



# BroadStar™

## HERBICIDE



**PROVIDES PREEMERGENCE WEED CONTROL IN CONTAINER AND FIELD GROWN WOODY SHRUBS, TREES AND GROWDCOVERS**

**VERY EFFECTIVE AGAINST BITTERCRESS, SPURGE, LIVERWORT AND MANY OTHER ANNUAL BROADLEAF AND GRASSY WEEDS**

**PROVIDES AT LEAST 8-12 WEEKS OF PREEMERGENT CONTROL UNDER NORMAL GROWING CONDITIONS**

**FOR APPLICATION TO ESTABLISHED PLANTS WITH DRY FOLIAGE**

**NOT FOR APPLICATION TO RECENTLY TRANSPLANTED LINERS**

Active Ingredient	By Wt.
*Flumioxazin .....	0.25%
Other Ingredients .....	99.75%
Total .....	100.00%

\*[2-[7-fluoro-3,4-dihydro-3-oxo-4-(2-propynyl)-2H-1,4-benzoxazin-6-yl]-4,5,6,7-tetrahydro-1H-isindole-1,3(2H)-dione]

BroadStar™ Herbicide is a granule containing 0.25% active ingredient.

EPA Reg. No. 59639-128  
EPA Est. 39578-TX-01

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

**SEE BELOW FOR ADDITIONAL PRECAUTIONARY STATEMENTS.**

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS & DOMESTIC ANIMALS CAUTION

Harmful if absorbed through the skin. Avoid contact with skin, eyes or clothing. Avoid breathing dust and spray mist.

#### FIRST AID

**If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

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#### FIRST AID (continued)

**If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

Call a poison control center or doctor for treatment advice.

**If inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.

Call a poison control center or doctor for further treatment advice.

**If swallowed:** Call a poison control center or doctor immediately for treatment advice.

Have person sip a glass of water if able to swallow.

Do not induce vomiting unless told to do so by the poison control center or doctor.

Do not give anything by mouth to an unconscious person.

#### HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact **1-800-892-0099** for emergency medical treatment information.

### PERSONAL PROTECTIVE EQUIPMENT (PPE):

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

**Applicators and other handlers must wear:** long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride, shoes and socks. Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

#### USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

### ENVIRONMENTAL HAZARDS:

This product is toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor

drift from treated areas. Do not contaminate water when disposing of equipment washwaters.

This pesticide is toxic to plants and should be used strictly in accordance with the drift and runoff precautions on this label in order to minimize off-site exposures.

Under some conditions this product may have a potential to runoff to surface water or adjacent land. Where possible, use methods which reduce soil erosion, such as no till, limited till and contour plowing; these methods also reduce pesticide runoff. Use of vegetation filter strips along rivers, creeks, streams, wetlands or on the downhill side of fields where runoff could occur will minimize water runoff is recommended.

## **DIRECTIONS FOR USE**

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

**READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.**

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 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 made of any waterproof material, shoes plus socks.

### **DISCLAIMER, RISKS OF USING THIS PRODUCT, LIMITED WARRANTY AND LIMITATION OF LIABILITY**

**IMPORTANT: Read the entire Label including this Disclaimer, Risks of Using this Product, Limited Warranty, and Limitation of Liability before using this product. If the terms are not acceptable THEN DO NOT USE THE PRODUCT; rather, return the unopened product within 15 days of purchase for a refund of the purchase price.**

#### **RISKS OF USING THIS PRODUCT**

The Buyer and User (referred to collectively herein as "Buyer") of this product should be aware that there are inherent unintended risks associated with the use of this product which are impossible to eliminate. These risks include, but are not limited to, injury to plants and crops to which this product is applied, lack of control of the target pests or weeds, resistance of the target pest or weeds to this product, injury caused by drift, and injury to rotational crops caused by carryover in the soil. Such risks of crop injury, non-performance, resistance or other unintended consequences are unavoidable and may result because of such factors as weather, soil conditions, disease, moisture conditions, irrigation practices, condition of the crop at the time of application, presence of other materials either applied in the tank mix with this product or prior to application of this product, cultural practices or the manner of use or application, (or a combination of such factors) all of which are factors beyond the control of Valent. The Buyer should be aware that these inherent unintended risks may reduce the harvested yield of the crop in all or a portion of the treated acreage, or otherwise affect the crop such that additional care, treatment and expense are required to take the crop to harvest. If the Buyer chooses not to accept these risks, THEN THIS PRODUCT SHOULD NOT BE APPLIED. By applying this product Buyer acknowledges and accepts these inherent unintended risks AND AGREES THAT ALL SUCH RISKS ASSOCIATED WITH THE APPLICATION AND USE ARE ASSUMED BY THE BUYER.

Valent shall not be responsible for losses or damages (including, but not limited to, loss of yield, increased expenses of farming the crop or such incidental, consequential or special damages that may be claimed) resulting from use of this product in any manner not set forth on the label. Buyer assumes all risks associated with the use of this product in any manner or under conditions not specifically directed or approved on the label.

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#### LIMITED WARRANTY

Valent warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label, under average use conditions, when used strictly in accordance with the label **and subject to the Risks of Using This Product as described above. EXCEPT AS SET FORTH ABOVE, VALENT MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED.** No agent or representative of Valent or Seller is authorized to make or create any other express or implied warranty.

