

## **ROUNDUP READY ALFALFA - ANNUAL WEEDS (LOW-VOLUME BROADCAST APPLICATION)**

General Information

### **PRODUCT INFORMATION**

**DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THE LABEL.**

This product mixes readily with water to be applied as a foliar spray for the control or destruction of most herbaceous plants. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water in accordance with label instructions.

This product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay visible effects of control. Visible effects are a gradual wilting and yellowing of the plant, which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise specified on the label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the WEEDS CONTROLLED section of the label.

Unemerged plants arising from unattached underground rhizomes or root stocks of perennials will not be affected by the herbicide and will continue to grow. For this reason, best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product per acre within the specified range when (1) weed growth is heavy or dense, or (2) weeds are growing in an undisturbed (noncultivated) area.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also

occur when treating weeds heavily covered with dust.

Reduced control may result when applications are made to annual and perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the specified stage for treatment.

Rainfall or irrigation occurring within 2 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the chemical off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly specified in the labeling. Mixing this product with herbicides or other materials not specified on the label may result in reduced performance.

In the spring when temperatures may be cooler than usual the application of Helosate 75 SG to perennial or annual ryegrass, wheat as a cover crop, or volunteer wheat, requires an additional surfactant for maximum control. See the Additives Section of the label for further information.

For best results, spray coverage should be uniform and complete. Do not spray weed foliage to the point of runoff.

NOTE: Use of this product in any manner not consistent with the label may result in injury to persons, animals, or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

### Weed Resistance Management

Based on the mode of action classification system of the Weed Science Society of America, Glyphosate (active ingredient) is a Group 9 herbicide.

Group 9 herbicides may contain plants from any weed population that can be naturally resistant to glyphosate. These weed resistant plants can be effectively

controlled using a different Group herbicide or by using other means such as cultural or mechanical practices.

### Weed Resistance Management Recommendations

Glyphosate resistant biotypes can be minimized by utilizing the following weed resistance management recommendations:

1. Begin by preparing your field using tillage or a burndown herbicide application.
2. It is a good practice to scout your fields before and after applications.
3. Use new commercial seeds that have fewer weed seeds.
4. Control weeds early when they are relatively small.
5. Cultural practices such as crop rotation or tillage and the addition of other herbicides such as a selective and/or a residual herbicide where appropriate are suggested.
6. Rotating to other Roundup Ready crops is one method for adding other herbicides into a continuous Roundup Ready system.
7. Follow the specified label rate for the most difficult to control weeds. Reject directions that support lower application rates when tank mixing as well as tank mixtures with other herbicides that will reduce product efficacy.
8. Follow good agricultural practices by cleaning equipment prior to shifting from field to field preventing weed seed or plant root parts from spreading.
9. Any incidence of repeated non-performance of this product on a particular weed should be reported to any Helm representative, your county extension agent or to the local retailer.

### Glyphosate-Resistant Biotypes Management

In order to reduce the spread of confirmed glyphosate resistant biotypes apply the following practices:

1. When a naturally occurring resistant biotype(s) is present, tank mix or apply sequentially with an appropriate herbicide with a different mode of action to achieve control.
2. Use cultural and mechanical control practices, such as crop rotation or tillage, as appropriate.
3. Rotation to other Roundup Ready crops is one method for adding other herbicides into a continuous Roundup Ready system.
4. Control escaping weeds including resistant biotypes before they set seed and

scout treat fields after herbicide application.

5. Clean equipment thoroughly prior to exiting fields known to contain resistant biotypes.

Helm Agro US, Inc. is not responsible for any losses that may result from the failure of this product to control glyphosate-resistant weed biotypes as the occurrence of new glyphosate-resistant weeds cannot be determined until after the product use and scientific confirmation.

## Additive Instructions

### ADDITIVES

#### Surfactants

This product contains a fully loaded surfactant and ammonium sulfate in the granule.

Nonionic surfactants that are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5% surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants that contain at least 70% active ingredient or a 1% surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70% active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

When applied as specified under the conditions described, this product controls annual and perennial weeds listed in the label.

