



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

November 1, 2019

Gregory D. Wuthnow, Jr.  
Manager, Regulatory Affairs  
Nichino America  
4550 Linden Hill Road, Suite 501  
Wilmington, DE 19808

Subject: Registration Review Label Mitigation for Orthosulfamuron and  
Halosulfuron-methyl  
Product Name: Strada Pro Herbicide  
EPA Registration Number: 71711-47  
Application Dates: 12/19/2017  
Decision Numbers: 556652; 556653

Dear Mr. Wuthnow:

The Agency, in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the 22 Sulfonylurea (SU) Interim Decision, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

A copy of your label stamped "Accepted" is enclosed. Products shipped after 12 months from the date of this amendment must bear the new revised label. Your release for shipment of the product bearing the amended label constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

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EPA Reg. No. 71711-47  
Decision No. 556652; 556653

If you have any questions about this letter, please contact Jaclyn Pyne by phone at 703-347-0445, or via email at [pyne.jaclyn@epa.gov](mailto:pyne.jaclyn@epa.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Linda Arrington".

Linda Arrington, Branch Chief  
Risk Management and Implementation Branch 4  
Pesticide Re-Evaluation Division  
Office of Pesticide Programs

Enclosure



ORTHOSULFAMURON	GROUP	2	HERBICIDE
HALOSULFURON-METHYL	GROUP	2	HERBICIDE

## STRADA<sup>®</sup> PRO Herbicide

**For use as a selective herbicide for rice weed control in the states of Arkansas, Louisiana, Mississippi, Missouri, Tennessee, and Texas.**

**ACTIVE INGREDIENT:**

**Orthosulfamuron:**

Benzamide, 2-[[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]amino]sulfonylamino]-N,N-dimethyl- .....**42.05%**

**Halosulfuron-methyl:**

1H-Pyrazole-4-carboxylic acid, 3-chloro-5-[[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]amino]sulfonyl-1-methyl-, methyl ester .....**11.92%**

**OTHER INGREDIENTS**.....**46.03%**

**TOTAL** .....**100.00%**

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

<b>FIRST AID</b>	
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>HOTLINE NUMBER</b>	
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For additional information on this pesticide product, including human health concerns and medical emergencies, call 1-800-348-5832. In case of fire or spills, information may be obtained by calling 1-800-424-9300.</p>	

**ACCEPTED**

Nov 01, 2019  
Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 71711-47

{Note to reviewer, optional text are provided in brackets [ ].}

[See (back) panel for precautionary statements]

[See inside booklet for First Aid, Precautionary Statements, and Directions for Use]

EPA Reg. No. 71711-47

EPA Est. No. \_\_\_\_\_

Net Contents: \_\_\_\_\_

[Manufactured in \_\_\_\_,] [formulated in \_\_\_\_,] [and] [packaged in \_\_] for:

**Nichino America, Inc.**  
4550 Linden Hill Road, Suite 501  
Wilmington, DE 19808  
888-740-7700

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION/PRECAUCION**

**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).**

Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Harmful if swallowed, absorbed through skin, or inhaled. Avoid breathing spray.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Applicators and other handlers must wear the following:**

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- Protective eyewear

**STATEMENTS FOR CONTAMINATED PPE**

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

**ENGINEERING CONTROLS**

When handlers use closed systems, enclosed cabs, or aircraft 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/PPE immediately if pesticide gets inside. Then wash skin 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 product is toxic to non-target vascular plants. With the exception of treating rice fields as specified in this label, do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate arable land and/or water when cleaning equipment or disposing of equipment washwaters or rinsate.

### **Groundwater Advisory**

Orthosulfamuron 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.