#### LIMITATION OF LIABILITY

**In no event shall Valent or Seller be liable for any incidental, consequential, indirect or special damages resulting from the use or handling of this product. The limitation includes, but is not limited to, loss of yield on all or any portion of the treated acreage, increased care, treatment or other expenses required to take the crop to harvest, increased finance charges or altered finance ratings, emotional or mental distress and/or exemplary damages. THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE MAXIMUM LIABILITY OF VALENT OR SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR, AT THE ELECTION OF VALENT OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

#### PROMPT NOTICE OF CLAIM

Valent must be provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty-one days from date of planting, or twenty-one days from the date of application, whichever is latter, so that an immediate inspection of the affected property and growing crops can be made.

If Buyer does not notify Valent of any claims, in such period, it shall be barred from obtaining any remedy.

#### NO AMENDMENTS

Valent and Seller offer this product, and Buyer accepts it, subject to the foregoing **Disclaimer, Risks of Using This Product, Limited Warranty and Limitation of Liability**, which may not be modified by any oral or written agreement.

#### TANK MIXES

**NOTICE: Tank mixing or use of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of user, applicator and/or application advisor.**

Read and follow the entire label of each product to be used in the tank mix with this product.

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### STORAGE AND DISPOSAL

### GENERAL INFORMATION

*BroadStar* Herbicide is a selective preemergence herbicide that provides extended residual control of a wide variety of annual broadleaf and grassy weeds. *BroadStar* is labeled for use in containerized and field grown (in-ground) woody, ornamental shrubs and trees, groundcovers and non-bearing fruit and nut trees that are grown in nurseries. *BroadStar* should not be applied in residential or commercial landscapes.

*BroadStar* controls weeds by inhibiting protoporphyrinogen oxidase, an essential enzyme required by plants for chlorophyll biosynthesis. Seedling weeds are controlled preemergence when exposed to sunlight following contact with the soil applied herbicide. *BroadStar* has only limited post-emergent activity against certain weed species. Therefore, in order to optimize weed control, *BroadStar* should be applied before weeds germinate, or immediately after cultivation.

Most hardy woody ornamental shrubs and trees are tolerant to *BroadStar* so long as the product is applied in accordance with the label. *BroadStar* may cause leaf spotting on some tolerant species if granules are allowed to remain in contact with leaf surfaces, especially on new flush or on foliage that is wet at the time of application. However, subsequent plant growth is generally unaffected. *BroadStar* may injure some otherwise tolerant species if not applied in accordance with the label, and may also injure ornamental species that are not listed on the label. Therefore, read all label precautions and restrictions before applying *BroadStar* to ornamental plants.

### General Restrictions and Limitations

- Do not apply by air.
- Do not apply to moist or wet foliage.
- Do not apply when winds are gusty or above 8 mph.
- Use caution when applying to plants that are producing a new flush of growth because herbicide may injure tender, newly formed leaves if granules remain in contact with leaf surfaces.
- Do not apply to plants whose leaves channel the herbicide granules to the leaf base.
- Do not apply to bedding plants or areas where bedding plants will be planted or transplanted within one year following application.
- Do not apply to plants while in propagation.
- Do not apply to liners that are in pots less than 4 inches in diameter.
- Do not apply to recently transplanted liners until liners have been actively growing for at least 6 weeks after transplanting.
- Non-bearing fruit trees such as citrus, apples, pears, peaches, etc. are defined as plants that will not bear fruit for at least one year after application.
- Do not incorporate product into soil or potting media.
- Do not apply to flowers, vegetables, turf or ornamentals growing in residential or commercial landscapes.

### Preemergence Application

*BroadStar* provides effective preemergence control of weeds listed in Table 4. For optimal preemergence control, apply *BroadStar* to clean, weed free soil before weed seeds germinate. Disturbing soil surfaces after application may reduce herbicide efficacy. Remove existing weeds, weed residues and trash before application of *BroadStar*. Soil should be in good condition and free of clods at the time of application. Approximately 1/2 to 3/4 inch of rainfall, overhead sprinkler irrigation or hand irrigation is required to activate *BroadStar*. Inadequate irrigation or rainfall following application may reduce effectiveness of *BroadStar*. If adequate soil moisture is maintained following application, *BroadStar* should provide at least 8 to 12 weeks of preemergent control of labeled weeds, except under unusual environmental conditions (excessive rainfall, irrigation or temperature). Control is generally most persistent under cooler temperatures.

### Application Instructions

Apply *BroadStar* with clean, well maintained drop or rotary type granular application equipment. Calibrate application equipment prior to use according to manufacturer's directions. Refer to Table 1 for calibration of hand cranked rotary spreaders. Check frequently to be sure equipment is working properly and distributing granules uniformly. Avoid skips and overlaps, as poor weed control or crop injury may occur. Clean equipment before adding *BroadStar* to ensure that no residue from the previous operation remains. Some pesticides are active at very trace quantities and can cause injury when applied to susceptible plants.

