SEMERA™
51.0% WDG HERBICIDE

FOR USE IN CONTAINER AND FIELD GROWN CONIFERS AND DECIDUOUS TREES, AROUND ESTABLISHED WOODY ORNAMENTALS IN LANDSCAPES, TO MAINTAIN BARE GROUND NON-CROP AREAS, AND DORMANT TURFGRASS.

FOR THE MANAGEMENT OF UNDESIREABLE AQUATIC VEGETATION IN SLOW MOVING OR QUIESCENT WATERS (TO CONTROL FLOATING AND EMERGED WEEDS USING SURFACE AND SUBSURFACE APPLICATIONS).

ACTIVE INGREDIENT

"Flumioxazin . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
PRAEVENTIONAL STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

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

FIRST AID

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 on skin or clothing:

 Take off contaminated clothing. Rinse skin immediately with plenty of 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 further treatment advice.

If swallowed:

 Call a poison control center or doctor for treatment advice. Keep the product container for reference.

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 to an unconscious person.

NOTICE TO USER

Have the product container or label with you when calling a poison control center or doctor for treatment advice. You may also contact 800-892-0089 for medical treatment information.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

 Some of the materials that are chemical-resistant to this product are listed below.

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 clothes.

ENVIRONMENTAL HAZARDS

Terrestrial uses

This product is toxic to non-target plants and 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. Drain and runoff may be hazardous to non-target plants and aquatic organisms in neighboring areas. 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 washwater.

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 run off to surface water or adjacent bird. 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 and is recommended.

Aquatic uses

If not used in accordance with directions on the label, this product can be toxic to non-target plants and aquatic invertebrates. Do not apply to water except as specified on the label. Drain and runoff may be hazardous to non-target plants and aquatic organisms in neighboring areas. If not used in accordance with label directions. 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 washwater.

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.

DIRECTIVE ON LABEL 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 190. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouse, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific statements on the 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). If treated, wash thoroughly and put on clean clothes.

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 follows:

Non-agricultural use requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standards for agricultural pesticides (40 CFR Part 190). The WPS applies when this product is used to produce agricultural plants on farms, forest, nurseries, or greenhouses.

Keep all unprotected persons out of operating areas, or vicinity where there may be drift.

Do not enter or allow others to enter treated areas until spray barrier has dried.

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 forms are not acceptable then DO NOT USE THE PRODUCT; rather, return the unused product within 10 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 same mix with this product or prior to application of this product, cultural practices as the manner of use or application, or a combination of such factors, all of which are factors beyond the control of the Buyer. The Buyer should be aware that these inherent unintended risks may reduce the harvest 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 TO THE FULLEST EXTENT ALLOWED BY LAW, 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 income, loss of income or increase in expense caused by any unintended or otherwise adverse effects of the use of this product in any manner or under conditions not specifically directed or approved on the label. 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, To the extent consistent with applicable law and AS SET FORTH ABOVE, VALENT MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED.

Valent makes no other warranties, either express, implied, statutory or other (including, but 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). To the fullest extent allowed by law, the Exclusive REMEDY of the Buyer, and the Exclusive LIABILITY of VALENT OR SELLER for ANY and ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTIES, 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 To the extent consistent with applicable law allowing such requirements, 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 later, so that an immediate inspection of the affected property and growing crops can be made. Failure to provide notice consistent with applicable law, 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 agree that 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 responsibility of user, applicator and/or application advisor, to the extent allowed by applicable law.

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

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OR IMPLIED. No agent or representative of Valent or Seller is authorized to make or create or convey any other express or implied warranty.

LIMITATION OF LIABILITY

To the fullest extent allowed by law, Valent or Seller is not liable for any incidental, consequential, indirect or other expenses arising 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. To the fullest extent allowed by law, the EXCLUSIVE REMEDY of the BUYER, and the EXCLUSIVE 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.

VALENT MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT 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. TO THE FULLEST EXTENT ALLOWED BY LAW, THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE 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.
**SPRAY DRIFT MANAGEMENT FOR FOLIAR OR SURFACE APPLICATIONS**

- Spray Drill Reduction.
- Territorial uses.
- Aquatic uses.

**WEEDS CONTROLLED**

- Weeds Controlled by Semera 51.0% WDG Herbicide

**DIRECTIONS FOR USE IN CONTAINED AND FIELD GROWN DECIDUOUS TREES AND NON-BEARING FRUIT AND NON-BEARING NUT TREES**

- Preemergence Application
- Postemergence Application
- Tank Mixtures for Container and Field-Grown Deciduous Trees.
- Tolerant Deciduous Trees, Non-Bearing Fruit and Non-Bearing Nut Trees.

**DIRECTIONS FOR USE IN CONTAINER AND FIELD GROWN DECIDUOUS TREES AND NON-BEARING FRUIT AND NON-BEARING NUT TREES**

- Preemergence Application
- Postemergence Application
- Tank Mixtures for Container and Field-Grown Deciduous Trees.
- Tolerant Deciduous Trees, Non-Bearing Fruit and Non-Bearing Nut Trees.

**PRODUCT INFORMATION**

- Territorial Uses
- Semera 51.0% WDG Herbicide is a preemergence and early postemergence herbicide for control of selected grass and broadleaf weeds in and around ornamental woody shrubs, deciduous trees and conifers-green oaks in containers or in the field (in ground), to maintain bare ground non-crop areas, and dormant ornamental turf areas.

- Semera 51.0% WDG herbicide controls weeds by inhibiting protoporphyrinogen oxidase, an essential enzyme required by plants for chlorophyll biosynthesis.

- Semera 51.0% WDG herbicide may cause spotting or speckling on foliage if the spray solution directly contacts actively growing plant foliage or green bark. Leaves that receive indirect (drift) spray contact may be affected in a similar manner.

- Translocation of Semera 51.0% WDG Herbicide is limited, and under most conditions established and growing weedaceous ornamental plants will rapidly outgrow any injury symptoms. However, direct application to actively growing foliage can cause severe injury or death with sensitive ornamental plant species, especially in herbaceous bedding plants and flowers.

- IMPORTANT: When applied as directed, plants listed on this label have shown tolerance to Semera 51.0% WDG Herbicide. However, Semera 51.0% WDG Herbicide is a very active herbicide and the user should exercise responsible judgment and caution until familiarity is gained with this product. Due to variable within species, crop growth stage, environmental conditions and application techniques, it is recommended that users test product under similar growing conditions on a small number of plants and evaluate for 4 to 6 weeks for phytotoxicity. Testing Semera 51.0% WDG Herbicide on a small number of plants will determine if the herbicide can be used safely on a widespread application. Neither the seller nor the manufacturer of Semera 51.0% WDG Herbicide has investigated the safety to plants not listed on the label.