**DO NOT** add buffering agents or pH adjusting agents to the spray solution when Helosate 75 SG is the only pesticide product used. **DO NOT ADD ADDITIONAL SURFACTANT OR ADDITIVES CONTAINING SURFACTANT TO THIS PRODUCT FOR PREHARVEST APPLICATIONS TO COTTON.**

#### Ammonium Sulfate

The addition of 1 to 2% dry ammonium sulfate by weight or 8.5 to 17 pounds per 100 gallons of water may increase the performance of this product and this product plus 2,4-D, dicamba or residual herbicide tank mixtures on annual and perennial

weeds particularly under hard water conditions, drought conditions or when tank-mixed with certain residual herbicides. The improvement in performance may be apparent where environmental stress is a concern. Low-quality ammonium sulfate may contain material that will not readily dissolve, which could result in nozzle tip plugging. To determine quality, perform a jar test by adding 1/3 cup of ammonium sulfate to 1 gallon of water and agitate for 1 minute. If undissolved sediment is observed, predissolve the ammonium sulfate in water and filter prior to addition to the spray tank. If ammonium sulfate is added directly to the spray tank, add slowly with agitation. Adding too quickly may clog outlet line. Ensure the ammonium sulfate is completely dissolved in the spray tank before adding herbicides or surfactant. Thoroughly rinse the spray system with clean water after use to reduce corrosion.

NOTE: The use of ammonium sulfate as an additive does not preclude the need for additional surfactant. Do not use herbicide rates lower than specified in the label. Using lower rates will result in reduced performance.

#### Colorants or Dyes

Agriculturally approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's directions.

#### Drift Control

When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

The use of a drift reduction additive can affect spray coverage, which can reduce product performance.

#### SPRAY DRIFT

#### SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

**AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.**

**DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITIONS WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.**

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase nozzle pressure.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended.

Aerial Spray Drift Management

#### **AERIAL SPRAY DRIFT MANAGEMENT**

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 or to public health uses.

1. The distance of the outermost 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 must be observed.

### 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 the Wind, Temperature and Humidity, and Temperature Inversion sections of the label).

### Controlling Droplet Size

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

**Pressure:** Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy protection. 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.

**Application height:** Applications shall 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 the exposure of the droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, 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 droplets, etc.).

**Wind:** 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. NOTE: Local terrain can influence wind patterns. Every applicator must 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 shall 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 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 concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.



Sensitive Areas: The pesticide shall 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).

Avoid direct application to any body of water.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint), which meets aerospace specification MIL-C-38413, may prevent corrosion.

THIS PRODUCT PLUS OUST, DICAMBA OR 2,4-D TANK MIXTURES MAY NOT BE APPLIED BY AIR IN CALIFORNIA.

For Aerial Applications in California Only

Directions for Use

The label must be in the possession of the user at the time of the herbicide application.

See PRODUCT INFORMATION and MIXING, ADDITIVES and APPLICATION INSTRUCTIONS sections of the label for essential product performance information. See the CROPPING SYSTEMS section of the label for specific directions on the use of this product.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS, OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES, OR OTHER DESIRABLE VEGETATION SINCE SEVERE INJURY OR DESTRUCTION MAY RESULT.

Aerial applications of this product are allowed in the following situations:

1. In fallow and reduced tillage systems prior to the emergence or transplanting of labeled crops.
2. Prior to harvest in cotton, soybeans, wheat and Roundup Ready canola, corn, and cotton.

Do not plant subsequent crops other than those listed in the label for 30 days following application.

When applied as specified, under the conditions described, HELOSATE 75 SG controls annual and perennial weeds listed in the label.

DO NOT EXCEED MAXIMUM RATE OF 1.1 LBS. PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR WITH THE FOLLOWING EXCEPTIONS: DO NOT EXCEED A MAXIMUM RATE OF 2.2 LBS. PER ACRE OF THIS PRODUCT WHEN MAKING APPLICATIONS BY AIR IN FALLOW AND REDUCED TILLAGE SYSTEMS, AND PRIOR TO HARVEST IN ROUNDUP READY COTTON.

For Aerial Application in Fresno County California Only

From February 15 through March 31 Only

NOTE: For aerial application outside these dates, refer to FOR AERIAL APPLICATION IN CALIFORNIA ONLY section.

