

## **PERENNIAL WEEDS (BRACKENFERN)**

### General Information

#### PRODUCT INFORMATION

**Product Description:** This product is a post emergent, systemic herbicide with no soil residual activity. It is generally nonselective and gives broad-spectrum control of many annual weeds, perennial weeds, woody brush and trees. It is formulated as a water-soluble liquid. It may be applied through most standard industrial or field-type sprayers after dilution and thorough mixing with water or other carriers according to label instructions.

No additional surfactant in the spray solution is needed or recommended. This includes additives containing surfactants, buffering agents or pH adjusting agents when Shar-Max Glyphosate 41% SL is the only pesticide used unless otherwise directed. Ammonium sulfate, drift control additives, or dyes and colorants may be used. See the "MIXING" section of the label for instructions.

**Time to Symptoms:** 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 development of visual symptoms. Visible effects are a gradual wilting and yellowing of the plant that advances to complete browning of aboveground growth and deterioration of underground plant parts.

**Stage of Weeds:** Annual weeds are easiest to control when they are small. Best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity. Refer to the "ANNUAL WEEDS", "PERENNIAL WEEDS" and "WOODY BRUSH AND TREES RATE TABLES" for recommendations for specific weeds. Always use the higher rate of this product per acre within the recommended range when weed growth is heavy or dense or 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.

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

**Rainfastness:** Heavy rainfall soon after application may wash this product off of the foliage and a repeat application may be required for adequate control.

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

**Mode of Action:** The active ingredient in this product inhibits an enzyme found only in plants and microorganisms that is essential to formation of specific amino acids.

**No Soil Activity:** Weeds must be emerged at the time of application to be controlled by this product. Weeds germinating from seed after application will not be controlled. Unemerged plants arising from unattached underground rhizomes or rootstocks of perennials will not be affected by the herbicide and will continue to grow.

**Biological Degradation:** Degradation of this product is primarily a biological process

**Annual Maximum Use Rate:** Except as otherwise specified in a crop section of the label, the combined total of all treatments must not exceed 8 quarts of this product per acre per year. For applications in non-crop sites or in tree, vine, or shrub crops, the combined total of all treatments must not exceed 10.6 quarts of this product per acre 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. 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.

#### APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

Do not apply when winds are gusty or under any other condition that favors drift.

This product may be applied with the following application equipment:

**Aerial—Fixed Wing and Helicopter**

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

**Hand-Held or 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.

**Mistblowers:** This product is not registered in California or Arizona for use in mistblowers.

**Selective Equipment—**Recirculating sprayers, shielded and hooded sprayers, wiper applicators and sponge bars.

**Injection Systems—**Aerial or ground injection sprayers.

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

**APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES. DO NOT APPLY WHEN WINDS ARE GUSTY OR UNDER ANY OTHER CONDITION THAT FAVORS DRIFT.**

**Aerial Equipment**

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

Use the recommended rates of this herbicide in 3 to 15 gallons of water per acre unless otherwise specified on the label. Unless otherwise specified, do not exceed 1 quart per acre. Refer to the individual use area sections of the label for recommended volumes, application rates, and further instructions. This product plus dicamba tank mixtures may not be applied by air in California.

**Ensure uniform application—to avoid streaked, uneven or overlapped application,**

use appropriate marking devices.

### Sensitive Areas

The product must 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.

### FOR AERIAL APPLICATION IN FRESNO COUNTY, CALIFORNIA ONLY

See “PRODUCT INFORMATION”, “MIXING”, “APPLICATION EQUIPMENT AND TECHNIQUES” and “SPRAY DRIFT MANAGEMENT” sections of the label booklet for essential product information prior to making aerial application.

See “CROPS” section of the label booklet for specific directions on the use of this product.

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 BECAUSE SEVERE INJURY IS LIKELY TO RESULT.

### FOR FRESNO COUNTY, CA ONLY

From February 15 through March 31 only

For aerial application outside these dates, refer to the above section of the label.

This section 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

## Use Information

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

Observe the following directions to minimize off-site movement during aerial application of Shar-Max Glyphosate 41% SL. 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 surrounding crops, and that conditions of each manufacturers applicable product label(s) and the label have been satisfied.

## Aerial Applicator Training and Equipment

Aerial application of Shar-Max Glyphosate 41% SL 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 Commissioner approved "fly-in" 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.

FOR AERIAL APPLICATIONS IN MISSISSIPPI

The distance of the outermost nozzles on the boom must not exceed 75% of the length of the wingspan or rotor. 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.

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. Do not apply this product when winds are in excess of 10 miles per hour.

Do not apply this product when there is a low level inversion where fine spray particles could be suspended in still air and move outside the target area when the inversion layer moves. These conditions may occur when wind speeds are less than 2 mph.

Use the following guidelines when applications are made near crops or other desirable vegetation:

1. Do not apply within 100 feet of any desirable vegetation or crops.
2. 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.
3. Winds blowing from 5 to 10 miles per hour toward desirable vegetation or crops will likely require buffer zones in excess of 500 feet.

