FALLOW

General Information

Product Information

ZiduaPRO herbicide provides both contact burndown and residual preemergence control of annual grass weeds and annual broadleaf weeds (including biotypes resistant to ACCase inhibitors, ALS inhibitors, triazine herbicides, and glyphosate) (refer to Table 1 for lists of weeds controlled) in soybean. Refer to Crop-specific Information section for instructions on herbicide tank mixes.

Make burndown application of Zidua PRO when weeds are small and actively growing. An adjuvant is required with Zidua PRO for optimum burndown activity (refer to Additives section for details). Burndown activity may be slowed or reduced under cloudy and/or foggy or cooler weather conditions or when weeds are growing under drought or other stress conditions. When targeting dense weed populations and/or larger broadleaf weeds, use higher spray volumes. Angling nozzles forward (to 45 degrees) may improve penetration of denser weed canopies.

Periods of dry weather following application of Zidua PRO may reduce herbicidal effectiveness. Residual preemergence applications of Zidua PRO must be activated by at least 1/2 inch of rainfall or sprinkler irrigation prior to weed seedling emergence. When Zidua PRO is not activated, a labeled postemergence herbicide or cultivation may be needed to control weed escapes.

Mode of Action

ZiduaPRO herbicide contains three herbicide active ingredients. Saflufenacil is a potent inhibitor of protoporphyrinogen-oxidase, belonging to herbicide mode-of-action Group 14 (WSSA)/Group E (HRAC). Imazethapyr is a potent inhibitor of acetohydroxyacid synthase, belonging to herbicide mode-of-action Group 2 (WSSA)/Group B (HRAC). Pyroxasulfone is a potent inhibitor of very long chain fatty acid (VLCFA) synthesis, belonging to the mode-of-action Group 15 (WSSA)/Group K3 (HRAC). The Group 14/Group E and Group 2/Group B herbicides of Zidua PRO are rapidly absorbed by roots and foliage. Plant death is the result of membrane damage and inhibition of the production of branched chain amino acids. Under

active growing conditions, susceptible emerged weeds usually develop chlorotic and necrotic injury symptoms within hours and die within a few days. Susceptible emerging weed seedlings will usually die as they reach the soil surface or shortly after emergence. The Group 15/Group K3 herbicide of Zidua PRO is absorbed by roots and shoots of weeds following germination. Plant death is the result of very long chain fatty acid synthesis inhibition; susceptible weeds typically do not emerge.

Herbicide Resistance Management

While weed resistance to protoporphyrinogen-oxidase inhibiting herbicide is relatively infrequent, populations of resistant biotypes to protoporphyrinogen-oxidase or acetohydroxyacid-synthase-inhibiting herbicides are known to exist. Weed resistance to VLCFA synthesis-inhibiting herbicides is rare. Resistance management should be part of a diversified weed control strategy that integrates chemical, cultural, and mechanical (tillage) control tactics. Cultural control tactics include crop rotation, proper fertilizer placement, and optimum seeding rate/row spacing. Consult your local BASF representative, state cooperative extension service, professional consultants, or other qualified authority to determine appropriate actions if you suspect resistant weeds. Herbicide resistance management practices should be considered and include:

Chemical Control

1. Following labeled application rate and weed growth stage instructions.

2. Avoiding repeated applications of herbicides with the same mode of action.

3. The use of preemergence herbicides that provide soil residual control of broadleaf and grass weeds to reduce early season weed competition and allow for timely incrop postemergence herbicide applications.

4. Utilizing tank mixes and sequential applications with other herbicides possessing different sites of action that are also effective on the target weeds.

5. Using crop rotation so competition, tillage, or herbicides with alternative modes of action can be used to control weed escapes.

Scouting and Containment

1. Scouting fields after herbicide application to identify areas where weed control

was ineffective.

2. Controlling weed escapes with herbicides possessing a different site of action or using a mechanical or cultural control measure. Weed escapes should not be allowed to reproduce by seed or to proliferate vegetatively.

3. Contacting your Zidua PRO supplier and/or your local BASF representative to report weed escapes.

4. Cleaning equipment before moving to a different field to avoid spread of resistant weeds.

Crop Tolerance

Soybeans are tolerant to Zidua PRO when applied according to label directions as a preplant to preemergence treatment and under normal environmental conditions. Crop injury may occur under stressful growing conditions (e.g. seedling disease, extreme hot or cold weather, excessive moisture, high soil pH, high soil salt concentration, or drought).

Severe crop injury will result if Zidua PRO is applied postemergence (over the top) to soybeans.

Application Instructions

Apply Zidua PRO prior to crop emergence only.

Application Methods and Equipment

Zidua PRO may be applied by ground or air. DO NOT apply through any type of irrigation system. Thorough spray coverage is required for optimum weed control and can be improved with proper adjuvant, nozzle, and spray volume selection. Use and configure application equipment to provide an adequate spray volume, an accurate and uniform distribution of spray droplets over the treated area, and to avoid spray drift to nontarget areas.