Halosulfuron-methyl is known to leach through soil into groundwater under certain conditions as a result of label use. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

This product contains a chemical that has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. In order to limit the potential for ground-water contamination and off-site movement of phytotoxically significant residues via subsurface flow, halosulfuron-methyl shall not be used in any areas with the following soil characteristics (use of halosulfuron-methyl is only allowed in areas where none of the 3 sets of criteria below are met):

1. Areas (within the confines of a contiguous area representing a single soil series as defined within a single mapping unit) of any soil type with less than 2% organic matter in the upper 24 inches of the soil profile with historical average depth to ground water under 30 feet (utilizing the best available data from the NRCS, local county extension agents, and other sources) within counties with historical average precipitation over 40 inches (utilizing data from any weather station within the county with 20 or more years of continuous weather reporting).
2. Areas with sand or loamy sand soil texture and less than 2.5% organic matter content for at least the upper 24 inches of the soil profile with historical average depth to groundwater under 50 feet (utilizing the best available data from the NRCS, local county extension agents, and other sources) within counties with historical average precipitation over 30 inches (utilizing data from any weather station within the county with 20 or more years of continuous weather reporting).
3. Areas with sandy loam soil texture and less than 2% organic matter in the upper 24 inches of the soil profile with historical average depth to ground water under 40 feet (utilizing the best available data from the NRCS, local county extension agents, and other sources) within counties with historical average precipitation over 35 inches (utilizing data from any weather station within the county with 20 or more years of continuous weather reporting).

### **Surface Water Advisory**

This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several months or more after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of orthosulfamuron and halosulfuron-methyl from runoff water and sediment. Runoff of this product will be greatly reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

### **DIRECTIONS FOR USE**

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

Read the entire label. Use strictly in accordance with Precautionary Statement and Directions, and with applicable State and Federal regulations.

Do not apply this product in a way that will contact workers or other people, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

#### **AGRICULTURAL 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), and restricted-entry interval, and notifications to workers.

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

For early entry into 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, wear:

- Coveralls
- Shoes plus socks
- Waterproof gloves
- Protective eyewear

### **IMPORTANT**

Injury to or loss of desirable trees, vegetation and/or adjacent sensitive crops may result from failure to observe the following:

Avoid all direct or indirect contact with crops other than rice or land scheduled to be planted with crops other than rice due to the potential for sensitivity to the active ingredient in STRADA PRO.

## USE INFORMATION

STRADA PRO is a systemic herbicide formulated as a water dispersible granule suitable for selective postemergence weed control. When applied according to label directions it is effective in the control of several annual and perennial broadleaf weeds and sedges.

To achieve the best control apply STRADA PRO to young, actively growing weeds. This stage usually corresponds to a rice growth stage between 2 and 4-leaves. Mix STRADA PRO at the specified rates with water and apply as a foliar spray by ground or air application to water-seeded or dry-seeded rice.

Efficacy may depend on the following parameters:

- Weed size at application
- Growing and environmental conditions (e.g. soil moisture, relative humidity and temperature) prior to and following treatment
- Soil pH, texture and organic matter content
- Water management

STRADA PRO contains Group 2 herbicides which are members of the sulfonyleurea herbicides.

STRADA PRO inhibits the plant enzyme acetolactate synthase (ALS), which is also known as acetohydroxy acid synthase (AHAS). Inhibition of this enzyme blocks branched-chain amino acid biosynthesis of valine, leucine and isoleucine, which leads to plant death.

STRADA PRO is particularly efficient by foliar uptake. Once inside the target weed, it is translocated by xylem and phloem. Soon after STRADA PRO is applied, growth of susceptible weeds is inhibited and the plants are no longer competitive with rice. Typically, weed leaves turn yellow, then reddish and within 10 to 20 days, depending on weed size, species and growing conditions, the stem and roots die. Treated target weeds may stay green, but are stunted and not competitive with the crop.

## USE RESTRICTIONS

- Do not make more than 1 application per year.
- Do not use air assisted (air blast) sprayers to apply this product.
- After applying to foliage, allow 30 days before grazing domestic livestock, harvesting forage or harvesting silage.
- Do not apply within 48 days of harvest in all states except in California it is 69 days.
- Do not enter treated fields until 12 hours after application (REI = 12 hours).
- Use of an approved agricultural surfactant or adjuvant is necessary for STRADA PRO.
- Do not apply more than 2.5 ounces of STRADA PRO per acre per year (equivalent to 0.066 lb ai orthosulfamuron and 0.0186 lb ai halosulfuron-methyl per acre) or 1 bottle of

product (2.6 lbs) per 16.6 acres. The maximum use rate for orthosulfamuron is 0.066 lb ai and halosulfuron-methyl is 0.062 lb ai per acre per year.

