

279-3307

06/22/2006

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U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs  
Registration Division (7505C)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

NOTICE OF PESTICIDE:  
 Registration  
 Reregistration

(under FIFRA, as amended)

EPA Reg. Number:

279-3307

Date of Issuance:

6-22-06

Term of Issuance:

Conditional

Name of Pesticide Product:

F4117 EW Herbicide

Name and Address of Registrant (include ZIP Code):

FMC Corporation  
1735 Market Street  
Philadelphia, PA 19103

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

**This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A) provided you agree in writing to:**

1. Place the "First Aid" section in a box.
2. Add "exist" after washables on page 1 of the label.
3. On page 6 of the label, under "Harvest Aid Treatment", delete "rice" from the list of crops.

Signature of Approving Official:

  
James Tompkins, Product Manager (25)  
Herbicide Branch, Registration Division (7505C)

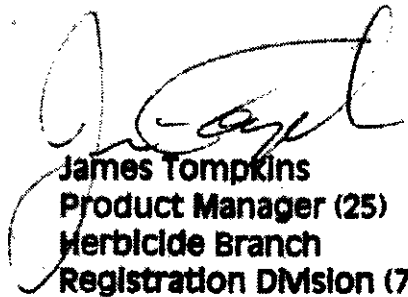
Date:

6-22-06

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You will submit one copy of your final printed labeling (8 1/2" X 11" copy) before you release the product for shipment. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). A stamped copy of labeling is enclosed for your records. If you have any questions please contact Erik Kraft at 703-308-9358.

Sincerely,



James Tompkins  
Product Manager (25)  
Herbicide Branch  
Registration Division (7505C)

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# F4117 EW HERBICIDE

For Agricultural, Aquatic or Commercial  
Non-Crop Use Only

EPA Reg. No. 279-xxxx

EPA Est. 279-

<b>Active Ingredient:</b>	<b>By Wt.</b>
Carfentrazone-ethyl : Ethyl $\alpha$ ,2-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]-4-fluorobenzenepropanoate .....	0.40%

Glyphosate IPA** .....	49.71%
Inert ingredients: .....	49.89%
	100.0%

\*Contains 0.040 pounds Carfentrazone-ethyl per US gallon.  
 \*\*Contains 5.0 pounds Glyphosate, in the form of isopropylamine salt, per US gallon. (3.71 pounds per gallon glyphosate acid).  
 Contains Petroleum Distillates  
 U.S. Patent Pending

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

### FIRST AID

**If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by 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. Call a poison control center or doctor for 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.

### HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-331-3148 for emergency medical treatment information.

**Note to Physician:** F4117 is expected to have low oral and dermal toxicity, and moderate inhalation toxicity. It is expected to be slightly irritating to the skin and minimally irritating to the eyes. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care. This product may pose an aspiration pneumonia hazard.

See other panels for additional precautionary information.

THE ACTIVE INGREDIENT CARFENTRAZONE-ETHYL IS MADE IN CHINA, FORMULATED AND PACKAGED IN USA.



FMC Corporation  
Agricultural Products Group  
Philadelphia, PA 19103  
F4117\_3\_10-08-05

6-72-06  
 In USA Lower End  
 Life for the future generation.  
 Pollution and environment that  
 is essential for the people  
 registered under EPA Reg. No.

275-3307

## PRECAUTIONARY STATEMENTS Hazards to Humans (and Domestic Animals)

**Caution**  
Harmful if swallowed, absorbed through the skin or inhaled. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

**Personal Protective Equipment (PPE)**  
If you want more options, follow the instructions for category A on the EPA chemical-resistance category selection chart. Applicators and other handlers must wear: long-sleeved shirt and long pants, chemical-resistant gloves made of waterproof material such as polyethylene or polyvinyl chloride, and shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Use Safety Recommendations:

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

### Environmental Hazards

F4117 is very toxic to algae and moderately toxic to fish. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the high water mark, except as specified on this label. Do not contaminate water when cleaning of equipment or disposing of equipment wash-waters.

### Physical/Chemical Hazards

Do not use or store near heat or open flame.

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

**DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

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## DIRECTIONS FOR USE

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

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

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.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls, chemical-resistant gloves made of any waterproof material and 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 Standard for agricultural pesticides, 40 CFR part 170. The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Turf grasses on golf courses and other non-residential turf areas such as industrial parks, tank farms, professionally managed college and professional sports fields, commercial lawns and ornamental landscapes are not within the scope of the Worker Protection Standard. Do not enter or allow others to enter the treated area until sprays have dried.

## STORAGE AND DISPOSAL

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

### Pesticide Storage

Not for use or storage in or around the house.

Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat.

STORE ABOVE 10° F (-12° C) TO KEEP FROM CRYSTALLIZING. Crystals will settle to the bottom. If crystals form, allow product to warm above 50° F (10° C) and mix well or shake to redissolve. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrated or dilute material into food or drink containers. Do not contaminate other pesticides, or fertilizers, food, or feed by inappropriate storage or disposal.

In case of spill, avoid contact, isolate area and keep out.

unprotected persons and animals. Confine spills. Call FMC: (800) 331-3148.

To confine spill: Dike surrounding area, sweep up spillage. Dispose of in accordance with information given under Pesticide Disposal. Wash spill area with water, absorb with sand, cat litter or commercial clay, sweep up and dispose of in an approved manner. Place damaged container in a larger holding container. Identify contents per required hazardous waste labeling regulations.

### Pesticide Disposal

Waste resulting from the use of this product may be disposed of at an approved waste disposal facility.

### Container Disposal

Plastic containers: Triple rinse (or equivalent). Then offer for approved pesticide container recycling program, or puncture and dispose of in an approved waste disposal facility. Provided on site incineration is allowed by state and local authorities, stay out of smoke.

## GENERAL INFORMATION FOR AGRICULTURAL USE

F4117 is a liquid suspension formulation. F4117 is to be mixed with water and applied to labeled crops for selective postemergence control of broadleaf weeds. Weed control is best when the product is applied to actively growing weeds up to 4 inches in height. F4117 is a contact and systemic herbicide.

F4117 is rapidly absorbed through the foliage of plants. To avoid significant crop response, applications should not be made within 6 - 8 hours of either rain or irrigation. Within a few hours following application, the foliage of susceptible weeds show signs of desiccation, and in subsequent days necrosis and death of the plant occur. Due to environmental conditions and with certain spray tank additives, some herbicidal symptoms may appear on the crop. However, the crop recovers quickly with no loss in yield.

Extreme in environmental conditions such as temperature, moisture, soil conditions, and cultural practices may affect the activity of F4117. Under warm moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicide symptoms may be delayed, and weeds hardened off by drought are less susceptible to F4117.

### Tank Mixtures

F4117 may be tank mixed with other herbicides to control weeds not listed on this label. Read and follow all manufacturers' label recommendations for the companion herbicide except for specific recommendations on this label. Tank mixtures of F4117 with EC formulations of other crop protection products, crop oil concentrate, methylated seed oil, silicone based adjuvant, 28% nitrogen or ammonium sulfate may increase crop response.

### Adjuvant Use Requirements

Use a non-ionic surfactant (NIS) having at least 80% active ingredient at 0.25% v/v (2 pints per 100 gallons of spray solution) or a 28% nitrogen (UAN) at 2 to 4 quarts per 100 gallons of spray solution. Ammonium sulfate (AMS) may be used at 2-4 pounds per acre where recommended by those companion herbicides listed on this label. In the latter case, the level of leaf speckling may be higher than with NIS alone. Crop oil (COO) or crop oil plus either 28% nitrogen or ammonium sulfate may be used with companion herbicides listed on this label and may be recommended in certain situations.

### Mixing and Loading Instructions:

Fill the spray tank 3/4 full with clean water. Make sure the agitation system is operating while adding the recommended amount of ingredients using the following order: dry formulations (e.g., wettable powders, dry flowables) first, liquid suspensions (e.g., flowables) next and finally liquids (e.g., EC's). Complete filling the spray tank to the desired level. The spray tank agitation should be sufficient to ensure uniform spray mixture during application and until the spray tank has been emptied. When tank mixing with other products, F4117 should be mixed in the spray tank after dry formulations, if used. After the F4117 is thoroughly mixed, add the other products

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as specified on their label. Ensure the compatibility of other products with F4117 before mixing them together in the spray tank. Avoid the overnight storage of F4117 spray mixtures. Premixing F4117 spray solutions in nurse tanks is not recommended.

Maintain continuous spray solution agitation until all the spray solution has been used.

Do not use with tank additives that alter the pH of the spray solution below pH 5 or above pH 8. Buffer spray solution to alter the pH range as appropriate.

### Spray Equipment Clean-Out:

Many new pesticides are very active at low rates, especially to sensitive crops. Residue left in mixing equipment, spray tanks, hoses, spray booms and nozzles can cause crop effects if they are not properly cleaned. As soon as possible after spraying F4117 Herbicide and before using the sprayer equipment for any other applications, this sprayer equipment must be thoroughly cleaned using the following procedure. In addition, users must take appropriate steps to ensure proper equipment clean-out for any other products mixed with F4117 Herbicide as required on the other product labels. More complete cleaning can be achieved if the spray system is cleaned immediately following the application.

1. Drain sprayer tank, hoses, spray boom and spray nozzles. Use a high-pressure detergent wash to remove physical sediment and residues from the inside of the sprayer tank and thoroughly rinse. Then, thoroughly flush sprayer hoses, spray boom and spray nozzles with a clean water rinse. Remove and clean spray tips and all filters and screens (tank, spray hose and spray tips) separately in the ammonia solution of Step 2.

2. Next, prepare a sprayer cleaning solution by adding three gallons of ammonia (containing at least 3% active) per 100 gallons of clean water. Prepare sufficient cleaning solution to allow the operation of the spray system for a minimum of 15 minutes to thoroughly flush hoses, spray boom and spray nozzles.

3. Convenient and more thorough cleaning of the sprayer can be achieved if the ammonia solution or fresh water is left in the spray tank, hoses, spray booms and spray nozzles overnight or during storage.

4. Before using the sprayer, completely drain the sprayer system. Rinse the tank with clean water and flush through the hoses, spray boom, and spray nozzles with clean water. Remove and clean spray tips and all filters and screens (tank, spray hose and spray tip) separately in an ammonia solution.

5. Properly dispose of all cleaning solution and rinse in accordance with Federal, State, and local regulations and guidelines.

Do not apply sprayer cleaning solutions or rinses to sensitive crops.

Do not store the sprayer overnight or for any extended period of time with F4117 Herbicide spray solution remaining in the tank, spray lines, spray boom plumbing, spray nozzles or strainers.

If the sprayer has been stored or idle, purge the spray boom and nozzles with clean water before beginning any application.

Should small quantities of F4117 Herbicide remain in inadequately cleaned mixing, loading and/or spray equipment, they may be released during subsequent applications potentially causing effects to certain crops and other vegetation. FMC accepts no liability for any effects due to inadequately cleaned equipment.