Equipment should be adjusted to maintain continuous agitation during spraying with good mechanical or bypass agitation. Avoid overlaps that will increase rates above the use rates specified in this label.

Zidua PRO may only be applied using water as the spray carrier.

Aerial Application Requirements

Water Volume. Use 3 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

The following measures must be followed to reduce the potential of spray drift to nontarget areas from aerial applications:

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the fixed wingspan or 90% of rotor blade diameter.

2. Use low-drift nozzles (straight-stream nozzles, D-8 or larger). DO NOT use nozzles producing a mist droplet spray.

3. Nozzles must always point backward parallel with the airstream and never be pointed downward more than 45 degrees.

4. Without compromising aircraft safety, make applications at a height of 10 feet or less above the crop canopy or tallest plants.

5. DO NOT apply during periods of temperature inversions or stable atmospheric conditions.

6. Avoid potential adverse effects to nontarget areas by maintaining a 30-feet buffer between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas, and shrub lands).

Ground Application Requirements

Water Volume. Use 5 or more gallons of water per treated acre for weed control applications. Thorough spray coverage is required for control of emerged broadleaf weeds.

High populations and/or variations in size can prevent adequate spray coverage. Controlling fall-germinated weeds in the spring (e.g. horseweed/marestail) will also

require thorough spray coverage. Use higher spray volumes (e.g. 15 to 20 gallons of water per acre) in these situations to increase spray coverage and optimize burndown activity.

The following measures must be followed to reduce the potential of spray drift to nontarget areas from ground applications:

1. Apply this product using nozzles which deliver medium-to-coarse spray droplets as defined by ASAE standard S-572 and as shown in nozzle manufacturer’s catalogs. Flat-fan nozzles are recommended for burndown applications while flood-jet type nozzles are recommended for residual soil surface applications. Nozzles that deliver coarse spray droplets may be used to reduce spray drift provided spray volume per acre (GPA) is increased to maintain coverage of target (i.e. weeds or soil surface). DO NOT use nozzles that produce fine (e.g. cone) spray droplets.

2. Apply this product only when the potential for drift to adjacent nontarget areas is minimal (e.g. when the wind is 10 MPH or less and is blowing away from sensitive areas). DO NOT apply during periods of temperature inversions or stable atmospheric conditions.

3. Avoid potential adverse effects to nontarget areas by maintaining a 13-feet buffer between the application area and the closest downwind edge of sensitive terrestrial habitats (grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas, and shrub lands).

Additives

For optimum burndown activity of emerged weeds with ZiduaPRO herbicide, an adjuvant system must be used that includes the following:

Adjuvant

methylated seed oil1 (MSO): Rate 1 gal/100 gals2 (1% v/v)
PLUS
ammonium sulfate (AMS): Rate 8.5 to 17 lbs/100 gals (1% to 2% w/v)
or
ammonium nitrate (UAN): Rate 1.25 to 2.5 gals/100 gals (1.25% to 2.5% v/v)

- MSO-based adjuvant MUST contain at least 60% methylated seed oil. Poor performance may occur with adjuvants containing less than 60% methylated seed

oil.
- DO NOT use less than 1 pint/A of MSO with low-volume (< 12.5 gallons per acre) aerial or ground applications.

Use an AMS fertilizer when mixing Zidua PRO with glyphosate-based herbicides.

DO NOT use nonionic surfactant (NIS) as a substitute for MSO or poor performance on broadleaf weeds will occur. When an adjuvant is to be used with this product, BASF prefers the use of a Chemical Producers and Distributors Association (CPDA) certified adjuvant.

Use Restrictions

- DO NOT apply Zidua PRO after crop emergence or severe crop injury will occur.

- DO NOT contaminate irrigation ditches or water used for domestic purposes.

- DO NOT apply Zidua PRO through any type of irrigation system (e.g. chemigation).

- Zidua PRO is not for sale, distribution, or use in Nassau and Suffolk counties in New York State, or in California.

Use Precautions

- Rainfastness - ZiduaPRO herbicide is rainfast 1 hour after application. Burndown activity may be reduced if rain or irrigation occurs within 1 hour of application.

- Full-rate application of products containing chlorimuron ethyl, chloransulam-methyl, flumetsulam, or imazaquin in the same year as Zidua PRO may increase the risk of injury to sensitive follow crops. Consult the respective labels of these products for specified uses of these products in combinations.

- When organophosphate or carbamate insecticides are tank mixed with Zidua PRO, temporary injury may result to the treated crops.

- Only rotational crops harvested at maturity may be used for feed or food.

Rotational Crop Restrictions, Crop Rotation, and Emergency Replanting Intervals

Use Table 2 and its exceptions in the paragraphs following the table to determine the proper interval between Zidua PRO application and rotational crop planting. This interval can be used to determine the acceptable planting interval for rotational

crops as well as replanting after crop failure (because of environmental factors including drought, frost or hail, etc.). Be sure to determine the rotational crop interval for tank mix products and utilize the most restrictive interval of all products applied.