- The entire contents of this container must be emptied into the spray-tank and applied to the intended site or properly disposed.
- Do not apply where runoff or irrigation water may flow directly onto agricultural land other than rice fields.
- Do not apply STRADA PRO directly or indirectly to crops other than rice.
- Do not allow tank mixtures containing STRADA PRO to sit overnight.
- Do not apply this product through any type of irrigation system.

### Rotational Crop Information

Use the time intervals listed below to determine the minimum required time interval between last STRADA PRO application and new crop planting.

<b>Rotational Crop Restrictions</b>	
<b>Crop</b>	<b>Time Interval in Months Before Planting</b>
Sugarcane	1
Corn (all)	3
Small Grains	3
Cotton	6
Soybean	9
All Other Crops	36

### Use Precautions

- Rainfast within 6 hours.
- Application of STRADA PRO to fields which have been levelled (except water levelling) within 12 months prior to application may result in rice injury in areas that have been cut or filled.
- Poor weed control may result from application of STRADA PRO made to plants under stress from abnormally hot or cold weather; environmental conditions such as drought, hail damage, hydrogen sulphide or prior herbicide applications.

## APPLICATION INFORMATION

### Use Rate

STRADA PRO: 2.08 – 2.50 ounces per acre. The entire contents of this container must be emptied into the spray-tank and applied to the intended site.

### Application Timing

Due to the selectivity for use on rice, STRADA PRO can be applied at very early stages of the crop including prior to and at planting applications. Occasionally, in the presence of very high temperatures, transient symptoms of chlorosis and slight reduction in vigor may appear on rice, but the crop recovers within a few days without any adverse effect on yield.



To achieve optimum weed control it is recommended that STRADA PRO be applied to young, actively growing weeds up to 4-leaves. This stage typically corresponds to a rice growth stage between 2- and 4-leaves.

### Water Management

Before applying STRADA PRO to flooded rice, water level in the rice field must be drained or lowered to allow exposure of the weed leaf surface for maximum uptake of the product by the leaves. It is recommended that the field be drained or the water level be lowered the day before the application. If the field cannot be drained before application, the water level must be reduced so that at least 70% of the weed leaf surface area is above the floodwater. Bring the field to normal flood level 24 – 48 hours after application.

If the soil is allowed to dry after application, a reduction in efficacy and weed regrowth may occur. Additional weed emergence may occur if the field is not flooded soon after application.

### STRADA PRO Rate Information

The maximum application rate is 2.5 oz per acre per year (equivalent to 0.066 lb ai orthosulfamuron and 0.0186 lb ai halosulfuron-methyl per acre) or 1 bottle of product (2.6 lbs) per 16.6 acres.

<b>Table 1. Product Use Rate Information.</b>					
<b>Broadcast Treated Acres Per Bottle</b>	<b>STRADA PRO Use Rate (ounces per acre)</b>	<b>Orthosulfamuron (lb active ingredient per acre)</b>	<b>Orthosulfamuron (formulated product comparison – oz/A)</b>	<b>Halosulfuron-methyl (lb active ingredient per acre)</b>	<b>Halosulfuron-methyl (formulated product comparison – oz/A)</b>
20	2.08	0.055	1.75	0.0155	0.33
17	2.45	0.064	2.06	0.0182	0.39

### Mixing Instructions

#### Adjuvants

The addition of one of the following adjuvants is necessary: 0.125% organo silicon surfactant (0.5 quart per 100 gallons spray solution volume) or 0.25 to 0.5% nonionic surfactant (NIS) (1 to 2 quarts per 100 gallons of spray solution volume). Use only NIS which contains a minimum 80% active ingredient.

