

62719-307

10/19/1999

1997 10/31/17

Please read instructions on reverse before completing form.

Form Approved, OMB No. 2070-0060, Approval expires 05-31-98



United States Environmental Protection Agency Washington, DC 20460

<input type="checkbox"/>	Registration
<input checked="" type="checkbox"/>	Amendment
<input type="checkbox"/>	Other

OPP Identifier Number

265809

Application for Pesticide - Section I

1. Company/Product Number Dow AgroSciences/62719-307	2. EPA Product Manager Joanne I. Miller	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Dow AgroSciences/Starane* +Sword	PM# 23	
5. Name and Address of Applicant (Include ZIP Code) Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, IN 46268 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in Composition and labeling to: <b>NOTIFICATION</b> EPA Reg. No. <b>OCT 19 1999</b> Product Name	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other- Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.)  
**Notification action for Starane\* + Sword herbicide:** 1. CRP Acres: Added the following statement: "Do not use on CRP acres which are underseeded with desirable legumes, clovers, or other sensitive broadleaf plants." 2. Sprayer Cleanup: Added instructions for sprayer cleanup to "General Use Precautions" section. 3. Spray Drift Management: Added section now required by the Agency for product which may be aerially applied. 4. Weeds Controlled: (1) Added "volunteer flax" to the "Weeds Controlled" section. 5. Container Disposal: Added the following phrase "Then offer for recycling or reconditioning, or" in front of second sentence

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input type="checkbox"/> No <b>*Notification must be submitted</b>	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Metal	<input type="checkbox"/> Plastic
	If "Yes" Unit Packaging wgt. No. per container	If "Yes" Package wgt No. per container		<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container	5. Location of Label Directions <input type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product		
6. Manner in Which Label is Affixed to Product		<input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled	<input type="checkbox"/> Other _____		

Section - IV

1. Contact Point /Complete items directly below for identification of individual to be contacted, if necessary, to process this application)

Name John J. Jachetta, Ph.D.	Title Regulatory Manager	Telephone No. (Include Area Code) (317) 337-4672
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<p align="center"><b>Certification</b></p> <p>I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowing false or misleading statement may be punishable by fine or imprisonment or both under applicable law.</p>		8. Date Application Received <b>(Stamp)</b>
2. Signature 	3. Title Regulatory Manager	
4. Typed Name John J. Jachetta, Ph.D.	5. Date October 11, 1999	

\* Trademark of Dow AgroSciences LLC

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(Base Label):

[Insert 2-point black line – Base label only]

(logo) Dow AgroSciences LLC

**NOTIFICATION**  
OCT 19 1999

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# Starane\*+Sword®

**For selective postemergence control of annual and perennial broadleaf weeds and volunteer potatoes in small grains and fallow cropland, and on-farm non-cropland.**

**Active Ingredient(s):**

fluroxypyr: 1-methylheptyl (4-amino-3,5-dichloro-6-fluoro-2-pyridyloxy)acetate <sup>1</sup> .....	12.0%
2-methyl-4-chlorophenoxyacetic acid, 2-ethylhexyl ester <sup>2</sup> .....	52.0%
Inert Ingredient(s) .....	36.0%
Total Ingredients .....	100.0%

Contains xylene range aromatic solvent.

<sup>1</sup>Acid Equivalent: fluroxypyr: 4-amino-3,5-dichloro-6-fluoro-2-pyridyloxyacetic acid - 8.3% - 0.71 lb/gal

<sup>2</sup>Acid Equivalent: MCPA: 2-methyl-4-chlorophenoxyacetic acid - 33.3% - 2.84 lb/gal  
Isomer Specific AOAC Method

## Keep Out of Reach of Children

# 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.)

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## Precautionary Statements

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### Hazards to Humans and Domestic Animals

**Causes Eye Irritation • Harmful If Swallowed • Prolonged or Frequently Repeated Skin Contact May Cause Allergic Reactions in Some Individuals**

**Avoid contact with eyes or clothing**

### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistance category selections chart.

### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate, Butyl Rubber, Nitrile Rubber, or Viton
- Shoes plus socks

Follow 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 closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protections 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.

## First Aid

**If In Eyes:** Flush with plenty of water. Call a physician if irritation persists.

**If Swallowed:** Call a doctor or get medical attention. Do not induce vomiting. Do not give anything by mouth to an unconscious person. Avoid alcohol.

**Note to Physician:** May pose an aspiration pneumonia hazard.

## Environmental Hazards

This product is toxic to fish. Drift or runoff from treated areas may be hazardous to aquatic organisms and non-target plants. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. When cleaning equipment, do not pour washwater on the ground; spray or drain over a large area away from wells and other water sources. Do not contaminate water when disposing of equipment washwaters.

**Groundwater Contamination:** Most cases of groundwater contamination involving phenoxy herbicides such as MCPA have been associated with mixing/loading and disposal sites. Caution should be exercised when handling MCPA pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing and transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

## Physical or Chemical Hazards

**Do not use or store near heat or open flame.**

## Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

**Refer to label booklet for Directions for Use including Storage and Disposal.**

**Notice:** Read the entire label. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" inside label booklet.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at [www.dowagro.com](http://www.dowagro.com).

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-307

XX XX  
EPA Est. 00000-XX-00  
Superscripts correspond to places 7 & 8 of lot number  
900-000000 / 000000

\*Trademark of Dow AgroSciences LLC

@Sword is a registered trademark of Platte Chemical Co.

**Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.**  
[Insert 2-point black line – Base label only]

## **Herbicide**

[Insert Bar Code FPO]

[Insert DOT shipping classification and diamond(s)]

**Lot** [Base label only]

**Net Contents XXX**

(Label Booklet Cover):

(logo) Dow AgroSciences LLC

# Starane\*+Sword®

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Inert ingredient(s) .....	36.0%
Total Ingredients .....	100.0%

Contains xylene range aromatic solvent.

<sup>1</sup>Acid Equivalent: fluroxypyr: 4-amino-3,5-dichloro-6-fluoro-2-pyridyloxyacetic acid - 8.3% - 0.71 lb/gal

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XX XX  
EPA Est. 00000-XX-00  
Superscripts correspond to places 7 & 8 of lot number  
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®Sword is a registered trademark of Platte Chemical Co.

Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

# Herbicide

Net Contents XXX

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(Page 1 through end):

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## Precautionary Statements

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### Hazards to Humans and Domestic Animals

# CAUTION

**Causes Eye Irritation • Harmful If Swallowed • Prolonged or Frequently Repeated Skin Contact  
May Cause Allergic Reactions in Some Individuals**

**Avoid contact with eyes or clothing**

### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistance category selections chart.

#### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as Barrier Laminate, Butyl Rubber, Nitrile Rubber, or Viton
- Shoes plus socks

Follow 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 closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protections 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.

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**If In Eyes:** Flush with plenty of water. Call a physician if irritation persists.

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**Note to Physician:** May pose an aspiration pneumonia hazard.

### Environmental Hazards

This product is toxic to fish. Drift or runoff from treated areas may be hazardous to aquatic organisms and non-target plants. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. When cleaning equipment, do not pour washwater on the ground; spray or drain over a large area away from wells and other water sources. Do not contaminate water when disposing of equipment washwaters.

**Groundwater Contamination:** Most cases of groundwater contamination involving phenoxy herbicides such as MCPA have been associated with mixing/loading and disposal sites. Caution should be exercised when handling MCPA pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing and transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

**Physical or Chemical Hazards**

Do not use or store near heat or open flame.

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**Directions for Use**

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It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, 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 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. The requirements in this box only 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:

- Coveralls
- Chemical-resistant gloves such as Barrier Laminate, Butyl Rubber, Nitrile Rubber, or Viton
- Shoes plus socks

**Non-Agricultural Use Requirements**

The requirements of this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms or nurseries: When this product is applied to non-cropland areas, keep unprotected persons out of treated areas until sprays have dried.