## APPLICATION INFORMATION

### GROUND APPLICATION

Utilize ground sprayers designed, calibrated and operated to deliver uniform spray deposition to the target plant or plant parts. Be aware that overlaps and slower ground speeds while starting, stopping or turning while spraying may result in higher application rates and possible crop response.

Do not exceed 30 psi spray pressure unless otherwise required by the manufacturer of drift reducing nozzles. Apply a minimum of 10

gallons of finished spray per acre. Higher spray volumes are required when there is a dense weed population or crop canopy.

### Spray Buffer for Ground Application

Spray buffer zones for ground applications, listed in chart below, are required where local indigenous endangered plant species are found.

Buffers to Indigenous Endangered Plant Species		
F4117 USE RATE (fluid ounces)	Low Spray Boom Buffer (ft.)	High Spray Boom Buffer (ft.)
30	20	33
40	25	45

### Conventional Boom and Nozzle Sprayers

Utilize a boom and nozzle sprayer equipped with the appropriate nozzles, spray tips and screens and adjusted to provide optimum spray distribution and coverage at the appropriate operating pressures. Utilize nozzles, which produce minimal amounts of fine spray droplets. Do not exceed 30 psi spray pressure unless otherwise required by the manufacturer of drift reducing nozzles. Apply a minimum of 10 gallons of finished spray per acre. Higher spray volumes are required when there is a dense weed population or crop canopy. Sprayers should be adjusted to position spray tips a minimum of 18 inches above the crop and operated to avoid the application of excessive herbicide rates directly over the rows and/or into the whorl of treated crop plants.

### Directed Sprayers

F4117 may be applied with drop nozzles or other type sprayer equipment capable of directing the spray to the target weeds and away from sensitive plant parts. F4117 may be used up to the maximum rate for the target crop for the control of larger weed sizes or additional weeds not controlled with lower use rates. Use appropriate rates of adjuvants such as non-ionic surfactant, crop oil concentrate or methylated seed oil.

### Hooded Sprayers

Hooded sprayers may also be used to apply F4117. Refer to the Hooded Sprayer Section on page 5 for specific adjustment and operation instructions.

## AERIAL APPLICATION

Use nozzle types and arrangements that will provide optimum coverage while producing a minimal amount of fine droplets. Apply at a minimum of 3 gallons of finished spray per acre. Higher aerial spray volumes are required for harvest aid/defoliation treatments. Higher spray volumes are required when there is a dense weed population or crop canopy.

Read and follow all state and local regulations and restrictions regarding the aerial application of herbicides containing glyphosate.

### Spray Drift Management

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR AND THE GROWER.

The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target movement from applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications of dry materials.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory.

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**Information on Droplet Size**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (See Wind, Temperature and Humidity, and Temperature Inversions).

**Controlling Spray Droplet Size**

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

**Pressure** - Do not exceed the nozzle manufacturer's recommended pressure. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

**Number of nozzles** - Use the minimum number of nozzles that provide uniform coverage.

**Nozzle Orientation** - For aerial application, orient nozzles so that the spray is released parallel to the air stream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.

**Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length** - For some aerial use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height** - Aerial applications should not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment** - When aerial applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

**Wind** - Drift potential is lowest between winds speeds of 3-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity** - When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions** - Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small-suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas** - The pesticide should only be applied when the wind is blowing away from adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops).

**MAXIMUM ALLOWABLE F4117 USE PER ACRE PER SEASON**

Total Allowed F4117 Use*	
Crop	Fluid Ounces F4117/Acre
Soybeans	28
Barley	99
Corn	99
Oats	99
Wheat	99
Grain Sorghum	50
Rice	208
Cotton	208
Cansberry	272
Potato	208
	120

\*The total allowed usage volumes include all applications made to the field per calendar year. This includes fallow treatments, burndown treatments and all in-season treatments.

**PREHARVEST INTERVALS (PHI) FOR F4117**

Crop	
Stone Fruit	17 days
Apples	3 day
Citrus	3 day
Pear	3 day
Berries and Small Fruit	14 days
Cranberries	30 days
Soybeans	V10 Growth Stage
Corn	Fourteen leaf collars
Barley	Grain (Jointing Stage) Forage (7 days)
Oats	Grain (Jointing Stage) Forage (7 days)
Wheat	Grain (Jointing Stage) Forage (7 days)
Grain Sorghum	8x leaf collars
Rice	60 days
Cotton	7 days
Cansberry	15 days
Potato	7 days
Pastures	56 days (grazing or hay operations)

**CROP ROTATIONAL RESTRICTIONS**

Following applications of F4117, any registered crop may be planted at any time with the following exceptions.

For treatments prior to planting, allow at least 3 days before planting the following crops: Cantaloupe, Casaba melon, Cucumber, Eggplant, Endive (escarole), Garlic, Gourds, Groundcherry, Honeydew melon, Honeyball melons, Mango melons, Muskmelons, Persian melons, all melons, Pumpkin, Summer squash, Winter squash, Tomatillo, Watermelon, Pepper, and Forage grasses.

For all other crops, 12 months.

**WEEDS CONTROLLED**

When applied according to directions F4117 will provide control of the following weeds. Optimum control may be achieved when small weeds are treated rather than when they are larger in size. When larger weeds are targeted, use higher rates. When weed density is high, use higher rates. When weeds are hardened off due to weather conditions, use higher rates and use more aggressive spray adjuvants. When weeds are nearing maturity, use higher rates and more aggressive spray adjuvants.

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When applied at 20 to 24 fluid ounces per acre, F4117 will provide control of the following weeds:

Amaranthus, Palmer	Morningglory, pitted
Amaranthus, spiny	Morningglory, smallflower
Ammannia, purple	Morningglory, scarlet
Anoda, spurred	Morningglory, tall
Bedstraw, catchweed	Mustard, blue
Bittercress	Mustard, tansy
Bluegrass	Mustard, tumble
Brome, downy	Mustard, wild
Brome, Japanese	Nightshade, black
Burcucumber	Nightshade, Eastern black
Buttercup	Nightshade, hairy
Carpetweed	Pennycress, field
Cocklebur	Pigweed, prostrate
Corn (non glyphosate tolerant)	Pigweed, redroot
Cotton	Pigweed, smooth
Crabgrass	Pigweed, tumble
Dandelion, dwarf	Pinsetia, wild
Fleabane, annual	Purslane, common
Fleabane, hairy	Rocket, London
Foxtail	Rocket, yellow
Flowerweed	Sandbur, field
Goatgrass, jointed	Sebania, hemp
Groundcherry, cutleaf	Shepard's purse
Groundcherry, Wright's	Smartweed, Pennsylvania
Kochia	Sprangletop
Morningglory, entireleaf	Stinkgrass
Morningglory, ivyleaf	Sunflower, wild
Morningglory, palmleaf	Velvetleaf

When applied at 25 to 28 fluid ounces per acre, F4117 will provide control of the following weeds:

All the weeds listed above plus,

Bermudagrass	Mallow, Venice
Chesnutweed	Millet, wild proso
Chickweed	Nettle, burning
Cupgrass, wooly	Nettle, stinging
Echino	Panicum, browntop
Fleabane, rough	Panicum, fall
Goosegrass	Panicum, Texas
Henbit	Radish, wild
Ichgrass	Ragweed, common
Johnsongrass, seedling	Shattercane
Jointvetch, Indian	Spurge, nodding
Jointvetch, Northern	Spurge, prostrate
Jimsonweed	Spurge, spotted
Knotweed, prostrate	Spurge, upright
Lambquarters, common	Wallflower, bushy
Lettuce, prickly	Witchgrass
Mallow, common	

When applied at over 28 fluid ounces per acre, F4117 will provide control of the following weeds.

All the weeds listed above plus,

Broadleaf signalgrass	Flares, broadleaf
Burclover	Flares, redstem
Cheat	Flares, whitestem
Copperleaf, hophornbeam	Sowthistle

### FALLOW SYSTEMS

Apply F4117 by ground or aerially alone or with other herbicides in the fallow period prior to planting or the emergence of any crop or rotational crop listed on this label to control or suppress annual broadleaf weeds. For best performance, make applications to young and actively growing weeds up to 4 inches high or rosettes less than 3 inches across. Coverage is essential for good weed control.

Apply F4117 at 20 to 52 fluid ounces per acre in fallow systems. A nonionic surfactant or crop oil concentrate must be used to enhance activity of F4117 in fallow systems. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

When tank mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water after dry formulations, if used. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section.

For all products used in tank mixes, refer to the specific product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotational cropping restrictions.

### BURNDOWN

(PREPLANT, PREEMERGENCE and AT-PLANT)

Apply F4117 alone or with other herbicides or liquid fertilizers as a burn-down treatment prior to planting or emergence of labeled crops to control or suppress grass and broadleaf weeds. For best performance, make applications to actively growing weeds up to 4 inches high or rosettes less than 3 inches across. Coverage is essential for good control. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

When tank mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water after dry formulations, if used. When tank mixing with fertilizer solutions be sure to use an F4117 slurry mixture. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section. For all products used in tank mixes, refer to the specific product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotational cropping restrictions.

#### Precautions:

When applying F4117 prior to transplanting crops into plastic mulch, care must be taken to remove residues of F4117 from the plastic prior to transplanting.

### SPOT TREATMENT

F4117 may be applied as a spot treatment for the control of weeds in the following crops: corn, cotton, sorghum, soybeans, barley, buckwheat, millet, rye, triticale and wheat.

Refer to the "HAND-HELD and HIGH-VOLUME EQUIPMENT" section for additional information and dilution charts.

#### Restrictions

Treatments must be made prior to:  
Seed head formation in grains  
pod set in soybeans  
boll opening in cotton.

### HOODED SPRAYER APPLICATIONS

F4117 may be applied to the following crops using hooded sprayers in accordance with specific use directions as stated in the following Directions for Use section.

Corn, Cotton, Peanuts, Sugarcane, Barley, Buckwheat, Millet, Rye, Oats, Soybean, Triticale, Wheat, Calamondin, Chironja, Citron, Grapefruit, Kumquat, Lemon, Lime, Mandarin Orange, Orange, Pummelo, Tangelo, Tangors, Almond, Beechnut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert, Hickory nut, Macadamia, Pecan, Walnut, Grapes, Kiwi, Apple, Apricot, Cherry (sweet and sour), Loquat, Mayhaw, Nectarine, Olive, Peach, Pear, Plum, Prune, Quince, Artichoke(Jerusalem), Beans, Beet greens, Beets(red and sugar), Broccoli, Brussels sprouts, Cabbage, Chinese cabbage, Cassaloupe, Carrot, Cauliflower, Casaba melon, Celarac, Celery, Chard(Swiss), Chicory, Collards, Crenshaw melon, Cucumber, Egg plant, Endive (secarde), Garlic, Gourds, Groundcherry, Melon (honeydew and honeyball), Horseradish, Kale, Kohlrabi, Leek, Lentils, Lettuce, Mango melon, Melons (all), Muskmelon, Mustard greens, Okra, Onion, Parsley, Paronips, Peas, Pepper, Persian melon, Potato(Irish and sweet), Pumpkin, Radish, Rape greens, Rhubarb, Shallot, Spinach, Squash(summer and winter), Tomatillo, Tomato, Turnip, Watermelon, Yams, Blackberry, Boysenberry, Cranberry, Currant, Elderberry, Gooseberry, Huckleberry, Raspberry(red and black), Forage grasses, Acerola, Atemoya, Avocado, Banana, Canistel, Cherimoya, Cocoa beans, Coffee, Dates, Figs, Gueva, Jaboticaba, Longan, Luchee, Mango, Papaya, Passion fruit, Persimmons, Pomegranate, Sapodilla, Sapote(black, mamey) Sugarapple, Tea.



