SEMERA™ 51.0% WDG

Non-Crop Herbicide.
For Use in Container and Field Grown Conifers (Including Christmas Trees) and Deciduous Trees, Around Established Woody Ornamentals in Landscapes, To Maintain Bare Ground Non-Crop Areas, Conifer and Poplar Re-Forestation Sites, and Dormant Turfgrass For The Management of Undesirable Aquatic Vegetation in Slow Moving or Quiescent Waters

ACTIVE INGREDIENT:	**(% by weight)**
Flumioxazin*	51.0%
OTHER INGREDIENTS:	49.0%
TOTAL:	100.0%

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

EPA Reg. No.: 91234-129

KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

See below for additional Precautionary Statements.

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.
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 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 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 SafetyCall at **1-844-685-9173** for emergency medical treatment information.	

For Chemical Emergency: Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)

Manufactured for:
Atticus, LLC
940 NW Cary Parkway, Suite 200
Cary, NC 27513

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Harmful if absorbed through skin. Harmful if inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing dust and spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

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
- Shoes plus socks
- Waterproof gloves.

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/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Semera 51.0% WDG is toxic to non-target plants and aquatic invertebrates. Do not apply to water except as specified on the label, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to non-target plants and aquatic organisms in neighboring areas, if not used in accordance with the 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 washwaters or rinsate.

Under some conditions **Semera 51.0% WDG** may have a potential to run-off 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 run-off. Use vegetation filter strips along rivers, creeks, streams, wetlands, or on the downhill side of fields, where run-off could occur to minimize water run-off.

NON-TARGET ORGANISM

This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label direction intended to minimize off site movement.

PHYSICAL OR CHEMICAL HAZARDS

Do not mix or allow coming in contact with an oxidizing agent. Hazardous chemical reaction may occur.

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 instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

The following PPE is required for early entry into 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:

- Coveralls
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

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 170). 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 sprays have dried.

RESISTANCE MANAGEMENT

Semera 51.0% WDG is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to **Semera 51.0% WDG** and other Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Rotate the use of **Semera 51.0% WDG** or other Group 14 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout after herbicide application to monitor weed populations for early signs of resistance development.

  Indicators of possible herbicide resistance include:

  (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;

  (2) a spreading patch of non-controlled plants of a particular weed species;

  (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist, certified crop advisors and/or manufacturer for herbicide resistance management and/or integrated weed management measures for specific crops and resistant weed biotypes.
- For further information or to report suspected resistance, contact Atticus, LLC at 984-465-4800.

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TANK MIXES NOTICE

Tank mixing and/or use of this product with another product that is not specifically and expressly authorized by the label shall be at the exclusive risk of user, applicator, and/or application advisor to the extent allowed by applicable law. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

PRODUCT USE INFORMATION

Semera 51.0% WDG is a pre-emergence and early post-emergence herbicide for control of selected grass and broadleaf weeds in and around ornamental woody shrubs, deciduous trees and conifers (including Christmas trees) grown outdoors in containers or in the field (in ground), to maintain bare ground non-crop areas, conifer and poplar reforestation, and dormant warm season turfgrass.

Semera 51.0% WDG is a selective herbicide to maintain bare ground non-crop areas when used in accordance with this label. **Semera 51.0% WDG** is effective as a pre-emergence and/or post-emergence herbicide for control of selected grass and broadleaf weeds.

Semera 51.0% WDG controls weeds by inhibiting protoporphyrinogen oxidase, an essential enzyme required by plants for chlorophyll biosynthesis. Seedling weeds are controlled pre-emergence when exposed to sunlight following contact with the soil applied herbicide.

Semera 51.0% WDG 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** is limited, and under most conditions established and vigorously growing woody ornamentals 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 this product. However, **Semera 51.0% WDG** is a very active herbicide and the user must exercise responsible judgment and caution until familiarity is gained with **Semera 51.0% WDG**. Due to variability within species, crop growth stage, environmental conditions and application techniques, test this product under local growing conditions on a small number of plants and evaluate for 4 - 6 weeks for phytotoxicity. Testing this product 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 this product has investigated the safety to plants not listed on the label.

PRODUCT INFORMATION

Semera 51.0% WDG is a fast-acting contact herbicide that controls selected submersed, 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 may be applied to the following quiescent or slow-moving bodies of water:

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

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

USE RESTRICTIONS - FOR TERRESTRIAL USES

- Do not apply in enclosed greenhouse structures if plants are present.
- Do not move plants for 24 hours into enclosed greenhouses until the area treated with this product has been watered.
- Do not apply when weather conditions favor spray drift from treated areas.
- Do not graze treated fields or hay to livestock.
- Do not incorporate into soil after application.
- Do not apply this product through any type of irrigation system.
- Do not apply when plants are under stress from insects, diseases, animals or winter injury, planting shock or any other stresses.
- Do not apply to stressed or diseased trees and ornamentals - only apply to healthy established trees and ornamentals.
- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.

USE PRECAUTIONS - FOR SURFACE & SUBSURFACE WATER TREATMENT

- There is no post-application holding restriction against use of treated water for drinking or recreational purposes (e.g., swimming, fishing).
- Treated water may be used for irrigation purposes on turf and landscape ornamentals as outlined in the **IRRIGATION RESTRICTIONS FOLLOWING APPLICATION** table.

USE RESTRICTIONS - FOR SURFACE & SUBSURFACE WATER TREATMENT

- Do not apply to intertidal or estuarine areas.
- Do not retreat the same section of water within 28 days of application. 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 use treated water for irrigation purposes on food crops until at least five (5) days after application.
- Do not use in water utilized for crawfish farming.
- Do not retreat the same section of water with this product more than 6 times per year.
- Do not exceed 400 ppb of this product during any one application.

USE RESTRICTIONS - FOR IVM

- Do not apply when weather conditions favor spray drift from treated areas.
- Do not incorporate into soil after application.
- Do not apply this product through any type of irrigation system.
- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.
- Do not apply to moist or wet desirable plant foliage.
- Do not apply within 300 feet of non-dormant pome or stone fruit crops.
- Do not apply when the crop or weeds are under stress due to drought, excessive water and extremes in temperatures or disease.

USE PRECAUTIONS - FOR IVM

- Treatment of powdery, dry soil or light sandy soil when there is little to no likelihood of rainfall soon after may result in off target movement and possible damage to actively growing susceptible crops when soil particles are moved by wind or water. Do not apply when these soil and environmental conditions are present.
- Spray equipment used to apply **Semera 51.0% WDG** should not be used to make applications with other products to any desirable plant foliage, as equipment with product residue remaining may result in crop injury to subsequently treated crops or plants.

PRE-EMERGENCE APPLICATION

Pre-emergence weed control with **Semera 51.0% WDG** is most effective when applied to clean, weed-free soil surfaces prior to weed emergence. Moisture is necessary to activate **Semera 51.0% WDG** on soil for residual weed control. Dry weather following application of **Semera 51.0% WDG** may reduce effectiveness. However, when adequate moisture is received after dry conditions, this product will control susceptible germinating weeds.

When adequate moisture is not received soon after **Semera 51.0% WDG** is applied to soil, weed control may be improved by utilizing 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. Do not deep cultivate as this reduces the effectiveness of **Semera 51.0% WDG**.

POST-EMERGENCE APPLICATION

The most effective post-emergence weed control with **Semera 51.0% WDG** occurs when applied in combination with a surfactant to weeds less than 2 inches in height. Apply **Semera 51.0% WDG** only to actively growing weeds. Applying this product under conditions that do not promote active weed growth will reduce herbicide effectiveness. This product is most effective when applied under sunny conditions at temperatures above 65°F.

Semera 51.0% WDG is rainfast 1 hour after application. Do not apply if rain is expected within 1 hour of application or efficacy may be reduced.

SOIL CHARACTERISTICS

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

CARRIER VOLUME AND SPRAY PRESSURE

Pre-Emergence Application

To ensure uniform coverage when using boom sprayers, use 10 - 30 gals. of spray solution per acre. When making backpack applications, apply 50 - 100 gals. of spray solution per acre. Ensure that nozzle selection meets manufacturer's gallonage and pressure specifications for pre-emergence herbicide application.

