrictions of metamitron – 2021, 2022

E. **Snake River Sugar Research and Seed Alliance Report for Research Funding**
Sugarbeet response and weed control efficacy of split-applications of Torero herbicide – 2022, 2023

F. **Snake River Sugar Research and Seed Alliance Report for Research Funding**
Glyphosate Resistant Weeds Survey for Sugarbeets Grown in Idaho – 2022-2024

G. **Nebraska Section 18 Acceptance Announcement**

H. **Idaho Weed Survey Updates**

I. **Palmer Amaranth Distribution Map**
J. **Amalgamated Impacted Acres**
K. **Amalgamated Sugar Formal Request Letter**
L. **Draft Section 18 Label**
M. **2024 Case Study**
N. **ADAMA Letter of Support**