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**Directions for Use:**

F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the above listed crops. This treatment may be made to crops grown in rows, and includes crops grown in rows where mulch or plastic barriers are used as a weed control tool in the drill or plant line. F4117 may be applied at rates up to 40 ounces per broadcast acre not to exceed the amount listed in the Maximum Allowable F4117 Use Table above, in a minimum of 10 gallons per acre of finished spray. F4117 may be tankmixed with other pesticides registered for this treatment pattern.

For best performance, make application to actively growing weeds up to 4 inches tall and rosettes less than 3 inches across. Coverage is essential for good control. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

Hooded sprayers must be designed, adjusted and operated in such a manner as to prevent any spray deposition to green stem, leaf tissue, flowers or fruit of the crop. The hooded sprayer should be designed and operated so as to totally enclose the spray pattern. Sprayers should be operated in such a manner as to minimize vertical movement such as bouncing or the raising of the equipment during application. Sprayers should not be operated in excess of five (5) miles per hour to minimize such bouncing. Extreme care must be taken during operations in fields where there is undulation of the soil surface, deep furrows, drains or other contours which would disturb the adjustment and positioning of the spray equipment and/or the spray pattern. Applications must not be made when wind conditions are such that spray patterns may be disturbed and result in spray deposition to sensitive plants or plant parts.

**Precautions:**

Crop injury will occur when spray is allowed to come in contact with the leaves, green stem tissue, flowers or fruit of the crop.

**Restrictions:**

Do not apply more than 40 fluid ounces during the preplant timing and no more than 80 fluid ounces in season as a row middle application. Do not apply more than 120 fluid ounces per crop season as a hooded sprayer application. Do not apply within 14 days of harvest.

**HARVEST AID TREATMENT**

F4117 may be applied to soybeans and the cereal grain crops (corn, rice, grain sorghum, wheat) to defoliate and/or desiccate troublesome grass and broadleaf weeds such as morningglories, pigweeds, velvetleaf and others that may be present at harvest. F4117 may be used alone or as a tank mixture with other harvest aids.

Applications should be made when the crop is mature and the grain has begun to dry down, or according to Extension Service recommendations in the use area. Apply F4117 as a broadcast spray at rates not to exceed the amount as listed in the MAXIMUM ALLOWABLE F4117 USE TABLE above. If treatments of F4117 have been made to the crop earlier, that volume must be considered in determining the maximum use rate as a harvest aid treatment.

Applications should be made in spray volume sufficient to provide complete coverage of foliage. Use a minimum of 10 gallons of finished spray per acre for ground application and 6 gallons per acre for aerial application.

Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

Do not apply more than 26 fluid ounces of this product per acre to wheat.

Do not apply within 7 days of harvest.

Coverage is essential for satisfactory performance. Repeat application if necessary.

If applied as a tank mixture, refer to the other product's label for restrictions on tank mixing, and observe all label precautions, instructions and rotational cropping restrictions.

**CORN**

**Field Corn, Seed Corn, Popcorn, Corn Silage, and Sweet Corn (Processing and Fresh Market)**

Apply F4117 alone or as a tank mixture with other herbicides to emerged and actively growing weeds. Apply to corn in all tillage systems from 30 days before planting up to 8 leaf collar growth stage. Do not apply when conditions favoring drift exist or wind is above 10 mph.

For best performance, make application to actively growing weeds up to 4 inches high and rosettes less than 3 inches across.

**Restriction:**

Do not apply F4117 as a banded or broadcast treatment over the top of corn varieties not genetically tolerant to glyphosate herbicide.

For best performance, make application to actively growing weeds up to 4 inches high and rosettes less than 3 inches across. Coverage is essential for good control.

Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient. Under dry conditions the use of a crop oil concentrate may improve weed control. The use of a crop oil concentrate may increase leaf speckling on the treated corn leaves.

To control weeds not listed on this label, F4117 may be tank mixed with other herbicides registered for use in corn. When tank mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water first. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section.

Refer to the other product's label for restrictions on tank mixing, and observe all label precautions, instructions, and rotational cropping restrictions. Sprayers should be adjusted to position spray tips a minimum of 18 inches above the crop and operated to avoid the application of excessive herbicide rates directly over the rows and/or into the whorl of the corn plant. Be aware that overlaps and slower ground speeds while starting, stopping or turning while spraying may result in higher application rates and possible crop response.

**Preplant, Preemergence and At-Plant**

Apply F4117 alone or with other herbicides or liquid fertilizers as a burn-down treatment prior to planting or emergence of corn to control or suppress grass and broadleaf weeds. For best performance, make applications to actively growing weeds up to 4 inches high or rosettes less than 3 inches across. Coverage is essential for good control. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

When tank mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water after dry formulations, if used. When tank mixing with fertilizer solutions be sure to use an F4117 carry mixture. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section.

For all products used in tank mixes, refer to the specific product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotational cropping restrictions.

**Hooded Sprayer Applications**

(Applications may be made to glyphosate tolerant and conventional varieties with hooded sprayers)

F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

F4117 at 20 to 99 fluid ounces per acre. Use higher rates when weeds are under stress or are larger.

Applications should be made by ground equipment using a minimum finished spray volume of 10 gallons of spray per acre, or by air at a minimum finished spray volume of 3 gallons of spray per acre. Do not apply more than 99 fluid ounces of F4117 per acre per season including fallow/preplant burndown and labeled crop applications.



**Tank Mixtures**

F4117 may be tank mixed with other labeled herbicides to control weeds not listed on this label. Read and follow all manufacturers' label recommendations for the companion herbicide except for specific recommendations on this label. When tank mixing F4117 with other products, be sure F4117 is mixed in the spray tank water after dry formulations, if used. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section.

For control of additional broadleaf weeds and grasses, F4117 may be tank mixed with 2,4-D (amine), Accent, Accent Gold, Atrazine, Banvel, Basia, Basis Gold, Beacon, Callisto, Clarity™, Distinct, Exceed, Home, Liberty, Lightning, Markama, Northstar™, Permilla, Poast, Scorpion III, Sencon, Shotgun, Spirit™, Steadfast, Sterling and Tough.

When tank mixing F4117 with Accent, Accent Gold, Atrazine, Basis Gold, Liberty, Poast, and Shotgun use adjuvants recommended on the tank mix partner label. These may include nonionic surfactant, crop oil concentrate, 28% nitrogen, ammonium sulfate or combinations of these.

**For Directed Spray Applications (Applications may be made to glyphosate tolerant and conventional varieties)**

F4117 may be applied with drop nozzles or other sprayers capable of directing the spray to the target weeds and away from the corn plant. Do not allow spray contact to the crop when applying to conventional corn varieties. F4117 may be used up to the maximum of 99 fluid ounces per acre using drop nozzles for control of larger weed sizes for those weeds listed below under "Control of Weeds". Use appropriate rates of adjuvants such as non-ionic surfactant, crop oil concentrate or methylated seed oil.

**Seed Corn Production**

For seed production fields, apply F4117 using drop nozzles or other equipment to make a directed spray treatment. Avoid directing spray solution into the whorl of glyphosate tolerant varieties. Avoid spray contact to the crop when applying to conventional corn varieties.

Seed corn inbreds have generally shown good tolerance to F4117 herbicide, however, all inbreds have not been tested. Broadcast applications may result in spray being concentrated into the whorl of the plant, which will increase leaf response. To minimize application into the whorl of the plants, drop nozzles or other type directed sprayers must be used to direct the spray to the targeted weeds.

**Sweet Corn Production**

F4117 may be applied to sweet corn, however, the user assumes all responsibility for herbicide tolerance with such use. All hybrids/varieties have not been tested for sensitivity to F4117 herbicide nor does FMC Corporation have access to all seed company or food processor data. Broadcast applications may result in spray being concentrated into the whorl of the plant, which will increase leaf response. To minimize application into the whorl of the plants, drop nozzles or other type directed sprayers must be used to direct the spray to the targeted weeds.

Therefore, any crop response arising from the use of F4117 herbicide on sweet corn is the responsibility of the user. Use F4117 herbicide only under the recommendation of the seed company, food processor, or State Agricultural Extension Service.

**F4117 Tank Mixtures**

F4117 may be tank mixed with Atrazine 4L (16 fluid ounces per acre) or Atrazine 90DF (9 ounces per acre) or Dicamba or 2,4-D (0.125 to 0.25 pounds active per acre, Banvel or Clarity) (3 to 4 ounces per acre) for additional weed control, and for residual weed control. Higher rates of Atrazine, Banvel or Clarity herbicides can be used, but do not exceed the recommended label use rates allowed by these labels. Add a 0.25% v/v nonionic surfactant (2 pints per 100 gallons) to the tank mixture, or under very dry soil moisture conditions, the use of crop oil concentrate (1% v/v or 1 gallon per 100 gallon spray solution) may improve weed control.

**COTTON**

**TIMING AND METHOD OF APPLICATION**

**Removal of Failed Cotton Stands**

F4117 at the rate of 20 to 52 ounces per acre broadcast as a foliar spray over the top of the remaining cotton plants and weeds with sufficient spray volume to provide coverage of the cotton plant, in particular the terminal area. Coverage is essential for good control. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a

petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

F4117 may be tank mixed with Mustang MAX insecticide for the control of cutworms at this application timing.

Do not apply when conditions favoring drift exist or wind is above 10 mph.

**Hooded Sprayer Applications**

F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

**Post-directed and Lay-by Application**

F4117 herbicide is a contact and systemic herbicide for postemergence directed sprayer or hooded/shielded sprayer applications for the control of broadleaf and grass weeds in cotton. Apply F4117 herbicide alone or as a tank mixture with other herbicides to emerged and actively growing weeds. When tank-mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water after dry formulations, if used. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section.

Applications of F4117 or F4117 tank mixtures should be made with directed sprayers or hooded sprayers to prevent contact of spray solution with the cotton plant. Do not allow spray solution to contact cotton foliage or green stem tissue.

Directed spray equipment should position nozzles a minimum 3 to 4 inches above the soil, with nozzles directed beneath the crop canopy. F4117 or F4117 tank mix applications should be made to cotton that is a minimum of 6 inches in height. Applications to cotton at 5 to 6 nodes or less must be made with hooded or shielded sprayer equipment to completely avoid contact with cotton plants.