Post-Emergence Application

To ensure thorough coverage when using boom sprayers, apply 15 - 30 gals. of spray solution per acre. Apply 20 - 30 gals. per acre when using a boom sprayer if dense vegetation or heavy residue is present on the soil surface. When applying with a backpack sprayer, apply 1 gal. of spray solution per 500 - 1,000 sq. ft. Ensure nozzle selection meets manufacturer's gallonage and pressure specifications for post-emergence herbicide application.

CARRIER VOLUME AND SPRAY PRESSURE - FOR IVM

Pre-Emergence Application

To ensure uniform coverage, use at least 10 gals. of spray solution per acre. Nozzle selection should meet manufacturer's gallonage and pressure specifications for pre-emergence herbicide application.

Post-Emergence Application

To ensure thorough coverage, use at least 15 gals. of spray solution per acre. Use at least 20 gals. per acre if dense vegetation or heavy residue is present on the soil surface. Nozzle selection should meet manufacturer's gallonage and pressure specifications for post-emergence herbicide application.

ADDITIVES

Post-Emergence Application

When applying **Semera 51.0% WDG** after weeds emerge, mix with an agronomically approved adjuvant. Mix **Semera 51.0% WDG** 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 this product as part of a post-emergence weed control program. Verify mixing compatibility with a jar test before using. Do not mix **Semera 51.0% WDG** with a surfactant when applying over the top of dormant woody ornamentals or conifer trees.

A spray-grade nitrogen source (either ammonium sulfate at 2.0 - 2.5 lbs./A or a 28 - 32% nitrogen solution at 1 - 2 qts./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.

ADDITIVES

When applying **Semera 51.0% WDG** to the foliage of floating or emerged aquatic weeds, mix with an adjuvant approved for use in aquatic sites. Mix **Semera 51.0% WDG** with a non-ionic surfactant containing at least 80% active ingredient. Follow adjuvant manufacturer's label rates. Verify mixing compatibility with a jar test before using.

JAR TEST TO DETERMINE COMPATIBILITY OF ADJUVANTS AND Semera 51.0% WDG

Perform a jar test before mixing commercial quantities of this product, when using this product for the first time, when using new adjuvants, or when a new water source is being used.

1. Add 1 pt. of water to a quart jar. Make sure that the water is from the same source and is the same temperature as the water used in the spray tank mixing operation.
2. Add 3 grams (approximately 1 level tsp.) of **Semera 51.0% WDG** for the 8 oz./A rate or 4 grams (approximately 1 1/2 tsp.) for 12 oz./A rate to the jar. Gently mix until product disperses.
3. Add 60 mL (4 Tbsp. or 2 fl. oz.) of additive to the quart jar and gently mix.
4. If nitrogen is being used, add 16 mL (1 Tbsp.) of the 28 - 32% nitrogen source to the quart jar. If ammonium sulfate is being used, add 19 grams of AMS to the quart jar in place of the 28 - 32% nitrogen.
5. Place cap on jar, invert 10 times, let stand for 15 minutes, evaluate.
6. An ideal tank mix combination will be uniform and free of suspended particles. If any of the following conditions are observed reconsider the choice of adjuvant:
   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. Clabbering: Thickening texture (coagulated) like gelatin.

APPLICATION EQUIPMENT

IMPORTANT: Thoroughly clean spray equipment, including all tanks, hoses, booms, screens, and nozzles, after application of **Semera 51.0% WDG**. Equipment with this product's residue remaining in the system may result in crop injury to subsequently treated crops.

SPRAYER PREPARATION

Before applying **Semera 51.0% WDG**, clean the spray tank, as well as all hoses and booms to ensure no residue from the previous spraying operation remains in the sprayer. Some pesticides, including but not limited to the sulfonylurea and phenoxy herbicides, are active at very small amounts and can cause crop injury when applied to susceptible crops. Clean spray equipment according to the manufacturer's directions for the last product used before the equipment is used to apply this product. If 2 or more products were tank mixed prior to this product application, follow the most restrictive cleanup procedure on the label of all products.

MIXING INSTRUCTIONS

1. Fill clean spray tank 1/2 - 2/3 of desired level with clean water.
2. To ensure a uniform spray mixture, pre-slurry the required amount of **Semera 51.0% WDG** with water prior to addition to the spray tank. Use a minimum of 1 gal. of water per 10 oz. of **Semera 51.0% WDG**.
3. While agitating, slowly add the pre-slurried mixture to the spray tank. Agitation should create a rippling or rolling action on the water surface.
4. If tank mixing **Semera 51.0% WDG** with other labeled herbicides, add water soluble bags first, followed by dry formulations, flowables, emulsifiable concentrates and then solutions. Prepare no more spray mixture than is required for the immediate spray operation.
5. Add any required adjuvants.
6. Fill spray tank to desired level with water. Continue agitation until spray solution has been applied.
7. Mix only the amount of spray solution that can be applied the day of mixing. Apply **Semera 51.0% WDG** within 12 hours of mixing.

MIXING INSTRUCTIONS

1. Mix with water having pH of 5 - 7. If pH is higher than 7, use an appropriate buffer to reduce pH to desirable range
2. Fill clean spray tank 1/2 full of desired level with water and add buffering agent if necessary.
3. Add the required amount of this product to the spray tank while agitating.
4. Fill spray tank to desired level with water. Ensure that this product is thoroughly mixed before making applications. Agitation should continue until spray solution has been applied.
5. Mix only the amount of spray solution that can be applied the day of mixing. Apply this product within 12 hours of mixing.

SPRAYER CLEANUP

If spray equipment is dedicated to application of aquatic herbicides, be sure to completely drain the spray tank and rinse the application equipment thoroughly, 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 **Semera 51.0% WDG**. Follow these steps to clean the spray equipment:
Except for dedicated bare ground herbicide application equipment, spray equipment must be cleaned each day following **Semera 51.0% WDG** application. After **Semera 51.0% WDG** is applied, use the following steps to clean the spray equipment:

1. Completely drain the spray tank and rinse the sprayer 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. Flush all hoses, booms, screens, and nozzles for a minimum of 15 minutes.
6. Loosen any diaphragms before flushing the spray system, allowing cleaning solution to spray through the open diaphragm.
7. Drain tank completely.
8. Add enough clean water to the spray tank to flush hoses, booms, screens, and nozzles for 2 minutes.
9. Remove all nozzles and screens and rinse them with clean water.

APPLICATION EQUIPMENT

Application equipment must be clean and in good repair. Ensure nozzles are uniformly spaced on boom and frequently checked for accuracy.

BROADCAST APPLICATION

Apply **Semera 51.0% WDG** and this product's tank mixes, with ground equipment using standard commercial sprayers equipped with nozzles designed to deliver the desired spray pressure and spray volume.

BAND APPLICATION

When banding, use proportionately less water and **Semera 51.0% WDG** per acre.

BACKPACK APPLICATION

When applying **Semera 51.0% WDG** with a backpack sprayer follow all above restrictions. Calibrate backpack sprayers to deliver 1 gal. of spray solution per 500 - 1,000 sq. ft.

For terrestrial uses:

- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.

For Backpack Applications of Semera 51.0% WDG at 10 oz. per Acre

Application Volume	Amount of Semera 51.0% WDG to mix in 1 gal. of water	Amount of Semera 51.0% WDG to mix in 2 gals. of water	Amount of Semera 51.0% WDG to mix in 3 gals. of water
1 gal. per 500 sq. ft. (= 87 GPA)	1 1/4 tsp	2 1/2 tsp	3 3/4 tsp
1 gal. per 750 sq. ft. (= 58 GPA)	1 3/4 tsp	3 3/4 tsp	5 1/4 tsp
1 gal. per 1,000 sq. ft. (= 43.5 GPA)	2 1/2 tsp	5 tsp	7 1/2 tsp

1 level teaspoon (tsp.) holds 2.8 grams of **Semera 51.0% WDG**.
Example: Applicator wants to spray 1 gal. of **Semera 51.0% WDG** solution per 1,000 sq. ft. of ground bed, and wants to mix up 2 gals. of spray solution. Therefore, applicator would mix 5 teaspoons of **Semera 51.0% WDG** in 2 gals of water.

HANDGUN APPLICATION

Applications may also be made using a handgun sprayer. Use a spray volume of at least 40 gals. per acre to insure uniform coverage.