#### Directions for Use

The label must be in the possession of the user at the time of the herbicide application.

See PRODUCT INFORMATION and MIXING, ADDITIVES and APPLICATION INSTRUCTIONS sections of the label for essential product performance information.

See the CROPPING SYSTEMS section of the label for specific directions on the use of this product.

#### Applicable Area

This supplemental only applies to the area contained inside the following boundaries within Fresno County California only:

North: Fresno County line

South: Fresno County line

East: State Highway 99

West: Fresno County line

Always read and follow the label directions and precautionary statements for all products used in the aerial application.

Observe the following directions to minimize off-site movement during aerial application of HELOSATE 75 SG.

Minimization of off-site movement is the responsibility of the grower, Pest Control Advisor, and aerial applicator.

#### Written Recommendations

A written recommendation MUST be submitted by or on behalf of the applicator to the Fresno County Agricultural Commissioner 24 hours prior to application. This written recommendation MUST state the proximity of the surrounding crops, and that conditions of each manufacturer's applicable product label(s) and the label have been satisfied.

#### Aerial Application in Arkansas Only

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS (EXCEPT AS SPECIFIED FOR INDIVIDUAL ROUNDUP READY CROPS), DESIRABLE PLANTS AND TREES, AS SEVERE INJURY OR DESTRUCTION MAY RESULT.

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITIONS WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

See "Product Information" and "Mixing" sections of the container label for this product for essential product performance information.

## AERIAL APPLICATIONS

Use the specified rate of this product in 3 to 15 gallons of water per acre.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended.

Apply only when the wind speed is less than or equal to 10 mph at the application site.

Do not apply by air if drift can occur to sensitive nontarget crops or plants that are within 100 feet of the application site.

If wind up to 5 miles per hour is blowing toward desirable vegetation or crops, do not apply within 500 feet upwind of the desirable vegetation or crops. Winds blowing from 5 to 10 miles per hour toward desirable vegetation or crops will likely require buffer zones in excess of 500 feet.

Use sufficient carrier volume and appropriate equipment set-up to form droplets large enough to avoid drift potential. Coarse droplets in the 300 to 500 (VMD) micron ranges are specified.

Applications should typically be made with the nozzle release point at 8 to 15 feet above the top of the target plants unless a greater height is required for aircraft safety.

The boom length must not exceed 75% of the wingspan or rotor blade diameter. In many cases, reducing this distance to 65% of the length of the wingspan or rotor will improve drift control without affecting the swath width.

Do not make any type of application into temperature inversions. Do not apply into still air where there is a temperature inversion layer low enough for fine spray particles to become suspended and move outside the target area when the inversion layer moves. These conditions may occur when wind speeds are less than 2 mph.

Nozzles must always discharge backward parallel with the air stream and never discharge downwards more than 45 degrees on fixed wing aircraft or forward of the

prevailing air flow on rotary winged aircraft. Avoid the use of nozzles with wide-angle discharge.

## APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system. This product may be applied with the following application equipment.

Aerial - Fixed wing and helicopter

Broadcast Spray - Ground - Boom or boomless systems, pull-type sprayers, floaters, pick-up sprayers, spray coupes and other broadcast equipment.

Controlled Droplet Applicator (CDA) - Hand-held or boom-mounted applicators that produce a spray consisting of a narrow range of droplet sizes.

Hand-Held and High-Volume Spray Equipment - Knapsack and backpack sprayers, pump-up pressure sprayers, handguns, handwands, mistblowers\*, lances and other hand-held and motorized spray equipment used to direct the spray onto weed foliage.

**\*THIS PRODUCT IS NOT REGISTERED IN CALIFORNIA OR ARIZONA FOR USE IN MISTBLOWERS**

Selective Equipment - Recirculating sprayers, shielded sprayers and wiper applicators.

Injections Systems - Ground or aerial injections systems

See the appropriate part of this section for specific instructions and rates of application.