Lay-by applications of F4117 or F4117 tank mixtures at later growth stages of cotton may be made when cotton plants have achieved a height of 12 inches or more with sufficient bark development and height differential between crop bottom leaves and the soil. Spray solution should be directed at the base of cotton plants to avoid contact with green stem tissue or foliage while maintaining maximum contact with broadleaf weeds that are at appropriate treatment size.

Do not apply when conditions favoring drift exist or wind is above 10 mph.

For best performance, make application to actively growing weeds up to 4 inches tall and rosettes less than 3 inches across. Coverage is essential for good control. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

**F4117 Use Rates and Directions**

Apply F4117 at 20 to 52 ounces per acre as a post-directed treatment using a directed sprayer or hooded sprayer or lay-by sprayer using a minimum finished spray volume of 10 gallons per acre. Do not apply more than 160 fluid ounces of F4117 per season by post-directed and lay-by applications.

For control of additional broadleaf weeds and grasses, F4117 Herbicide may be tank mixed with other herbicides such as Staple, Buctril, Casparol, Cotoran (or other products containing flumeturon), Karmex, MSMA, or other herbicides registered for cotton post-directed and/or lay-by applications. Refer to the other product's label for restrictions on tank mixing, and observe all label precautions, instructions and rotational cropping restrictions.

**Harvest Aid Application**

F4117 may be applied as a harvest aid on non-glyphosate resistant cotton varieties for weed desiccation, cotton defoliation and regrowth control, and on glyphosate-resistant varieties for weed desiccation prior to harvest and on both types as a systemic perennial weed management tool.

Apply F4117 at 25 to 52 oz product per acre using a quality spray adjuvant. NIS spray adjuvant is recommended when temperatures are consistently above 60 degrees F immediately prior to and after treatment. COC or other adjuvants that give enhanced leaf

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penetration capabilities are recommended for conditions below 60 degrees F before and after treatment. Applications must be made at 70% open bolls or according to local extension service recommendations.

Apply F4117 in at least 10 gallons of spray solution per acre by ground or at least 5 gallons of spray solution per acre by air using equipment and parameters that optimize coverage and penetration of foliage. Coverage is essential for optimum defoliation potential. Repeat application of F4117 at 25 to 52 oz of product per acre or Airm EC at 1 oz of product per acre with recommended adjuvants to remove any remaining foliage or to desiccate regrowth if necessary. Dense cotton canopy, large plant size, and environmental conditions not conducive to complete plant coverage may reduce initial application performance and increase the need for a second application.

Do not apply more than 206 ounces of F4117 per acre per season. F4117 may be applied as a tank mix or as a sequential application with other cotton harvest aids. F4117 may be tank mixed with Dropp, Def, Finish, Prep, Folax, Harvade, Ginstar, CottonQuik, or other registered cotton harvest aid products.

Refer to the other product's label for restrictions on tank mixing, and observe all label precautions, instructions and rotational cropping restrictions.

Do not apply within 7 days of harvest.

## BERRY

### Caneberry

(Blackberry, Boysenberry, Black Raspberry, Red Raspberry, cultivars and/or hybrids of these)

#### TIMING AND METHOD OF APPLICATION

##### Hooded Sprayer Applications

F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

For berries, hooded or shielded applicators must be fully enclosed including tops, sides, back and front. Only shielded applicators capable of preventing all contact with crops may be used.

##### Post-Directed Application For Weed Control

F4117 may be applied at 20 to 99 ounces per acre as a directed spray for weed control using a minimum of 10 gallons of finished spray per acre. For best performance, make applications to actively growing weeds up to 4 inches tall and rosettes less than 3 inches across.

Do not allow the spray to contact canes.

##### Band Treatment Applications

For band treatment, apply the broadcast equivalent rate and volume per acre. To determine these:

Band Width In inches	X	Broadcast Rate	= Banded rate
Row Width In inches		Per Acre	

Band Width In inches	X	Broadcast Volume	= Banded volume
Row Width In inches		Per Acre	

Coverage is essential for good control. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient or a petroleum or vegetable seed based crop oil concentrate at 1.5 to 2.0 pints per acre.

Do not apply when conditions favor drift exist or wind is above 10 mph.

Do not apply more than 272 oz/acre per season

Do not apply within 30 days of harvest of cranberries.

Do not apply within 14 days of harvest of other berries.

For control of additional broadleaf weeds and grasses, F4117 Herbicide may be tank mixed with other herbicides registered for use in caneberries. When tank mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water after dry formulations, if used. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section.

## BUSHBERRY

(Blueberry, highbush and lowbush, Currant, Elderberry, Gooseberry, Huckleberry)

#### TIMING AND METHOD OF APPLICATION

##### Dormant Applications

F4117 may be applied broadcast to the base of the main trunk to control emerged and actively growing weeds during the dormant stage of the crop.

##### Hooded Sprayer Applications

F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop during the vegetative growth stage of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

For berries, hooded or shielded applicators must be fully enclosed including tops, sides, back and front. Only shielded applicators capable of preventing all contact with crops may be used.

##### Postemergent Weed Control of Broadleaf Weeds

F4117 Herbicide is for post-emergence weed control of certain susceptible broadleaf weeds when used alone or in combination with other herbicides. Apply F4117 at 20 to 99 ounces per acre for control of susceptible broadleaf weeds. The lower rate is for small seedling weeds at the two to three leaf stage; higher rates are needed for larger weeds up to the six-leaf stage. Applications to weeds beyond the six-leaf stage may result in only partial control.

F4117 may be mixed with other herbicides that have pre-emergence or post-emergence activity. Any pre-emergence activity must rely on activity from other herbicides as directed on their labels. Contact herbicides may be tank mixed with F4117 to obtain a broader spectrum of weeds controlled.

Coverage is essential for good control. Use a spray volume adequate to get thorough coverage and use a minimum of 10 gallons of finished spray per acre. Apply only with ground equipment. Applications may be made with boom equipment, shielded or hooded sprayers, hand-held and high volume wands or orchard guns. Control is enhanced with the addition of a nonionic or crop oil concentrate surfactant. Use a non-ionic surfactant, NIS, having at least 80 percent active ingredient at 0.25 % v/v, 2 pints per 100 gallons of spray volume or a quality crop oil concentrate at recommended rates.

If F4117 herbicide is used in a tank mixture, refer to the other product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotational cropping restrictions.

##### Precautions

Extreme caution must be taken during applications when desirable fruit or foliage are present in order to avoid fruit spotting or leaf necrosis. Do not allow spray mist of F4117 to come in contact with desirable fruit or foliage. On seedling or newly transplanted bushes do not allow spray to contact green bark of trunk area. Other herbicides may be more injurious to young bushes than F4117 herbicide.

##### Restrictions

Do not apply within 14 day of harvest.

Do not apply more than 102 ounces during the dormant stage, and 205 ounces in season as a row middle application. Do not apply more than 272 ounces per crop season.

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## GRAIN SORGHUM (Grain and/or Forage)

### TIMING AND METHOD OF APPLICATION

**Burndown (Preplant, Preemergence and At-Plant)**  
F4117 may be applied as a Burndown application, please refer to the Burndown Application section of this label for additional specific use directions.

**Hooded Sprayer Applications**  
F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

**Restrictions**  
Do not apply after the 6 Leaf Collars  
Do not apply F4117 to sweet sorghum.

## SOYBEANS

### TIMING AND METHOD OF APPLICATION

Apply F4117 alone or as a tank mixture with other herbicides to emerged and actively growing weeds. Apply to soybeans in all tillage systems to active growing weeds prior to crop emergence. Do not apply when conditions favoring drift exist.

For best performance, make application to actively growing weeds up to 4 inches high and rosettes less than 3 inches across. Use the higher level of listed rates when treating more mature weeds or dense vegetative growth. Coverage is essential for good control.

To control weeds not listed on this label, F4117 may be tank mixed with other herbicides registered for use on soybeans. When tank mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water after dry formulations, if used. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section. Refer to the other product's label for restrictions on tank mixing, and observe all label precautions, instructions, and rotational cropping restrictions.

For additional information on crop response refer to the general information section of the F4117 label.

**Burndown (Preplant, Preemergence and At-Plant)**  
F4117 may be applied as a Burndown application, please refer to the Burndown Application section of this label for additional specific use directions.

**Hooded Sprayer Applications (All Varieties)**  
F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

**For Directed Applications (All Varieties)**  
Use F4117 at 20 to 73 fluid ounces per acre. Applications should be made by ground equipment using a finished spray volume of 10-30 gallons of spray per acre. When soybeans are grown under very dry soil moisture conditions, a high quality sprayable liquid nitrogen fertilizer (2-4% v/v or 2-4 gallons per 100 gallon spray solution) may be used in addition to the nonionic surfactant. Apply as a post-directed treatment with spray directed toward the base of the plant and avoid contact with soybean foliage. The use of spray shields may reduce spray contact with soybean foliage. F4117 herbicide contact with soybean foliage can result in significant crop response.

**Broadcast Postemergence Applications (Glyphosate Tolerant Varieties Only)**  
Apply F4117 for the control of velvetleaf. Where soybeans of Group 3.5 or less (earlier maturing), use F4117 at rates up to 12 fluid ounces per acre. Where soybeans of greater than Group 3.5 (later maturing), use F4117 at rates up to 24 fluid ounces per acre. Use a nonionic surfactant 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient.

**Restrictions**  
Do not apply more than 73 fluid ounces total per season in burndown, directed and over-the-top applications. Do not feed treated soybean forage or soybean hay to livestock.

Do not apply to soybeans after the V16 growth stage.

**Tank Mixtures**  
F4117 may be tank mixed with other herbicides to control weeds not listed on this label, with the exception of diphenylether herbicides. Read and follow all manufacturers' label recommendations for the companion herbicide except for specific recommendations on this label. When tank-mixing F4117 with other products, be sure the F4117 is mixed in the spray tank water after dry formulations, if used. For specific mixing instructions, refer to the Mixing and Loading Instructions under the GENERAL INFORMATION section. F4117 may be tank mixed with other herbicides. Refer to the Tank Mixtures and Recommended Adjuvants sections under General Information.

## WHEAT, BARLEY, TRITICALE, RYE AND OATS

### TIMING AND METHOD OF APPLICATION

**Burndown (Preplant, Preemergence and At-Plant)**  
F4117 may be applied as a Burndown application, please refer to the Burndown Application section of this label for additional specific use directions.

**Spot Treatment**  
Apply F4117 as a spot treatment alone or as a tank mixture with other herbicides to emerged and actively growing weeds.

Refer to the "HAND-HELD and HIGH-VOLUME EQUIPMENT" section for additional information and dilution charts.

Do not treat more than 10 percent of the total field to be harvested. The crop receiving spray in the treated area will be killed. Take care to avoid drift outside the target area for the same reason.