AERIAL APPLICATION

To obtain satisfactory weed control with aerial application of **Semera 51.0% WDG**, coverage must be uniform. When applied by air, this product may not provide adequate control of some submersed weeds. Do not spray when drift is possible or when wind velocity is more than 10 mph. Do not spray **Semera 51.0% WDG** within 200 feet of dwellings, adjacent sensitive crops or environmentally sensitive areas. To obtain satisfactory application and drift control, the following directions must be observed:

Volume Pressure

Apply **Semera 51.0% WDG** in 5 - 10 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 gallonage applications generally provide more consistent weed control.

Nozzles and Nozzle Operation

Use nozzles that produce flat or hollow cone spray patterns. Use non-drip 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.

Adjuvants

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

CALIBRATION TABLE

Semera 51.0% WDG Rates Oz./A	Semera 51.0% WDG Rates Grams/Gal.	Semera 51.0% WDG Rates Per Gal.
8	2.3	3/4 tsp
10	2.8	1 level tsp
12	3.4	1 1/4 tsp

IRRIGATION RESTRICTIONS FOLLOWING APPLICATION

Application Method	Application Rate	Average Water Depth	Turf and Landscape Ornamentals	Ornamentals Grown for Production in Greenhouse and Nursery
Surface Spray	6-12 oz per surface acre	Greater than 3 feet	None	5 days
		Less than 3 feet	12 hours	5 days
Subsurface	Less than 200 ppb	N/A	1 day	5 days
	200-300 ppb	N/A	2 days	5 days
	300-400 ppb	N/A	3 days	5 days

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MANDATORY SPRAY DRIFT MANAGEMENT

Aerial Applications:

- Do not release spray at a height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators must select nozzle and pressure that deliver medium or coarser droplets in accordance with American society of Agricultural & biological engineers standard 641 (ASABE S641).
- If the windspeed is 10 miles per hour or less, applicators must use 1.2 swath displacement upwind at the downwind edge of the field. When the windspeed is between 11-15 miles per hour, applicators must use ¾ swath displacement upwind at the downwind edge of the field.
- Do not apply when wind speeds exceed 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Do not apply during temperature inversions.

Ground Boom Applications:

- User must only apply with the release height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- Applicators must select nozzle and pressure that deliver medium or coarser droplets in accordance with American Society of Agricultural & Biological Engineers Standard 572 (ASABE S572).
- DO not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

Boomless Ground Applications:

- Applicators must select nozzle and pressure that deliver medium or coarser droplets in accordance with American Society of Agricultural & Biological Engineers Standard 572 (ASABE S572).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

- Volume – Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle – Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size – Aircraft

- **Adjust Nozzles** – Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallet with the airflow in flight.

BOOM HEIGHT – Ground boom

For ground equipment, the boom should remain level with the crop and have minimal bounce.

RELEASE HEIGHT – Aircraft

Higher release heights increase the potential for spray drift.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

WIND

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

Boomless Ground Applications:

Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

Handheld Technology Applications:

Take precautions to minimize spray drift.

Properly maintain and calibrate all aerial, ground, and water-based application equipment. Where states have more stringent regulations, they should be observed.

WEEDS CONTROLLED

When **Semera 51.0% WDG** is applied pre-emergence or post-emergence at specified rates and weed stages, the following grasses and broadleaf weeds are controlled:

Table 1. Weeds controlled by Semera 51.0% WDG

COMMON NAME	SCIENTIFIC NAME
Alyssum, Hoary	*Berteroa incana*
Amaranth	
Palmer	*Amaranthus palmeri*
Spiny	*Amaranthus spinosus*
American Burnweed	*Erechtites hieraciifolius*
Barnyardgrass*	*Echinochloa crus-galli*
Beggarweed, Florida	*Desmodium tortuosum*
Bittercress, Hairy	*Cardamine hirsuta*
Bluegrass, Annual*	*Poa annua*
Burclover, California	*Medicago polymorpha*
Carpetweed	*Mollugo verticillata*
Chamberbitter	*Phyllanthus urinaria*
Chickweed	
Common	*Stellaria media*
Mouseear	*Cerastium vulgatum*

(continued)

Table 1. Weeds controlled by Semera 51.0% WDG *(continued)*

COMMON NAME	SCIENTIFIC NAME
Crabgrass	
Large*	*Digitaria sanguinalis*
Smooth*	*Digitaria ischaemum*
Southern*	*Digitaria ciliaris*
Croton, Tropic	*Croton glandulosus var. septentrionalis*
Dandelion*	*Taraxacum officinale*
Dogfennel	*Eupatorium capillifolium*
Doveweed	*Murdannia nudiflora*
Eclipta	*Eclipta prostrata*
Filaree, Redstem*	*Erodium cicutarium*
Foxtail	
Bristly*	*Setaria verticillata*
Giant*	*Setaria faberi*
Green*	*Setaria viridis*
Yellow*	*Setaria glauca*
Galinsoga, Hairy	*Galinsoga ciliata*
Geranium, Carolina	*Geranium carolinianum*
Goosegrass*	*Eleusine indica*
Groundsel, Common	*Senecio vulgaris*
Groundsel Tree	*Baccharis halimifolia*
Henbit	*Lamium amplexicaule*
Horseweed*	*Conyza canadensis*
Indigo, Hairy	*Indigofera hirsuta*
Ivy, Ground*	*Glechoma hederacea*
Jimsonweed	*Datura stramonium*
Kochia	*Kochia scoparia*
Kyllinga, Green*	*Kyllinga brevifolia*
Ladysthumb	*Polygonum persicaria*
Lambsquarters, Common	*Chenopodium album*
Liverwort	*Marchantia polymorpha*
Lovegrass, California*	*Eragrostis diffusa*
Mallow	
Common	*Malva neglecta*
Little	*Malva parviflora*
Venice	*Hibiscus trionum*
Marsh Parsley	*Apium leptophyllum*
Marsh Yellowcress	*Rorippa islandica*
Mayweed*	*Anthemis cotula*
Morningglory	
Entireleaf	*Ipomoea hederacea var. integriuscula*
Ivyleaf	*Ipomoea hederacea*
Red/Scarlet	*Ipomoea coccinea*
Smallflower	*Jacquemontia tamnifolia*
Tall	*Ipomoea purpurea*
Moss	*Bryum* spp.
Mulberry Weed	*Fatoua villosa*
Mustard	
Tumble	*Sisymbrium altissimum*
Wild	*Brassica kaber*
Nightshade	
Black	*Solanum nigrum*
Eastern Black	*Solanum ptycanthum*
Hairy	*Solanum sarrachoides*
Northern Willowherb	*Epilobium ciliatum*
Panicum	
Fall*	*Panicum dichotomiflorum*
Texas*	*Panicum texanum*
Parsley Piert	*Alchemilla arvensis*
Pearlwort, Birdseye*	*Sagina procumbens*
Pennycress, Field	*Thlaspi arvense*
Phyllanthus, Longstalked	*Phyllanthus tenellus*
Pigweed	
Prostrate	*Amaranthus blitoides*
Redroot	*Amaranthus retroflexus*
Smooth	*Amaranthus hybridus*
Tumble	*Amaranthus albus*
Pineapple-weed*	*Matricaria matricarioides*
Plantain	
Broadleaf*	*Plantago major*
Buckhorn*	*Plantago lanceolata*

(continued)

Table 1. Weeds controlled by Semera 51.0% WDG *(continued)*

COMMON NAME	SCIENTIFIC NAME
Poinsettia, Wild	*Euphorbia heterophylla*
Puncturevine	*Tribulus terrestris*
Purslane, Common	*Portulaca oleracea*
Pusley, Florida	*Richardia scabra*
Ragweed	
Common	*Ambrosia artemisiifolia*
Giant	*Ambrosia trifida*
Redmaids	*Calandrinia ciliata*
Redweed	*Melochia corchorifolia*
Rocket, Yellow	*Barbarea vulgaris*
Senna, Coffee	*Cassia occidentalis*
Sesbania, Hemp	*Sesbania exaltata*
Shepherd's Purse	*Capsella bursa-pastoris*
Sida, Prickly (Teaweed)	*Sida spinosa*
Signalgrass*	*Brachiaria platyphylla*
Smartweed, Pennsylvania	*Polygonum pensylvanicum*
Sowthistle, Annual	*Sonchus oleraceus*
Spiderwort, Tropical	*Commelina benghalensis*
Spurge	
Petty	*Euphorbia peplus*
Prostrate	*Chamaesyce humistrata*
Spotted	*Chamaesyce maculata*
Starbur, Bristly*	*Acanthospermum hispidum*
Tassel-flower	*Emilia* spp.
Thickhead	*Crassocephalum crepidioides*
Thistle	
Canada*	*Cirsium arvense*
Russian	*Salsola iberica*
Velvetleaf	*Abutilon theophrasti*
Waterhemp	
Common	*Amaranthus rudis*
Tall	*Amaranthus tuberculatus*
Woodsorrel, Yellow*	*Oxalis stricta*

* Pre-emergence control only

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

Semera 51.0% WDG will control weeds and algae listed in **Table 2** when applied as a broadcast spray with appropriate equipment. For best results, apply **Semera 51.0% WDG** to the foliage of actively growing weeds.