**Storage and Disposal**

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

**Storage:** Store above 10°F or warm and agitate before use.

**Pesticide Disposal:** Pesticide wastes are toxic. 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 Disposal (Metal):** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture-puncture and dispose of in sanitary landfill, or by other procedures approved by state and local authorities.

**Container Disposal (Plastic):** Triple rinse (or equivalent). Puncture and dispose of in sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.



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## General Information

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Starane<sup>+</sup>+Sword<sup>®</sup> herbicide is a selective postemergence product for control of annual and perennial broadleaf weeds and volunteer potatoes in wheat, barley, or oats not under seeded with a legume, fallow cropland and on-farm non-cropland uses such as fence rows, building perimeters, around irrigation equipment and roadways.

### General Use Precautions

- Do not apply this product directly to, or otherwise permit it to come in direct contact with, susceptible crops or broadleaf plants including alfalfa, cotton, lettuce, edible beans, lentils, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes, tobacco, grapes, legumes, fruit trees, canola, tame mustard, other vegetables or ornamentals. Vapors from this product may injure susceptible plants in the immediate vicinity.
- Avoid applications where proximity of susceptible crops or other susceptible broadleaf plants is likely to result in exposure to spray or spray drift.
- Do not contaminate irrigation ditches or water used for domestic purposes.
- Do not apply in greenhouses.
- **Maximum Application Rate:** Do not apply more than 2 3/4 pints of Starane+Sword (4.0 oz of fluroxypyr acid equivalent) per acre per growing season.
- A plant-back interval of 120 days must be observed for all rotational crops.
- **Chemigation:** Do not apply this product through any type of irrigation system.

**Management of Kochia Biotypes:** Research has suggested that many biotypes of kochia can occur within a single field. While kochia biotypes can vary in their susceptibility to Starane+Sword, all will be suppressed or controlled by the 1 1/2 pint labeled rate. Application of Starane+Sword at rates below the 1 1/2 pint rate can result in a shift to more tolerant biotypes within a field.

### Precautions for Avoiding Spray Drift

Spray drift, even very small quantities of the spray which may not be visible, may severely injure susceptible crops whether dormant or actively growing. When applying Starane+Sword, use low pressure equipment capable of producing sprays of uniform droplet size with a minimum of fine spray droplets. Under adverse weather conditions, fine spray droplets that do not settle rapidly onto target vegetation may be carried a considerable distance from the treatment area. A drift control or spray thickening agent may be used with this product to improve spray deposition and minimize the potential for spray drift. If used, follow all use recommendations and precautions on the product label.

**Ground Applications:** To minimize spray drift, apply Starane+Sword in a total spray volume of 8 or more gallons per acre using spray equipment designed to produce large-droplet, low pressure sprays. Refer to the spray equipment manufacturer's recommendations for detailed information on nozzle types, arrangement, spacing and operating height and pressure. Spot treatments should be applied only with a calibrated boom to prevent over application. Operate equipment at spray pressures no greater than is necessary to produce a uniform spray pattern. Operate the spray boom no higher than is necessary to produce a uniformly overlapping pattern between spray nozzles. Do not apply with hollow cone-type insecticide nozzles or other nozzles that produce a fine-droplet spray. (See Application Directions.)

**Aerial Application:** 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 potential for temperature inversion. Spray drift from aerial application can be minimized by applying a coarse spray at spray boom pressure no greater than 30 psi; by using straight-stream nozzles directed straight back; and by using a spray boom no longer than 3/4 the wing span of the aircraft. Spray pattern and droplet size

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distribution can be evaluated by applying sprays containing a water-soluble dye marker or appropriate drift control agents over a paper tape (adding machine tape). Mechanical flagging devices, such as Automatic Flagman, may also be used. (See Application Directions.)