### Application Recommendations

- **Apply to dry foliage only.** To test for moisture, rub hands over plant foliage.
- Remove any existing weeds before applying *BroadStar*.
- Irrigate plants within 1 hour after application with 1/2 to 3/4 inch of water to wash the particles off plant foliage and to activate the herbicide. If herbicide granules are allowed to remain on plant foliage for an extended period, herbicide residues may be released and cause leaf spotting on some sensitive ornamental species.

### Application Techniques

Apply *BroadStar* with a properly calibrated drop or rotary type spreader that will ensure accurate, even particle distribution.

- When using a drop type spreader, a splashboard mounted under the hopper will provide more even granule distribution.
- When using a hand held or push type rotary applicator, such as a whirlybird or cyclone unit, walk and turn the crank at a constant rate of speed.
- Use a hand shaker to treat small numbers of plants, or areas that are difficult to reach with a whirlybird or cyclone spreader. Construct hand shakers by punching holes in the lid of a small plastic container. Calculate amount of *BroadStar* needed to treat area, place this amount in shaker and apply evenly over plants. Refer to Table 3 for amounts needed to treat individual containers.

### Spray Drift Management

Do not apply under circumstances where possible drift to unprotected persons or to food, forage or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption can occur.

- Make applications when the wind velocity favors on-target product deposition. Apply only when the wind speed is less than or equal to 10 mph. For all applications, wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.
- Do not make applications into areas of temperature inversions. Inversions are characterized by stable air and increasing temperatures with increasing distance above the ground. Mist or fog may indi-

cate the presence of an inversion in humid areas. Where permissible by local regulations, the applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

- All application equipment must be properly maintained and calibrated using appropriate carriers.

### Resistance Management

Any weed population may contain or develop plants naturally resistant to herbicides in various mode of action classes. Resistant biotypes may eventually dominate the weed population if the same class of chemistry/mode of action herbicides are used repeatedly in the same field or in successive years. These resistant biotypes may not be adequately controlled by herbicides in a mode of action class for which resistance has developed. A gradual or total loss of weed control may occur over time. Other resistance mechanisms that are not linked to site of action, such as enhanced metabolism, may also exist. Appropriate resistance management strategies should be followed.

### To Delay Herbicide Resistance

- Avoid the use of herbicides that have a similar target site mode of action in consecutive years.
- Herbicide use should be based on an Integrated Pest Management (IPM) program that includes scouting, record keeping, and consideration of cultivation practices, water management, weed free crop seed, crop rotation, and other chemical or cultural control practices.
- Monitor treated weed population for resistance development and report suspected resistance.
- Contact your local extension or crop expert (advisor) for any additional pesticide resistance management and/or IPM recommendations for specific crops and weed biotypes.
- For further information contact Valent U.S.A. Corporation at the following toll free number 800-682-5368.

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## CALIBRATION OF HERBICIDE APPLICATION EQUIPMENT

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*BroadStar* is a very active herbicide and can injure some otherwise tolerant plants if applied at excessive rates. The user is responsible for accurately calibrating herbicide application equipment so that *BroadStar* is applied at the labeled rate of 150 lbs per acre. The user assumes responsibility for any plant damage or other liability resulting from application of *BroadStar* at excessive rates.

### Hand Cranked Spreaders

The application rate (lbs/acre) of *BroadStar* with hand cranked spreaders will depend on the width of the plant bed to be treated, the operator's walking speed, the speed at which the operator turns the crank and the spreader setting (opening). The walking and cranking speed will vary among individual operators. Therefore, hand cranked spreaders must be calibrated for individual operators in order to apply *BroadStar* at the labeled rate of 150 lbs per acre.

Use the spreader settings in Table 1 as a starting point when calibrating hand cranked spreaders for application of *BroadStar*. These settings assume a walking speed of 3 mph, a cranking speed of 60 revolutions per minute (rpm) and that the operator makes one pass down each aisle between each plant bed.

To more precisely calibrate hand cranked spreaders for application of *BroadStar* by individual operators, first select a test area that does not have plants present. Calculate the number of square feet in the test area by multiplying the length by the width (in feet) of the area to be treated. Include aisle space between beds when determining length and width of the test area. Then calculate the amount of *BroadStar* needed to treat the test area by multiplying the number of square feet in the test area by 150, and dividing this result by 43,560. If the hand cranked spreader is listed in Table 1, set the spreader opening to the position indicated for the appropriate bed width. Place *BroadStar* calibration trays in test area. Weigh out calculated amount of *BroadStar*, place in the spreader, and apply to the test area at applicator's standard walking and cranking speed. Adjust spreader opening if measured amount of *BroadStar* does not evenly cover the test area and/or if calibration trays indicate that too much or too little *BroadStar* has been applied.

Example: there is room for six plant beds in the test area that will be treated with *BroadStar*. Beds are 60 feet in length, six feet wide, and are separated by two-foot aisles. Therefore, the width of test area (i.e. distance between outside of Bed 1 and outside of Bed 6) is 46 ft, and the number of square feet in the test area = 60 ft x 46 ft = 2,760 square feet. Amount of *BroadStar* needed to treat the test area = 2,760 x 150/43,560 = 9.5 pounds.