Table 2. Floating and Emerged Weeds

COMMON NAME	SCIENTIFIC NAME
Alligator Weed	*Alternanthera philoxeroides*
Duckweed*	*Lemna* spp.
Frog's-bit	*Limnobium spongia*
Water Fern	*Salvinia* spp.
Water Lettuce	*Pistia stratiotes*
Watermeal*	*Wolffia* spp.
Water Pennywort	*Hydrocotyle* spp.
Filamentous Algae	*Pithophora*
Filamentous Algae	*Cladophora*

* 200 ppb water concentration is required to treat duckweed and watermeal - see **DIRECTIONS FOR USE TO CONTROL SUBMERSED AND FLOATING WEEDS USING SUBSURFACE APPLICATIONS** section for additional application information.

SURFACE APPLICATION

Apply **Semera 51.0% WDG** product as a broadcast spray at 6 - 12 ounces (0.19 - 0.38 lb ai/A) of formulated product per acre plus an adjuvant approved for use in aquatics.

Semera 51.0% WDG is a contact herbicide that quickly degrades in the water column so plants that do not initially come in contact with the herbicide will not be controlled. Apply **Semera 51.0% WDG** in a minimum of 30 gallons of water per acre to all areas of the water body where weeds exist. Coverage is essential for effective control as all floating weeds need to be exposed to lethal concentrations in all parts of the water body. Any untreated escapes or re-introductions of plants that were not treated will reestablish in areas where surface weeds had previously been controlled. If a second application is required to provide control, make the treatment once weeds are first observed, but no sooner than 28 days after the last treatment.

Application of **Semera 51.0% WDG** during early morning hours enhances weed control. When applying to densely-packed actively growing surface weeds, ensure adequate coverage. 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 floating surface weeds in sections to avoid a rapid decrease in dissolved oxygen.

Semera 51.0% WDG may be tank mixed with 2,4-D, diquat, glyphosate or other registered foliar-applied herbicides for enhanced control of floating and emergent weeds. Consult a manufacturer's label for specific rate restrictions and weeds controlled. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

APPLICATION EQUIPMENT

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

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Cary, NC 27513

DIRECTIONS FOR USE
IN ESTABLISHED CONTAINER AND FIELD GROWN CONIFERS (INCLUDING CHRISTMAS TREES)

Apply **Semera 51.0% WDG** as a single or split application to established container and field grown conifers, which includes applications to Christmas tree plantations. The conifers listed in **Table 3** have exhibited tolerance to **Semera 51.0% WDG** only when the product is applied to dormant or hardened off plant material. If applied over the top of plant foliage, apply **Semera 51.0% WDG** 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 seedling emergence.

PRE-EMERGENCE APPLICATION

Apply 8 - 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre before weeds emerge.

Apply to weed-free, established conifers grown in containers or in the field (in ground). If possible, irrigate treated area with 0.5 - 0.75 inch of water immediately following application. Spray **Semera 51.0% WDG** directly over conifers listed in **Table 3** 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** will typically not affect subsequent growth. If conifers are not dormant or hardened off at time of application, and foliar injury cannot be tolerated, apply **Semera 51.0% WDG** as a directed spray, taking care to minimize direct contact or drift of sprays onto foliage. Mechanically incorporating **Semera 51.0% WDG** after application will disturb soil surfaces, which may reduce herbicidal efficacy. When applied before weed germination, **Semera 51.0% WDG** will control broadleaf and grassy weeds listed in **Table 1**.

POST-EMERGENCE APPLICATION

Apply 8 - 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre after weeds have emerged. **Semera 51.0% WDG** may be sprayed directly over conifers listed in **Table 3**, 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** will typically not affect subsequent growth. If conifers are not dormant or hardened off at the time of application, and foliar injury cannot be tolerated, apply **Semera 51.0% WDG** as a directed spray, taking care to minimize direct contact or drift of sprays onto foliage.

If applied when weeds are actively growing and no larger than 2 inches in height, **Semera 51.0% WDG** will provide post-emergence control of broadleaf weeds and grasses listed in **Table 1**. Post-emergence control of **Semera 51.0% WDG** may be more effective with certain weed species, and may not control mature, stressed or hardened off weeds that are not actively growing at the time of application.

TANK MIXTURES FOR CONTAINER AND FIELD GROWN CONIFERS

Tank mixing **Semera 51.0% WDG** with other pre-emergence and post-emergence herbicides registered for use on conifers may provide a broader spectrum of weed control than **Semera 51.0% WDG** applied alone. **Semera 51.0% WDG** may also be applied as part of a post-emergence burndown program for control of annual and perennial weeds. Tank mixing **Semera 51.0% WDG** with glyphosate will increase the speed of burndown compared to glyphosate applied alone. **Semera 51.0% WDG** may be tank mixed with products containing the following active ingredients labeled for use in conifers:

Clethodim glyphosate* oryzalin prodiamine simazine*

*Do not apply glyphosate or simazine to containerized ornamentals.

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

TOLERANT CONIFERS

Apply **Semera 51.0% WDG** to the conifer species listed in **Table 3**. If a desired conifer species is not listed in **Table 3**, evaluate the safety of **Semera 51.0% WDG** on a small number of plants under commercial growing conditions, and monitor plant response for 4 - 6 weeks for phytotoxicity. Testing **Semera 51.0% WDG** on a small number of plants will determine if this product can be used safely on a widespread basis.

RESTRICTIONS

- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.

Table 3. Tolerant Conifers

COMMON NAME	SCIENTIFIC NAME
Arborvitae	
American	*Thuja occidentalis*
Oriental	*Thuja orientalis*
Fir	
Concolor	*Abies concolor*
Cork Bark	*Abies lasiocarpa*
Douglas	*Pseudotsuga menziesii*
Fraser	*Abies fraseri*
Grand	*Abies grandis*
Noble	*Abies procera*
Turkish	*Abies bornmuelleriana*
Hemlock	
Eastern	*Tsuga canadensis*
Western	*Tsuga heterophylla*
Juniper	
Blue Star	*Juniperus scopulorum*
Creeping	*Juniperus horizontalis*
Japanese Garden	*Juniperus chinensis*
Tamarix	*Juniperus sabina*
Pine	
Austrian	*Pinus nigra*
Eastern White	*Pinus strobus*
Jack	*Pinus banksiana*
Japanese Black	*Pinus thunbergiana*
Loblolly	*Pinus taeda*
Lodgepole	*Pinus contorta*
Longleaf	*Pinus palustris*
Mugo	*Pinus mugo*
Ponderosa	*Pinus ponderosa*
Sand	*Pinus clausa*
Scotch	*Pinus sylvestris*
Shortleaf	*Pinus echinata*
Slash	*Pinus elliottii*
Virginia	*Pinus virginiana*

(continued)

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Table 3. Tolerant Conifers *(continued)*

COMMON NAME	SCIENTIFIC NAME
Spruce	
Blue	*Picea pungens*
Dwarf Alberta	*Picea glauca conica*
Norway	*Picea abies*
Sitka	*Picea sitchensis*
Yew	
English	*Taxus baccata*
Japanese	*Taxus cuspidata*

DIRECTIONS FOR USE TO CONTROL SUBMERSED AND FLOATING WEEDS USING SUBSURFACE APPLICATIONS

This product controls submersed and floating weeds listed in **Table 4**, **Submersed and Floating Weeds Controlled by Subsurface Application,** when applied subsurface with appropriate equipment.