For best performance, make application to actively growing weeds up to 4 inches tall and rosettes less than 3 inches across. For dense weed pressure, use the higher recommended rate plus tank mix combinations. Coverage is essential for good control. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient. A high quality sprayable liquid nitrogen fertilizer (2-4% v/v or 2-4 gallons per 100 gallon spray solution) or ammonium sulfate (AMS) at the rate of 2-4 pounds per acre may be used in addition to the nonionic surfactant.

**Restrictions**  
Do not harvest wheat or feed barley for forage within 7 days of application.  
Do not harvest triticale, rye or oats for forage within 56 days of application.

## MILLET: PROSO MILLET, PEARL MILLET

### TIMING AND METHOD OF APPLICATION

**Burndown (Preplant, Preemergence and At-Plant)**  
F4117 may be applied as a Burndown application, please refer to the Burndown Application section of this label for additional specific use directions.

**Spot Treatment**  
Apply F4117 as a spot treatment alone or as a tank mixture with other herbicides to emerged and actively growing weeds.

Refer to the "HAND-HELD and HIGH-VOLUME EQUIPMENT" section for additional information and dilution charts.

For best performance, make application to actively growing weeds up to 4 inches tall and rosettes less than 3 inches across. For dense weed pressure, use the higher recommended rate plus tank mix combinations. Coverage is essential for good control. Use a

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nonionic surfactant at 0.25% v/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient. A high quality sprayable liquid nitrogen fertilizer (2-4% v/v or 2-4 gallons per 100 gallon spray solution) or ammonium sulfate (AMS) at the rate of 2-4 pounds per acre may be used in addition to the nonionic surfactant

**Restrictions**

Do not harvest for forage within 56 days of application.

**TREE FRUIT AND NUT CROPS**

**Citrus Fruits** to include Calamondin, Citrus citron, chironja, tangelo, tangor, Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Orange (sour), Orange (sweet), Pummelo, Satsuma mandarin

**Pome Fruits** to include Apple, Crabapple, Loquat, Mayhaw, Pear, Pear (oriental), Quince

**Stone Fruits** to include Apricot, Cherry (sweet), Cherry (tart), Nectarine, Peach, Plum, Plum (Chickasaw), Plum (Damson), Plum (Japanese), Plumcot, Prune

**Nuts** to include Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Walnut (black and English)

**TIMING AND METHOD OF APPLICATION**

**Weed Control**

Apply F4117 Herbicide for post-emergence weed control of certain susceptible broadleaf weeds when used alone or in combination with other herbicides. Apply F4117 alone or as a tank mixture with other herbicides to emerged and actively growing weeds. Apply F4117 at 20 to 99 fluid ounces per acre. F4117 alone or tank mixtures may be used for general weed control, middles (between rows of trees), and strips (in row of trees). F4117 may be applied at any time during the season. F4117 may be mixed with other herbicides that have pre-emergence or post-emergence activity. Any pre-emergence activity must rely on activity from other herbicides as directed on their labels.

**Hooded Sprayer Applications**

F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

**Postemergent Weed Control of Broadleaf Weeds:** Apply F4117 at 20 to 99 ounces per acre for control of susceptible broadleaf weeds. The lower rate is for small seedling weeds at the two to three leaf stage, while higher rates are needed for larger weeds. Applications to weeds beyond the six-leaf stage may result in only partial control.

**Equipment and Application**

Coverage is essential for good control. Use a spray volume adequate to get thorough coverage, but use a minimum of 10 gallons of finished spray per acre. Apply only with ground equipment. Applications may be made with boom equipment, hooded sprayers, shielded sprayers, hand-held and high volume wands or orchard guns.

Control is enhanced with the addition of a nonionic or crop oil concentrate surfactant. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons) or a crop oil concentrate at 1% v/v (one gallon per 100 gallons).

**Precautions**

Extreme caution must be used during applications to avoid contact of spray, spray drift or mist with foliage or green bark of trunk, branches, suckers, fruit, foliage or other parts of trees. Contact with other than matured brown bark can result in serious damage.

On seedling or newly transplanted trees do not allow spray to contact green bark or trunk area. Other herbicides may be more injurious to young trees than F4117; so, if tank mixtures are used, the precautions and restrictions on the labels of all tank-mix herbicides must be followed.

**Restrictions**

Do not allow spray to contact suckers.

Do not apply more than 99 fluid ounces per application (including preplant site preparation) and 272 fluid ounces per season. Allow a minimum of three days between last application and harvest. If F4117 is used in a tank mixture, observe the other product's label for restrictions, precautions, and rotational cropping instructions.

Do not apply to Citrus within 3 day of harvest.

Do not apply to Pome Fruits within 3 day of harvest.

Do not apply to Stone Fruits within 17 day of harvest.

Do not apply to Nut Trees within 3 day of harvest.

**GRAPE (Raisin, Table and Wine)**

**TIMING AND METHOD OF APPLICATION**

**Weed Control:** F4117 may be applied as a directed spray for post-emergence weed control of certain susceptible broadleaf weeds when used alone or in combination with other herbicides. Apply F4117 alone or as a tank mixture with other herbicides to emerged and actively growing weeds. Apply F4117 at 12 to 99 fluid ounces per acre. F4117 alone or tank mixtures may be used for general weed control, middles (between rows of plants), and strips (in row of plants). F4117 may be applied at any time during the season (see precautions). F4117 may be mixed with other herbicides that have pre-emergence or post-emergence activity. Any pre-emergence activity must rely on activity from other herbicides as directed on their labels.

**Hooded Sprayer Applications**

F4117 may be applied with hooded sprayers to control labeled weeds between the rows of the crop. Refer to the Hooded Sprayer Applications section of this label for additional specific use directions.

**Equipment and Application:** Coverage is essential for good control. Use a spray volume adequate to get thorough coverage and use a minimum of 10 gallons of finished spray per acre. Apply only with ground equipment. Applications may be made with boom equipment, shielded sprayers, hand-held and high volume wands or orchard guns. Control is enhanced with the addition of a nonionic or crop oil concentrate surfactant. Use a nonionic surfactant at 0.25% v/v (2 pints per 100 gallons) or a crop oil concentrate at 1% v/v (one gallon per 100 gallons).

**Precautions:** Extreme caution must be used during applications when desirable fruit or foliage are present in order to avoid fruit spotting or leaf necrosis. Do not allow spray mist of F4117 to come in contact with desirable fruit or foliage. On seedling or newly transplanted vines do not allow spray to contact green bark of trunk area. Other herbicides may be more injurious to young vines than F4117 and the precautions and restrictions on the labels of all tank-mix herbicides must be followed.

**Restrictions:** Do not apply more than 99 fluid ounces per application (including preplant site preparation) and 272 fluid ounces per season. Allow a minimum of 14 days between last application and harvest. If F4117 is used in a tank mixture, observe the other product's label for restrictions, precautions, and rotational cropping instructions.

**PASTURES**

**Pasture or Hay Crop Renovation**

F4117 may be applied as a broadcast spray for the control of annual and perennial weeds prior to planting forage grasses. If application rates total 72 fluid ounces per acre or less, no waiting period for feeding of livestock grazing is required. If the rate is greater than 72 fluid ounces per acre, remove livestock before application and wait 8 weeks following application before grazing or harvest/hay operations.

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### Spot Treatment

F4117 may be applied as a spot treatment for the control of annual and perennial weeds growing in pastures and forage grasses composed of bahiagrass, bermudagrass, bluegrass, brome, fescue, Orchardgrass, ryegrass, timothy or wheatgrass. Refer to the "HAND-HELD and HIGH-VOLUME EQUIPMENT" section for additional information and dilution charts.

For best performance, make application to actively growing weeds up to 4 inches tall and rosettes less than 3 inches across. For dense weed pressure, use the higher recommended rate plus tank mix combinations. Coverage is essential for good control. Use a nonionic surfactant at 0.25% w/v (2 pints per 100 gallons of spray solution) having at least 80% active ingredient. A high quality sprayable liquid nitrogen fertilizer (2-4% w/v or 2-4 gallons per 100 gallon spray solution) or ammonium sulfate (AMS) at the rate of 2-4 pounds per acre may be used in addition to the nonionic surfactant

## GENERAL INFORMATION

### Directions For Use On Aquatic, Site Preparation And Other Non-crop Sites

#### GENERAL INFORMATION

F4117 is a liquid suspension formulation that mixes readily with water and nonionic surfactant to control many herbaceous and woody plants when applied as a foliar spray.

F4117 enters the root system by moving through the plant from the point of foliar contact. Symptoms, including rapid browning of the foliage, will be apparent on most susceptible annual weeds within a few hours following application. Death of brush species may take several days. Rapid browning of the leaves, is followed by complete necrosis of visible portions of the plant and deterioration of underground plant parts.

Refer to the "Weeds Controlled" section of this label for specific instructions on the best application timing based on the stage of plant growth that will achieve best results for each weed.

Treatments made at late growth stages approaching maturity will result in the best control of most brush and perennial weeds. Unemerged plants arising from unattached underground rhizomes or rootstocks of perennials or brush will not be affected by the spray and will continue to grow.

Always use the higher rate of this product per acre within the recommended range when vegetation is heavy or dense.

Reduced results may occur during the following situations:

- 1- When weed or brush species have been recently mowed, cut or grazed and have not reached the recommended stage of regrowth before application.
- 2- When weed or brush growth are under stress from disease, insects or drought.
- 3- When weeds or brush are covered with a thick layer of dust.
- 4- When rainfall or irrigation occurs within 2 hours after application. (Heavy rainfall or irrigation may wash F4117 off the plant. An additional application may be needed.)

This product does not provide residual weed control.

#### ATTENTION

TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS, APPLICATORS MUST BE CAUTIOUS TO AVOID CONTACT WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS, OR FRUIT OF CROPS DESIRABLE PLANTS AND TREES. AVOID DRIFT.

Serious injury or destruction may occur if any amount of this product comes in contact with desirable plants. Avoid the following conditions to reduce the likelihood that desirable plants are damaged.

- 1- Do not allow any amount of this product, or the herbicide solution to mist, drip, drift or splash onto desirable vegetation.
- 2- Avoid application when winds are gusty or in excess of 5 miles per hour.
- 3- Avoid other conditions including lesser wind velocities, that will allow spray drift to occur.
- 4- Avoid combinations of pressure and nozzle type that will result in splatter or fine particles, which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

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

**MIXING AND APPLICATION INSTRUCTIONS**  
PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT MUST BE USED FOR EFFECTIVE PRODUCT APPLICATION. AVOID SPRAYING DESIRABLE PLANTS BY CAREFULLY DIRECTING THE SPRAY OF HAND-GUN SPRAYERS. FOR BEST RESULTS DO NOT MIX WITH WATER FROM PONDS AND DITCHES THAT MAY CONTAIN SOIL.

#### Mixing

F4117 mixes readily with water. Fill the mixing or spray tank with 1/2 the required amount of water. Add the recommended amount of this product and complete filling the tank to the desired level (see "DIRECTIONS FOR USE" and "WEEDS CONTROLLED" sections of this label). The surfactant should be added near the end of the filling process, and the solution should be mixed well. Remove hose from tank immediately after filling to avoid siphoning back into the water source.