**Table 1. Settings (Port Opening) for Hand Cranked Rotary Spreaders**

Spreader	One Sided Operation		Two Sided Operation	
	Bed Width (ft)	Spreader Setting	Bed Width (ft)	Spreader Setting
Spyker 75	4	2.5	4	3.0
	6	3.0	6	3.5 - 4.0
	8	3.5	8	4.5
	10	3.5 - 4.0	10	4.5 - 5.0
	12	4.0	12	5.0 - 6.0
Warren T-7 11	4	—	4	4.0
	6	3.5 - 4.0	6	4.5
	8	4.0 - 4.5	8	5.0 - 5.5
	10	4.5	10	6.0
	12	5.0	12	—
Earthway 3100	4	8	4	8 - 10
	6	10 - 12	6	10
	8	10 - 12	8	10 - 12
	10	12	10	12
	12	12	12	12 - 14
Solo 421S	4	1	4	2
	6	1 - 2	6	3
	8	1 - 2	8	4
	10	2	10	5 - 6
	12	3 - 4	12	—

**Table 2. Weight To Volume Conversion Table**

Rate	Amount/1000 sq ft		Amount/100 sq ft	
	Lbs/Acre	Lbs	Qts	Cups
150	3.4	2.4	0.34	1.0

One pound of *BroadStar* = 0.7 quarts = 2.8 cups

**Application to Individual Containers**

*BroadStar* may be applied to the soil surface of individual containers, but only at a rate that is equivalent to the amount of product that would land on the media surface of an individual container if broadcast at 150 lbs per acre. Use the conversions in Table 3 to determine how much *BroadStar* to apply to an individual container, and then use a hand shaker to evenly distribute over the media surface.

**Table 3. Application Amounts for Individual Containers (equivalent to 150 lbs/A)**

Pot Diameter (inches)	Gram(s) <i>BroadStar</i> /pot	Teaspoon(s) <i>BroadStar</i> /pot
4	0.14	1/28
5	0.21	1/18
6	0.31	1/12
7	0.42	1/9
8	0.55	1/7
9	0.69	1/6
10	0.85	1/5
11	1.03	1/4
12	1.23	1/3
13	1.44	1/3
14	1.67	1/2
15	1.92	1/2
16	2.18	5/8
17	2.46	5/8
18	2.79	3/4
19	3.08	3/4
20	3.41	7/8
21	3.76	1
22	4.12	1
23	4.51	1-1/4
24	4.91	1-1/4
25	5.33	1-1/2
26	5.76	1-1/2
27	6.21	1-3/4
28	6.68	1-3/4
29	7.17	2
30	7.67	2
31	8.19	2
32	8.73	2-1/4
33	9.28	2-1/2
34	9.85	2-1/2
35	10.44	2-3/4
36	11.05	3
37	11.67	3
38	12.31	3-1/4
39	12.96	3-1/2
40	13.64	3-1/2
41	14.33	3-3/4
42	15.03	4

One level teaspoon of *BroadStar* weighs approximately 3.8 grams

One heaping teaspoon of *BroadStar* weighs approximately 5.9 grams

One level tablespoon of *BroadStar* weighs approximately 11.2 grams

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## ORNAMENTAL PLANT TOLERANCE INFORMATION

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**IMPORTANT:** Most woody ornamental plants are tolerant to *BroadStar* when the product is applied according to the label. However, *BroadStar* is a very active herbicide and should not be applied on a commercial scale until the user has first confirmed its safety on a small number of test plants grown under his or her standard production practices. Test plants should be actively growing at the time of application, and examined for 4 to 8 weeks for symptoms of plant injury. If test plants are dormant at the time of application, or enter dormancy within 8 weeks after application, continue the injury evaluation until after plants break dormancy in the spring.

Mild leaf spotting is the most common symptom of *BroadStar* injury on tolerant ornamental plants, and usually appears within 1 to 2 days after application. Leaf spotting is most likely to occur when *BroadStar* is applied to wet foliage. In order to minimize the risk of leaf spotting, only apply *BroadStar* to dry foliage and apply 1/2 to 3/4 inch of overhead irrigation within 1 hour after application. Irrigation should be sufficient to wash herbicide granules off of plants. If there is a significant delay between application of *BroadStar* and irrigation, herbicide residues may be released from granules remaining on leaf surfaces, and cause leaf spotting on some plant species. In most cases, new growth will be unaffected, and will rapidly cover up any leaf spotting on older foliage.

If NOT applied in accordance with the label, *BroadStar* may cause unacceptable injury to some otherwise tolerant ornamental plant species. Injury to tolerant species is most likely if *BroadStar* is applied to wet foliage, recently transplanted liners, and/or at rates in excess of the labeled use rate of 150 lbs per acre.