**USE RESTRICTIONS**

- Do not apply in encircled greenhouse structures if plants are present.
- Do not move plants for 24 hours into encircled greenhouse structures until the Semera 51.0% WDG Herbicide treated area has been watered.
- Do not apply when weather conditions favor spray drift from treated areas.
- Do not graze treated fields up to hay livestock.
- Do not incorporate into soil after application.
- Do not apply this product through an irrigation system.
- Do not apply when plants are under stress from insects, diseases, animals or winter injury, planting shock or any other stressors.
- Only apply to healthy established trees and ornamentals.
- Do not apply more than 12 oz (0.38 lb ai/ko) of Semera 51.0% WDG Herbicide per acre per application.
- Do not apply more than 24 oz (0.76 lb ai/ko) of Semera 51.0% WDG Herbicide per acre per year.

**Aquatic uses**

- Semera 51.0% WDG Herbicide is a fast action contact herbicide that controls selected submerged, emergent and floating aquatic weeds. It is most effective when applied to young, actively growing weeds in water with a pH of less than 8.5.

- Semera 51.0% WDG Herbicide may be applied to the following quiescent or slow moving bodies of water:

  - Bays
  - Drainage ditches
  - Lakes
  - Marshes
  - Ponds (including golf course ponds)
  - Reservoirs

- Application of Semera 51.0% WDG Herbicide to public aquatic areas may require special approval and/or permits. Consult with local state agencies, if required.

**USE PRECAUTIONS AND RESTRICTIONS**

- Do not apply to intertidal or estuarine areas.

- There is no post application holding restriction against use of treated water for drinking or recreational purposes (e.g., swimming, fishing).

- In areas with dense weed vegetation only treat 1/2 the water body at one time and wait 10-14 days before treating the remaining area. Do not retreat the same section of water within 28 days of application.

- Treated water may not be used for irrigation purposes on food crops until at least five (5) days after application.

- Treated water may be used for irrigation purposes on turf and landscape ornamentals as outlined in the irrigation restrictions following Application Table.

- Do not use this water supply for cattle or crops.

- Do not treat the same section of water with Semera 51.0% WDG Herbicide more than 50 times per year.

- Do not exceed 400 pg/acre of Semera 51.0% WDG Herbicide during any one application.

**IRRIGATION RESTRICTIONS FOLLOWING APPLICATION**

- Application of Semera 51.0% WDG Herbicide is most effective when applied to clean, weed-free soils. Irrigation may be improved by flooding shallow cultivation. If weeds begin to emerge, irrigate (1/2’ of water) or cultivate uniformly with shallow tillage equipment that will not damage the crop. Deep cultivation reduces the effectiveness of Semera 51.0% WDG Herbicide and should be avoided.

**Turf and Landscape Ornamentals**

- Semera 51.0% WDG Herbicide is a fast action contact herbicide that controls selected submerged, emergent and floating aquatic weeds. It is most effective when applied to young, actively growing weeds in water with a pH of less than 8.5.

**Turf and Landscape Ornamentals**

- Semera 51.0% WDG Herbicide has been watered.

**USE PRECAUTIONS AND RESTRICTIONS**

- Do not apply to intertidal or estuarine areas.

- There is no post application holding restriction against use of treated water for drinking or recreational purposes (e.g., swimming, fishing).

- In areas with dense weed vegetation only treat 1/2 the water body at one time and wait 10-14 days before treating the remaining area. Do not retreat the same section of water within 28 days of application.

- Treated water may not be used for irrigation purposes on food crops until at least five (5) days after application.

- Treated water may be used for irrigation purposes on turf and landscape ornamentals as outlined in the irrigation restrictions following Application Table.

- Do not use this water supply for cattle or crops.

- Do not treat the same section of water with Semera 51.0% WDG Herbicide more than 50 times per year.

- Do not exceed 400 pg/acre of Semera 51.0% WDG Herbicide during any one application.

**IRRIGATION RESTRICTIONS FOLLOWING APPLICATION**

- Application of Semera 51.0% WDG Herbicide is most effective when applied to clean, weed-free soils. Irrigation may be improved by flooding shallow cultivation. If weeds begin to emerge, irrigate (1/2’ of water) or cultivate uniformly with shallow tillage equipment that will not damage the crop. Deep cultivation reduces the effectiveness of Semera 51.0% WDG Herbicide and should be avoided.

**Turf and Landscape Ornamentals**

- Semera 51.0% WDG Herbicide has been watered.

**USE PRECAUTIONS AND RESTRICTIONS**

- Do not apply to intertidal or estuarine areas.

- There is no post application holding restriction against use of treated water for drinking or recreational purposes (e.g., swimming, fishing).

- In areas with dense weed vegetation only treat 1/2 the water body at one time and wait 10-14 days before treating the remaining area. Do not retreat the same section of water within 28 days of application.

- Treated water may not be used for irrigation purposes on food crops until at least five (5) days after application.

- Treated water may be used for irrigation purposes on turf and landscape ornamentals as outlined in the irrigation restrictions following Application Table.

- Do not use this water supply for cattle or crops.

- Do not treat the same section of water with Semera 51.0% WDG Herbicide more than 50 times per year.

- Do not exceed 400 pg/acre of Semera 51.0% WDG Herbicide during any one application.

**IRRIGATION RESTRICTIONS FOLLOWING APPLICATION**

- Application of Semera 51.0% WDG Herbicide is most effective when applied to clean, weed-free soils. Irrigation may be improved by flooding shallow cultivation. If weeds begin to emerge, irrigate (1/2’ of water) or cultivate uniformly with shallow tillage equipment that will not damage the crop. Deep cultivation reduces the effectiveness of Semera 51.0% WDG Herbicide and should be avoided.

**Turf and Landscape Ornamentals**

- Semera 51.0% WDG Herbicide has been watered.

**USE PRECAUTIONS AND RESTRICTIONS**

- Do not apply to intertidal or estuarine areas.

- There is no post application holding restriction against use of treated water for drinking or recreational purposes (e.g., swimming, fishing).

- In areas with dense weed vegetation only treat 1/2 the water body at one time and wait 10-14 days before treating the remaining area. Do not retreat the same section of water within 28 days of application.

- Treated water may not be used for irrigation purposes on food crops until at least five (5) days after application.

- Treated water may be used for irrigation purposes on turf and landscape ornamentals as outlined in the irrigation restrictions following Application Table.

- Do not use this water supply for cattle or crops.

- Do not treat the same section of water with Semera 51.0% WDG Herbicide more than 50 times per year.

- Do not exceed 400 pg/acre of Semera 51.0% WDG Herbicide during any one application.
### POSTEMERGENCE APPLICATION

The most effective preemergence weed control with Semera 51.0% WDG Herbicide occurs when applied in combination with a surfactant to weeds less than 2 inches in height. Apply Semera 51.0% WDG Herbicide only to actively growing weeds. Applying Semera 51.0% WDG Herbicide under conditions that do not promote active weed growth will reduce herbicide effectiveness. Semera 51.0% WDG Herbicide is most effective when applied under sunny conditions at temperatures above 50°F.