**SPRAY SOLUTIONS MUST BE APPLIED IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT THAT IS CAPABLE OF DELIVERING VOLUMES DESIRED.**

Aerial Applicator Training and Equipment

Aerial application of HELOSATE 75 SG is limited to pilots who have successfully completed a Fresno County Agricultural Commissioner and California Department of Pesticide Regulation approved training program for aerial application of herbicides. All aircraft must be inspected, critiqued in flight, and certified at a Fresno County

Agricultural Commissioner approved fly-in. Test and calibrate spray equipment at intervals sufficient to insure that proper rates of herbicides and adjuvants are being applied during commercial use. Applicator must document such calibrations and testing. Demonstration of performance at Fresno County Agricultural Commission approved fly-ins constitutes such documentation, or other written records showing calculations and measurements of flight and spray parameters acceptable to the Fresno County Agricultural Commissioner.

Application at night - Do not apply this product by air earlier than 30 minutes prior to sunrise and/or later than 30 minutes after sunset without prior permission from the Fresno County Agricultural Commissioner.

### Aerial Equipment

Use the specified rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on the label. See the WEEDS CONTROLLED section of the label for specific rates. Unless otherwise specified, do not exceed 1 lb. per acre. Aerial applications of this product may be made in annual cropping conventional tillage systems, fallow and reduced tillage systems, preharvest, silvicultural sites and rights-of-way. Refer to the individual use area sections of the label for specified volumes and application rates.

Do not apply to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

**AVOID DRIFT - DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITIONS WHICH WILL ALLOW DRIFT. DRIFT MAY CAUSE DAMAGE TO ANY VEGETATION CONTACTED TO WHICH TREATMENT IS NOT INTENDED. TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.**

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application - to avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills.

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE. The maintenance of an organic coating (paint) which meets aerospace specification MILC-38413 may prevent corrosion.

#### Ground Broadcast Equipment

For control of annual or perennial weeds listed on the label using broadcast equipment - Use the specified rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on the label. See the WEEDS CONTROLLED section of the label for specific rates. As density of weeds increases, spray volume should be increased within the specified range to ensure complete coverage. Carefully select proper nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

#### Controlled Droplet Application (CDA)

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount specified in the label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of labeled annual weeds with hand-held CDA units, apply a 20% solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 1.5 mph (1 lb. per acre). For the control of labeled perennial weeds, apply a 20 to 40% solution of this product at a flow rate of 1 ounce per minute and a walking speed of 0.75 mph (2 to 4 lbs. per acre).

Controlled droplet application equipment produces a spray pattern that is not easily

visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation, as damage or destruction may result.

### Hand-Held And High-Volume Equipment

Use coarse sprays only.

Mix this product in clean water and apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff.

For control of annual weeds listed on the label, apply a 0.5% solution of this product plus nonionic surfactant to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. Allow three or more days before tillage or mowing.

For annual weeds over 6 inches tall, or when not using additional surfactant, or unless otherwise specified, use a 1% solution. For best results, use a 2% solution on harder-to-control perennials, such as Bermuda grass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

When using application methods that result in less than complete coverage, use a 5% solution for annual and perennial weeds and a 5 to 10% solution for woody brush and trees.

### Selective Equipment

This product may be applied through a recirculating spray system, a shielded applicator, hooded sprayers, wiper applicators or sponge bars after dilution and thorough mixing with water to listed weeds growing in any Non-Crop site specified on the label and only when specifically specified in cropping systems.

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

A shielded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide.



A wiper applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution.

#### AVOID CONTACT WITH DESIRABLE VEGETATION.

Contact of the herbicide solution with the desirable vegetation may result in damage or destruction. Applicators used above desired vegetation should be adjusted so that the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam, or splatter of the herbicide solution settling on desirable vegetation may result in discoloration, stunting or destruction.

Applications made above the crops should be made when the weeds are a minimum of 6 inches above the desirable vegetation. Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

#### Shielded Applicators/Hooded Sprayers

When applied as directed under conditions described for shielded applicators and hooded sprayers, this product will control those weeds listed.