### Treatment of Ornamental Plant Species Labeled as Sensitive

*BroadStar* can cause significant injury to woody ornamental plants listed in Table 5. In some cases, only specific cultivars are listed for a particular species because injury has not been observed on other cultivars or growth stages. It is recommended that *BroadStar* NOT be applied to the plants listed in Table 5. **The user assumes responsibility for any plant damage that results from the application of *BroadStar* to plants listed as sensitive.**

### Treatment of Ornamental Plant Species NOT Listed on Label

*BroadStar* can be applied to woody ornamental shrubs and trees not specifically listed on this label. However, the user should NOT begin commercial scale application of *BroadStar* on non-listed species until after first confirming the product's safety on a small number of plants grown under standard production practices. **The user assumes responsibility for any plant damage that results from the application of *BroadStar* to non-listed plant species.**

### Treatment of Wet Foliage

When *BroadStar* is applied to dry plants, most *BroadStar* granules will bounce or roll off of foliage before releasing herbicide residues. However, if *BroadStar* is applied to plants that are wet from dew, irrigation water or rainfall, some granules may stick to foliage and release herbicide residues. Herbicide release onto wet foliage can injure some plant species, including those that are tolerant, when *BroadStar* is applied to dry foliage. Therefore, *BroadStar* should NOT be applied to wet plants, especially those with pubescent foliage or a leaf structure that tends to trap granules at growing points.

### Treatment of Recently Transplanted Liners

Under certain conditions, *BroadStar* can cause significant injury to recently transplanted liners of some plant species that are tolerant when more established (i.e. have formed a well developed root system). Injury to recently transplanted liners is most likely when *BroadStar* is applied to smaller liners (less than one gallon container size), is applied at above labeled rates, and is applied before potting media has been settled by irrigation or rainfall. Therefore, ***BroadStar* should NOT be applied to recently transplanted liners until plants have been actively growing for at least 6 weeks after transplanting and have established a vigorous root system.**

### Treatment of Herbaceous Plants, Tropical Shrubs and Foliage Plants

*BroadStar* will severely injure many annual bedding plants (e.g. Petunia), and some herbaceous perennials (e.g. Hosta), tropical shrubs and foliage plants. Therefore, *BroadStar* should NOT be applied to herbaceous annual plants, and should NOT be applied to herbaceous perennials, tropical shrubs or foliage plants until after the user has confirmed the product's safety on a small number of plants grown under standard production practices.

### Treatment of Seedling Trees and Shrubs

*BroadStar* may injure seedlings of some trees and shrubs if applied before seedlings have established a vigorous root system. Therefore, *BroadStar* should NOT be applied to tree and shrub seedlings within one year after germination, unless the user has first confirmed the product's safety on a small number of plants grown under standard production practices.

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## DIRECTIONS FOR USE IN CONTAINER OR FIELD GROWN ORNAMENTAL SHRUBS, TREES, GROUNDCOVERS, NON-BEARING FRUIT AND NUT TREES AND CONIFERS

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### Preemergence Application

Apply 150 lbs per acre (approximately 3.5 lbs per 1000 sq ft) of *BroadStar* before weeds germinate. Apply 1/2 to 3/4 inch of irrigation by hand, overhead sprinkler or fan emitter within 1 hour after application of *BroadStar*. Irrigation after application is an important step for herbicide activation. Irrigation releases active ingredient from the granule. Effec-

tive irrigation and herbicide activation is especially important under cooler temperatures when granules may release herbicide more slowly than under warmer temperatures. Drip irrigation may not be sufficient to release *BroadStar* residues from granules.

**Product Use Restrictions and Limitations**

- Remove existing weeds or weed debris BEFORE application.
- Do not apply to plants grown from seed until at least one year after seed germination, unless tolerance is first confirmed on a small number of plants.
- Do not apply to plants that are under moisture stress or stress from insects, diseases, animals, winter injury, planting shock or any other stresses.
- Do not apply more than 150 lbs per acre in a single application.
- Do not apply more than 300 lbs per acre in a single year.
- Do not treat the same plants more than one time every 8 weeks.
- Do not treat the same plants more than two times per year.
- Do not apply to moist or wet foliage.
- Do not apply in an enclosed greenhouse structure.
- Do not apply to pots less than four inches wide.
- Do not place treated plants in an enclosed structure until after applying 1 inch of irrigation to plants and for 7 days after treatment.
- Do not graze or feed livestock forage cut from treated areas.

**WEEDS CONTROLLED**

When applied at the recommended rate before weeds germinate, *BroadStar* will provide good to excellent preemergent control of the following annual grass and broadleaf weeds.

**Table 4. WEEDS CONTROLLED**

COMMON NAME	SCIENTIFIC NAME
Alyssum, Hoary	<i>Berteroa incana</i>
Amaranth	
Palmer	<i>Amaranthus palmeri</i>
Spiny	<i>Amaranthus spinosus</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Beggarweed, Florida	<i>Desmodium tortuosum</i>
Bittercress, Hairy	<i>Cardamine hirsuta</i>
Bluegrass, Annual	<i>Poa annua</i>
Burclover, California	<i>Medicago hispida</i>
Carpetweed	<i>Mollugo verticillata</i>
Chickweed	
Common	<i>Stellaria media</i>
Mouseear	<i>Cerastium vulgatum</i>
Crabgrass	
Large	<i>Digitaria sanguinalis</i>
Smooth	<i>Digitaria ischaemum</i>
Southern	<i>Digitaria ciliaris</i>
Croton, Tropic	<i>Croton glandulosus</i> var. <i>septentrionalis</i>
Dandelion	<i>Taraxacum officinale</i>

(continued)