**Do not apply under conditions of a low level air temperature inversion.** A temperature inversion is characterized by little or no wind and lower air temperature near the ground than at higher levels. The behavior of smoke generated by an aircraft mounted device or continuous smoke column released at or near site of application will indicate the direction and velocity of air movement. A temperature inversion is indicated by layering of smoke at some level above the ground and little or no lateral movement.

### Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees. Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory Information:

**Importance of Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversion section of this label).

#### **Controlling Droplet Size:**

**Volume-**Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows product larger droplets.

**Pressure-**Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

**Number of nozzles-**Use the minimum number of nozzles that provide uniform coverage.

**Nozzle Orientation-**Orienting nozzles so that the spray is released backwards, parallel to the airstream will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

**Nozzle Type-**Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.

**Boom Length-**For some use patterns, reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

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**Application**-Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment**: When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind**: Drift potential is lowest between wind speeds of 2-10 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. Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

**Temperature and Humidity**: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions**: Applications should not occur during a temperature inversion, because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas**: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

### **Sprayer Cleanup**

To avoid injury to or exposure of nontarget crops, thoroughly clean and drain spray equipment used to apply Starane+Sword after use. Cleaning should occur as soon as possible after application of Starane+Sword. Spray equipment should be cleaned after use with Starane by the following procedure:

- 1. Drain any remaining Starane+Sword from the spray tank and dispose of according to label disposal instructions.**
- 2. Hose down the interior surfaces of the tank. Flush tank, hoses, boom, and nozzles with clean water for 10 minutes. Fill the tank with water and recirculate for 15 minutes. Spray part of the mixture through the hoses, boom, and nozzles and drain the tank. All rinse water must be disposed of in compliance with local, state, and federal guidelines.**
- 3. Remove the nozzles and screens and clean separately.**
- 4. If the spray equipment will be used on crops other than those labeled for Starane+Sword, repeat steps 1 and 2 and thoroughly wash the outside of spray tank and the boom.**

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## Mixing Instructions

### Starane+Sword

Fill the spray tank approximately 1/2 to 3/4 full with water. Add the required amount of Starane+Sword, then finish filling the spray tank. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

### Tank Mixing

Starane+Sword may be applied in tank mix combination with labeled rates of other herbicides provided (1) the tank mix product is labeled for the use site (timing and method of application is the same as Starane+Sword); and (2) tank mixing with Starane+Sword is not prohibited by the label of the tank mix product.

### Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed recommended application rates. If products containing the same active ingredient are tank mixed, do not exceed the maximum allowable active ingredient use rates.
- For products packaged in water soluble packaging, do not tank mix with products containing boron or mix in equipment previously used to apply a product mixture containing boron unless the tank and spray equipment has been adequately cleaned.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

**Tank Mix Compatibility Testing:** A jar test is recommended prior to tank mixing to ensure compatibility of Starane+Sword and other pesticides, fertilizers, or carriers. Use a clear glass jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, gels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

### Tank Mixing Instructions:

Fill the spray tank to approximately 1/4 to 1/3 of the total spray volume required. Start agitation. Add different formulation types in the order indicated, allowing time for complete mixing and dispersion after addition of each.

1. Add dry flowables; wettable powders; aqueous suspensions, flowables or liquids.
2. Maintain agitation and fill spray tank to 3/4 of total spray volume and then add Starane+Sword and other emulsifiable concentrates and any solutions.

Finish filling the spray tank. Maintain continuous agitation during mixing, final filling and throughout application. If spraying and agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose. Settled material may be more difficult to resuspend than when originally mixed.

## Application Directions

**Application Timing:** Apply to actively growing weeds. Extreme growing conditions such as drought or near freezing temperatures prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. **Only weeds which are emerged at the time of application will be affected.** Foliage that is wet at the time of application may decrease control. Starane+Sword herbicide applications are rain-fast within 1 hour after application.