Use nozzles that provide uniform coverage within the treated area. Keep shields on shielded sprayers adjusted to protect desirable vegetation. **EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT WITH DESIRABLE VEGETATION.**

A hooded sprayer is a type of shielded sprayer where the spray pattern is fully enclosed including the top, sides, front and back, thereby shielding the crop from the spray solution. To protect desirable vegetation, adjust the shields on these sprayers. When applications are made to crops grown on raised beds, make sure the hood is capable of completely enclosing the spray pattern. If necessary, extend the front and rear flaps of the hooded applicator downward to reach the ground in deep furrows. **EXTREME CARE MUST BE TAKEN TO AVOID CONTACT OF THIS HERBICIDE WITH DESIRABLE VEGETATION.**

For specific rates of application and instructions for control of various annual weeds and perennial weeds, see the WEEDS CONTROLLED section of the label.

### Wiper Applicators

Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. When more of the weed is exposed to the herbicide solution, better results may be obtained. Weeds should be a minimum of 6 inches above the desirable vegetation. To ensure adequate contact with weeds, adjust the height of the applicator. Weeds not contacted by the solution will not be affected. Poor contact may occur when weeds are growing in dense clumps, in severe weed infestations or when weed height varies dramatically. In these instances, repeat applications may be necessary. Operate this equipment at ground speeds no greater than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Droplets, mist, foam or splatter of the herbicide solution settling onto desirable vegetation may result in discoloration, stunting or destruction. Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced activity may result from use of leftover solutions. Clean wiper parts immediately after using this product by thoroughly flushing with water.

Do not add surfactant to the herbicide solution.

For rope or sponge wick applicators - Mix 5 lbs. of this product in 2 gallons of water to prepare a 33% solution. Apply this solution to weeds listed in this Wiper Applicators section.

For porous-plastic applicators - Solutions ranging from 33 to 100% of this product in

water may be used in porous-plastic wiper applicators.

## CROPPING SYSTEMS

When applied as directed for CROPPING SYSTEMS, under the conditions described, this product controls annual and perennial weeds listed on the label, prior to the emergence of direct seeded crops or prior to transplanting of crops listed on the label.

See PRODUCT INFORMATION and MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS sections of the label for essential product performance information.

See the following CROPPING SYSTEMS sections for specific uses.

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE, GREEN STEMS OR FRUIT OF DESIRABLE CROPS, PLANTS, TREES OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.**

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed.

Except as otherwise specified on the label, repeat treatments must be made before the crop emerges in accordance with the instructions of the label.

Except as otherwise specified in a crop section of the label, the combined total of all treatments must not exceed 8 lbs. per acre of this product per year. The maximum use rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed stated maximum use rate.

For any crop NOT listed, applications must be made at least 30 days prior to planting.

Do not harvest or feed treated vegetation for 8 weeks following application. Following spot treatment or selective equipment use, allow 14 days before grazing domestic livestock or harvesting forage grasses and legumes.

When applying this product prior to transplanting crops into plastic mulch, care

must be taken to remove residues of this product, which could cause crop injury, from the plastic prior to transplanting. Residues can be removed by a single 0.5 inch application of water, either by natural rainfall or via a sprinkler irrigation system. Applications made at emergence will result in injury or death to emerged seedlings.

Spot treatment - Applications in growing crops must be made prior to heading of small grains and milo, initial pod set in soybeans, silking of corn, or boll opening on cotton.

For forage grasses and forage legumes see Spot treatment in the PASTURES section of CROPPING SYSTEMS in the label.

For dilution and rates of application using boom or hand-held equipment, see MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS and WEEDS CONTROLLED sections of the label.

NOTE: FOR SPOT TREATMENT IN FORAGE GRASSES AND FORAGE LEGUMES, NO MORE THAN ONE-TENTH OF ANY ACRE MUST BE TREATED AT ONE TIME. FOR ALL OTHER CROPS, DO NOT SPOT TREAT MORE THAN 10% OF THE TOTAL FIELD AREA TO BE HARVESTED.

THE CROP RECEIVING SPRAY IN TREATED AREA WILL BE KILLED. TAKE CARE TO AVOID DRIFT OR SPRAY OUTSIDE TARGET AREA FOR THE SAME REASON.

Selective equipment - This product may be applied through recirculating sprayers, shielded applicators or wiper applicators in cotton and soybeans. Shielded and wiper applicators may also be used in tree crops and grapes. Wiper applicators may be used in wheat, rutabagas, forage grasses and forage legumes, including pasture sites and grain sorghum (milo).

