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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

FEB 23 2011

Joseph W. Burley, Ph.D.
Advan P+Q
2520 Meridian Parkway, Suite 525
Durham, NC 27713

SUBJECT: Application for Pesticide Notification (PRN) 98-10
Request Alternate Brand Name "Cavalcade PQ" and General Label Changes
EPA Reg. No. 83070-9
Application Dated January 22, 2010

Dear Registrant:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 dated 01/22/10 for the above product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action(s) requested fall within the scope of PRN 98-10. The label submitted with the application has been stamped "Notification" and will be placed in our records.

If you have any questions, please call me directly at 703-305-5335 or Owen F. Beeder of my staff at 703-308-8899.


Sincerely,

Paul J. Mastradone, Ph.D., Acting
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

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Please read instructions on reverse before completing form.

Form Approved. OMB No. 2070-0060. Approval Expires 11-30-08.

 United States Environmental Protection Agency Washington, DC 20460	<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other	OPP Identifier Number
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Application for Pesticide - Section I

1. Company/Product Number <p style="text-align: center;">83070-9</p>	2. EPA Product Manager <p style="text-align: center;">Miller (23)</p>	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product Name <p style="text-align: center;">Advan P+Q</p>	PM# <p style="text-align: center;">23</p>	
5. Name and Address of Applicant (include ZIP Code) <p style="text-align: center;">Advan LLC. 2520 Meridian Parkway, Suite 525 Durham, NC 27713</p> <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(1), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

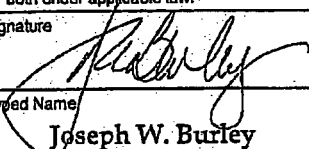
Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification per PR Notice 98-10 to add an alternate brand name.
 This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and, with the exception of required changes, no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No <small>* Certification must be submitted</small>	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No if "Yes" Unit Packaging wgt. No. per container	Water Soluble Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No if "Yes" Unit Packaging wgt. No. per container	2. Type of Container <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container <p style="text-align: center;">10 lb bags</p>	5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input checked="" type="checkbox"/> Paper glued <input type="checkbox"/> Other _____ <input type="checkbox"/> Stenciled			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name <p style="text-align: center;">Joseph W. Burley</p>	Title <p style="text-align: center;">Regulatory Manager</p>	Telephone No. (include Area Code) <p style="text-align: center;">(919) 226-1297</p>
I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature 	3. Title <p style="text-align: center;">Regulatory Manager</p>	
4. Typed Name <p style="text-align: center;">Joseph W. Burley</p>	5. Date <p style="text-align: center;">1/22/10</p>	

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SipcamAdvan

January 22, 2010

Ms. Joanne Miller (PM23)
Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

**Subject: P+Q Herbicide (EPA Reg. No. 83070-9)
Response to letter of December 8, 2009
Notification of Alternate Brand Name**

Dear Ms. Miller:

In response to your letter of December 8, 2009 please find enclosed the following documents:

- One copy of the revised label which incorporates the changes requested in your letter
- Three copies of the Storage Stability and Corrosion Characteristics study identified below:
- Confidential Statement of Formula form (2 copies) revised to incorporate the comments in your letter

The CSF has also been updated to reflect the new mailing address of Advan LLC and Sipcam Agro USA, Inc. and also revised to bring the certified limits of some of the minor ingredients in compliance with standard certified limits ranges. The revised ranges are highlighted for ease of identification. I trust you will find this acceptable since the original ranges were not in compliance with recommended certified limits for appropriate constituent levels. The formulation has not changed.

The storage stability and corrosion characteristics study was performed on a sample with the experimental name of "ADV 4001". I certify that the composition of this material was identical to the formulation of Advan P+Q represented by the CSF for this product.

Document Title	Guideline #	MRID No.
Storage Stability and Corrosion Characteristics, Eurofins Product Safety Laboratories study No. 23567	830.6317 830.6320	

With this correspondence we are establishing an Alternate Brand Name for this product. Please, therefore, find enclosed.

- Application for pesticide Form 8570-1
- One copy of the revised label incorporating the Alternate Brand Name "Cavalcade PQ"

Please note that Advan LLC intends to commence use of the Alternate Brand Name, Cavalcade PQ, immediately.