**Application Rates:** Generally, application rates at the lower end of the recommended rate range will be satisfactory for young, succulent growth of sensitive weed species. For less sensitive species, perennials, and under conditions where control is more difficult (plant stress conditions such as drought or extreme

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temperatures, dense weed stands and/or larger weeds) the higher rates within the rate range will be needed. Weeds growing in the absence of crop competition generally require higher rates to obtain satisfactory control or suppression.

**Effect of Temperature on Herbicidal Activity:** Herbicidal activity of Starane+Sword is influenced by weather conditions. Optimum activity requires active crop and weed growth. The temperature range for optimum herbicidal activity is 55°F to 75°F. Reduced activity will occur when temperatures are below 45°F or above 85°F. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance.

**Coverage:** For best results, apply in 3 or more gallons per acre by air or in 8 or more gallons per acre by ground equipment. Do not exceed 40 gallons per acre total spray volume. Use sufficient spray volume to provide thorough coverage and a uniform spray pattern. Inadequate spray volume and coverage may result in decreased weed control. As crop canopy and weed density increase, spray volume should be increased to obtain equivalent weed control. Use larger nozzle tips or decrease spraying speed to increase spray volume rather than increasing boom pressure. Refer to manufacturer's recommendations for information on relationships between spray volume, and nozzle size and arrangement.

**Spot Treatments:** To prevent misapplication, spot treatments should be applied with a calibrated boom or with hand sprayers according to directions provided below.

**Hand-Held Sprayers:** Hand-held or backpack sprayers may be used for spot applications of Starane+Sword if care is taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based on an area of 1,000 sq ft. Mix the amount of Starane+Sword (fl oz or ml) corresponding to the desired broadcast rate in one or more gallons of spray. To calculate the amount of product required for larger areas, multiply the table value (fl oz or ml) by the area to be treated in "thousands" of square feet, e.g., if the area to be treated is 3,500 sq ft, multiply the table value by 3.5 (calc.  $3,500 \div 1,000 = 3.5$ ). An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size.

Amount of Starane+Sword to Equal Specified Broadcast Rate (Mix with 1 Gallon or More of Water and Apply to 1,000 sq ft)		
1 1/2 pt/acre	2 pt/acre	2 3/4 pt/acre
0.55 fl oz (16 ml)	0.75 fl oz (22 ml)	1.0 fl oz (30 ml)

†1 fl oz = 29.6 (30) ml

## Weeds Controlled or Suppressed

(Number in parentheses (-) in weeds list refer to footnotes below.)

### Weeds Controlled

bedstraw (cleavers)	marshelder
bittercress	morningglory, annual
bull nettle	mousetail
bur beakchervil	mustard (except blue) (2)
buttercup	pigweed
Carolina geranium	plantains
chickweed	prickly lettuce
cinquefoil	ragweed, common
cocklebur	ragweed, giant
coffeeweed	Russian thistle
common purslane	shepherdspurse
creeping Jenny	sicklepod

dandelion	sowthistle, annual
dock, curly	sowthistle, spring
evening primrose	speedwell
field pennycress	sunflower
flixweed	sweetclover
horseweed	velvetleaf
Jacob's ladder	Venice mallow
kochia (1)	Virginia copperleaf
ladysthumb	<u>volunteer flax</u>
lambsquarters	

1. Includes herbicide tolerant biotypes.
2. Apply prior to bolting.

#### **Weeds Suppressed (1)**

alfalfa	hoarycress
begarticks	ironweed
bull thistle	jimsonweed
burcucumber	knawel
burdock	musk thistle
Canada thistle	nightshade
carpetweed	onion, wild
catsear	peppergrass
clover, red	pepperweeds (annual)
corn spurry	poison hemlock
cowcockle	puncturevine
croton	purslane
daisy	redstem filaree
dogbanes	smallseed falseflax
dragonhead mint	smartweed
fiddleneck	tansymustard
field bindweed	vetch, hairy
galinsoga	volunteer potatoes
garlic, wild	wild buckwheat
goatshead	wild carrot
hemp dogbane	wild radish
hempnettle	yellow rocket
henbit	

1. **Suppression** is expressed as a reduction in weed competition (reduction population or vigor) as compared to untreated areas. The degree of weed control and duration of effect may vary with weed size, density, application rate, coverage, and growing conditions before, during and after treatment.