To prevent or minimize foaming of the spray solution that may occur during mixing and application, avoid the use of mechanical agitators, place the filling hose below the surface of the spray solution, terminate by-pass and return lines at the bottom of the tank and if needed use an approved anti-foam or defoaming agent.

Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select correct nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets. Surfactants

When using F4117 for aquatic, site preparation and other noncrop applications, use a nonionic surfactant labeled for use with herbicides that contains 50 percent or more active ingredient.

Mix 1 or more quarts of a nonionic surfactant per 100 gallons of spray solution.

When making broadcast applications, surfactants should not be used in excess of 1 quart per acre

Always read and follow the manufacturer's surfactant label recommendations, cautionary statements and other information for best results.

If colorants or marking dyes are desired, choose those that are approved for use with herbicides. If colorants or marking dyes are used, performance may be reduced, especially at lower rates or dilutions.

Always read and follow the manufacturer's label recommendations, cautionary statements and other information for best results.

#### Spray Equipment Clean-Out

Residues left in mixing equipment, spray tanks, hoses, spray booms and nozzles can cause non-target plant effects if they are not properly cleaned. Because F4117 Herbicide can be highly phytotoxic to sensitive crops and ornamental plants it is strongly recommended that only equipment that is dedicated exclusively to aquatic, site preparation and other non-crop sites be used in the application of F4117 Herbicide.

If not using a dedicated sprayer, observe the following cleanout procedures:



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Flaxleaf fleabane <i>Coryza bonariensis</i>	Smartweed, Pennsylvania <i>Polygonum pennsylvanicum</i>
Fleabane <i>Erigeron</i> spp.	Sowthistle, annual <i>Sonchus oleraceus</i>
Flaxweed <i>Descurainia sophia</i>	Spentansesedex* <i>Bidens bipinnata</i>
Foxtail <i>Setaria</i> spp.	Spurge, prostrate <i>Euphorbia prostrata</i>
Foxtail, Carolina <i>Alopecurus carolinianus</i>	Spurry, umbrella <i>Halogeton umbellatum</i>
Grousel, common <i>Senecio vulgaris</i>	Birngress <i>Erigeron ciliolatus</i>
Horseweed/Marestail <i>Coryza canadensis</i>	Sunflower <i>Helianthus annuus</i>
Kochia <i>Kochia scoparia</i>	Tansy mustard <i>Descurainia pinnata</i>
Limbquarters, common <i>Chenopodium album</i>	Thistle, Russian <i>Salsola kali</i>
Lettuce, prickly <i>Lactuca scariola</i>	Velvetleaf <i>Abutilon theophrasti</i>
Morningglory <i>Ipomoea</i> spp.	Wallflower, bushy <i>Erysimum repandum</i>
Mustard, blue <i>Chorisandra tenella</i>	Wheat <i>Triticum aestivum</i>
Mustard, tansy <i>Descurainia pinnata</i>	Witchgrass <i>Panicum capillare</i>
Mustard, tumble <i>Sisymbrium officinalis</i>	

\*Apply 3 pints of this product per acre.  
 \*\*Apply with hand-held equipment only.

Germination of annual weeds may continue throughout the growing season depending on the extent of soil moisture and precipitation. Weeds that germinate after application will require repeat treatments.

**Perennial Weeds**

General application instructions for perennial weeds:

- Apply to vigorously growing perennial weeds.
- Avoid disturbance of vegetation for at least 7 days after application unless otherwise indicated.
- Do not treat weeds that have been mowed or tilled until regrowth has reached the recommended stages.
- Treat vegetation prior to a killing frost.
- Add 1 or more quarts of nonionic surfactant per 100 gallons spray solution to the rates of this product given in this list.
- Weeds that regenerate from underground parts or seed may require a repeat treatment.

Refer to "GENERAL INFORMATION", "DIRECTIONS FOR USE" and "MIXING AND APPLICATION" sections in this label for specific uses and application instructions.

F4117 herbicide plus surfactant will control the following PERENNIAL WEEDS when applied as recommended. General Recommendation: Weeds without specific recommendations in the following list can be controlled by applying 2.25 - 4 quarts of this product per acre as a broadcast spray or as a 1.0 - 2.0 percent solution with hand-held equipment. Control is maximized when target plants are actively growing and most have reached early head or early bud stage of growth.

Weed	Recommendation
<i>Alopecurus pratensis</i>	See General Recommendation
Alligatorweed <i>Azostera filifera</i>	Apply 3.2 quarts of this product per acre as a broadcast spray or as a 1.25 percent solution with hand-held equipment to provide partial control of alligatorweed. Apply when most of the target plants are in bloom. Repeat applications will be required to maintain such control.
Arise/Fennel <i>Foeniculum vulgare</i>	See General Recommendation
Artichoke, Jerusalem <i>Helianthus tuberosus</i>	See General Recommendation
Barnyardgrass <i>Paspalum notatum</i>	See General Recommendation
Bermudagrass <i>Cynodon dactylon</i>	Apply 2.5 - 4 quarts pints of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Apply when target plants are actively growing and

	when seedheads appear.
Bindweed, field <i>Convolvulus arvensis</i> , Nightsade, silverleaf <i>Solanum elaeagnifolium</i> , Blueweed, Texas <i>Helianthus ciliaris</i>	Apply 3.25 - 4 quarts of this product per acre as a broadcast spray west of the Mississippi River and 2.5 - 3.25 quarts of this product per acre east of the Mississippi River. With hand-held equipment, use a 1.6 percent solution. Apply when target plants are actively growing and are at or beyond full bloom. For silverleaf nightsade, best results can be obtained when application is made after berries are formed. Do not treat when weeds are under drought stress. New leaf development indicates active growth. For best results apply in late summer or fall.
Brackenfern <i>Pteridium</i> spp.	Apply 2.5 - 3.25 quarts of this product per acre as a broadcast spray or as a .8 - 1.2 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.
Cattail <i>Typha</i> spp.	Apply 2.5 - 4 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Apply when target plants are actively growing and are at or beyond the early-to-full bloom stage of growth. Best results are achieved when application is made during the summer or fall months.
Clover, red <i>Trifolium pratense</i>	See General Recommendation
Clover, white <i>Trifolium repens</i>	See General Recommendation
Cogongrass <i>Imperata cylindrica</i>	Apply 2.5 - 4 quarts of this product per acre as a broadcast spray. Apply when cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.
Cordgrass <i>Spartina</i> spp.	Apply 2.5 - 4 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Schedule applications in order to allow 6 hours before treated plants are covered by tide water. The presence of debris and silt on the cordgrass plants will reduce performance. It may be necessary to wash targeted plants prior to application to improve uptake of this product into the plant.
Cutgrass, giant <i>Zizaniopsis miliacea</i>	Apply 3.5 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment to provide



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	partial control of giant culgrass. Repeat applications will be required to maintain such control, especially where vegetation is partially submerged in water. Allow for substantial regrowth to the 7- to 10-leaf stage prior to retreatment.
<i>Dallisgrass Paspalum distatum</i>	See General Recommendation
<i>Dandelion Taraxacum officinale</i>	See General Recommendation
Doak, curly <i>Rumex crispus</i>	See General Recommendation
Dogbane, hemp <i>Apocynum cannabinum</i> Knapweed <i>Centaurea repens</i> Horseweed <i>Amaranthus rudis</i>	Apply 3.25 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth. For best results, apply in late summer or fall.
Fescue <i>Festuca</i> spp.	See General Recommendation
Fescue, tall <i>Festuca arundinacea</i>	Apply 2.5 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained.
Guineagrass <i>Panicum maximum</i>	Apply 1.75 - 2.5 quarts of this product per acre as a broadcast spray or as a .8 percent solution with hand-held equipment. Apply when target plants are actively growing and when most have reached at least the 7-leaf stage of growth.
Harefoot, poison <i>Conium maculatum</i>	See General Recommendation
<i>Heteropogon glaucus</i>	See General Recommendation
Ice Plant <i>Mesembryanthemum crystallinum</i>	See General Recommendation
Johnsongrass <i>Sorghum halepense</i> Bluegrass, Kentucky <i>Poa pratensis</i> Bromegrass, smooth <i>Bromus inermis</i> Cenchrus, red <i>Phalaris arundinacea</i> Cockspurgrass <i>Dactyloctenium aegyptium</i> Ryegrass, perennial <i>Lolium perenne</i> Timothy <i>Phleum pratense</i> Wheatgrass, western <i>Agropyron arvense</i>	Apply 1.5 - 2.5 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained. In the fall, apply before plants have turned brown.
Lantana <i>Lantana canariensis</i>	Apply this product as a 1.6 percent solution with hand-held equipment. Apply to actively growing Lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth.
Lespedeza: common, serious <i>Lespedeza striata</i> , <i>Lespedeza caryocarpus</i>	See General Recommendation
Loosestrife, purple <i>Lythrum salicaria</i>	Apply 2 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution using hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are

Lotus, American <i>Nelumbo lutea</i>	Apply 2 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are achieved when application is made during summer or fall months. Fall treatments must be applied before a killing frost. Repeat treatment may be necessary to control regrowth from underground parts and seeds.
Maidenhair <i>Panicum hemetomon</i>	Apply 2.5 - 4.0 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Repeat treatments will be required, especially to vegetation partially submerged in water. Under these conditions, allow for regrowth to the 7- to 10-leaf stage prior to retreatment.
Milfoil <i>Scirpus</i> spp.	Apply 2.5 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth.
Mullein, common <i>Verbascum thapsus</i>	See General Recommendation
<i>Najas</i>	See General Recommendation
Nutsedge, purple, yellow <i>Cyperus rotundus</i> , <i>Cyperus esculentus</i>	Apply 2.5 quarts of this product per acre as a broadcast spray, or as a .8 - 1.6 percent solution with hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Apply when target plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control.
Pampagrass <i>Conradia jubata</i>	Apply a 2.5 - 4 quarts per acre as a broadcast spray, or 1.2 - 1.6 percent solution of this product with hand-held equipment when plants are actively growing.
Paragrass <i>Baccharis mollis</i>	See General Recommendation
Phragmites** <i>Phragmites</i> spp.	For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 4 quarts per acre as a broadcast spray or apply a 1.6 percent solution with hand-held equipment. In other areas of the U.S., apply 2.5 - 4 quarts per acre as a broadcast spray or apply a 1.2 - 1.6 percent solution with hand-held equipment for partial control. For best results, treat

	during late summer or fall months when plants are actively growing and in full bloom. Due to the dense nature of the vegetation, which may prevent good spray coverage and uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.
Quackgrass <i>Agropyron repens</i> Kikuyugrass <i>Pennisetum clandestinum</i> Muhly, wirestem <i>Muhlenbergia frondosa</i>	Apply 1.5 – 2.5 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment when most quackgrass or wirestem muhly is at least 8 inches in height (3 to 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.
Reed, giant <i>Arundo donax</i>	For control of giant reed and ice plant, apply a 1.6 percent solution of this product with hand-held equipment when plants are actively growing. For giant reed, best results are obtained when applications are made in late summer to fall.
Smartweed, swamp <i>Polygonum spicatum</i>	See General Recommendation
Spatterdock <i>Nuphar luteum</i>	Apply 3.5 quarts of this product per acre as a broadcast spray or as a 1.0 percent solution with hand-held equipment. Apply when most plants are in full bloom. For best results, apply during the summer or fall months.
Thistle, yellow <i>Centaurea polifolia</i>	See General Recommendation
Sweet potato, wild <i>Ipomoea pandurata</i>	Apply this product as a 1.6 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before re-treatment.
Thistle, artichoke <i>Cynara cardunculus</i> Thistle, Canada <i>Cirsium arvense</i>	Apply 1.75 – 2.5 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment for Canada thistle. To control artichoke thistle, apply a 2 percent solution as a spray to wet application. Apply when target plants are actively growing and are at or beyond the bud stage of growth.
Torpedograss* <i>Panicum repens</i>	Apply 3.25 – 4 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment to provide partial control of torpedograss. Use the lower rates under terrestrial conditions, and the higher rates under partially submerged or a floating mat condition. Repeat treatments will be required to maintain such control.
Tules, common <i>Scirpus acutus</i>	Apply this product as a 1.6 percent solution with hand-held