Semera 51.0% WDG Herbicide is rinsed out one hour after application. Application should not be made if rain is expected within one hour of application or efficacy may be reduced.

#### SOIL CHARACTERISTICS

Application of Semera 51.0% WDG Herbicide to soils with high organic matter and/or high clay content may require higher dosages than with soils with low organic matter and low clay content. Application is slowly seedbeds can result in reduced weed control.

#### RESISTANCE MANAGEMENT

Aqueous Form

Semera 51.0% WDG Herbicide is a Group 14 herbicide. Any weed population may contain or develop plants that are resistant to Semera 51.0% WDG Herbicide and other Group 14 herbicides. Weed species with acquired resistance to Group 14 herbicides may eventually dominate the weed population if Group 14 herbicides are used repeatedly in the same water body or in successive seasons as the primary method of control for targeted species. This may result in partial or total loss of control of these species by Semera 51.0% WDG Herbicide or other Group 14 herbicides. To delay or prevent herbicide resistance consider the following recommendations:

- Avoid the use of more than two consecutive applications of Semera 51.0% WDG Herbicide or other herbicides that have a similar target site of action.
- Alternate herbicides used for aquatic weed control.
- Base herbicide use on a comprehensive Integrated Pest Management (IPM) program.
- Monitor treated weeds for loss of efficacy.
- Contact your local extension specialist, other experts appropriate to aquatic use, and/or manufacturers for resistance and/or integrated weed management recommendations.

For further information or to report suspected resistance, you may contact Valent U.S.A. Corporation at the following toll-free number: 800-89-VALENT (898-2536).

### CARRIER VOLUME AND SPRAY PRESSURE

#### PREAMERGENCE APPLICATION

To ensure uniform coverage when using boom sprayers, use at least 10 gals of spray solution per acre. When making backpack applications, apply 50 to 100 gals of spray solution per acre. Nozzle selection should meet manufacturer’s gallonage and pressure recommendations for preemergence herbicide application.

#### POSTEMERGENCE APPLICATION

To ensure thorough coverage when using boom sprayers apply at least 15 gals of spray solution per acre. When applying backpack equipment, apply 1 gal of spray solution per 500 to 1,000 sq ft. Nozzle selection should meet manufacturer’s gallonage and pressure recommendations for postemergence herbicide application.

### ADDITIVES

#### POSTEMERGENCE APPLICATION

When applying Semera 37.0% WDG Herbicide after weeds emerge, mix with an agronomically approved adjuvant. When an adjuvant is to be used with this product, Valent recommends the use of a Chemical Producers and Distributors Association certified adjuvant. Mix Semera 37.0% WDG Herbicide with a crop oil concentrate that contains at least 15% emulsifiers and 80% oil or a non-ionic surfactant containing at least 80% active ingredient when applying. Semera 37.0% WDG Herbicide is a post-emergence weed control program. Mixing compatibility should be verified by a jar test before using. Do not mix Semera 37.0% WDG Herbicide with a surfactant when applying over the top of dormant woody ornamentals or conifer trees.

A spray-grade nitrogen source (either ammonium sulfate at 2.5 lb/A or a 28 to 32% nitrogen solution at 3 to 4 gal/A) may be added to the spray mixture along with a crop oil concentrate or non-ionic surfactant to enhance weed control. The addition of a nitrogen source does not replace the need for crop oil concentrate or non-ionic surfactant.

#### JAR TEST TO DETERMINE COMPATIBILITY OF ADJUVANTS AND SEMERA 51.0% WDG HERBICIDE

A jar test should be performed before mixing commercial quantities of Semera 51.0% WDG Herbicide, when using Semera 51.0% WDG Herbicide for the first time, when using new adjuvants or when a new water source is being used. To perform the jar test:

1. Add 1 pt of water to a quart jar. The water should be from the same source and have the same temperature as the water used in the spray tank mixing operation.
2. Add 5 gal (approximately 1 level tsp) of Semera 51.0% WDG Herbicide for the 8 oz/acre rate or 4 gal (approximately 1-1/2 tsp) for 12 oz/acre rate to the jar. Gently mix until product disperses.
3. Add 60 ml (4 Tbsp or 8 ts) of adjuvant to the quart jar and gently mix.
4. If nitrogen is being used, add 16 ml (1 Tbsp) of the 28 to 32% nitrogen source to the quart jar. If ammonium sulfate is being used, add 10 gallons of AMS to the quart jar in place of the 28 to 32% nitrogen.
5. Place cap on jar, invert 10 times, let stand for 15 minutes, evaluate.
6. Add a small-leafed herbicide that is not the same chemical as the surfactant used in the test jar. Gently mix until product disperses.
7. Add 2.5 lb/A of nitrogen to the test jar. Gently mix until product disperses.
8. Add enough clean water to the spray tank to flush hoses, booms, screens and nozzles.
9. Top off tank with clean water and household ammonia. Use 1 gal of 3% household ammonia for every 100 gals of water.
10. Circulate through sprayer for 5 minutes.
11. Then flush all hoses, booms, screens and nozzles for a minimum of 15 minutes.
12. Allow any adjuvants before flushing the spray system, allowing solution to circulate to spray through the open diaphragm.

#### SPRAYER CLEANUP

Spray equipment must be cleaned each day following Semera 51.0% WDG Herbicide application. After Semera 51.0% WDG Herbicide is applied, the following steps must be used to clean the spray equipment:

1. Completely drain the spray tank and rinse the spray thoroughly, including the inside and outside of the tank and all in-line screens.
2. Fill the tank with clean water and flush all hoses, booms, screens and nozzles.
3. Top off tank with clean water and household ammonia. Use 1 gal of 3% household ammonia for every 100 gals of water.
4. Circulate through sprayer for 5 minutes.
5. Then flush all hoses, booms, screens and nozzles for a minimum of 15 minutes.
6. Allow any adjuvants before flushing the spray system, allowing solution to circulate to spray through the open diaphragm.

#### APPLICATION EQUIPMENT

Spray application equipment should be clean and in good repair. Nozzles should be uniformly spaced on boom and frequently checked for accuracy.

### BROADCAST APPLICATION

#### APPLICATION EQUIPMENT

Spray application equipment should be clean and in good repair. Nozzles should be uniformly spaced on boom and frequently checked for accuracy.

### HANDGUN APPLICATION

Applications may also be made using a handgun sprayer. Use a spray volume of at least 40 gals per 1,000 sq ft. Applications at less than 5 gals per acre may not provide adequate weed control. Higher gallonage applications generally provide more consistent weed control.

### Nozzles and Nozzle Operation

Use nozzles that produce flat or hollow cone spray patterns. Use non-creat type nozzles such as diaphragm-type nozzles to avoid unwanted discharge of spray solution. The nozzle must be directed toward the rear of the aircraft, at an angle between 0 and 15° downward. Do not place nozzles on the outer 25% of the wings or rotors.