See the SELECTIVE EQUIPMENT part of the APPLICATION EQUIPMENT AND TECHNIQUES section of the label for information on proper use and calibration of this equipment.

Limitations, Restrictions, and Exceptions

ROUNDUP READY CROPS

ROUNDUP READY CROPS CONTAIN A PATENTED GENE THAT PROVIDES TOLERANCE

TO GLYPHOSATE, THE ACTIVE INGREDIENT IN THIS PRODUCT.

THIS PRODUCT WILL CAUSE SEVERE CROP INJURY OR DESTRUCTION AND YIELD LOSS IF APPLIED TO CROPS THAT ARE NOT GLYPHOSATE TOLERANT. AVOID CONTACT WITH FOLIAGE, GREEN STEMS, OR FRUIT OF CROPS, OR ANY DESIRABLE PLANTS THAT DO NOT CONTAIN A GLYPHOSATE TOLERANCE GENE. SINCE SEVERE PLANT INJURY OR DESTRUCTION WILL RESULT.

Information on Roundup Ready crops may be obtained from your seed supplier or Monsanto representative. Roundup Ready crops must be purchased from an authorized licensed seed supplier.

The instructions in the sections that follow, or those published separately on supplemental labeling for this product, include all applications of this product that may be made onto the specified Roundup Ready crops during the complete cropping season. DO NOT combine these instructions with other instructions for crops in the "ANNUAL AND PERENNIAL CROPS (Alphabetical)" and "PASTURE GRASSES, FORAGE, LEGUMES AND RANGELAND" sections of the label that do not contain a Glyphosate tolerance gene.

NOTE: Roundup Ready seed, and the method of selectively controlling weeds in a Roundup Ready crop, are protected under several U.S. Patents, including 5,352,605 and 5,633,435. A license to use Roundup Ready seed must be obtained prior to use. Monsanto retains ownership of the gene and process technologies, and the Purchaser of the seed receives the right to use the licensed genes and technologies subject to the limited use license conditions. Seed containing a Roundup Ready trait cannot be used for research and demonstration, reverse engineering or in connection with herbicide registration. Progeny seed containing Roundup Ready trait may not be saved for replanting or transferred to others for replanting. Contact your Authorized Monsanto Retailer for information on obtaining a limited use license.

PRODUCT USE INSTRUCTIONS: Refer to the "ANNUAL WEED RATE SECTION" and "PERENNIAL WEEDS RATE SECTION" of the label for rate directions for specific weeds. When applied as directed, this product will control these annual and perennial grasses and broadleaf weeds. Observe the maximum application rates and crop stage timings specified for individual Roundup Ready crops in the sections that follow.

For ground broadcast applications: Apply this product in 5 to 20 gallons of spray

solution per acre. Carefully select proper nozzle and spray pressure to avoid spraying a fine mist. For best results with ground application equipment, use flat spray nozzles. Check for even distribution of spray droplets.

For aerial applications: All labeled treatment may be made by aerial equipment where appropriate, provided that the applicator complies with the precautions and restrictions specified on the label, particularly, in the "AERIAL EQUIPMENT" section, and on all separately published supplemental labeling. Apply this product in 3 to 15 gallons of water per acre. See the "APPLICATION EQUIPMENT AND TECHNIQUES" section of the label for procedures on avoiding spray drift that may cause injury to any vegetation not intended for treatment. Use of appropriate buffer zones will help prevent injury to adjacent vegetation.

For proper stewardship of aerial applications over the top of Roundup Ready crops, growers and applicators must read and follow all precautions and procedures contained in the use guide, "A Guide to On-Target Aerial Application". Copies of this publication are available by calling 1-800-ROUNDUP (1-800-768-6387).

**ATTENTION: AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS WHICH DO NOT CONTAIN A GLYPHOSATE TOLERANCE GENE.**

See the "MIXING" and "APPLICATION EQUIPMENT AND TECHNIQUES" sections of the label for additional directions and restrictions on the application of this product.