Velvetgrass <i>Holcus</i> spp.	See General Recommendation
Waterhyacinth <i>Eichhornia crassipes</i>	Apply 3.0 – 3.5 quarts of this product per acre as a broadcast spray or apply a 1.6 percent solution with hand-held equipment. Apply when target plants are actively growing and at or beyond the early bloom stage of growth. After application, visual symptoms may require 3 or more weeks to appear with complete necrosis and decomposition usually occurring within 60 to 90 days. Use the higher rates when more rapid visual effects are desired.
Waterlettuce <i>Pistia stratiotes</i>	For control, apply a 1.0 – 1.8 percent solution using hand-held equipment to actively growing plants. Use higher rates where infestations are heavy. Best results are obtained from mid-summer through winter applications. Spring applications may require retreatment.
Waterprimrose <i>Ludwigia</i> spp.	Apply this product as a 1.0 – 1.25 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the bloom stage of growth, but before fall color changes occur. Thorough coverage is necessary for best control.

**Woody Brush and Trees**

General application instructions for Woody Brush and Trees:

- Trees that have been cut or brush that has been mowed or tilled should not be treated until sufficient leaf area has developed from regrowth.
- Use 0.25% volume/volume of nonionic surfactant (1 quart per 100 gallons of spray solution) with the recommended rate of this product.
- Ensure thorough coverage when using hand-held equipment.
- Apply when plants are actively growing, and unless otherwise directed, after leaves have fully expanded.
- Use the higher application rates for vines that have reached the woody stage of development.
- In general, best results are obtained when application is made in late summer or fall after fruit formation. In arid areas, however, best results are obtained when brush species are at high moisture content and are flowering in spring or early summer.
- Allow 7 or more days after application before disturbing treated vegetation by operations such as tillage, mowing or removal.
- Plants that regenerate from underground parts or seed may require retreatment.
- Application to undesirable deciduous species with some autumn color is acceptable provided major leaf drop has not occurred.
- Treatments following a fall frost may result in reduced performance.

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See the "DIRECTIONS FOR USE" and "MIXING AND APPLICATION INSTRUCTIONS" sections in this label for labeled use and specific application instructions.

F4117 herbicide will control or partially control the following woody brush plants and trees when applied as recommended in the following list of species. Applied as a 5 to 8 percent solution in a low volume directed spray as described in the "HAND-HELD AND HIGH-VOLUME EQUIPMENT" section, this product will control or partially control all species listed in this section of this label. Use the higher rate of application for dense stands and larger woody brush and trees.

General Recommendation: Species without a specific recommendation in the list can be partially controlled by applying 1.75 - 4.0 quarts of this product per acre as a broadcast spray, or as a .8 - 1.6 percent solution with hand-held equipment.

Weed (Brush and Trees)	Recommendation
Alder <i>Alnus</i> spp. Blackberry <i>Rubus</i> spp. Dewberry <i>Rubus trivialis</i> Honeysuckle <i>Lonicera</i> spp. Post oak <i>Quercus stellata</i> Raspberry <i>Rubus</i> spp.	For control, apply 2.5 - 3.25 quarts per acre as a broadcast spray or as a 1.2 percent solution with hand-held equipment.
Ash* <i>Fraxinus</i> spp.	See General Recommendation
Aspen, quaking <i>Populus tremuloides</i> Hawthorn <i>Crataegus</i> spp. Trumpet creeper <i>Campsis radicans</i>	For control, apply 1.75 - 2.5 quarts of this product per acre as a broadcast spray or as a 1.2 percent solution with hand-held equipment.
Beardflower, Bearmat <i>Chamaebatia foliolosa</i>	See General Recommendation
Birch <i>Betula</i> spp. Elderberry <i>Sambucus</i> spp. Salmonberry <i>Rubus spectabilis</i> Thimbleberry <i>Rubus parviflorus</i>	For control, apply 3 pints per acre of this product as a broadcast spray or as a 3/4 percent solution with hand-held equipment.
Bitter cherry <i>Prunus emarginata</i> Black cherry <i>Prunus serotina</i> Pin cherry <i>Prunus pensylvanica</i> Southern red oak <i>Quercus falcata</i> Sweet gum <i>Liquidambar styraciflua</i> <i>Prunus Prunus</i> spp.	For control, apply 1.75 - 2.5 quarts of this product per acre as a broadcast spray or as a 1.2 percent solution with hand-held equipment.
Black oak* <i>Quercus velutina</i>	See General Recommendation
Buckwheat, California* <i>Eriogonum fasciculatum</i> Hazard* <i>Haplopappus squamosus</i> Monkey Flower* <i>Mimulus guttatus</i> Tobacco, tree* <i>Nicotiana glauca</i>	For partial control of these species apply a 1.75 - 3.25 quarts of this product per acre as a broadcast spray or a .8 - 2.6 percent solution with hand-held equipment. Thorough coverage of foliage is necessary for best results.
Caecara* <i>Rhamnus purshiana</i>	See General Recommendation
Cataclaw* <i>Acacia greggii</i>	For partial control, apply a 1.2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
Ceanothus <i>Ceanothus</i> spp.	See General Recommendation
Coyote brush <i>Baccharis consanguinea</i>	For control, apply 2.5 - 3.25 quarts of this product as a broadcast spray or a .8 - 1.6 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
Creeper, Virginia* <i>Parthenocleus quinquefolia</i>	See General Recommendation
Dogwood <i>Cornus</i> spp. Hickory <i>Carya</i> spp. Salt cedar* <i>Tamarix</i> spp.	For partial control, apply 1.75 - 4 quarts of this product per acre as a broadcast spray or as a .8

	- 1.6 percent solution of this product with hand-held equipment.
Elm* <i>Ulmus</i> spp.	See General Recommendation
Eucalyptus, bluegum <i>Eucalyptus globulus</i>	For control of eucalyptus resprouts, apply a 1.6 percent solution of this product with hand-held equipment when resprouts are 6 to 12-foot tall. Ensure complete coverage. Apply when plants are actively growing. Avoid application to drought-stressed plants.
French broom <i>Cytisus monspessulanus</i> Scotch broom <i>Cytisus scoparius</i>	For control, apply 1.75 - 4 quarts of this product per acre or as a .8 - 1.6 percent solution with hand-held equipment.
Holly, Florida; Brazilian Peppertree <i>Schinus terebinthifolius</i> Waxmyrtle, southern* <i>Myrica caribaea</i>	For partial control, apply 1.75 - 4 quarts of this product per acre, or as a .8 - 1.6 percent solution with hand-held equipment.
Hombbeam, American <i>Carpinus caroliniana</i>	See General Recommendation
Kudzu <i>Pueraria lobata</i>	For control, apply 3.25 - 4 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Repeat applications will be required to control.
Locust, black* <i>Robinia pseudoacacia</i>	See General Recommendation
Manzanilla <i>Arctostaphylos</i> spp.	See General Recommendation
Persimmon* <i>Diospyros</i> spp.	See General Recommendation
Poison Ivy <i>Rhus radicans</i> Poison Oak <i>Rhus toxicodendron</i>	For control, apply 3.25 - 4 quarts of this product per acre as a broadcast spray or as a 1.6 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.
Poison sumac* <i>Rhus venix</i>	See General Recommendation
Poplar, yellow* <i>Liriodendron tulipifera</i>	See General Recommendation
Red maple <i>Acer rubrum</i> Northern pin oak <i>Quercus palustris</i> Red oak <i>Quercus rubra</i>	For control, apply 1.75 - 3.25 quarts of this product per acre as a broadcast spray or as a 1.2 percent solution with hand-held equipment when leaves are fully developed. For partial control, apply 1.75 - 3.25 quarts of this product per acre as a broadcast spray.
Rose, multiflora	For control, apply 1.75 quarts of this product per acre as a broadcast spray, or as a 1.2 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.
Russian-olive <i>Elaeagnus angustifolia</i>	See General Recommendation
Sage: black, white <i>Salvia</i> spp. Sagebrush, California <i>Artemisia californica</i> Chamise <i>Adenostoma fasciculatum</i> Tallowtree, Chinese <i>Sapium sebiferum</i>	For control of these species apply 1.75 - 3.25 quarts of this product per acre as a broadcast spray or a 1.2 percent solution with hand-held equipment. Thorough coverage of foliage is necessary for best results.

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Saltbush, Sea myrtle <i>Baccharis halimifolia</i>	For control, apply this product as a 1.2 percent solution with hand-held equipment.
Sassafras <i>Sassafras albidum</i>	See General Recommendation
Smooth sumac* <i>Rhus glabra</i>	See General Recommendation
Sourwood* <i>Oxidendrum arborescens</i>	See General Recommendation
Sugar maple <i>Acer saccharum</i>	For control, apply as a 3/4 to 1-1/4 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
Swordfern* <i>Polystichum munitum</i>	See General Recommendation
Vine maple* <i>Acer circinatum</i>	See General Recommendation
White oak* <i>Quercus alba</i>	See General Recommendation
Willow <i>Salix</i> spp.	For control, apply 2.5 - 3.25 quarts of this product per acre as a broadcast spray or as a 1.2 percent solution with hand-held equipment.
Winged sumac* <i>Rhus copallina</i>	See General Recommendation

\*Partial control

**Aquatic, Site Preparation and Other Non-Crop Sites**  
When applied as directed and under the conditions described in the "WEEDS CONTROLLED" section in this label, this product will control or partially control the labeled weeds growing in aquatic sites, areas being prepared for planting of plantation tree species and on other non-crop sites such as in public areas, recreational areas, or industrial sites. See the Aquatic Sites, Site Preparation and Other Non-crop Sites sections of the label for a listing of specific use sites.