### ADJACENTS

Refer to the additional section or the tank mix partners label for adjacent recommendations.

### CALIBRATION TABLE

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<thead>
<tr>
<th>SEMERA 51.0% WDG HERBICIDE RATES OZ/A</th>
<th>SEMERA 51.0% WDG HERBICIDE RATES GRAMS/GAL</th>
<th>SEMERA 51.0% WDG HERBICIDE RATES PER GAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>2.8</td>
<td>3/4 tsp</td>
</tr>
<tr>
<td>10</td>
<td>2.8</td>
<td>1 tsp</td>
</tr>
<tr>
<td>12</td>
<td>3.4</td>
<td>1-1/4 tsp</td>
</tr>
</tbody>
</table>

### For Backpack Applications of Semera 51.0% WDG Herbicide at 10 oz per acre

<table>
<thead>
<tr>
<th>Application Volume</th>
<th>Amount of Semera 51.0% WDG Herbicide to mix in 1 gal of water</th>
<th>Amount of Semera 51.0% WDG Herbicide to mix in 2 gals of water</th>
<th>Amount of Semera 51.0% WDG Herbicide to mix in 3 gals of water</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 gal per 500 sq ft</td>
<td>1-1/4 tsp</td>
<td>2-1/2 tsp</td>
<td>3-3/4 tsp</td>
</tr>
<tr>
<td>1 gal per 750 sq ft</td>
<td>3-1/2 tsp</td>
<td>5 tsp</td>
<td>7-1/2 tsp</td>
</tr>
<tr>
<td>1 gal per 1,000 sq ft</td>
<td>5 tsp</td>
<td>7-1/2 tsp</td>
<td></td>
</tr>
</tbody>
</table>

### 1 level teaspoon (top) holds 2.8 gars of Semera 51.0% WDG Herbicide

Example: Applicator wants to spray 1 gal of Semera 51.0% WDG Herbicide solution per 1,000 sq ft of ground bed, and wants to mix up 2 gals of spray solution. Therefore, applicator should mix 5 teaspoons of Semera 51.0% WDG Herbicide in 5 gals of water.
**Spray Management for Foliar or Surface Applications**

**Spray Reduction**

**Terrestrial Uses**

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

- Use the largest droplet size consistent with acceptable efficacy. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible and by avoiding excessive spray boom pressure. For ground boom and aerial applications, use medium or coarser spray nozzles according to ASAE 572 definition for standard nozzles or a volume mean diameter (VMD) of 300 microns or greater for spinning atomizer nozzles.

- Make aerial or ground applications when the wind velocity favors on-target product deposition only when the wind speed is less than or equal to 10 mph. For all non-aerial applications, wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.

- Do not make aerial or ground 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 indicate the presence of an inversion in humid areas. When 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.

- Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased spray drift. Avoid spraying during conditions of low humidity and/or high temperatures.

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

- For ground boom applications, apply with nozzle height no more than 4 ft above the ground or crop canopy.

**Aquatic Uses**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making a spray application. Do not spray Semera 51.0% WDG Herbicide under circumstances where spray droplets may drift onto unprotected persons, or plantings of food, forage or other crops that might be damaged, or rendered unfit for sale, use or consumption. These precautions are not applicable for subaqueous injection by closed systems. The largest droplet size consistent with acceptable efficacy. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible and by avoiding excessive spray boom pressure. For ground boom and aerial applications, use medium or coarser spray nozzles according to ASAE 572 definition for standard nozzles or a volume mean diameter (VMD) of 300 microns or greater for spinning atomizer nozzles.

- Make aerial or ground, watercraft-based surface applications when wind velocity favors on-target product deposition. Apply only when the wind speed is less than or equal to 10 mph.

- Do not make aerial or ground 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 indicate the presence of an inversion in humid areas.

**Wild Injury**

If conifers are not dormant or hardened off at time of application, and foliage injury cannot be tolerated, apply

**Aquatop Application**

Apply Semera 51.0% WDG Herbicide as a single or split application to established container and field-grown conifers. The conifers listed in Table 1 have exhibited tolerance to Semera 51.0% WDG Herbicide only where the product is applied to dormant or hardened off plant material. If applied over the top of plant foliage, apply Semera 51.0% WDG Herbicide before spring bud break or after conifers have sufficiently hardened off. During periods of cool, cloudy weather, use caution to ensure conifers have hardened off prior to herbicide application. Do not apply to conifers within 1 year of seeding emergence.

**Preemergence Application**

Apply at 12 oz or 0.36 lb ai/A (or 0.36 lb ai/A) of Semera 51.0% WDG Herbicide broadcast acre before weeds emerge. Apply to weed-free, established conifers grown in containers or in the field (in-ground). When it is necessary, treat areas of 0.5 to 0.75 inch of water immediately following application. Semera 51.0% WDG Herbicide may be sprayed directly over conifers listed in Table 2, provided bud break has not occurred or plants are hardened off. Needle burn may be observed on new flush if plants are actively growing at time of application. However, Semera 51.0% WDG Herbicide will typically not affect subsequent growth. If conifers are not hardened or hardened off at all times of application, and foliar injury cannot be tolerated, apply Semera 51.0% WDG Herbicide as a directed spray, taking care in direct contact or drift of sprays onto foliage. Mechanically incorporating Semera 51.0% WDG Herbicide after application will disturb soil surfaces, which may reduce herbicidal efficacy. When applied before weed germination, Semera 51.0% WDG Herbicide will control broadleaf and grassy weeds listed in Table 1.

**Postemergence Application**

Apply at 12 oz (0.25 to 0.35 lb ai/A) of Semera 51.0% WDG Herbicide broadcast acre after weeds have emerged. Semera 51.0% WDG Herbicide may be sprayed directly over conifers listed in Table 2, provided bud break has not occurred or plants are hardened off. Needle burn may be observed on new flush if plants are actively growing at time of application. However, Semera 51.0% WDG Herbicide will typically not affect subsequent growth. If conifers are not hardened or hardened off at all times of application, and foliar injury cannot be tolerated, apply Semera 51.0% WDG Herbicide as a directed spray, taking care in direct contact or drift of sprays onto foliage. Mechanically incorporating Semera 51.0% WDG Herbicide after application will disturb soil surfaces, which may reduce herbicidal efficacy. When applied before weed germination, Semera 51.0% WDG Herbicide will control broadleaf and grassy weeds listed in Table 1.

**Soil Precautions**

Apply to soil. Implement acceptable post-planting practices to eliminate the risk of soil contamination. Avoiding soil contamination will typically not affect subsequent growth. If conifers are not hardened or hardened off at all times of application, and foliar injury cannot be tolerated, apply Semera 51.0% WDG Herbicide as a directed spray, taking care in direct contact or drift of sprays onto foliage. Mechanically incorporating Semera 51.0% WDG Herbicide after application will disturb soil surfaces, which may reduce herbicidal efficacy. When applied before weed germination, Semera 51.0% WDG Herbicide will control broadleaf and grassy weeds listed in Table 1.