**TANK MIXTURES:** Tank mixtures with other herbicides, insecticides, fungicides, micronutrients or foliar fertilizers may result in reduced weed control or crop injury, and are NOT to be used for postemergence (in-crop) applications of this product over the top of Roundup Ready crops, unless otherwise noted in this product label, or in separate supplemental labeling for Fact Sheets published by Monsanto for this product. Always read and follow label directions for all products in the tank mixture. Use all products according to labeled rates. Some tank mixture products have the potential to cause crop injury under certain conditions, at certain crop growth stage and/or under other circumstances. Read all labels for products used in the tank mixture prior to use to determine the potential for crop injury. Always predetermine the compatibility of tank-mix products together in the carrier by mixing small proportional quantities in advance. A tank mixture of this product with other herbicides may cause incompatibility, antagonism, or a reduction in product

efficacy. Helm has not tested all tank-mix product formulations for compatibility or performance. See the "MIXING" section of the label for more information on tank mixtures.

Unless otherwise directed, nonionic surfactant may be added to the spray solution for applications to Roundup Ready crops. The addition of certain surfactants to this product may result in some crop response including leaf speckling or leaf necrosis due to the surfactant added to the spray mixture. Refer to individual crops within this section of the label, or separately published supplemental labeling, for additional precautions or restrictions.

Refer to the "MIXING" section of the label for additional information on the use of surfactants.

Ammonium sulfate may be mixed with this product for applications to Roundup Ready crops. Refer to the "MIXING" section of the label for instructions on the use of ammonium sulfate.

Sprayer Preparation: It is important that sprayer and mixing equipment be clean and free of pesticide residue before making applications of this product. Follow the cleaning procedures specified on the label of the product(s) previously used.  
THOROUGHLY CLEAN THE SPRAY TANK AND ALL LINES AND FILTERS TO ELIMINATE POTENTIAL CONTAMINATION FROM OTHER HERBICIDES PRIOR TO MIXING AND APPLYING THIS PRODUCT.

NOTE: The following directions are based on a clean start at planting by using a burndown application or tillage to control existing weeds before crop emergence. In no-till and stale seedbed systems, a preplant burndown treatment with this product may be used to control existing weeds prior to crop emergence. Some weeds, such as black nightshade, broadleaf signalgrass, sicklepod, Texas panicum, sandbur, annual morningglory, woolly cupgrass, shattercane, wild proso millet, burcucumber, and giant ragweed with multiple germination times, or suppressed (stunted) weeds, may require a second application of this product for complete control. The second application shall be made after some regrowth has occurred and at least 10 days after a previous application of this product.

Specified rates of this product specified in the label for the control of tough weeds, or those specified on separate supplemental labeling for this product, supersede rates specified in the "ANNUAL WEEDS RATE SECTION" and "PERENNIAL WEEDS

RATE SECTION” of the label. Additional information on the control of tough weeds can be found in Fact Sheets published by Monsanto for this product.

PRECAUTIONS, RESTRICTIONS: Observe the maximum application rates stated throughout the label. Maximum application rates apply to the use of this product combined with the use of any and all other herbicides containing Glyphosate as the active ingredient, whether applied separately or as mixtures. Calculate the application rate (Glyphosate acid equivalents) and ensure that the total use of this and other Glyphosate-containing products does not exceed the stated maximum rate. See the “PRODUCT INFORMATION” section of the label for more information on Maximum Application Rates.

## ROUNDUP READY ALFALFA

### Maximum Application Rates

- Combined total per year for all applications, including Preplant during year of establishment: 8 lbs. per acre
- Combined total per year for In-crop applications for newly established and established stands: 6 lbs. per acre (6 lbs. acre)
- Preplant, At-Planting and Preemergence single applications: 2 lbs. per acre

PRECAUTIONS AND RESTRICTIONS: See the “ROUNDUP READY CROPS” section of the label for precautionary instructions for use in Roundup Ready crops. See the “PRODUCT INFORMATION” section of the label for more information on Maximum Application Rates.

### Preplant, At-Planting, Preemergence

USE INSTRUCTIONS: This product may be applied before, during or after planting Roundup Ready alfalfa.

### Postemergence (In-crop)

USE INSTRUCTIONS: Applications of this product may be made over the top of Roundup Ready alfalfa (in-crop) from emergence until 5 days prior to cutting. To maximize crop yield and quality potential of forage and hay, applications of this product shall be made after weeds have emerged but before alfalfa growth or re-growth interferes with spray coverage of the target weeds.