### **Approved Uses**

#### **Crop Uses**

#### **Wheat (Including Durum), Barley, and Oats**

Apply as a broadcast postemergence treatment to actively growing wheat (including durum), barley or oats, from the 3-leaf crop growth stage up to and including flag leaf emergence (Zadoks scale 39) for control of broadleaf weeds. Apply when weeds are actively growing, but before weeds are 8 inches tall or

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vinig. For control of volunteer potatoes, apply before potato plants are 8 inches tall. Only weeds emerged at the time of treatment will be controlled. Extreme growing conditions such as drought or near freezing temperatures prior to, at and following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. **Do not use if cereal crop is underseeded with a legume.**

**Spot Application:** Spot applications may be made, however, to prevent over-application spot treatments should be applied at rates and spray volumes equivalent to broadcast application. See instructions for "Spot Application" in "Application Directions" section.

**Broadcast Application Rates:**

(Number in parentheses (-) in table refer to footnotes below.)

Key Weeds Controlled (1)	Application Rate (pint/acre)
kochia bedstraw common ragweed field pennycress hemp dogbane mustard	1 1/2
<b>Weeds Suppressed</b>	
field bindweed nightshade species wild buckwheat Volunteer Potatoes	1 1/2 - 2 3/4

1. See "Weeds Controlled or Suppressed" section for a complete listing of weeds controlled or suppressed.

**Restrictions:**

- Do not allow livestock to graze treated areas or harvest treated forage within 7 days of application.
- Do not make more than one application per season.
- **Preharvest Interval:** Do not apply closer than 14 days before cutting of hay or 40 days before harvesting of grain and straw.

**Fallow Cropland**

For best results, apply as a single broadcast treatment by ground or aerial equipment to control susceptible broadleaf weeds. Apply when weeds are actively growing, but before kochia is 8 inches tall and before wild buckwheat is vining. Starane+Sword may be applied alone or in tank-mix combination with other herbicides (See tank mixing precautions in "Mixing Instructions" section.)

**Broadcast Application Rates:**

(Number in parentheses (-) in table refer to footnotes below.)

Key Weeds Controlled (1)	Application Rate (pint/acre)
kochia bedstraw common ragweed field pennycress hemp dogbane, mustard	1 1/2 - 2 3/4
<b>Weeds Suppressed</b>	
field bindweed nightshade species	

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wild buckwheat volunteer potatoes
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1. See "Weeds Controlled or Suppressed" section for a complete listing of weeds controlled or suppressed.

### **On-Farm Non-Cropland**

For best results, apply as a single broadcast treatment or spot treatment to control susceptible broadleaf weeds in on-farm non-cropland areas such as fence rows, building perimeters, around irrigation equipment and on-farm private roadways. Apply at the rate of 1 1/2 to 2 3/4 pints per acre when weeds are small and actively growing. Spot treatments should be applied at rates and spray volumes equivalent to broadcast application. See instructions for "Spot Application" in "Application Directions" section. See "Weeds Controlled or Suppressed" section for a complete listing of weeds controlled or suppressed.

### **CRP Acres**

**Do not use on CRP acres that are underseeded with desirable legumes, clovers, or other sensitive broadleaf plants.**

Starane+Sword may be applied to Conservation Reserve Program (CRP) acres. For best results, apply as a single broadcast treatment by ground or aerial equipment to control susceptible broadleaf weeds. Apply at the rate of 1 1/2 to 2 3/4 pints per acre when weeds are small and actively growing. Spot treatments should be applied at rates and spray volumes equivalent to broadcast application. See instructions for "Spot Application" in "Application Directions" section. See "Weeds Controlled or Suppressed" section for a complete listing of weeds controlled or suppressed.

**Restriction:** Grazing or haying of treated CRP acres is prohibited.

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1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used.



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