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**RESTRICTIONS AND LIMITATIONS**

- Do not apply more than 2 applications at 12 oz/A (0.38 lb ai/A) or 3 applications at 8 oz/A (0.25 lb ai/A) per year.
- Do not re-apply Semena 51.0% WDG Herbicide within 30 days.

**TABLE 3. TOLERANT DECIDUOUS TREE SPECIES**

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td><em>Malus</em> spp.</td>
</tr>
<tr>
<td>Birch</td>
<td><em>Betula</em> spp.</td>
</tr>
<tr>
<td>Cherry</td>
<td><em>Prunus</em> spp.</td>
</tr>
<tr>
<td>Chestnut</td>
<td><em>Castanea</em> spp.</td>
</tr>
<tr>
<td>Elm</td>
<td><em>Ulmus</em> spp.</td>
</tr>
<tr>
<td>Horse Chestnut</td>
<td><em>Aesculus hippocastanum</em></td>
</tr>
<tr>
<td>Poplar</td>
<td><em>Populus</em> spp.</td>
</tr>
<tr>
<td>Pear</td>
<td><em>Pyrus</em> spp.</td>
</tr>
<tr>
<td>Plum</td>
<td><em>Prunus</em> spp.</td>
</tr>
<tr>
<td>Peach</td>
<td><em>Peach</em> spp.</td>
</tr>
<tr>
<td>Cherry</td>
<td><em>Prunus</em> spp.</td>
</tr>
<tr>
<td>Crape Myrtle</td>
<td><em>Lagerstroemia indica</em></td>
</tr>
<tr>
<td>Pear</td>
<td><em>Pyrus</em> spp.</td>
</tr>
<tr>
<td>Walnut</td>
<td><em>Juglans</em> spp.</td>
</tr>
<tr>
<td>Poplar</td>
<td><em>Populus</em> spp.</td>
</tr>
<tr>
<td>Redbud</td>
<td><em>Cercis canadensis</em></td>
</tr>
<tr>
<td>Sweet Gum</td>
<td><em>Liquidambar styraciflua</em></td>
</tr>
<tr>
<td>Sycamore</td>
<td><em>Platanus</em> spp.</td>
</tr>
<tr>
<td>Willow</td>
<td><em>Salix</em> spp.</td>
</tr>
</tbody>
</table>

**TABLE 2. TOLERANT CONIFERS (continued)**

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thuja</td>
<td><em>Thuja</em> spp.</td>
</tr>
<tr>
<td>Juniper</td>
<td><em>Juniperus</em> spp.</td>
</tr>
<tr>
<td>LARCH</td>
<td><em>Larix</em> spp.</td>
</tr>
<tr>
<td>Cypress</td>
<td><em>Cupressus</em> spp.</td>
</tr>
<tr>
<td>Hemlock</td>
<td><em>Tsuga</em> spp.</td>
</tr>
<tr>
<td>PINE</td>
<td><em>Pinus</em> spp.</td>
</tr>
<tr>
<td>ARBORVITA</td>
<td><em>Thuja</em> spp.</td>
</tr>
<tr>
<td>FIR</td>
<td><em>Abies</em> spp.</td>
</tr>
<tr>
<td>RED FIR</td>
<td><em>Abies grandis</em></td>
</tr>
<tr>
<td>MUGA</td>
<td><em>Musa</em> spp.</td>
</tr>
<tr>
<td>PAMPAS GRASS</td>
<td><em>Acorus calamus</em></td>
</tr>
<tr>
<td>CORK BARK</td>
<td><em>Cork</em> spp.</td>
</tr>
<tr>
<td>Tamarisk</td>
<td><em>Tamarix</em> spp.</td>
</tr>
<tr>
<td>Japanese Garden</td>
<td><em>Japanese</em> spp.</td>
</tr>
<tr>
<td>Creeping</td>
<td><em>Creeping</em> spp.</td>
</tr>
<tr>
<td>Blue Star</td>
<td><em>Blue</em> spp.</td>
</tr>
<tr>
<td>American Arborvitae</td>
<td><em>Arborvitae</em> spp.</td>
</tr>
<tr>
<td>Eastern White</td>
<td><em>Eastern</em> spp.</td>
</tr>
<tr>
<td>Lodgepole Pine</td>
<td><em>Lodgepole</em> spp.</td>
</tr>
<tr>
<td>Ponderosa</td>
<td><em>Ponderosa</em> spp.</td>
</tr>
<tr>
<td>Longleaf Pine</td>
<td><em>Longleaf</em> spp.</td>
</tr>
<tr>
<td>Sand pine</td>
<td><em>Pine</em> spp.</td>
</tr>
<tr>
<td>Scotch</td>
<td><em>Scotch</em> spp.</td>
</tr>
<tr>
<td>Slovak</td>
<td><em>Slovak</em> spp.</td>
</tr>
<tr>
<td>Missouri</td>
<td><em>Missouri</em> spp.</td>
</tr>
<tr>
<td>English</td>
<td><em>English</em> spp.</td>
</tr>
<tr>
<td>Japanese</td>
<td><em>Japanese</em> spp.</td>
</tr>
</tbody>
</table>

**DIRECTIONS FOR USE IN CONTAINER AND FIELD GROWN DECIDUOUS TREES AND NON-BEARING FRUIT AND NON-BEARING NUT TREES**

**Semena 51.0% WDG Herbicide**: Mix tank in a compatible sprayer to control broadleaf weeds and grasses listed in Table 1. If used for postemergence control, apply within 30 days of weed germination. Semena 51.0% WDG Herbicide may be tank mixed with products containing the following active ingredients labeled for use on conifers:

- glyphosate
- pendimethalin
- prodiamine
- simazine

**Do not apply glyphosate or simazine to containerized ornamentals.**

**IMPORTANT**: Complete and read the label of any tank mix partner. When tank mixing Semena 51.0% WDG Herbicide with other herbicides, always follow the most restrictive limitations and precautions on the label of any tank mix partner.

**TOLERANCE CONIFERS**

- Semena 51.0% WDG Herbicide may be applied to the conifer species listed in Table 2. If a desired conifer species is not listed in Table 2, users should evaluate the safety of desired tree species. If a desired tree species is not listed in Table 3, users should evaluate the safety of desired tree species to minimize direct contact or drift of sprays onto foliage. Avoid application under environmental conditions that favor drift to non-coniferous plants. Application of Semena 51.0% WDG Herbicide to deciduous trees within one year of application may cause injury to the soil surface and may limit emergence of certain weed species, and may not control mature, stressed or hardened off weeds that are not actively growing at the time of application. 