Table 4. Submersed and Floating Weeds Controlled by Subsurface Application

COMMON NAME	SCIENTIFIC NAME
Coontail	*Ceratophyllum demersum*
Duckweed*	*Lemna* spp.
Fanwort	*Cabomba caroliniana*
Hydrilla	*Hydrilla verticillata*
Hygrophila	*Hygrophila polysperma*
Naiad, Southern	*Najas guadalupensis*
Pondweed, Curlyleaf	*Potamogeton crispus*
Pondweed, Sago	*Potamogeton pectinatus*
Pondweed, Variable-Leaf	*Potamogeton diversifolius*
Water Fern	*Salvinia* spp.
Water Lettuce	*Pistia stratiotes*
Watermeal	*Wolffia* spp.
Watermilfoil, Eurasian	*Myriophyllum spicatum*
Watermilfoil, Variable-Leaf	*Myriophyllum heterophyllum*

SUBSURFACE APPLICATION

Apply this product at a rate that will produce an initial concentration of 200 to 400 ppb (of active ingredient flumioxazin) in the water column.

This product 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 submersed vegetation can exceed 8.5 by early to mid-day, due to photosynthetic processes. Application of this product under these conditions may provide only partial weed control, and regrowth is likely. For best control, apply this product in a minimum of 30 gallons 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 submersed weeds with this product is required for optimal performance. Application of this product with subsurface trailing hoses designed to distribute the herbicide within the plant stand will provide more effective and longer-term control of submersed weeds. Use **Table 5. Subsurface Application Rates** to determine the amount of this product needed to achieve desired concentration at different water depths. Use 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 column can re-infest 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 this product to densely packed actively growing submersed 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 submersed weeds in sections to avoid a rapid decrease in dissolved oxygen.

This product may be tank mixed with other registered submersed applied herbicides for enhanced control of submersed and floating weeds.

APPLICATION EQUIPMENT FOR WATER COLUMN TREATMENT

To improve distribution in the water column and ensure adequate coverage, when possible apply this product with subsurface trailing hoses in order to place the herbicide under the surface and throughout the biomass of aquatic vegetation. Keep swath width to a minimum in order to maximize contact with submersed aquatic vegetation. In small shallow water bodies, surface sprays may be required to apply this product. Apply by backpack or handgun sprayer or other application equipment that will ensure adequate coverage of target plant.

INFORMATION ON *HYDRILLA* CONTROL IN FLORIDA

Apply this product as a subsurface treatment for *Hydrilla* control. For best control of *Hydrilla* apply during the late Winter/early Spring and/or early to late Fall. Efficacy of this product will be enhanced at these timings due to lower potential biomass present and lower pH of the water. If applied to mature topped-out *Hydrilla*, this product will cause some discoloration and loss of growing tips, but regrowth will be rapid.

Tank mix this product with other registered herbicides, especially if *Hydrilla* is approaching maturity or biomass is heavy.

Table 5. Subsurface Application Rates

Do not exceed 400 ppb of this product during any one application.

Water Depth (feet)	Pounds of Semera 51.0% WDG Required Per Surface Acre to Achieve Desired Water Concentration		
	200 ppb	300 ppb	400 ppb
1	1.1	1.6	2.1
2	2.1	3.2	4.2
3	3.2	4.8	6.4
4	4.2	6.4	8.5
5	5.3	8.0	10.6
6	6.4	9.5	12.7
7	7.4	11.1	14.8

Example: To achieve an initial concentration of 200 ppb of flumioxazin in a 4-foot-deep water column, apply 4.2 lbs. of this product per surface acre.

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

Apply **Semera 51.0% WDG** as single or split application to container and field grown deciduous trees with an established root system. The deciduous trees listed in **Table 6** have exhibited tolerance to **Semera 51.0% WDG** only when applied to the soil and base of plants. Application of **Semera 51.0% WDG** to deciduous foliage or green bark may result in unacceptable injury.

Apply **Semera 51.0% WDG** to established (or transplanted) container and field grown deciduous trees. Do not apply to trees that are less than 1 year old or have been transplanted less than 1 year, unless completely protected by non-porous wraps, grow tubes, waxed protectors or other forms of protection to young foliage and/or bark. Do not harvest fruit or nuts from treated trees within 1 year of application.

IMPORTANT: Direct application of **Semera 51.0% WDG** to the soil surface and away from plant foliage and bark. Avoid direct spray contact on plant surfaces, foliage and green bark or injury may result. Application of **Semera 51.0% WDG** after bud swell may cause injury if herbicide contacts foliage. Do not apply under environmental conditions that favor drift to non-targeted areas.

PRE-EMERGENCE APPLICATION

Apply 8 - 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre as a pre-emergence (to weed emergence) application. Apply **Semera 51.0% WDG** to weed-free deciduous trees grown in containers or in the field (in-ground). If possible, irrigate treated area with 0.5 to 0.75 inch of water immediately following application and apply **Semera 51.0% WDG** to the soil surface and base of deciduous trees, provided that direct and indirect (drift) applications to plant foliage, flowers and green bark does not occur. Mechanically incorporating **Semera 51.0% WDG** will disturb soil surfaces, which may reduce herbicidal efficacy. Use spray shields that limit exposure of foliage and bark to **Semera 51.0% WDG**. When applied before weed germination, this product will control broadleaf and grassy weeds listed in **Table 1**.

POST-EMERGENCE APPLICATION

Apply 8 - 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre plus an adjuvant (0.25% v/v non-ionic surfactant or 1 qt./A crop oil concentrate). Make post-emergence (to weed emergence) applications of **Semera 51.0% WDG** when weeds are actively growing and are no larger than 2 inches in height. The addition of a surfactant enhances **Semera 51.0% WDG** activity on emerged weeds. Thorough spray coverage is necessary to maximize the post-emergence activity of **Semera 51.0% WDG**. When applied after weed germination, **Semera 51.0% WDG** will provide pre-emergence and post-emergence control of broadleaf weeds and grasses listed in **Table 1**. If plant injury is a concern, use a spray shield to limit the exposure of trees to **Semera 51.0% WDG**.

Post-emergence control of **Semera 51.0% WDG** may be more effective with certain weed species, and may not control mature, stressed or hardened-off weeds that are not actively growing at the time of application.

TANK MIXTURES FOR FIELD AND CONTAINER GROWN DECIDUOUS TREES

Tank mixing **Semera 51.0% WDG** with other pre-emergence and post-emergence herbicides registered for use on deciduous trees may provide a broader spectrum of weed control than this product alone. **Semera 51.0% WDG** may also be applied as part of a post-emergence burndown program for control of annual and perennial weeds. Tank mixing **Semera 51.0% WDG** with glyphosate will increase the speed of burndown compared to glyphosate applied alone. Tank mix **Semera 51.0% WDG** with products containing the following active ingredient labeled for use in deciduous trees:

Clethodim	glyphosate*	metolachlor	oryzalin
Pendimethalin	prodiamine	simazine*	

*Do not apply glyphosate or simazine to containerized plants.

IMPORTANT: Completely read and follow the label of any herbicides mixed with **Semera 51.0% WDG**. When tank mixing this product with other herbicides, always follow the most restrictive limitations and precautions on the label of any tank mix partner.

TOLERANT DECIDUOUS TREES, NON-BEARING FRUIT AND NON-BEARING NUT TREES

Apply **Semera 51.0% WDG** as a directed spray to the deciduous, non-bearing fruit and non-bearing nut trees species listed in **Table 3**. If a desired tree species is not listed in **Table 6**, evaluate the safety of **Semera 51.0% WDG** on a small number of plants under commercial growing conditions and monitor plant response for 4 - 6 weeks for phytotoxicity. Testing this product on a small number of plants will determine if this product can be used safely on a widespread basis.

RESTRICTIONS

- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.