A crop oil concentrate (COC) at 1% v/v (1 gallon per 100 gallons spray solution) may be used instead of NIS or organo silicon surfactants when tank mixing with other herbicide such as Newpath<sup>®</sup> that recommend use of a COC. Use only good quality petroleum or vegetable-based COCs which contain at least 14% active ingredient.

Liquid nitrogen fertilizer solution (28-0-0) may be added to the spray solution containing STRADA PRO if it is necessary to improve control of certain weed species and is required by a companion herbicide being tank mixed with STRADA PRO. A NIS, organo silicon surfactant, or

COC will still be necessary. Refer to the label(s) of companion herbicides for specific additive requirements. Otherwise, add liquid nitrogen fertilizer at 2 to 4 quarts per acre. Do not use liquid nitrogen fertilizer solutions or suspensions as the total carrier volume because excessive crop injury may occur. A high quality, spray grade ammonium sulfate may be applied at the rate of 2 to 4 pounds per acre in place of liquid nitrogen fertilizer.

Do not use NIS, organo silicon surfactants, and COC in the same spray solution.

### **Dilution Information**

#### **STRADA PRO alone:**

Apply STRADA PRO in a minimum of 10 gallons of water per acre for ground application and a minimum of 3 to 15 gallons of water per acre for aerial application. Fill the spray tank to about one half of the desired volume with clean water. Add the specified amount of STRADA PRO, then surfactant and complete the filling process while maintaining agitation until the product is fully dispersed.

#### **STRADA PRO Tank Mixtures**

STRADA PRO fits well with typical weed management programs. Tank mix or sequential applications with commonly used herbicides registered for use on rice is suggested to complete the weed spectrum, especially for grass weeds.

STRADA PRO at 2.08 to 2.5 oz/A may be tank mixed with glyphosate herbicide before or at rice planting to aid burndown of emerged grasses, broadleaves, and sedges. Soil applications of STRADA PRO are safe to rice on soils up to a pH of 8.0.

STRADA PRO at 2.08 to 2.5 oz/A may be tank mixed with propanil-containing herbicides. Refer to the propanil label to determine the appropriate propanil rate based on rice stage and weed size.

STRADA PRO is an excellent tank mix partner to complete the spectrum and enhance efficacy of Newpath<sup>®</sup> and Clearpath<sup>®</sup> when used in the Clearfield<sup>®</sup> rice production system.

#### **STRADA PRO to Suppress Black Seed Production of Jointvetch and Hemp Sesbania**

STRADA PRO may be applied at 2.5 oz/A plus 0.25% to 0.5% non-ionic surfactant or 1% crop oil concentrate to suppress seed head production of jointvetch species and hemp sesbania.

**Tank mixture compatibility testing:** Before tank mixing STRADA PRO with other pesticides or materials, it is recommended that a compatibility or jar test be performed. In order to perform the compatibility test, the relative proportions of the materials being considered for tank mixture should be added to a clear quart jar. After addition to the jar, invert or shake the jar numerous times to ensure complete mixing then observe the jar for at least one-half hour. If precipitates (sludges, layers, flakes, balls, etc.) form, the tank mixture combination is not compatible and should not be used.

#### **Order of mixing:**

1. Fill the tank at least one-half full of water and begin agitation

2. Add materials in the following order: STRADA PRO, dry flowables (DF), wettable powders (WP), aqueous suspensions (AS), flowables (F), and liquids (L)
3. Allow each material to completely disperse before adding the next material
4. While continuing agitation, fill the tank to three-fourths full
5. Add any solution (S) formulations and surfactants
6. Bring the tank to final volume
7. Maintain agitation during the filling process and until the application is complete. If agitation and application are stopped, suspended materials may settle out to the bottom of the tank. It is very important to re-suspend all materials in the tank before applications are resumed. Sparger-type agitators are useful for these circumstances. Tank mixtures should not be allowed to remain in the spray tank overnight.

Refer to the companion herbicide label(s) for all applicable use directions, restrictions (including any water-holding requirements), and precautions. Read and follow the entire label of each product to be used in the tank mixture with this product.