Thank you for your cooperation in this matter. If you have any questions, please feel free to call me at (919) 226 1297

Sincerely,



Joseph W. Burley Ph.D.
Regulatory Manager

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CAVALCADE PQ

Herbicide providing selective Post and or Pre Emergent control of problem grasses and broadleaf weeds in residential and nonresidential turfgrasses and other non-crop sites

ACTIVE INGREDIENTS:

Prodiamine [N ³ ,N ³ -Di- <i>n</i> -propyl-2,4-dinitro-6-(trifluoromethyl)- <i>m</i> -phenylenediamine]	32.5%
Quinclorac [3,7-Dichloroquinoline-8- carboxylic acid, 3,7-Dichloro-8-quinolinecarboxylic acid]	32.5%
OTHER INGREDIENTS	35.0%
TOTAL	100.0%

KEEP OUT OF REACH OF CHILDREN CAUTION

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

FIRST AID	
IF IN EYES	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have affected person sip a glass of water if able to swallow. • Do not induce vomiting unless told by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 - 20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
Emergency phone numbers	(800) 222-1222 Poison Control Center (human health) (800) 858-7378 NPIC (animal health) (800) 424-9300 CHEMTREC (transportation and spills)

EPA Reg. No. 83070-9

EPA Est. No. 37429-GA-01

NET CONTENTS: 10 lbs.

Manufactured For:
Advan LLC.
2520 Meridian Parkway, #525, Durham, NC 27713

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS: Caution: Causes moderate eye irritation. Avoid contact with eyes or clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemically resistant to this product are listed below. For more options, refer to Category A on the EPA chemical resistance category selection chart.

Mixers, loaders, applicators, and other handlers must wear:

- * Protective eyewear (goggles or face shield)
- * Long-sleeved shirt and long pants
- * Chemical resistant gloves, such as butyl rubber >14 mils, or neoprene rubber > 14 mils, or nitrile rubber >14 mils
- * Shoes plus socks

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

ENGINEERING CONTROLS STATEMENT

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

1. Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
2. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
3. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Quinclorac has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Prodiamine has low solubility in water. At the limit of solubility, this product is not toxic to fish. However, at concentrations substantially above the level of water solubility, it may be toxic to fish.

Keep out of lakes, ponds, and streams. Do not apply directly to water, areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of rinsate.

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DIRECTIONS FOR USE

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

DO NOT apply this product by air or through any type of irrigation equipment.

Advan LLC does not intend the use of this product in manufacturing, processing, or preparing custom blends with other products for application to turf.

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 specified area during application. For any requirement specific to your State or Tribe, consult the State/Tribal 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, and water, is:

1. Coveralls
2. Chemical resistant gloves, such as butyl rubber >14 mils, or neoprene rubber > 14 mils, or nitrile rubber >14 mils (See instructions for Category A on the EPA chemical resistance category selection chart B you want other options.)
3. 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, nurseries, or greenhouses.

Professional applications to residential and nonresidential turf 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.

PRODUCT INFORMATION

Cavalcade PQ herbicide may be applied post-emergence or pre-emergence to residential and nonresidential turfgrasses and other non-crop sites (Refer to Table 1, 2, and 3) for the control of many broadleaf and grass weeds. Examples of such sites include, but are not limited to: grounds or lawns around residential and commercial establishments, (multi-family dwellings, military, and other institutions, parks, airport grounds, school yards, picnic grounds, athletic fields, cemeteries, golf courses) road-sides, sod farms, managed transportation and utility rights-of-way, rail and equipment yards, and public utility facilities (substations, tank farms, pumping stations, parking/storage areas, un-grazed fencerows)

HOW Cavalcade PQ WORKS

Pre-emergent Control: Cavalcade PQ controls susceptible weeds by preventing growth and development of newly germinated weed seeds. Weed control is most effective with Cavalcade PQ when activated by at least 0.5 inches of rainfall, or irrigation, or shallow incorporation (1 to 2 inches) before weed seeds germinate and within 2-7 days following application. Cavalcade PQ provides residual control of many grass and broadleaf weeds in:

- Established turfgrasses (excluding golf course putting greens), lawns and sod nurseries;
- Managed transportation and utility rights-of-way, including rail and equipment yards, and public utility facilities (substations, tank farms, pumping stations, parking/storage areas, un-grazed fencerows).

Post-emergence Control: Cavalcade PQ herbicide is absorbed by foliage and roots and trans-located throughout the plant. The control symptoms exhibited by broadleaf weeds include leaf and stem curl or twisting, and chlorosis. Susceptible grasses demonstrate stunting, chlorosis, and gradual reddening followed by necrosis and death. Apply Cavalcade PQ herbicide to actively growing weeds as post-emergence broadcast or spot sprays using the rate, turf species, and growth stage indicated in Tables 1, 2 and 3.