**RESTRICTIONS AND LIMITATIONS**

- Do not apply more than 2 applications at 12 oz/A (0.38 lb ai/A) or 3 applications at 8 oz/A (0.25 lb ai/A) per year.
- Do not re-apply Semena 51.0% WDG Herbicide within 30 days.

**TABLE 2. TOLERANT CONIFERS**

<table>
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<tr>
<th>COMMON NAME</th>
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</tr>
</thead>
<tbody>
<tr>
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<td><em>Tsuga</em> spp.</td>
</tr>
<tr>
<td>Eastern</td>
<td><em>Tsuga</em> spp.</td>
</tr>
<tr>
<td>Western</td>
<td><em>Tsuga</em> spp.</td>
</tr>
<tr>
<td>Juniper</td>
<td><em>Juniperus</em> spp.</td>
</tr>
<tr>
<td>Blue Star</td>
<td><em>Juniperus horizontalis</em></td>
</tr>
<tr>
<td>Creeping</td>
<td><em>Juniperus chinensis</em></td>
</tr>
<tr>
<td>Japanese Garden</td>
<td><em>Juniperus procumbens</em></td>
</tr>
<tr>
<td>Tamarisk</td>
<td><em>Juniperus scopulorum</em></td>
</tr>
<tr>
<td>Pine</td>
<td><em>Pinus</em> spp.</td>
</tr>
<tr>
<td>Austrian</td>
<td><em>Pinus nigra</em></td>
</tr>
<tr>
<td>Eastern White</td>
<td><em>Pinus strobus</em></td>
</tr>
<tr>
<td>Jack</td>
<td><em>Pinus banksiana</em></td>
</tr>
<tr>
<td>Japanese Black</td>
<td><em>Pinus thunbergiana</em></td>
</tr>
<tr>
<td>Locally</td>
<td><em>Pinus ponderosa</em></td>
</tr>
<tr>
<td>Lodgepole Pine</td>
<td><em>Pinus contorta</em></td>
</tr>
<tr>
<td>Muga</td>
<td><em>Pinus elliottii</em></td>
</tr>
<tr>
<td>Ponderosa</td>
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</tr>
<tr>
<td>SAND</td>
<td><em>Pinus contorta</em></td>
</tr>
<tr>
<td>Scotch</td>
<td><em>Pinus sylvestris</em></td>
</tr>
<tr>
<td>Slovak</td>
<td><em>Pinus contorta</em></td>
</tr>
<tr>
<td>Missouri</td>
<td><em>Pinus rigida</em></td>
</tr>
<tr>
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</tr>
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**Do not apply prodiamine or simazine to containerized ornamentals.**

**IMPORTANT**: Complete and read the label of any tank mix partner. When tank mixing Semena 51.0% WDG Herbicide with other herbicides, always follow the most restrictive limitations and precautions on the label of any tank mix partner.

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<td><em>Pinus rigida</em></td>
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- Do not re-apply Semena 51.0% WDG Herbicide within 30 days.
**WDG Herbicide**

Over the top of ornamental plants growing in the landscape, and do not allow Semena 51.0% WDG Herbicide spray to contact, drift or splash from soil onto the foliage, green stems, exposed roots or fruit of desirable plants. Avoid application of Semena 51.0% WDG Herbicide under conditions that favor drift of spray onto desired ornamentals or turfgrass. The use of spray shields that limit the plant exposure to Semena 51.0% WDG Herbicide is highly recommended when applying Semena 51.0% WDG Herbicide near desirable plants.

Do not apply Semena 51.0% WDG Herbicide around landscape ornamentals until plants have been actively growing for at least 30 days after transplanting, or for at least two months before ornamentals will be planted into treated areas.

**PREEMERGENCE APPLICATION (NO WEEDS ARE PRESENT)**

Mix 1-1/2 to 2-1/2 tsp (0.33 to 0.61 fl oz) of application and 1 gal of spray solution to 300 – 1,000 sq ft (10 fl oz) prior to weed germination (see calibration table for backpack sprayers). Apply Semena 51.0% WDG Herbicide to weed-free soil, mulch or gravel surfaces. Make sure to assist in the control of resistant weeds. The length of residual control is dependent on the rate used as well as soil and temperature conditions. Length of residual activity will decrease as temperature and precipitation increase.

**PREEMERGENCE APPLICATION**

Apply 6 to 12 oz (0.33 to 0.61 fl oz) of Semena 51.0% WDG Herbicide per broadcast acre as a preemergence application. Preemergence (to weed emergence) applications of Semena 51.0% WDG Herbicide should be made to a weed-free surface. Mix 50% herbicide and 50% water into the sprayer tank. Apply the preemergence were done as an additional rate of sodium chloride and chlorine. Semena 51.0% WDG Herbicide will control susceptible germinating weeds.

**POSTEMERGENCE APPLICATION**

Apply 6 to 12 oz (0.33 to 0.61 fl oz) of Semena 51.0% WDG Herbicide per broadcast acre or as a broadcast application. Postemergence (to weed emergence) applications of Semena 51.0% WDG Herbicide may require the following:

- Adequate moisture is received after dry conditions.
- Semena 51.0% WDG Herbicide will control susceptible germinating weeds.

**SPOT TREATMENTS**

Mix 2 to 10 oz (0.67 to 2.81 fl oz) of Semena 51.0% WDG Herbicide per broadcast acre or as a spot application. Postemergence (to weed emergence) applications of Semena 51.0% WDG Herbicide may require the following:

- Adequate moisture is received after dry conditions.
- Semena 51.0% WDG Herbicide will control susceptible germinating weeds.

**RESEARCH LIMITATIONS**

- Do not apply more than 2 applications per year.

**RESTRICTIONS AND LIMITATIONS**

- Do not apply to dormant turfgrass that has been overseeded with cool season turfgrass (e.g., perennial ryegrass, Poa trivialis).
- Do not apply within 1 hour before or after application.
- Do not apply if rain is expected within 1 hour after application.
- Do not apply more than 2 applications at 12 oz/A (0.38 lb ai/A) or 3 applications at 8 oz/A (0.25 lb ai/A) per year.
- Do not re-apply Semena 51.0% WDG Herbicide within 30 days.
- Do not apply in full before turf has resumed active growth or in late winter/early spring after turf has resumed active growth.
- Allow 8 weeks between application and seeding or sodding of turfgrass.

**ADDITIVES**

When applying Semena 51.0% WDG Herbicide to the foliages of floating or emergent aquatic plants an adjacent approved aquatic herbicide. Valenc recommends the use of a Chemical Producers and Distributors Association certified adjuvant. Mix Semena 51.0% WDG Herbicide with a non-ionic surfactant as an adjuvant and use the recommended amount. Follow adjacent manufacturer’s label rates. Mixing compatibility should be verified by a firm test before using. Use around Bentgrass and Poa Greens:

- Semena 51.0% WDG Herbicide may be mixed with metalsulfuron to control winter perennial weeds.
- Semena 51.0% WDG Herbicide will control postemergence control of grasses and broadleaf weeds controlled by Semena 51.0% WDG Herbicide. Apply 8 to 12 oz (0.25 to 0.38 lb ai/A) of Semena 51.0% WDG Herbicide per broadcast acre as a preemergence application. Preemergence (to weed emergence) applications of Semena 51.0% WDG Herbicide may require the following:

- Adequate moisture is received after dry conditions.
- Semena 51.0% WDG Herbicide will control susceptible germinating weeds.