Tank mixtures should not be applied if the crop is under severe stress due to drought, water saturated soils, poor fertility (especially low nitrogen levels), hail, frost, insects or when the maximum daytime temperature is above 92°F. Tank mix applications under these conditions may cause temporary crop injury.

## **SPRAYER TANK CLEANOUT**

### **DO NOT USE CHLORINE BLEACH WITH AMMONIA**

To avoid injury to desirable crops, clean all mixing and spray equipment before and immediately following applications of STRADA PRO as follows:

- Drain remaining spray solution from spray tank. Thoroughly rinse spray tank, boom, and hoses with clean water. Remove the nozzles, screens and any components contacting the spray solution and clean separately in a bucket containing ammonia and water. Loosen and physically remove any visible deposits.
- Fill the tank with clean water and 1 gallon of household ammonia (minimum 3% ammonia) for every 100 gallons of water. Flush the hoses, boom, and nozzles with the cleaning solution.\*
- Refill the spray tank back to full. Circulate the cleaning solution through the tank and hoses for at least 15 minutes. Again flush the hoses, boom, and nozzles with the cleaning solution and then drain the tank.
- Remove the nozzles, screens and components as before and clean separately in a bucket containing ammonia and water.
- Repeat step 2.
- Rinse the tank, boom, and hoses with clean water.
- The rinsate may be disposed of on-site or at an approved disposal facility.

\* If using an ammonia product that is not 3% ammonia, an equivalent amount of an alternate strength ammonia solution can be used in the clean out procedure. Carefully read and follow the individual cleaner instructions.

## STRADA PRO Spectrum

Weeds Controlled			
Common name	Scientific name	Weed Size at Application	Rate of Application
Ammannia, Purple *	<i>Ammannia coccinea</i> *	Up to 4 leaf or 4 inches	STRADA PRO 2.08 - 2.5 Ounces/Acre
Arrowhead spp.*	<i>Sagittaria spp.</i> *		
Bulrush, Ricefield *	<i>Schoenoplectus mucronatus</i> *		
Dayflower, Spreading	<i>Commelina diffusa</i>		
Ducksalad *	<i>Heteranthera limosa</i> *		
Eclipta	<i>Eclipta prostrata</i>		
Falsepimpernel spp.	<i>Lindernia spp.</i>		
Flatsedge, Rice *	<i>Cyperus iria</i> *		
Gooseweed	<i>Sphenoclea zeylanica</i>		
Jointvetch spp.	<i>Aeschynomene spp.</i>		
Monochoria	<i>Monochoria vaginalis</i>		
Morningglory spp.	<i>Ipomoea spp.</i>		
Redstem *	<i>Ammannia auriculata</i> *		
Sesbania, Hemp	<i>Sesbania exaltata</i>		
Sida, Prickly	<i>Sida spinosa</i>		
Smallflower umbrella sedge *	<i>Cyperus difformis</i> *		
Smartweed spp.	<i>Polygonum spp.</i>		
Waterhyssop spp.	<i>Bacopa spp.</i>		
Waterplantain spp. (seedling) *	<i>Alisma spp.</i> *		
Yellow nutsedge *	<i>Cyperus esculentus</i> *		
Weeds Suppressed **			
Alligatorweed	<i>Alternanthera philoxeroides</i>	< 4 inch runner	STRADA PRO
Mexicanweed	<i>Caperonia castaniifolia</i>	< 3 leaf	2.5
Texasweed	<i>Caperonia palustris</i>	< 3 leaf	Ounces/Acre

\* STRADA PRO does not control ALS resistant biotypes of this weed, which might be present in the field.

\*\* Control of suppressed weeds may be significantly improved using tank mixtures.

Note: Weeds with gradual and late emergence (like purple ammannia) may escape an early herbicide application. As previously mentioned, optimum weed control is generally obtained when applications are made to young (less than 4-leaf) weeds that are actively growing.

### SPRAY DRIFT MANAGEMENT

**Avoiding spray drift is the responsibility of the applicator.** The interaction of weather related factors and equipment determine the potential for spray drift. Application should only be made when there is little or no hazard of spray drift. The applicator, crop consultant, and/or grower are responsible for considering all factors when determining whether or not to apply this product.