Table 6. Tolerant Deciduous Tree Species

COMMON NAME	SCIENTIFIC NAME
Apricot*	*Prunus* spp.
Ash	*Fraxinus* spp.
Birch	*Betula* spp.
Buckeye	*Aesculus* spp.
Cherry*	*Prunus* spp.
Chestnut	*Castanea* spp.
Citrus*	*Citrus* spp.
Dogwood	*Cornus* spp.
Eucalyptus	*Eucalyptus* spp.
Ginkgo	*Ginkgo* spp.
Hawthorn	*Crataegus* spp.
Honeylocust	*Gleditsia* spp.
Larch	*Larix* spp.
Lilac	*Syringa* spp.
Maple**	*Acer* spp.
Myrtle, Crepe	*Lagerstroemia indica*
Oak	*Quercus* spp.
Poplar	*Populus* spp.
Peach*	*Prunus* spp.
Plum*	*Prunus* spp.
Pecan*	*Carya* spp.
Redbud	*Cercis canadensis*
Sweetgum	*Liquidambar styraciflua*
Sycamore	*Platanus* spp.
Walnut, Black	*Juglans nigra*
Willow	*Salix* spp.

* Non-bearing trees only.

** Not for use on maple trees used for production of maple sap or syrup.

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DIRECTIONS FOR USE
AROUND ESTABLISHED WOODY LANDSCAPE ORNAMENTALS AND TO MAINTAIN BARE GROUND NON-CROP AREAS

In residential and commercial landscapes, application of **Semera 51.0% WDG** must be done by commercial licensed applicators. Application of **Semera 51.0% WDG** in the vicinity of ornamental plants is limited to directed sprays around well-established woody shrubs and trees such as azalea, euonymus, holly, and the conifers and deciduous trees listed in Tables 3 and 6.

Apply **Semera 51.0% WDG** to maintain bare ground in non-crop areas in apartment complexes, fence rows, gravel surfaces, ground mats, golf courses, lumberyards, office complexes, parks, parking areas, recreational sites, schools, sidewalks, storage areas and other similar industrial sites. Do not apply **Semera 51.0% WDG** within any enclosed structure in residential or commercial landscapes.

Semera 51.0% WDG offers post-emergence and residual control of susceptible grasses and broadleaf weeds, as well as an additional mode of action to assist in the control of resistant weeds. The length of residual control is dependent on the rate applied, rainfall and temperature. Length of residual control will decrease as temperature and precipitation increase.

IMPORTANT: Contact with spray or spray drift of this product may cause severe injury or destruction of certain desirable plants, especially herbaceous species such as bedding plants or direct-seeded annual and perennial flowers. Therefore, do not apply this product over the top of ornamental plants growing in the landscape, and do not allow spray of this product to contact, drift or splash from soil onto the foliage, green stems, exposed roots or fruit of desirable plants. Avoid application of this product under conditions that favor drift of sprays onto desired ornamentals or turfgrass. Limit the plant exposure to this product when applying this product near desirable plants.

Do not apply this product around landscape ornamentals until plants have been actively growing for at least 30 days after transplanting, or for at least 2 months before ornamentals will be planted into treated areas.

PRE-EMERGENCE APPLICATION
(NO WEEDS ARE PRESENT)

Mix 1 1/4 - 2 1/2 tsp. of **Semera 51.0% WDG** per gal. (10 oz./A, 0.32 lb ai/A) of spray solution, and apply 1 gal. of spray solution to 500 - 1,000 sq. ft. (10 oz./A , 0.32 lb ai/A) prior to weed germination (see **CALIBRATION TABLE** for backpack sprayers). Apply **Semera 51.0% WDG** to weed-free soil, mulch or gravel surfaces. Moisture is necessary to activate **Semera 51.0% WDG** on soil for residual weed control. When applied before weed germination, this product will control the broadleaf weeds and grasses listed in **Table 1**.

Established landscape ornamentals have shown tolerance to **Semera 51.0% WDG** only when applied to the soil at the base of the plant. For maximum plant safety when using around desirable ornamentals, direct applications of **Semera 51.0% WDG** to the soil, and leave a sufficient untreated buffer to ensure spray solution does not contact desired plants. Do not harvest fruit or nuts from treated trees within 1 year of application.

POST-EMERGENCE APPLICATION
(WEEDS ARE PRESENT)

Mix 1 1/4 - 2 1/2 tsp. of **Semera 51.0% WDG** per gal. (10 oz./A, 0.32 lb ai/A) and apply 1 gal. of spray solution to 500 - 1,000 sq. ft. to actively growing weeds (see **CALIBRATION TABLE** for backpack sprayers). Tank mixing **Semera 51.0% WDG** with glyphosate will increase the spectrum of post-emergent weed control over this product alone, provide faster post-emergence weed control than glyphosate alone, and provide pre and post-emergence control of the broadleaf weeds and grasses listed in **Table 1**.

Established landscape ornamentals have shown tolerance to applications of **Semera 51.0% WDG** plus glyphosate only when applied to the soil at the base of the plant, and sprays do not directly contact or drift onto desirable plants. For maximum plant safety when using around desirable ornamentals, direct applications of **Semera 51.0% WDG** plus glyphosate towards the soil, and leave a sufficient non-treated buffer to ensure spray solution does not contact desired plants.

Thorough spray coverage of weeds is necessary to maximize weed control. Spray coverage must be uniform, but do not spray to the point of runoff.

Do not harvest fruit or nuts from treated trees within 1 year of application.

IMPORTANT: Completely read and follow the glyphosate label. When tank mixing **Semera 51.0% WDG** with other products, always follow the most restrictive use conditions on either label.

RESTRICTION

- Do not apply more than 10 oz. (0.32 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications per year.
- Do not apply more than 20 oz. (0.64 lb ai/A) of this product per acre per year.
- Do not re-apply within 30 days.

DIRECTIONS FOR USE
TO MAINTAIN BARE GROUND NON-CROP AREAS IN AND AROUND ORNAMENTAL NURSERIES

Semera 51.0% WDG, when used as directed, can be used for non-selective vegetation control to maintain bare ground non-crop areas that must be kept weed-free. Apply **Semera 51.0% WDG** only to:

- Bare ground areas around buildings and other structures. Do not apply within any enclosed structure.
- Bare ground along fence rows.
- Gravel surfaces and driveways.
- Ground matting and gravel pads prior to the addition of containerized plants (conifers, deciduous trees and ornamentals).

IMPORTANT: Follow all applicable directions as outlined above under **PRODUCT INFORMATION**. See **Table 1** for a list of grasses and broadleaf weeds controlled by **Semera 51.0% WDG**. **Semera 51.0% WDG** offers residual and post-emergence control of susceptible grasses and broadleaf weeds as well as an additional mode of action to assist in the control of resistant weeds. The length of residual control is dependent on the rate applied as well as on rainfall and temperature conditions. Length of residual control will decrease as temperature and precipitation increase.

PRE-EMERGENCE APPLICATION

Apply 8 - 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre as a pre-emergence application. Make pre-emergence (to weed emergence) applications of **Semera 51.0% WDG** to weed-free surfaces. Moisture is necessary to activate **Semera 51.0% WDG** for residual weed control. Dry weather following application of **Semera 51.0% WDG** may reduce effectiveness. However, when adequate moisture is received after dry conditions, this product will control susceptible germinating weeds.

POST-EMERGENCE APPLICATION

Apply 8 - 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre plus a surfactant (0.25% v/v non-ionic surfactant or 1 qt./A crop oil concentrate). The addition of a surfactant enhances **Semera 51.0% WDG** activity on emerged weeds. Thorough spray coverage is necessary to maximize the post-emergence activity of this product. Emerged weeds are controlled post-emergence with **Semera 51.0% WDG**, however, translocation of this product within a weed is limited, and control is affected by spray coverage and by the addition of a surfactant. The most effective post-emergence weed control with **Semera 51.0% WDG** occurs when applied in combination with a surfactant to weeds less than 2 inches in height.

RESTRICTIONS

- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.