**DISPERSANTS AND SIMILAR PRODUCTS**

Semena 51.0% WDG Herbicide may be applied to water surfaces in such areas as:

- Pond construction, ponds, wetlands, canals, marinas, marinas, aquaculture areas, office complexes, parks, parking areas, recreational sites, and other similar sites. Bermudagrass exhibits tolerance to Semena 51.0% WDG Herbicide only when applied to completely dormant turf in the late fall and before new growth resumes in the late winter/early spring. Application of Semena 51.0% WDG Herbicide to actively growing turfgrass (warm season and cool season) or during green-up may cause unacceptable injury.

**BROADCAST APPLICATIONS**

Apply 8 to 12 oz of Semena 51.0% WDG Herbicide broadcast across as a preemergence (to weed emergence) application. If weeds are present at the time of application, apply Semena 51.0% WDG Herbicide plus an adjuvant (2.95% w/w non-ionic surfactant). Make postemergence (to weed emergence) applications of Semena 51.0% WDG Herbicide when weeds are actively growing and no larger than 2 inches in height. Through spray coverage is necessary to maximize the postemergence activity of Semena 51.0% WDG Herbicide. When applied after weed germination, Semena 51.0% WDG Herbicide will provide preemergence and postemergence control of broadleaf weeds and grasses listed in Table 1. Postemergence control of Semena 51.0% WDG Herbicide may be more effective on certain weed species, and may not control mature, stressed, or hardened off weeds that are not actively growing at the time of application.

**RESTRICTIONS AND LIMITATIONS**

- Do not apply to golf course putting greens.
- Do not apply to warm season turfgrass that has been overseeded with cool season turfgrass (e.g., perennial ryegrass, Poa trivialis).
- Do not apply within 1 hour before or after application.
- Do not apply if rain is expected within 1 hour after application.
- Do not re-treat warm season turfgrass within 12 hours after application.
- Do not apply within 15 feet of trees, shrubs, and ornamentals.
- Do not apply more than 2 applications at 12 oz/A (0.38 lb ai/A) or 3 applications at 8 oz/A (0.25 lb ai/A) per year.
- Do not re-apply Semena 51.0% WDG Herbicide within 30 days.
- Do not apply in full before turf has resumed active growth or in late winter/early spring after turf has resumed active growth.
- Allow 8 weeks between application and seeding or sodding of turfgrass.

**LITERATURE CITED**

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**APPPLICATOR & SPRAYER INFORMATION**

**MIXING INSTRUCTIONS**

- Fill spray tank 1/2 full of desired level with water and add buffer agent if necessary.
- Add required amount of Semena 51.0% WDG Herbicide to the spray tank while agitation.
- Fill spray tank to desired level with water. Ensure that Semena 51.0% WDG Herbicide is thoroughly mixed before making applications. Agitation should continue until spray solution has been applied.
- Mix only the amount of spray solution that can be applied the day of mixing. Apply Semena 51.0% WDG Herbicide within 12 hours of mixing.

**ADDITIVES**

When applying Semena 51.0% WDG Herbicide to the foliages of floating or emergent aquatic plants an adjacent approved aquatic herbicide. Valenc recommends the use of a Chemical Producers and Distributors Association certified adjuvant. Mix Semena 51.0% WDG Herbicide with a non-ionic surfactant as an adjuvant and use the recommended amount. Follow adjacent manufacturer’s label rates. Mixing compatibility should be verified by a firm test before using.

**Jar Test to Determine Compatibility of Adjuvants and Semena 51.0% WDG Herbicide**

Conduct a jar test before mixing commercial quantities of Semena 51.0% WDG Herbicide, when using for the first time, when using new adjuvants or when a new water source is being used.

- Add 1 pt of water to a jar. The water should be from the same source and have the same temperature as the water used in the spray tank mixing operation.
- Add 2 grams (approximately 1 level tsp) of Semena 51.0% WDG Herbicide for the 8 fl oz rate or 4 grams (approximately 1-1/2 tsp) for 12 oz/A rate to the jar. Gently mix until product dissolves. Add 60 ml (4 Tbsp or 2 fl oz) to additive of the jar and gently mix.
- Place jar on firm, even surface, and let stand for 15 minutes. Evaluate.
- An ideal liquid mixture will be uniform and free of suspended particles. If any of the following conditions are observed the choice of adjuvant should be questioned:
  a) Layer of oil or globules on the solution surface.
  b) Flocculation: Fine particles in suspension or as a layer on the bottom of the jar.
  c) Clustering: Thickening texture (coagulated) like gelatin.
Sprayer Cleanup

If spray equipment is dedicated to application of aquatic herbicides, the following steps are recommended to clean the spray equipment:

• Completely drain the spray tank and rinse the application equipment throughly, including the inside and outside of the tank and all in-line screens.

If spray equipment will be used for purposes other than applying aquatic herbicides, it must be thoroughly cleaned following application of Seneca 51.0% WDG Herbicide. The following steps must be used to clean the spray equipment:

1. Completely drain the spray tank and rinse the application equipment throughly, including the inside and outside of the tank and all in-line screens.

2. Fill the tank with clean water and flush all hoses, booms, screens and nozzles.

3. Top off tank with clean water.

4. Circulate through spray for 5 minutes.

5. Then flush all hoses, booms, screens and nozzles for a minimum of 15 minutes.

6. Drain tank completely.

7. Rinse all screens and nozzles and rinse them with clean water.

AERIAL APPLICATION

To obtain satisfactory weed control, aerial application of Seneca 51.0% WDG Herbicide, must provide uniform coverage of surface weeds and sufficient contact time. When applied by air, Seneca 51.0% WDG Herbicide may not provide adequate control of some submerged weeds. Do not apply by air when significant drift to non-target plants may occur or when wind velocity is more than 10 mph. Avoid applying Seneca 51.0% WDG Herbicide within 200 feet of shorelines, adjacent sensitive crops or environmentally sensitive areas. To obtain satisfactory application and avoid drift, the following directions must be observed:

Volume and Pressure

Apply Seneca 51.0% WDG Herbicide in a minimum of 5 gals of water per acre with a maximum spray pressure of 40 PSI. Application at less than 5 gals per acre may not provide adequate weed control. Higher gonadolin applications generally provide more consistent weed control.