**Table 4. WEEDS CONTROLLED (continued)**

COMMON NAME	SCIENTIFIC NAME
Dogfennel	<i>Eupatorium capillifolium</i>
Doveweed	<i>Murdannia nudiflora</i>
Eclipta	<i>Eclipta prostrata</i>
Filaree, Redstem	<i>Erodium cicutarium</i>
Foxtail	
Bristly	<i>Setaria verticillata</i>
Giant	<i>Setaria faberi</i>
Green	<i>Setaria viridis</i>
Yellow	<i>Setaria glauca</i>
Galinsoga, Hairy	<i>Galinsoga ciliata</i>
Geranium, Carolina	<i>Geranium carolinianum</i>
Goosegrass	<i>Eleusine indica</i>
Groundsel, Common	<i>Senecio vulgaris</i>
Henbit	<i>Lamium amplexicaule</i>
Horseweed	<i>Conyza canadensis</i>
Indigo, Hairy	<i>Indigofera hirsuta</i>
Jimsonweed	<i>Datura stramonium</i>
Kochia	<i>Kochia scoparia</i>
Ladysthumb	<i>Polygonum persicaria</i>
Lambsquarters, Common	<i>Chenopodium album</i>
Liverwort*	<i>Marchantia polymorpha</i>
Lovegrass, California	<i>Eragrostis diffusa</i>
Mallow	
Common	<i>Malva neglecta</i>
Little	<i>Malva parviflora</i>
Venice	<i>Hibiscus trionum</i>
Mayweed	<i>Anthemis cotula</i>
Morningglory	
Entireleaf	<i>Ipomoea hederacea</i> var. <i>integriuscula</i>
Ivyleaf	<i>Ipomoea hederacea</i>
Smallflower	<i>Jacquemontia tamnifolia</i>
Tall	<i>Ipomoea purpurea</i>
Moss species	<i>Bryum</i> spp.
Mulberry Weed	<i>Fatoua villosa</i>
Nightshade	
Black	<i>Solanum nigrum</i>
Eastern Black	<i>Solanum ptycanthum</i>
Panicum	
Fall	<i>Panicum dichotomiflorum</i>
Texas	<i>Panicum texanum</i>
Parsley-Piert	<i>Alchemilla arvensis</i>
Pearlwort, Birdseye	<i>Sagina procumbens</i>
Pennycress, Field	<i>Thlaspi arvense</i>
Phyllanthus, Longstalk	<i>Phyllanthus tenellus</i>
Pigweed	
Prostrate	<i>Amaranthus blitoides</i>
Redroot	<i>Amaranthus retroflexus</i>
Smooth	<i>Amaranthus hybridus</i>
Tumble	<i>Amaranthus albus</i>

(continued)

\*Will provide some postemergent control of liverwort which will be enhanced at higher temperatures and light levels.

**Table 4. WEEDS CONTROLLED (continued)**

COMMON NAME	SCIENTIFIC NAME
Pineapple-weed	<i>Matricaria matricarioides</i>
Plantain	
Broadleaf	<i>Plantago major</i>
Buckhorn	<i>Plantago lanceolata</i>
Puncturevine	<i>Tribulus terrestris</i>
Purslane, Common	<i>Portulaca oleracea</i>
Pusley, Florida	<i>Richardia scabra</i>
Ragweed	
Common	<i>Ambrosia artemisiifolia</i>
Giant	<i>Ambrosia trifida</i>
Redmaids	<i>Calandrinia ciliata</i>
Rocket, Yellow	<i>Barbarea vulgaris</i>
Senna, Coffee	<i>Cassia occidentalis</i>
Sesbania, Hemp	<i>Sesbania exaltata</i>
Shepherd's-purse	<i>Capsella bursa-pastoris</i>
Sida, Prickly (Teaweed)	<i>Sida spinosa</i>
Signalgrass	<i>Brachiaria platyphylla</i>
Smartweed,	<i>Polygonum</i>
Pennsylvania	<i>pennsylvanicum</i>
Sowthistle, Annual	<i>Sonchus oleraceus</i>
Spurge	
Prostrate	<i>Euphorbia humistrata</i>
Spotted	<i>Euphorbia maculata</i>
Starbur, Bristly	<i>Acanthospermum hispidum</i>
Thickhead	<i>Crassocephalum crepidioides</i>
Thistle	
Canada	<i>Cirsium arvense</i>
Russian	<i>Salsola iberica</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Waterhemp	
Common	<i>Amaranthus rudis</i>
Tall	<i>Amaranthus tuberculatus</i>
Woodsorrel, Common	<i>Oxalis stricta</i>
Yellow	

### SENSITIVE ORNAMENTAL SPECIES

Injury has been reported after application of *BroadStar* to the plants listed below in Table 5, especially on recently transplanted liners. In some cases, only specific cultivars are listed because injury has not been reported on other cultivars of this species (See Tables 6-8). It is recommended that *BroadStar* not be applied to these plant species or cultivars.