**Avoid all direct or indirect contact with non-target plants.** Do not apply directly to or near desirable vegetation. Allow an adequate distance between target application area and desirable plants to minimize any potential exposure.

**Sensitive Areas** - Pesticides must only be applied when the potential for spray drift to adjacent sensitive non-target areas (e.g., residential areas, known habitat for threatened or endangered plant species, bodies of water, non-target crops, etc.) is minimal (e.g., when wind is blowing away from the sensitive areas). Avoid disturbing (e.g. cultivating) treated areas for at least 7 days following application.

**Sensitive Crops** - Sensitive crops are defined as all non-target crops.

**Buffer Zones** - Buffer zone is defined as the distance between the application site and the non-target sensitive crop.

Aerial applications shall not be made closer than 200 feet from sensitive crops.

Ground applications shall not be closer than 25 feet from sensitive crops when wind direction during the ground application is away from sensitive crops.

Ground applications shall not be closer than 200 feet from sensitive crops when wind direction is towards sensitive crops.

States that have more stringent spray drift regulations must be followed.

The applicator should be familiar with and take into account the information covered in the Aerial Applications, Spray Drift box.

### **Endangered Species**

If endangered plant species occur in the proximity of the application site, the following mitigation measure is required to avoid adverse nontarget effects:

1. Leave untreated downwind buffer zones of 25 feet for ground applications or 200 feet for aerial applications

To determine whether your county has an endangered terrestrial plant species, consult <http://www.epa.gov/espp/usa-map.htm>. Endangered Species Bulletins may also be obtained from state or county extension offices or state pesticide agencies. If the bulletin is not available for your specific area, check with the appropriate local state agency to determine if known populations or terrestrial endangered plants occur in the area to be treated.

## **Aerial Applications**

### **SPRAY DRIFT**

- Do not release spray at a height greater than 10 ft above the vegetative canopy, unless a greater application height is necessary for pilot safety.
- For applications prior to the emergence of crops and target weeds, applicators are required to use a Coarse or coarser droplet size (ASABE S572.1).
- For all other applications, applicators are required to use a Medium or coarser droplet size (ASABE S572.1).
- The boom length must not exceed 65% of the wingspan for airplanes or 75% of the rotor blade diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- When applications are made with a crosswind, the swath will be displaced downwind. Therefore, the applicator must compensate for this displacement by adjusting the path of the aircraft or boom upwind. Swath adjustment distances should increase, with increasing drift potential (higher wind, height, smaller drops, etc.).
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

## **Ground Boom Applications**

### **SPRAY DRIFT**

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy unless making a turf, pasture, or rangeland application, in which case applicators may apply with a nozzle height no more than 4 feet above the ground.
- For applications prior to the emergence of crops and target weeds, applicators are required to use a Coarse or coarser droplet size (ASABE S572.1).
- For all other applications, applicators are required to use a Medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

## **Boom-less Applications**

### **SPRAY DRIFT**

- Applicators are required to use a Medium or coarser droplet size (ASABE S572.1) for all applications.
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

## **Spray Drift Advisories**

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

### **IMPORTANCE OF DROPLET SIZE**

For ASABE S-572.1 Standard compliance, see nozzle manufacturer catalogs, NAAA booklet, USDA literature, or website <http://apmru.usda.gov/> for nozzle and application conditions. An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

### **Controlling Droplet Size – Aircraft**

- Adjust Nozzles - Follow nozzle manufacturer's recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.
- Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure – Do not exceed the nozzle manufacturer's specified pressures. For many nozzle types lower pressure produces larger droplets.
- Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Use low-drift nozzles. Solid stream nozzles orientated straight back produce the largest droplets and the lowest drift.

### **Controlling Droplet Size – Ground Boom**

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

### **Boom Height – Ground Boom**

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

### **Boom-less Ground Applications:**

- Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

### **Release Height – Aircraft**

Higher release heights increase the potential for spray drift. When applying aerially to crops, do not release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety.