Aerial Application Restrictions:

Aerial application is prohibited in Zone I, south of Highway 8 in the counties listed below, from March 15 through April 30, except by permit from an authorized employee of the Mississippi Department of Agriculture and Commerce, Bureau of Plant Industry (Ph. 1-888-257-1285).

Aerial application is prohibited in Zone II, north of Highway 8 in the counties listed below, from March 25 through April 30, except by permit from an authorized employee of the Mississippi Department of Agriculture and Commerce, Bureau of Plant Industry (Ph. 1-888-257-1285).

The Bureau of Plant Industry may at anytime, based on current planting and environmental conditions modify the above restrictions for either zone or county therein

Zone I: South of Highway 8 in the counties of Bolivar, Sunflower, Leflore, and Grenada plus the entire counties of Carroll, Holmes, Humphreys, Washington, Sharkey, Issaquena, Yazoo and Warren.

Zone II: North of Highway 8 in the counties of Bolivar, Sunflower, Leflore, and Grenada plus the entire counties of Tallahatchie, Tate, Quitman, Coahoma, Tunica, Panola and Desoto.

#### FOR AERIAL APPLICATION IN ARKANSAS ONLY

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS. EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

See "PRODUCT INFORMATION" and "Mixing" sections of the label booklet for essential product performance information.

#### USE DIRECTIONS

Avoid drift. 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. Do not apply when winds are gusty or under any other condition that favors drift. Drift is likely to cause damage to any vegetation contacted. To prevent injury to adjacent desirable vegetation. Appropriate buffer zones must be maintained.

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

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 range are recommended.

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.

### Ground 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. As density of weeds increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select proper nozzles to avoid spraying a fine mist. For best results with ground application equipment, use flat spray nozzles. Check for even distribution of spray droplets.

### Hand-Held or High-Volume Equipment

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. Use coarse sprays only. For recommended rates and timing, refer to the "ANNUAL WEEDS-HAND-HELD OR HIGH-VOLUME EQUIPMENT" section of this product label.

### Selective Equipment

This product may be applied through recirculating spray systems, shielded applicators, hooded sprayers, wiper applicators or sponge bars, after dilution and thorough mixing with water, to listed weeds growing in any noncrop site specified on the label. In cropping systems, hooded sprayers, shielded sprayers, and wipers may be used in row middles (in between rows of crop plants) where any dripping or leaking will not contact crop foliage. Such equipment must be capable of preventing all crop contact with herbicide solutions and operated without leakage of spray mists or dripping onto crop. Wipers over-the-top of crops may be used only when specifically recommended in this product's labeling.

### AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION.

Contact of the herbicide solution with desirable vegetation may result in damage or destruction. Applicators used above desirable 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



setting 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 the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

### Recirculating Spray System

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.

### Shielded and Hooded Applicators

When applied under the conditions described in the following paragraphs for shielded and hooded applications, this product at recommended rates will control those weeds listed in the "ANNUAL WEEDS RATE TABLE" and "PERENNIAL WEEDS RATE TABLE" sections of the label. A hooded sprayer is a type of shielded applicator where the spray pattern is fully enclosed including top, sides, front and back, thereby shielding the crop from the spray solution. Keep shields on these sprayers adjusted to protect desirable vegetation. When applying to crops grown on raised beds, ensure that the hood is designed to completely enclose the spray solution. If necessary, extend the front and rear flaps of the hoods to reach the ground in deep furrows.

**EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION.**

This equipment must be set up and operated in a manner that avoids bouncing or raising the hoods off the ground in any way. If the hoods are raised, spray particles may escape and come into contact with the crop, causing damage or destruction of the crop. Avoid operation on rough or sloping ground where the spray hoods might be raised off the ground.

Use hoods designed to minimize excessive dripping or run-off down the insides of the hoods. A single, low pressure/low drift flat-fan nozzle with an 80 to 95 degree

spray angle positioned at the top center of the hood is recommended. Spray volume should be 20 to 30 gallons per acre. These procedures will reduce the potential for crop injury:

- The spray hoods must be operated on the ground or skimming across the ground.
- Leave at least an 8-inch untreated strip over the drill row. For example, if the crop row width is 38 inches, the maximum width of the spray hood should be 30 inches.
- Maximum tractor speed: 5 miles per hour to avoid bouncing of the spray hoods.
- Maximum wind speed: 10 miles per hour.
- Use low-drift nozzles that provide uniform coverage within the treated area.

Crop injury may occur when the foliage of treated weeds comes into direct contact with leaves of the crop. Do not apply this product when the leaves of the crop are growing in direct contact with weeds to be treated. Droplets, mist, foam or splatter of the herbicide solution may contact the crop and cause discoloration, stunting or destruction.

### Wiper Applicators

When applied under the conditions described in the following paragraphs, this product **CONTROLS** many weeds, including volunteer corn, Texas panicum, common rye, shattercane, sicklepod, spanishneedles and bristly starbur; and **SUPPRESSES** many weeds including Florida beggarweed, Bermudagrass, hemp dogbane, dogfennel, guineagrass, johnsongrass, milkweed, silverleaf nightshade, redroot pigweed, giant ragweed, smutgrass, sunflower, Canada thistle, musk thistle, vaseygrass, velvetleaf.