Refer to the “ANNUAL WEEDS RATE SECTION” and “PERENNIAL WEEDS RATE SECTION” in the label for rate directions for specific weeds. When applied as directed, this product will control these annual and perennial grasses and broadleaf weeds. In addition to those weeds listed in these sections, this product will suppress or control the parasitic weed Dodder (*Cuscuta* spp) in Roundup Ready alfalfa. Repeat applications may be necessary for complete control.

New Stand Establishment (Seeding Year) – Due to the biology and breeding constraints of alfalfa, up to 10 percent of the seedlings may not contain a Roundup Ready gene and will not survive after the first application of this product. To eliminate the undesirable effects of stand gaps created by this loss of plants, a single application of at least 1 lbs. per acre of this product must be applied at or before the 4-trifoliolate growth stage. Refer to the following table for application rates during stand establishment (seeding year).

#### NEW STAND ESTABLISHMENT (Seeding Year)

##### Application Rates

##### Prior to First Cutting

- From emergence up to 4 trifoliolate leaves: 1 to 2 lbs. per acre
- From 5 trifoliolate leaves up to 5 days before first cutting: Up to 1 lbs. per acre

##### After First Cutting

- In-crop application, per cutting, up to 5 days before cutting: Up to 2 lbs. per acre

Established Stands (Non-seeding Year): Refer to the following table for directions and application rates for in-crop applications to established stands of alfalfa (non-seeding year).

#### ESTABLISHMENT (Non-seeding Year)

##### Application Rates

- In-crop applications, per cutting, up to 5 days before cutting: Up to 2 lbs. per acre

PRECAUTIONS, RESTRICTIONS: Where Roundup Ready alfalfa is grown with a companion or cover crop, or is overseeded with a second species, incrop (over the top) applications of this product will eliminate the non-Roundup Ready (non-

glyphosate tolerant) species. Any single in-crop application of this product must not exceed 2 lbs. per acre. Sequential applications of this product must be at least 7 days apart. The combined total per year for all in-crop applications in both newly established (seeding year) and established stands (non-seeding year) must not exceed 6. lbs. per acre. Remove domestic livestock before application. Wait a minimum of 5 days after last application before grazing or cutting and feeding of forage and hay.

## ANNUAL WEEDS

Apply to actively growing grass and broadleaf weeds.

Allow at least 3 days after treatment before tillage.

For maximum agronomic benefit, apply when weeds are 6 inches or less in height.

To prevent seed production, applications must be made prior to seedbed formation.

This product does not provide residual control; therefore, delay application until maximum weed emergence. Repeat treatments may be necessary to control later germinating weeds.

### Low-Volume Broadcast Application (Low-Rate Technology)

When applied as directed under the conditions described, this product will control the weeds listed when:

1. Water carrier volumes of 3 to 10 gallons per acre for ground applications and 3 to 5 gallons per acre for aerial applications are recommended.

(See the AERIAL EQUIPMENT section of the label for approved sites.)

2. A nonionic surfactant is added at 0.5 to 1% by total spray volume. Use 0.5% surfactant concentration when using surfactants that contain at least 70% active ingredient or a 1% surfactant concentration for those surfactants containing less than 70% active ingredient.

### NOTE:

- The addition of 2% dry ammonium sulfate by weight or 17 pounds per 100 gallons of water may increase the performance of this product on annual weeds. The improvement in performance may be apparent where environmental stress is a concern. Refer to the MIXING, ADDITIVES AND APPLICATION INSTRUCTIONS section

of the label.

- Do not tank-mix with soil residual herbicides when using these rates unless otherwise specified.
- For weeds that have been mowed, grazed, or cut, allow regrowth to occur prior to treatment.
- Refer to the Tank Mixtures portion of this section for control of additional broadleaf weeds.

#### Method

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

#### Rates

[field rates 0](#)

[field rates 1](#)

- 

#### Restricted Entry Interval

12 hours

#### Timings

[At-Plant](#)

[Preemergence \(Crop\)](#)

[Preplant](#)

[Postemergence \(Weed\)](#)

[Post-plant](#)