DIRECTIONS FOR USE
TO MAINTAIN BARE GROUND NON-CROP AREAS

Semera 51.0% WDG can be used for non-selective vegetation management to maintain bare ground noncrop areas that must be kept free of weeds. Apply **Semera 51.0% WDG** only to:

- Bare ground areas under guard rails, above-ground pipelines, railroad beds, railroad yards and surrounding areas
- Bare ground areas in parking lots and storage areas, industrial plant sites, substations, pumping stations, and tank farms
- Bare ground areas of airports, brick yards, industrial plant sites, lumber yards, military installations, and storage areas
- Bare ground areas around farm buildings and along ungrazed fence rows, wind breaks and shelter belts
- Improved roadside areas, road surfaces, and gravel shoulders

Follow all applicable directions as outlined above under **PRODUCT INFORMATION**. See **Table 1** for a list of broadleaf weeds and grasses controlled by **Semera 51.0% WDG**.

Semera 51.0% WDG provides residual and post-emergence control of susceptible broadleaf and grass weed species as well as additional mode of action to assist in the control of ALS (acetolactate synthase) resistant weeds. The timing of residual of control depends on the application rate, as well as on rainfall and temperature conditions. The length of control will be reduced as temperature and precipitation increase.

PRE-EMERGENCE APPLICATION

Make a pre-emergence application of 8 to 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre. Make pre-emergence (up to weed emergence) applications of **Semera 51.0% WDG** to surfaces that are free of weeds. Pre-emergence applications of **Semera 51.0% WDG** must be completed before weeds emerge. For residual weed control and optimal performance on soil, moisture is necessary to activate **Semera 51.0% WDG**. Dry weather or lack of moisture following application of **Semera 51.0% WDG** may reduce effectiveness. When adequate moisture is received after dry conditions, this product will control susceptible weeds that are germinating.

POST-EMERGENCE APPLICATION

Make a post-emergence application of 8 to 12 oz. (0.255 - 0.38 lb. a.i./A) of **Semera 51.0% WDG** per broadcast acre plus a surfactant (0.25% v/v non-ionic surfactant or 1 qt./A crop oil concentrate). Adding a surfactant enhances the activity of **Semera 51.0% WDG** on emerged weeds. Thorough spray coverage is necessary to maximize the post-emergence activity of this product. Weeds that have emerged are controlled with a post-emergence application of **Semera 51.0% WDG**. However, translocation of this product within a weed is limited, and control is improved by ensuring thorough spray coverage and by the addition of a surfactant. The most effective post-emergence weed control with **Semera 51.0% WDG** results when application is made in combination with a surfactant and to weeds that are less than 2 inches in height.

TANK MIX APPLICATIONS

Tank mixtures with other pre- and post-emergence herbicides registered for use in non-crop areas provide a broader spectrum of weed control in addition to weeds controlled by **Semera 51.0% WDG** used alone, **Semera 51.0% WDG** must be tank mixed with other herbicides registered for use in bare ground vegetation management, (non-crop uses) including, but not limited to those products listed below.

Tank Mixture Combinations For Non-Selective Vegetation Management Weed Control

2,4-D	Glyphosate	Norflurazon	Prodiamine
Bromacil	Hexazinone	Oryzalin	Simazine
Chlorsulfuron	Imazapic	Pendimethalin	Sulfometuron methyl
Clorpyralid	Imazapyr	Picloram	Tebuthiuron
Dicamba	Metsulfuron methyl	Pramitol	Triclopyr
Diuron			

IMPORTANT: Completely read and follow the label of any herbicides mixed with **Semera 51.0% WDG**. When tank mixing this product with other herbicides, always follow the most restrictive limitations and precautions on the label of any tank mix partner.

RESTRICTIONS

- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not make more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not make an additional application of **Semera 51.0% WDG** within 30 days.

DIRECTIONS FOR USE
IN CONIFER RE-FORESTATION SITES FOLLOWING TIMBER HARVEST*

***NOT FOR USE IN CALIFORNIA.**

Semera 51.0% WDG is a pre-emergence and post-emergence herbicide for control of selected grass and broadleaf weeds in conifer re-forestation sites following timber harvest operations. Apply **Semera 51.0% WDG** as a site preparation treatment prior to transplanting of conifers or as a conifer release treatment after stand establishment.

Site Preparation - Application Before Transplanting

Apply 8 - 12 oz. (0.255 – 0.38 lb ai/A) of **Semera 51.0% WDG** per acre. Transplant operations must take place at least 2 months after application. To obtain optimal weed control, apply **Semera 51.0% WDG** before weed emergence or after a burndown herbicide has controlled existing vegetation. If existing weed canopy is less than 40%, tank mix **Semera 51.0% WDG** with a burndown herbicide to provide pre-emergence weed control.

Apply **Semera 51.0% WDG** in at least 10 gals. of water per acre to achieve uniform spray coverage using ground or aerial spray equipment.

Conifer Release Treatments - Applications Only Within 3 Years After Transplanting

Apply 8 - 12 oz. (0.255 – 0.38 lb ai/A) of **Semera 51.0% WDG** per acre over the top of trees prior to budbreak in the spring or after dormancy in fall. Do not apply **Semera 51.0% WDG** over the top of trees after budbreak or needle spotting and defoliation may occur. **Semera 51.0% WDG** should not affect new growth of trees. See **Table 7** for a list of tolerant conifers for over the top treatments.

TANK MIXING - Conifer Release Treatments

Certain liquid formulations of other pesticides may increase the post-emergence activity of **Semera 51.0% WDG**, but may also increase the potential for injury when applied over the top of various plants. Therefore, tank mixtures of these materials with **Semera 51.0% WDG** may be more injurious than this product applied alone and need to be tested to determine if they can be used safely on a widespread basis.

ADJUVANTS - Conifer Release Treatments

When using as a Conifer Release Treatment, do not mix **Semera 51.0% WDG** with any adjuvant or fertilizer.

IMPORTANT: When applied as directed, the conifers listed in **Table 7** have shown tolerance to **Semera 51.0% WDG**. However, **Semera 51.0% WDG** is a very active herbicide and the user must exercise responsible judgment and caution until familiarity is gained with this product. If a desired conifer species is not listed in **Table 7**, evaluate the safety of **Semera 51.0% WDG** on a small number of plants under commercial growing conditions, and monitor plant response for 4 - 6 weeks for phytotoxicity. Test this product on a small number of plants to determine if this product can be used safely on a widespread basis. Do not apply **Semera 51.0% WDG** over the top of conifers until trees have been growing in the treated area for at least 1 year. The use of nylon mesh wraps, commonly used to deter animal browsing, may increase plant injury if placed on plants after over-the-top application of **Semera 51.0% WDG**.

RESTRICTIONS

- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.

Table 7. Tolerant Conifer Tree Species: Common

COMMON NAME	SCIENTIFIC NAME
Fir	
Concolor	*Abies concolor*
Cork Bark	*Abies lasiocarpa*
Douglas	*Pseudotsuga menziesii*
Fraser	*Abies fraseri*
Grand	*Abies grandis*
Noble	*Abies procera*
Turkish	*Abies bornmuelleriana*
Hemlock	
Eastern	*Tsuga canadensis*
Western	*Tsuga heterophylla*
Tamarix	*Juniperus sabina*
Pine	
Austrian	*Pinus nigra*
Eastern White	*Pinus strobus*
Jack	*Pinus banksiana*
Japanese Black	*Pinus thunbergiana*
Loblolly	*Pinus taeda*
Lodgepole	*Pinus contorta*
Longleaf	*Pinus palustris*
Mugo	*Pinus mugo*
Ponderosa	*Pinus ponderosa*
Sand	*Pinus clausa*
Scotch	*Pinus sylvestris*
Shortleaf	*Pinus echinata*
Slash	*Pinus elliottii*
Virginia	*Pinus virginiana*
Spruce	
Blue	*Picea pungens*
Dwarf Alberta	*Picea glauca conica*
Norway	*Picea abies*
Sitka	*Picea sitchensis*

DIRECTIONS FOR USE IN POPLAR PLANTATIONS AND TIMBER RE-FORESTATION SITES*

***NOT FOR USE IN CALIFORNIA**

Semera 51.0% WDG is a pre-emergence and post-emergence herbicide for control of selected grass and broadleaf weeds in poplar plantations and timber re-forestation sites following timber harvest operations. **Semera 51.0% WDG** may be used as a site preparation treatment prior to transplanting of trees or as a release treatment after stand establishment.