**Table 5. SENSITIVE SPECIES**

COMMON NAME	SCIENTIFIC NAME
Azalea	<i>Rhododendron</i> spp. "Delaware Valley White"
Butterfly Bush	<i>Buddleia davidii</i>
Clethra, Summersweet	<i>Clethra alnifolia</i>
Deutzia, Slender	<i>Deutzia gracilis</i> "Nikko"
Holly, Winterberry	<i>Ilex verticillata</i>

(continued)

**Table 5. SENSITIVE SPECIES (continued)**

COMMON NAME	SCIENTIFIC NAME
Hydrangea	<i>Hydrangea</i> spp.
Nandina	<i>Nandina domestica</i> "Firepower"
Plumbago, Cape	<i>Plumbago auriculata</i>
Spirea, Japanese	<i>Spiraea japonica</i>
Wax Myrtle, Southern (seedling)	<i>Myrica cerifera</i>

### TOLERANT ORNAMENTAL SPECIES

**IMPORTANT:** Injury other than temporary leaf spotting has not been observed on species listed in Tables 6-8 when *BroadStar* was applied at the labeled rate after transplanted liners had established a well developed root system. Some otherwise tolerant species may be injured if *BroadStar* is applied to recently transplanted liners. *BroadStar* has not been applied to all cultivars of listed species, or under all environmental conditions and cultural practices under which these species could be grown. Therefore, before beginning commercial scale application of *BroadStar* to plants labeled as tolerant, the user should first confirm the product's safety on a small number of plants grown under standard production practices.

**Table 6. TREES**

COMMON NAME	SCIENTIFIC NAME
Arborvitae	
American	<i>Thuja occidentalis</i>
Giant	<i>Thuja plicata</i>
Oriental	<i>Thuja orientalis</i>
Ash	
Green	<i>Fraxinus pennsylvanica</i>
White	<i>Fraxinus americana</i>
Birch	<i>Betula</i> spp.
Cedar, Deodora	<i>Cedrus deodora</i>
Crabapple, Flowering	<i>Malus</i> spp.
Cottonwood	<i>Populus deltoids</i>
Cypress	
Italian	<i>Cupressus sempervirens</i>
Templehoff	<i>Chamaecyparis obtusa</i>
Dogwood, Florida	<i>Cornus florida</i>
Elm, Chinese	<i>Ulmus parvifolia</i>
Eucalyptus	
Mealy	<i>Eucalyptus cinerea</i>
Red Gum	<i>Eucalyptus camaldulensis</i>
Ficus	<i>Ficus benjamina</i>
Fir	
Balsam	<i>Abies balsamea</i>
Douglas	<i>Pseudotsuga menzesii</i>
Fraser	<i>Abies fraseri</i>
Grand	<i>Abies grandis</i>
Korean	<i>Abies koreana</i>
Noble	<i>Abies procera</i>
Ginkgo	<i>Ginkgo biloba</i>

(continued)

**Table 6. TREES (continued)**

COMMON NAME	SCIENTIFIC NAME
Hemlock	
Eastern	<i>Tsuga canadensis</i>
Mountain	<i>Tsuga mertensiana</i>
Western	<i>Tsuga heterophylla</i>
Lilac, Hungarian	<i>Syringa josikaea</i>
Magnolia, Lily	<i>Magnolia lilliflora</i>
Maple	
Flame	<i>Acer ginnala</i>
Flowering	<i>Abutilon hybridum</i>
Japanese	<i>Acer palmatum</i>
Red	<i>Acer rubrum</i>
Striped	<i>Acer pensylvanicum</i>
Mulberry, White	<i>Morus alba</i>
Oak	
Bear	<i>Quercus ilicifolia</i>
Live	<i>Quercus virginiana</i>
Pin	<i>Quercus palustris</i>
Red	<i>Quercus rubra</i>
Willow	<i>Quercus phellos</i>
Pine	
Eastern White	<i>Pinus strobus</i>
Jack	<i>Pinus banksiana</i>
Lacebark	<i>Pinus bungeana</i>
Loblolly	<i>Pinus taeda</i>
Lodgepole	<i>Pinus contorta</i>
Longleaf	<i>Pinus palustris</i>
Mugo	<i>Pinus mugo</i>
Ponderosa	<i>Pinus ponderosa</i>
Sand	<i>Pinus clausa</i>
Scotch	<i>Pinus sylvestris</i>
Shortleaf	<i>Pinus echinata</i>
Slash	<i>Pinus elliotii</i>
Virginia	<i>Pinus virginiana</i>
Plum, Beach	<i>Prunus maritima</i>
Podocarpus	<i>Podocarpus</i> spp.
Poplar	<i>Populus</i> spp.
Red Cedar, Eastern	<i>Juniperus virginiana</i>
Redbud	<i>Cercis canadensis</i>
Spruce	
Blue	<i>Picea pungens</i>
Dwarf Alberta	<i>Picea glauca conica</i>
Norway	<i>Picea abies</i>
Serbian	<i>Picea omorika</i>
Sitka	<i>Picea sitchensis</i>
Sumac, Staghorn	<i>Rhus typhina</i>
Sweetgum, American	<i>Liquidambar styraciflua</i>
Sycamore	
American	<i>Platanus occidentalis</i>
California	<i>Platanus racemosa</i>
Yew, Japanese	<i>Taxus cuspidata</i>