**Aquatic Sites**

This product may be applied to emerged weeds in all bodies of fresh and brackish water which may be flowing, non-flowing or transient. This includes lakes, rivers, streams, ponds, estuaries, rice levees, seeps, irrigation and drainage ditches, canals, reservoirs, wastewater treatment facilities, wildlife habitat restoration and management areas.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

This product does not control plants which are completely submerged or have a majority of their foliage under water.

**Irrigation** - Irrigation from F4117 treated area may result in injury to the irrigated vegetation. Do not use treated water for irrigation in commercial nurseries or greenhouses. For crops, do not use treated water for irrigation purposes until 14 days after treatment, or until analysis by FMC approved laboratory determines the carfentrazone-ethyl and major degradate level in intake water is less than 5 ppb.

Treated water may be used for irrigation by commercial turf farms and on residential turf and ornamentals without a holding restriction providing the application was made as a spot treatment to 20% or less of the water body surface area. If more than 20% of the water body surface is treated, do not use the water for irrigation by commercial turf farms or on residential turf and ornamentals until 14 days after treatment, or until analysis by FMC approved laboratory determines the carfentrazone-ethyl and major degradate level in intake water is less than 5 ppb.

The following table summarizes water holding periods prior to using treated water.

**Water Use Restrictions Following Applications with F4117 Herbicide**

Water Use	< 20 % of the surface acre treated	20- 50 % of the surface acre treated (spot treatment)
Drinking	0 day	1 day

	0 day	0 day
Fishing and swimming	0 day	1 day
Livestock consumption	0 day	14 days
Spray tank applications* and irrigation to Commercial Turf Farms and Residential Turf and Ornamentals	14 days	14 days

\* For preparing agricultural sprays for food crops, turf, or ornamentals (to prevent phytotoxicity), do not use water treated with F4117 Herbicide before the specified time period.

There is no restriction on the use of treated water for recreation or domestic purposes.

Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.

**NOTE:** Do not apply this product directly to water within 1 mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.) or within 1 mile of an active potable water intake in a standing body of water such as lake, pond or reservoir. To make aquatic applications around and within 1 miles of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after the application. The water intake may be turned on prior to 48 hours if the glyphosate level in the intake water is below 0.7 parts per million and the carfentrazone-ethyl level in the intake water is below 0.2 ppm as determined by laboratory analysis. These aquatic applications may be made ONLY in those cases where there are alternative water sources or holding ponds which would permit the turning off of an active potable water intake for a minimum period of 48 hours after the applications. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.

Dry ditches may be treated 1 day after drawdown of water to ensure application to actively growing weeds. Allow 7 or more days after treatment before reintroduction of water to achieve maximum weed control.

Avoid washing of spray from treated foliage by spray boat or recreational boat back wash or by rainfall within 6 hours of application. Delay re-treatment for 24 hours or longer after the initial treatment.

Floating Mats of vegetation may require retreatment. Applications made to moving bodies of water must be made while traveling upstream to prevent concentration of this herbicide in water. When making any bank side applications, do not overlap more than 1 foot into open water. Do not spray in bodies of water where weeds do not exist.

The maximum application rate of 4 quarts per acre must not be exceeded in any single broadcast application that is being made over water.

Impounded water that requires treatment of the total surface should be treated in two or more segments with enough time between applications to avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in fish kill.

**Site Preparation**

F4117 herbicide may be applied as a site preparation treatment prior to planting any silvicultural tree species. See the Weeds Controlled section to determine rates of application.

**Aerial Application** - This product may be applied with aerial application equipment for site preparation prior to planting any silvicultural tree species. See the "Aerial Equipment" part under the "Application Equipment and Techniques" section of this label.

Post Directed Spray In Established Silvicultural Sites:

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F4117 herbicide may be used as a directed spray on the foliage of undesirable vegetation to control weeds around desirable trees. Care must be exercised to avoid contact of spray, drift or mist with foliage or green bark of desirable species.

**Other Non-Crop Sites**

This product may be used to control the listed weeds in terrestrial non-crop sites (such as those listed below) and/or in aquatic sites within these areas. This product may be used to trim-and-edge around objects and landscape features in non-crop sites.

- Airports
- Golf Courses
- Habitat Restoration & Management Areas
- Highways & Roadides
- Industrial Plant Sites
- Lumberyards
- Parking Areas
- Pavement cracks
- Parks
- Residential, commercial & public landscapes
- Patroleum Tank Farms
- Pipeline, Power, Telephone & Utility Rights-of-Way
- Pumping Installations
- Railroads
- Schools
- Storage Areas
- Electrical substations
- Fencerows
- Edge of landscape beds

**Turfgrass Renovation (Excluding Commercial Sod Farms)**

This product can be used to control most existing vegetation prior to renovating turfgrass areas. To maximize control of existing vegetation, delay planting or sodding to allow regrowth from escaped underground plant parts. Then retreat after sufficient regrowth has been attained. If the existing vegetation is under mowing management, stop one regular mowing before applying this product to allow sufficient growth for good spray interception. Do not disturb soil or underground plant parts before treatment. Any physical disturbance such as tillage or renovation techniques including vertical mowing, coring or slicing should be delayed for 7 days after application to allow translocation into underground plant parts.

Desirable turfgrasses may be established following the above procedures.

**Wildlife Habitat Restoration and Management Areas**

This product is recommended for the restoration and/or maintenance of native habitat and in wildlife management areas.

**Habitat Restoration and Maintenance -**

Undesirable vegetation, including exotic and invasive species, may be controlled with this product in habitat management areas. The product may be broadcast to provide broad spectrum vegetation control objectives or applied in spot treatments to selectively remove unwanted plants for habitat enhancement. Objectives, for example, may include allowing recovery of native plant species or opening up water to attract waterfowl. Care should be exercised with spot treatments to keep spray off of desirable plants.

**Wildlife Food Plots -**

This product may be used to control undesirable vegetation prior to establishing wildlife food plots. Apply as directed in the Weeds Controlled section to control target vegetation in the plot area. Native species may be allowed to re-browse, or any wildlife food species can be planted in the treated area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling to allow for maximum effectiveness.

**Wiper Applications**

This product can be used for wick or wiper applications. Mix proportions of this product and clean water to make a 50 - 75 percent solution. Addition of a nonionic surfactant at a rate of 10 percent by volume of total herbicide solution is recommended.

Wiper applications can be used to control or suppress annual and perennial weeds listed on this label. See the "WEEDS CONTROLLED" section in this label for recommended timing, growth stage and other instructions for achieving optimum results.

In heavy weed stands, a double application in opposite directions may improve results.

**Release of Dormant Bermudagrass and Bahiagrass**

This product, when applied as directed, will release dormant bermudagrass or bahiagrass by controlling many winter annual weeds and tall fescue. Apply to dormant bermudagrass or bahiagrass.

For best results, treat after most winter annuals have germinated and are in an early growth stage (below 6 inches in height).

For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

**Weeds Controlled**

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below.

Apply the recommended rates of this product in 10 to 25 gallons of water per acre plus 1 quart nonionic surfactant per 100 gallons of total spray volume.

**WEEDS CONTROLLED OR SUPPRESSED:**

F4117 HERBICIDE  
(FLUID OZ./ACRE)

WEED SPECIES	Suppression	Control
Berly, little <i>Hordeum jubatum</i>	6.5	9.5
Betelnut, catchweed <i>Galium aparine</i>	6.5	9.5
Bluegrass, annual <i>Poa annua</i>	6.5	9.5
Chirch <i>Chenopodium interstriali</i>	6.5	9.5
Chickweed, common <i>Stellaria media</i>	6.5	9.5
Clover, crimson <i>Trifolium incarnatum</i>	13	19
Clover, large top <i>Trifolium pratense</i>	13	19
Speedwell, corn <i>Veronica arvensis</i>	6.5	9.5
Fescue, tall <i>Festuca arundinacea</i>	26	**
Geranium, Carolina <i>Geranium carolinianum</i>	19.5	26
Hardtail <i>Lambium amplexicaule</i>	9.5	13
Ryegrass, Italian <i>Lolium multiflorum</i>	13	19
Vetch, common <i>Vicia sativa</i>	13	19

\*These rates apply only to sites where an established competitive turf is present.

\*\* Suppression only

**Release of Actively Growing Bahiagrass or Bermudagrass**

NOTE: USE ONLY ON SITES WHERE BAHIAGRASS OR BERMUDAGRASS ARE DESIRED FOR GROUND COVER AND SOME TEMPORARY INJURY OR YELLOWING OF THE GRASSES CAN BE TOLERATED.

When applied as directed, this product will aid in the release of bermudagrass by controlling annual weed species listed in the "Weeds of Bermudagrass and Bahiagrass" section of this label and by suppressing or partially controlling certain perennial weeds.

Apply 1 - 1.50 quarts of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre, plus 1 quart of a nonionic surfactant per 100 gallons of total spray volume to control or suppress these annual species listed in this label. The higher rate should be used as plant stem approaches 6 inches in height or more (or length of stem in annual vines approaches 6 inches or more) or as they approach flower or seedhead formation.

Use the higher rate for partial control or longer-term suppression of the following perennial species. Use lower rates for shorter-term suppression of growth.

- Bahiagrass, Johnsongrass\*\*
- Dallisgrass, Trumpet creeper\*
- Fescue (tall), Vaseygrass

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\*Suppression at the higher rate only.  
\*\*Johnsongrass is controlled at the higher rate.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

**Bahia Grass Seedhead and Vegetative Suppression**

F4117 can be used to inhibit seedhead emergence and suppress vegetative growth of bahia grass. Single applications will suppress vegetative growth for a period of approximately 45 days and sequential applications will suppress vegetative growth for approximately 120 days.

Application should be made at 1 to 2 weeks after full green-up of bahia grass, prior to seedhead emergence or after the bahia grass has been mowed to a uniform height of 3 to 4 inches.

Apply 5 fluid ounces per acre of this product, plus 1 quart of an approved nonionic surfactant per 100 gallons of total spray volume in 10 to 25 gallons of water per acre.

Seedhead and vegetative growth suppression can be extended by making sequential applications of this product plus nonionic surfactant at approximately 45 day intervals.

Applications must be made prior to seedhead emergence for continued vegetative growth suppression. For continued vegetative growth suppression, sequential applications must be made prior to seedhead emergence.

Apply no more than 2 sequential applications per year. As a first sequential application, apply 3 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 3 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

**Annual Grass Growth Suppression**

This product may be used to suppress some annual grasses, such as annual ryegrass, wild barley and wild oats growing in coarse turf on roadsides or other industrial areas. Apply 3 to 4 ounces of this product in 10 to 40 gallons of spray solution per acre. Use nonionic surfactant in the spray solution at a rate of 0.5% volume/volume (2 quarts per 100 gallons of spray solution).

Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

**Dealers Should Sell in Original Packages Only.**

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**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control of FMC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied, having been made are inapplicable if this product has been contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and buyer assumes the risk of any such use.

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