Site Preparation - Application Before Transplanting

Apply 8 - 12 oz. (0.255 – 0.38 lb ai/A) of **Semera 51.0% WDG** per acre. Transplant operations must take place at least 3 months after application. To obtain optimal weed control, apply **Semera 51.0% WDG** before weed emergence or after a burndown herbicide has controlled existing vegetation. If existing weed canopy is less than 40%, **Semera 51.0% WDG** may be tank mixed with a burndown herbicide to provide pre-emergence weed control.
Apply **Semera 51.0% WDG** in at least 10 gals. of water per acre to achieve uniform spray coverage using ground or aerial spray equipment.

Release Treatments - Applications Within 3 Years After Transplanting

Apply 8 - 12 oz. (0.255 – 0.38 lb ai/A) of **Semera 51.0% WDG** per acre over the top of trees prior to budbreak in the spring or after dormancy in fall. Do not apply **Semera 51.0% WDG** over the top of trees after budbreak or leaf spotting and defoliation may occur. **Semera 51.0% WDG** should not affect new growth of trees of tolerant poplars for over-the-top treatments.

TANK MIXING - Poplar Release Treatments

Certain liquid formulations of other pesticides may increase the post-emergence activity of **Semera 51.0% WDG**, but may also increase the potential for injury when applied over the top of various plants. Therefore, tank mixtures of these materials with **Semera 51.0% WDG** may be more injurious than this product applied alone and need to be tested to determine if they can be used safely on a widespread basis.

ADJUVANTS - Poplar Release Treatments

When applying Release Treatments, do not mix **Semera 51.0% WDG** with any adjuvant or fertilizer.
IMPORTANT: When applied as directed, poplars *(Populus balsamifera*, *P. grandidentata*, *P. niger* and *P. tremuloides)*, hybrid poplars (*P.* sp. x sp.), and cottonwoods *(P. deltoides* and *P. trichocarpa)* have shown tolerance to **Semera 51.0% WDG**. However, **Semera 51.0% WDG** is a very active herbicide and the user should exercise responsible judgment and caution until familiarity is gained with **Semera 51.0% WDG**. Test this product on a small number of plants to determine if this product can be used safely on a widespread basis. Do not apply **Semera 51.0% WDG** over the top unless trees are more than 1 year old.

RESTRICTIONS

- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.

Manufactured for:
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940 NW Cary Parkway, Suite 200
Cary, NC 27513

DIRECTIONS FOR USE
ON DORMANT WARM-SEASON TURFGRASS
GROWN ON RESIDENTIAL SITES, GOLF COURSES, SOD PRODUCTION AND SIMILAR AREAS*

***NOT FOR USE IN CALIFORNIA**

Apply **Semera 51.0% WDG** as a single or split application to well established dormant turfgrass listed in **Table 8**, and will control winter annual weeds found in **Table 1**. Apply **Semera 51.0% WDG** to dormant turfgrass in such areas as apartment complexes, golf courses, sod farms, roadsides, sports fields, campgrounds, office complexes, parks, parking areas, recreational sites, schools, and other similar sites. Dormant bermudagrass, centipedegrass, seashore paspalum, St. Augustine and zoysiagrass have exhibited tolerance to **Semera 51.0% WDG** only when applied after turf has become dormant in the late fall and before turf breaks dormancy in the late winter/early spring. Application of **Semera 51.0% WDG** to actively growing turfgrass (warm season and cool season) or during green-up will cause unacceptable injury. **Semera 51.0% WDG** will injure warm season turf grown in southern areas where grass does not become completely dormant.

BROADCAST APPLICATIONS

Apply 8 - 12 oz. (0.255 – 0.38 lb ai/A) of **Semera 51.0% WDG** per broadcast acre as a pre-emergence (to weed emergence) application. If weeds are present at the time of application apply **Semera 51.0% WDG** plus an adjuvant (0.25% v/v non-ionic surfactant). Make post-emergence (to weed emergence) applications of **Semera 51.0% WDG** when weeds are actively growing and no larger than 2 inches in height. Thorough spray coverage is necessary to maximize the post-emergence activity of **Semera 51.0% WDG**. When applied after weed germination, **Semera 51.0% WDG** will provide pre-emergence and post-emergence control of broadleaf weeds and grasses listed in **Table 1**. Post-emergence control of **Semera 51.0% WDG** 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.

A second application of **Semera 51.0% WDG** may be required to provide adequate season-long weed control. Apply the second application using the above mentioned rate guidelines prior to the turfgrass breaking spring dormancy.

SPOT TREATMENTS

Mix 2 1/2 tsp. per gal. of **Semera 51.0% WDG** and 2 tsp. (1/3 fl. oz.) of non-ionic surfactant in 1 gal. of water and apply 1 gal. of spray solution per 1,000 sq. ft. Occasionally shake the spray solution while spraying to ensure the spray solution remains well mixed. Spray the target weeds until the leaves are wet.

TANK MIXING WITH OTHER TURFGRASS HERBICIDES

Tank mixing **Semera 51.0% WDG** with other pre-emergence and post-emergence herbicides registered for use in dormant turfgrass may provide a broader spectrum of weed control than **Semera 51.0% WDG** alone.

IMPORTANT: Turfgrass must be completely dormant at application. Any turfgrass that is not dormant will be injured by applications of **Semera 51.0% WDG**. Scout area to be sprayed for any turf that is green in color and if encountered, delay application until turfgrass is completely dormant. Read and follow the label of any herbicides mixed with **Semera 51.0% WDG**. When tank mixing **Semera 51.0% WDG** with other herbicides, always follow the most restrictive limitations and precautions on the label of any tank mix partner.

USE PRECAUTIONS

Exercise good judgment and caution when applying to dormant turfgrass until familiarity is gained with **Semera 51.0% WDG**.

RESTRICTIONS

- Do not apply to golf course putting greens.
- Do not apply to warm season turfgrass that has been over-seeded with cool season turfgrass (ex. perennial rye).
- Do not irrigate within 1 hour before or after application.
- Do not apply if rain is expected within 1 hour after application.
- Do not mow turfgrass within 12 hours after application.
- Do not apply within 30 days prior to cutting or lifting sod.
- Do not apply more than 12 oz. (0.38 lb ai/A) of this product per acre per application.
- Do not apply more than 2 applications at 12 oz./A (0.38 lb ai/A) or 3 applications at 8 oz./A (0.255 lb ai/A) per year.
- Do not apply more than 24 oz. (0.765 lb ai/A) of this product per acre per year.
- Do not re-apply **Semera 51.0% WDG** within 30 days.
- Do not apply in fall before turfgrass has ceased active growth or in late winter/early spring after turfgrass has resumed active growth.
- Allow 8 weeks between application and seeding or sodding of turfgrass.

Table 8. Tolerant Turfgrass Species

COMMON NAME	SCIENTIFIC NAME
Bermudagrass	*Cynodon* spp.
Centipedegrass	*Eremochloa ophiuroides*
Seashore paspalum	*Paspalum vaginatum*
St. Augustinegrass	*Stenotaphrum secundatum*
Zoysiagrass	*Zoysia* spp.

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940 NW Cary Parkway, Suite 200
Cary, NC 27513

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area.

PESTICIDE DISPOSAL: Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING:

Nonrefillable container. Do not reuse or refill this container. If empty: Offer for recycling if available or discard in a sanitary landfill. If partly filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

Nonrefillable containers ≤ 50 pounds: Nonrefillable Container: Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple Rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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 if available.

Nonrefillable containers > 50 pounds: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple Rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling if available.

LIMITATION OF WARRANTY AND LIABILITY

IMPORTANT: READ BEFORE USE. Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If these terms and conditions are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Disclaimer of Warranties and Limitations of Liability.

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Ineffectiveness, injury, and other unintended consequences may result because of such factors as manner of use or application (including misuse), the presence of other materials, weather conditions, and other unknown factors, all of which are beyond the control of ATTICUS, LLC. All such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: To the extent consistent with applicable law, ATTICUS, LLC makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond statements on this label.

LIMITATIONS OF LIABILITY: To the extent consistent with applicable law, neither ATTICUS, LLC the manufacturer, nor the Seller shall be liable for any indirect, special, incidental or consequential damages resulting from the use, handling, application, storage, or disposal of this product. To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use, handling, application, or storage of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid.

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