**Table 7. SHRUBS AND GROUNDCOVERS**

COMMON NAME	SCIENTIFIC NAME
Abelia, Glossy	<i>Abelia x grandiflora</i>
Acacia	<i>Acacia</i> spp.
Anise, Purple	<i>Illicium floridanum</i>
Azalea <sup>1</sup>	<i>Rhododendron</i> spp.
Barberry	<i>Berberis</i> spp.
Japanese	<i>Berberis thunbergii</i>
William Penn	<i>Berberis x gladwynensis</i>
Bayberry	<i>Myrica pensylvanica</i>
Bottlebrush	<i>Callistemon</i> spp.
Boxwood, Littleleaf	<i>Buxus microphylla</i>
Camellia	<i>Camellia japonica</i>
Cinquefoil, Shrubby	<i>Potentilla fruticosa</i>
Cotoneaster, Bearberry	<i>Cotoneaster dammeri</i>
Crape Myrtle <sup>2</sup>	<i>Lagerstroemia indica</i> spp.
Elaeagnus	<i>Elaeagnus</i> spp.
English Ivy	<i>Hedera helix</i>
Euonymus, Winged <sup>3</sup>	<i>Euonymus alatus</i>
Firethorn, Scarlet	<i>Pyracantha coccinea</i>
Forsythia	
Border	<i>Forsythia x intermedia</i>
Weeping	<i>Forsythia suspensa</i>
White	<i>Abeliophyllum distichum</i>
Gardenia, Cape	<i>Gardenia jasminoides</i>
Jasmine	
Heath	<i>Erica cinerea</i>
Holly	
Chinese	<i>Ilex cornuta</i>
Inkberry	<i>Ilex glabra</i>
Japanese <sup>3</sup>	<i>Ilex crenata</i>
Meserve <sup>3</sup>	<i>Ilex x meserveae</i>
Nellie R. Stevens	<i>Ilex x Nellie R. Stevens</i>
Honeysuckle,	<i>Lonicera japonica</i>
Japanese	
Indian Hawthorn	<i>Rhaphiolepis indica</i>
Juniper	
Creeping	<i>Juniperus horizontalis</i>
Shore	<i>Juniperus conferta</i>
Singleseed	<i>Juniperus squamata</i>
Myoporum	<i>Myoporum parvifolium</i>
Oleander	<i>Nerium</i> spp.
Oregon Grape	<i>Mahonia</i> spp.
Pachysandra	<i>Pachysandra terminalis</i>
Photinia	<i>Photinia x fraseri</i>
Pieris, Japanese	<i>Pieris japonica</i>
Pittosporum, Japanese	<i>Pittosporum tobira</i>
Privet	
Chinese <sup>3</sup>	<i>Ligustrum sinense</i>
Japanese	<i>Ligustrum japonicum</i>
Pyracantha	<i>Pyracantha</i> spp.

(continued)

<sup>1</sup> Injury reported on some cultivars. See Table 5.<sup>2</sup> Temporary injury reported at bud break on some cultivars.<sup>3</sup> Injury reported following application to newly transplanted liners.

**Table 7. SHRUBS AND GROWDCOVERS (continued)**

COMMON NAME	SCIENTIFIC NAME
Rhododendron, Catawba	<i>Rhododendron catawbiense</i>
Rose	<i>Rosa</i> spp.
Sweet Flag	<i>Acorus calamus</i>
Sweetspire, Virginia	<i>Itea virginica</i>
Tea Olive	<i>Osmanthus fragrans</i>
Viburnum	
Arrowwood	<i>Viburnum dentatum</i>
Pink Dawn	<i>Viburnum x bodnantense</i>
Sweet <sup>3</sup>	<i>Viburnum odoratissimum</i>
Weigela	<i>Weigela florida</i>

<sup>3</sup> Injury reported following application to newly transplanted liners.

**Table 8. NON-BEARING FRUIT AND NUT TREES AND VINES**

COMMON NAME	SCIENTIFIC NAME
Apples	<i>Malus</i> spp.
Blueberry, Huckleberry	<i>Vaccinium</i> spp.
Bramble	<i>Rubus</i> spp.
Cherry, Sweet	<i>Prunus avium</i>
Citrus Fruits	<i>Citrus</i> spp.
Grapes	<i>Vitis</i> spp.
Olives	<i>Olea</i> spp.
Peach	<i>Prunum persica</i>
Pears	<i>Pyrus communis</i>
Prunes	<i>Prunus</i> spp.
Stone Fruits	<i>Prunus</i> spp.
Tree Nuts	
Walnut	<i>Juglans</i> spp.
Chestnut	<i>Castanea</i> spp.
Pecan	<i>Carya illinoensis</i>
Pistachio	<i>Pistacia vera</i>
Almond	<i>Prunus dulcis</i>
Filbert	<i>Corylus maxima</i>

## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.

### PESTICIDE STORAGE

Keep pesticide in original container.

Store in a cool, dry, secure place.

Do not put formulated or dilute spray solution into food or drink containers.

Do not contaminate food or foodstuffs.

Do not store or transport near feed or food.

Do not use or store in or around the home.

For help with any spill, leak, fire or exposure involving this material, call day or night **(800) 892-0099**.

### PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### CONTAINER DISPOSAL

Nonrefillable outer bag. Do not reuse or refill the outer bag. Completely empty bag into application equipment. Then dispose of empty bag in a 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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Manufactured for

**Valent U.S.A. Corporation**

P.O. Box 8025

Walnut Creek CA 94596-8025

Form 1482-D

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