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.

Operate this equipment at ground speeds no greater than 5 miles per hour. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation.

Better results may be obtained if two applications are made in opposite directions. 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 1 gallon of this product with 2 gallons of water to prepare 33 percent solution. Apply this solution to weeds listed above in this section.

For Panel Applicators—Solutions ranging from 33 to 100 percent of this product in water may be used in panel wiper applicators.

### Injection Systems

This product may be used in aerial or ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix this product with the concentrate of other products when using injection systems.

### CDA Equipment

The rate of this product applied per acre by vehicle-mounted Controlled Droplet Application (CDA) equipment must not be less than the amount recommended in the label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 2 to 15 gallons of water per acre. For the control of annual weeds with handheld CDA units, apply a 20 percent solution of this product at a flow

rate of 2 fluid ounces per minute and a walking speed of 1.5 miles per hour (1 quart per acre). For the control of perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fluid ounces per minute and a walking speed of 0.75 miles per hour (2 to 4 quarts 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.

## ANNUAL AND PERENNIAL CROPS

NOTE: THIS SECTION GIVES DIRECTIONS THAT APPLY TO ALL LISTED CROPS WITHIN THIS SECTION GROUPED ALPHABETICALLY BELOW. SEE THE INDIVIDUAL CROP CATEGORIES FOR SPECIFIC INSTRUCTIONS, PREHARVEST INTERVALS, AND ADDITIONAL PRECAUTIONS AND RESTRICTIONS.

See the "ROUNDUP READY CROPS" section of the label or separately published Sharda USA LLC Supplemental Labeling for instructions for treating Roundup Ready crops.

TYPES OF APPLICATIONS: Chemical Fallow, Preplant Fallow Beds, Preplant, Preemergence, At-Planting, Hooded Sprayers in Row-Middles, Shielded Sprayers in Row-Middles, Wiper Applications in Row-Middles, and Post-Harvest Treatments.

## USE INSTRUCTIONS:

Apply this product during fallow intervals preceding planting, prior to planting or transplanting, at-planting, or preemergent to annual and perennial crops listed in the label, except where specifically limited. For any crop not listed in the label, applications must be made at least 30 days prior to planting. Unless otherwise specified, weed control applications may be made according to the rates listed in the "ANNUAL WEEDS", "PERENNIAL WEEDS", and "WOODY BRUSH AND TREES RATE TABLES" in the label. Repeat applications may be made up to a maximum of 8 quarts per acre per year.

Post-directed hooded sprayers and wiper equipment capable of preventing all crop contact with herbicide solutions may be used in mulched or unmulched row middles after crop establishment. Where specifically noted below, wipers may also be used above certain crops to control tall weeds. Refer to the "Selective Equipment" section of the label for essential precautions when using hooded sprayers or wipers

to avoid crop injury caused by leakage of spray mists or dripping onto crops. Crop injury is possible with these applications and shall be the sole responsibility of the applicator.

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.

**PRECAUTIONS, RESTRICTIONS:** Avoid contact of herbicide with foliage, green shoots or stems, bark, exposed roots (including those emerging from plastic mulch), or fruit of crops because severe injury or destruction may result. When making preemergence and at-planting applications, applications must be made before crop emergence to avoid severe crop injury. Broadcast applications made at emergence will result in injury or death to emerged seedlings. Apply before seed germination in coarse sandy soils to further minimize the risk of injury.

Unless otherwise specified in this product's labeling, treatments with selective equipment including wipers and hooded sprayers must be made at least 14 days prior to harvest. Post-harvest or fallow applications must be made at least 30 days prior to planting any non-labeled crop. See "APPLICATION EQUIPMENT AND TECHNIQUES" section of the label for additional information. In crops where spot treatments are allowed, do not treat more than 10 percent of the total field to be harvested. The crop receiving spray in treated area will be killed.

Take care to avoid drift or spray outside the target area for the same reason.

For broadcast postemergent treatments, do not harvest or feed treated vegetation for 8 weeks following application, unless otherwise specified.

See label for the specific rate for each weed species.

Limitations, Restrictions, and Exceptions

**PERENNIAL WEEDS**

Apply to actively growing perennial weeds.

NOTE: If weeds have been mowed or tilled, do not treat until plants have resumed active growth and have reached the recommended stages.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed. Repeat treatments must be made prior to crop emergence.

Unless otherwise stated, allow 7 or more days after application before tillage.

Best results are obtained when soil moisture is adequate for active weed growth.

#### Method

[Broadcast/Foliar Air](#)

[Broadcast/Foliar Ground](#)

[Hand-Held Spray](#)

#### Rates

[field\\_rates 0](#)

[field\\_rates 1](#)

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#### Restricted Entry Interval

12 hours

#### Timings

[Apply to fully expanded fronds that are at least 18 inches long.](#)