### **Shielded Sprayers**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

### **Temperature and Humidity**

Applications made during periods of low relative humidity require set-up of equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is typically greatest when conditions are both hot and dry. When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

### **Temperature Inversions**

Do not apply this product during a local, low level temperature inversion because drift potential is high. Small droplets can be transported in unpredictable directions due to the light and variable winds common during temperature inversions. Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

### **Wind**

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.** Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. Application is not allowed when wind speeds exceed 10 mph due to risk of direct drift to non-target sensitive crops or locations. **Note:** Wind patterns can be affected by local terrain. All applicators must be familiar with local wind patterns and how they affect spray drift. **Note:** Follow State and local regulations with regard to minimum and maximum wind speeds during aerial application, as they may be more restrictive. Applicators must be familiar with State and local regulations.

### **Non-target Organism Advisory Statement**

This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated area. Protect the forage and



habitat of non-target organisms by minimizing spray drift. For further guidance and instructions on how to minimize spray drift, refer to the Spray Drift Management section of this label.

### **Windblown Soil Particles**

STRADA PRO has the potential to move off-site due to wind erosion. Soils that are subject to wind erosion usually have a high silt and/or fine to very fine sand fractions and low organic matter content. Other factors which can affect the movement of windblown soil include the intensity and direction of prevailing winds, vegetative cover, site slope, rainfall, and drainage patterns. Avoid applying STRADA PRO if prevailing local conditions may be expected to result in off-site movement.

### **WEED RESISTANCE MANAGEMENT**

For resistance management, STRADA PRO is a Group 2 herbicide. Any weed population may contain or develop plants naturally resistant to STRADA PRO and other Group 2 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

STRADA PRO and other pesticides should be incorporated into an Integrated Pest Management (IPM) program that can include the use of cultural, biological, and other chemical practices to prevent economical pest damage. Effective IPM practices include the use of weed free seed, proper scouting and identification of weeds within each field or paddy, optimum water management (adequate soil moisture at the time of application and maintaining the permanent flood), pesticide treatment at the appropriate target stage, crop rotation, and mechanical weed control when appropriate. This list is not inclusive and should be used in conjunction with other practices to further prevent resistance development.

To delay herbicide resistance take one or more of the following steps:

- Always apply STRADA PRO at a minimum of 2.08 oz formulated product per acre
- Avoid following an ALS-inhibiting herbicide application with another herbicide application of the same mode of action unless in tank mixture with a product with a different mode of action.
- The use of ALS herbicides in consecutive years should be done in conjunction with herbicides containing other modes of action.
- Monitor escaped weeds and control them before they can produce seed.
- Rotate the use of STRADA PRO or other Group 2 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop

seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.

- Users should scout before and after application.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Users should report lack of performance to registrant or their representative.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Contact your local sales representative, crop advisor, or extension agent to find out if suspected resistant weeds to these MOAs have been found in your region. Do not assume that each listed weed is being controlled by multiple mechanisms of action. Co-formulated active ingredients are intended to broaden the spectrum of weeds that are controlled. Some weeds may be controlled by only one of the active ingredient in this product.

## STORAGE AND DISPOSAL

Do not contaminate water, food, or feed through storage and disposal.

**Pesticide Storage:** Store under well-vented, cool and dry storage conditions. Do not store under moist conditions.

**Pesticide Disposal:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

### **Container Handling:**

#### **Nonrefillable plastic container (Less than 50 pounds)**

Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container  $\frac{1}{4}$  full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke. Do not burn, unless allowed by state and local ordinances. In most states, burning is not allowed.

**IMPORTANT: READ BEFORE USE**

By using this product, user or buyer accepts the following conditions, warranty, disclaimer of warranties, and limitations of liability.

**CONDITIONS:** The directions for use of this product are believed to be accurate and must be followed carefully. However, because of extreme weather and soil conditions, use methods and other factors beyond the control of Nichino America, Inc. (NAI), it is impossible for NAI to eliminate all risks associated with the use of this product. As a result, crop injury or ineffectiveness is always possible. To the extent consistent with applicable law, all such risks are assumed by the user or buyer.

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