APPLICATION INFORMATION

Additives in Spray Mix to Achieve Control:

Methylated seed oil is the recommended adjuvant for post-emergence applications. Do not include additives when tank mixing with EC (Emulsifiable Concentrate) products as this may cause phytotoxicity. Consult your local Advan LLC representative or distributor for recommendations for your area. Other additives or adjuvants may be used such as DyneAmic®, Lesco Spreader Sticker®, LI-700®, Surf King Spreader®, Target Pro Spreader® or Thoroughbred®. However, under some environmental conditions some of these products may cause phytotoxicity or less than optimal efficacy.

Methylated Seed Oil Recommended:

The methylated seed oil used as the adjuvant with Cavalcade PQ herbicide must meet all

the following criteria:

- be non-phytotoxic,
- contain only EPA-exempt ingredients,
- provide good mixing quality in the jar test, and
- be successful in local experience.

The exact composition of suitable products will vary, however, any methylated seed oil used should contain emulsifiers to provide good mixing. Use methylated seed oil at 0.55 oz/1000 sq. ft. (1.5 pts./A).

Adding adjuvants may cause slight leaf burn, but new growth is normal and turf vigor is not reduced. The potential for leaf burn is increased when relative humidity and temperature are high. Additional stress from low mowing heights may also increase the possibility of turf injury. Chelated iron or sprayable soluble nitrogen fertilizer will reduce a slight yellowing that may occur on some turfgrass species.

Spot Applications:

Post-emergence spot applications may be made to susceptible weeds in turfgrass that is tolerant to Cavalcade PQ herbicide (see Tables 1 and 2). Apply 0.55 ounce of Cavalcade PQ herbicide per 1,000 square feet (0.49 lb proflaminate & 0.49 lb quinclorac per acre) of treated area. Spray coverage should be uniform and complete.

Mowing Information:

Do not mow 2 days before or after applying Cavalcade PQ herbicide to maximize weed control and minimize potential turf injury. Clippings from the first three mowings after treatment should be left on the treated area.

Irrigation and Rainfall:

If soil moisture is not sufficient prior to Cavalcade PQ herbicide application, irrigation may improve weed control. For best results, do not water or irrigate for 24 hours after application. If rainfall does not occur within 2-7 days after application, irrigate the treated area to 0.5 inches. Do not irrigate to the point of run-off.

MIXING INSTRUCTIONS FOR CAVALCADE PQ HERBICIDE

Respective sections of this leaflet define recommended Cavalcade PQ herbicide tank-mix treatments. If tank-mixing with products in PVA bags, always allow water soluble packets to dissolve before agitating.

Mixing Order for Tank Mixtures:

Notes: (1) When mixing Cavalcade PQ with other components (carrier and partner pesticide products), allow products to completely dissolve between steps. This is key when tank mixing with ester formulations. (2) Maintain agitation throughout mixing and application of the mixture.

Add the products to the spray tank in the following order:

1. Add products packaged in water-soluble bags first. Agitate the tank mixture. Allow the water-soluble bags to completely dissolve and the product to disperse before adding any other tank mix partner.
2. Then add water-dispersible granules (WDG or WG formulations) and wettable powders (WP formulations). Add wettable powders to the tank as agitation continues. Allow the product to disperse completely before other products are added.
3. Add spray adjuvants and spray markers. Read the adjuvant's label first and use only those adjuvants approved for application to turf and ornamentals.
4. Add flowable liquids (FL) or suspension concentrates (SC).
5. Add emulsifiable concentrates (EC) last.

Ground Driven Sprayer:

1. Begin with a clean spray tank. Fill tank one-half to three-quarters full with clean water.
2. Add Cavalcade PQ herbicide alone

When using Cavalcade PQ herbicide alone, either premix (1 part product + 2 parts water) or slowly add Cavalcade PQ herbicide to the partially filled tank while agitating until completely dispersed. Fill the remainder of the tank with water.