Nozzles and Nozzle Operation

Use nozzles that produce flat or hollow cone spray patterns. Use non-chip type nozzles such as diaphragm type nozzles to avoid unwanted discharge of spray solution. The nozzle must be directed toward the rear of the aircraft, at an angle between 0° and 15° downward. Do not place nozzles on the water 50% of the width or more.

Adjuvants

Refer to the additive section or the tank mix partners label for adjuvant recommendation.

DIRECTIONS FOR USE TO CONTROL FLOATING AND EMERGED WEEDS USING SURFACE APPLICATION

Seneca 51.0% WDG Herbicide will control weeds and algae listed in Table 5, Floating and Emerged Weeds, when applied as a broadcast spray with appropriate equipment. For best results, apply Seneca 51.0% WDG Herbicide to the foliage of actively growing weeds.

Table 5. Floating and Emerged Weeds

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>\footnotesize{DESCRIPTION}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duckweed</td>
<td>Lemna spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Fringe-blite</td>
<td>Lemma trisulata</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Water Fern</td>
<td>Salvinia spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Water Lettuce</td>
<td>Potamogeton spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Water Pennywort</td>
<td>Hydrocotyle spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Filamentous algae</td>
<td>Potamogeton spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Filamentous algae</td>
<td>Potamogeton spp.</td>
<td>Round freshwater plant</td>
</tr>
</tbody>
</table>

The herbicide under the surface and throughout the biomass of aquatic vegetation will be effective on June 11, 15

APPLICATION EQUIPMENT

Apply Seneca 51.0% WDG Herbicide with sprayers equipped with nozzles designed to deliver the desired spray pressure and spray volume. Apply by backpack or hand sprayer, airboat, helicopter, airplane or other application equipment that will ensure thorough coverage of target plant foliage.

DIRECTIONS FOR USE TO CONTROL SUBMERGED AND FLOATING WEEDS USING SUBMERGENCE APPLICATION

Seneca 51.0% WDG Herbicide will control submerged and floating weeds listed in Table 6, Submerged and Floating Weeds Controlled by Submersed Application, when applied submersed with appropriate equipment.

Table 6. Submerged and Floating Weeds Controlled by Submersed Application

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>\footnotesize{DESCRIPTION}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceratophyllum</td>
<td>Ceratophyllum spp.</td>
<td>Wetland aquatic plant</td>
</tr>
<tr>
<td>Fireweed</td>
<td>Lemna spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Hydrilla</td>
<td>Hydrilla verticillata</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Watermeal</td>
<td>Wolffia spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Water Pennywort</td>
<td>Hydrocotyle spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Filamentous algae</td>
<td>Potamogeton spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Filamentous algae</td>
<td>Potamogeton spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Water Fern</td>
<td>Salvinia spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Water Lettuce</td>
<td>Potamogeton spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Watermeal</td>
<td>Wolffia spp.</td>
<td>Round freshwater plant</td>
</tr>
<tr>
<td>Watermellini, Eurasian</td>
<td>Myriophyllum micranthum</td>
<td>Aquatic weed</td>
</tr>
<tr>
<td>Watermellini, Eurasian</td>
<td>Myriophyllum micranthum</td>
<td>Aquatic weed</td>
</tr>
</tbody>
</table>

SUBMERGENCE APPLICATION

Apply Seneca 51.0% WDG Herbicide at a rate that will produce an initial concentration of 300 to 400 ppb (of active ingredient flumioxazin) in the water column. Seneca 51.0% WDG Herbicide is rapidly absorbed by target plants, but also breaks down quickly in water with a pH greater than 8.5. The pH of water surrounding mats of submerged vegetation can exceed 8.5 by early to mid-day, due to photosynthetic processes. Application of Seneca 51.0% WDG Herbicide under these conditions may provide only partial weed control, and regrowth is likely. For best control, apply Seneca 51.0% WDG Herbicide in a minimum of 30 gals of water per acre in the early morning to actively growing weeds and early in the season before surface matting occurs. Complete coverage and sufficient contact time of submerged weeds with Seneca 51.0% WDG Herbicide is required for optimal performance. Application of Seneca 51.0% WDG Herbicide with surface trailing hoses designed to distribute the herbicide within the plant stand will provide more effective and longer term control of submerged weeds. See Table 7, Submersed Application Rates to determine the amount of Seneca 51.0% WDG Herbicide needed to achieve desired concentration at different water depths. The higher concentrations when weed biomass is heavy and/or weeds are more mature and topped out. Any untreated plants that are left in the water columns can re-infect treated areas that had previously been controlled. If a second application is required to provide control, it is recommended that a treatment be made once the return of these weeds is first observed, but no sooner than 28 days after the last treatment.

When applying Seneca 51.0% WDG Herbicide to densely packed actively growing submerged weeds, a rapid decomposition of vegetation resulting from herbicide treatment can result in loss of oxygen in water. A sudden decrease in dissolved oxygen can result in fish suffocation. If aquatic vegetation is dense, treat submerged weeds in sections to avoid a rapid decrease in dissolved oxygen.

Seneca 51.0% WDG Herbicide may be tank mixed with other registered submerged applied herbicides for enhanced control of submerged and floating weeds.
STORAGE AND DISPOSAL

PESTICIDE STORAGE
Keep pesticide in original container.
Store in a cool, dry, secure place.
Do not put formulation or dilute spray solution into food or drink containers.
Do not store or transport near feed or food.
Not for use or storage in or around the home.
For help with any spill, leak, fire or exposure involving this material, call CHEMTREC day or night within USA and Canada: 1-800-424-9300 CCN 712313 or +1 703-527-3887 (collect calls accepted).
Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.

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

CONTAINER HANDLING
Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Semera is a trademark of Atticus, LLC
**FORM:** 2011-B  
**NAME:** Semera Herbicide  
**KIND:** Booklet Label  
**SPEC:** CCL 11508:.375  

**PRODUCT SIZE:** 5 pounds  
**LABEL SIZE:**  
5-1/2"(w) x 6-1/2"(h) - book closed  
11"(w) x 6-1/2"(h) - book open  
6-1/4"(w) x 6-1/2"(h) - base

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### ACTIVE INGREDIENT  
*Flumioxazin*  
By Wt.  
51%

### OTHER INGREDIENTS

49%

### TOTAL

100%

*\((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)](2)*

Semera™ 51.0% WDG Herbicide is a water dispersible granule containing 51% active ingredient.

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**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**  
SEE NEXT PAGE FOR ADDITIONAL PRECAUTIONARY STATEMENTS.

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**EPA Reg. No. 59639-120-91234**  
**EPA Est. 11773-IA-01®, 39578-TX-01®, 5905-IA-01®**  
Superscript is first letter of lot number.  
Form 2011-B

**Net Weight:**  
5 Pounds

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Manufactured for:  
**Atticus, LLC.**  
501 Cascade Pointe Lane, Suite 102  
Cary, NC 27513