- The planting interval for this crop and rates are further defined in the respective Crop-specific Information section of this label. Use the longer interval within listed ranges for indicated crops grown on coarse-textured soils with organic matter less than or equal to 2.0%.

- Following 40 months after a Zidua PRO application and before planting any crop not listed elsewhere in the Rotational Crop Restrictions, Crop Rotation, and Emergency Replanting Intervals, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted across the previously treated field and grown to maturity.

The test strip should include low areas and knolls and include variations in soil including type and pH. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year. Sugar beet production can be reduced when grown in soil conditions with a pH less than 6.5. If the field is limed to adjust pH prior to planting rotational crops not listed in Rotational Crop Restrictions, Crop Rotation, and Emergency Replanting Intervals, apply the lime at least 12 months prior to planting the rotational crop.

Use of ZiduaPRO herbicide in accordance with label directions is expected to result in normal growth of rotational crops in most situations. However, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

Exceptions to Crop Rotation Restrictions Corn Inbred Lines

All corn inbred seed lines may be planted the year following an application of Zidua PRO. Several seed companies have tested a wide range of inbreds for sensitivity to Zidua PRO soil residues and have reported good crop safety. However, due to the proprietary nature of seed production, BASF has not been given access to the inbred data. Growers are directed to contact the seed company for information regarding the planting of corn grown for seed in fields treated with Zidua PRO the previous year. Because growing conditions, environmental conditions, and grower

practices are beyond the control of BASF, to the extent of applicable law all risks and consequences associated with planting seed corn inbreds into fields treated previously with Zidua PRO shall be assumed by the user.

Sweet Corn and Popcorn
(Illinois, Indiana, Iowa, Minnesota, Ohio, Tennessee, and Wisconsin only)

Sweet corn and popcorn may be planted the year following an application of Zidua PRO. Some sweet corn and popcorn may be injured when planted at less than 18 months following an application of Zidua PRO. Before planting sweet corn for processing, contact the processor company for information regarding the tolerance of sweet corn planned for fields treated with Zidua PRO the previous year. DO NOT plant fresh market sweet corn prior to 18 months after Zidua PRO use. Before planting popcorn, contact the popcorn company for information regarding the tolerance of popcorn planned for fields treated with Zidua PRO the previous year. Because growing conditions, environmental conditions, and grower practices are beyond the control of BASF, to the extent of applicable law all risks and consequences associated with planting sweet corn or popcorn into fields treated previously with Zidua PRO shall be assumed by the user. Stunting and maturity-delay or other adverse effects may result when sweet corn or popcorn are planted following Zidua PRO use.

Certain Vegetable Crops
(Alabama, Delaware, Florida, Georgia, Indiana, Kentucky, Maryland, New Jersey, North Carolina, Pennsylvania, South Carolina, and Virginia only)

The following crops may be planted 18 months following the last application of Zidua PRO: Bahiagrass, cabbage, cantaloupe, cucumber, Irish potato, onion, sweet pepper transplants, sweet potato transplants, tomato transplants and watermelon.

Field Corn and Field Corn Grown for Seed
(Arizona, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming)
Plant 9.5 months after Zidua PRO application.

Crop-specific Information

This section provides use directions for Zidua PRO. Be sure to read about product information, mixing, application, weeds controlled and adjuvant instructions in

preceding sections of the label.

Depending on specific application directions, Zidua PRO may be applied for burndown control of emerged weeds and/or residual control of germinating weeds (refer to Table 1 for list of weeds controlled) before planting (preplant/preseed) or after planting but before crop emergence.

Depending on the time between Zidua PRO application and planting, a follow-up in-crop herbicide application may be needed for complete weed control throughout the growing season.

Thorough spray coverage is required for control of emerged broadleaf weeds. High populations and/or variations in size can prevent adequate spray coverage.

Controlling fall-germinated weeds in the spring (e.g. horseweed/marestail) will also require thorough spray coverage. Use higher spray volumes (e.g. 15 to 20 gallons of water per acre) in these situations to increase spray coverage and optimize burndown activity.

Limitations, Restrictions, and Exceptions

Fallow

Zidua PRO may be used as a burndown treatment to control listed weeds at any time of the year during the fallow period following crop harvest and before the following crop is planted (see paragraph below pertaining to rotational planting intervals).

Application Rate and Timing

Apply Zidua PRO as a broadcast burndown spray at 6.0 fl ozs/A plus recommended adjuvants (refer to Additives section for details). For best product performance, apply Zidua PRO when broadleaf weeds are small and actively growing (refer to Table 1 for list of weeds controlled). Thorough coverage of existing weeds is essential and higher spray volumes may be needed for best performance.

Specific rotational crop planting intervals must be observed between an application of Zidua PRO and planting of the following crops (see Table 2 for rotational crop planting intervals).

Method

Broadcast/Foliar Air
Broadcast/Foliar Ground
Rates
field_rates 0
field_rates 1

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Restricted Entry Interval

12 hours
EXCEPTION: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

Timings
When broadleaf weeds are small and actively growing.