3. Cavalcade PQ herbicide tank mixes

a. Wettable Powder Formulations

1. When using Cavalcade PQ herbicide with a wettable powder formulation, add Cavalcade PQ herbicide to the partially filled tank while agitating.
2. When Cavalcade PQ herbicide is properly mixed add a slurry of the wettable powder (1 part WP + 2 parts water) slowly into the tank. Fill the remainder of the tank while agitating.

b. Flowable Formulations

1. When using Cavalcade PQ herbicide with a flowable formulation, add Cavalcade PQ herbicide to the partially-filled tank while agitating.
2. When Cavalcade PQ herbicide is properly mixed, premix one part of the flowable with two parts water and add this diluted mixture slowly into the tank. Fill the remainder of the tank while agitating.

c. Emulsifiable Concentrate Formulations

1. When using Cavalcade PQ herbicide with an emulsifiable concentrate formulation, add Cavalcade PQ herbicide to the partially-filled tank while agitating.
2. When Cavalcade PQ herbicide is properly mixed, premix one part of the emulsifiable concentrate with two parts water and add this diluted mixture slowly into the tank. Fill the remainder of the tank while agitating.

d. Dry Flowable (Water Dispersible Granule) Formulations

1. When using Cavalcade PQ herbicide with a dry flowable formulation, add Cavalcade PQ herbicide to the partially-filled tank while agitating.
2. When Cavalcade PQ herbicide is properly mixed, premix one part of the dry

flowable with two parts water and add this diluted mixture slowly into the tank. Fill the remainder of the tank while agitating.

4. MAINTAIN CONTINUOUS AGITATION WHILE ADDING HERBICIDES AND UNTIL SPRAYING IS COMPLETED. If the spray mixture is allowed to settle for any period of time, thorough agitation is essential to re-suspend the mixture before spraying is resumed. Continue agitation while spraying.

Backpack Sprayer:

Begin with a clean spray tank. Fill the spray tank 1/2 full with clean water and add the required amount of Cavalcade PQ herbicide to the sprayer. Cap sprayer and agitate to ensure mixing. Uncap sprayer and finish filling tank to desired level. Cap sprayer and agitate once again. During application it is desirable to agitate the mixture occasionally to ensure mixing. If the mixture is allowed to settle for any period of time, thorough agitation is essential to re-suspend the mixture before spraying is resumed.

Liquid Fertilizers:

Prior to mixing, small quantities should always be tested using a simple jar test. Add the required amount of Cavalcade PQ herbicide to half filled tank while agitating then add the fertilizer product. Complete filling spray tank to desired level.

COMPATIBILITY/JAR TEST FOR MIX COMPONENTS

Add components in the following sequence using 2 teaspoons for each pound or 1 teaspoon for each pint of the label listed application rate per acre.

1. Water: For 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Use only water from the intended source at the source temperature.
2. Products in PVA bags: Cut an opening in the water-soluble PVA bag just large enough to use a teaspoon for measuring purposes. Use the opened water-soluble PVA bag first when preparing spray solution. Boron containing fertilizers can be incompatible with PVA material. Include PVA material if a boron fertilizer is intended to be used. Cap the jar and invert 10 cycles.
3. Water-dispersible products: (such as Cavalcade PQ herbicide) (dry flowables, wettable powders, suspension concentrates, or suspoemulsions). Cap the jar and invert 10 cycles.
4. Water-soluble products: (such as Basagran® T/O) - Cap the jar and invert 10 cycles.
5. Emulsifiable concentrates: (methylated seed oil) - Cap the jar and invert 10 cycles.
6. Water-soluble additives: Cap the jar and invert 10 cycles.
7. Let the solution stand for 15 minutes.
8. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface nor thick (clabbered) texture. For WG or WP products, a fine precipitate that is easily re-suspended is normal; large non-dispersible particles (>300 microns) that precipitate on standing are a sign of tank mix incompatibility. Do not use any spray solution that could clog spray nozzles.

PRECAUTIONS, RESTRICTIONS AND LIMITATIONS

- DO NOT graze or feed livestock forage cut from areas treated with Cavalcade PQ
- DO NOT apply more than 4.6 pounds of Cavalcade PQ herbicide (1.50 lb prodiamine & 1.50 lb quinclorac) per acre (or 1.69 ounces per 1,000 square feet) in one year.
- DO NOT apply to golf course collars or greens
- DO NOT apply to fine fescue unless it is part of a seed blend.
- DO NOT apply to bahiagrass, carpetgrass, St. Augustinegrass, centipedegrass, dichondra, or lawns or turf where desirable clovers are present.
- DO NOT apply within 4 weeks after seedling emergence of Kentucky bluegrass, creeping bentgrass, fine fescue blends and perennial ryegrass.
- DO NOT apply to exposed feeder roots of trees or ornamentals. Be particularly careful within the drip line of trees and other ornamental species.
- DO NOT apply into any ornamental bed.
- DO NOT use clippings as mulch or compost around flowers, ornamentals, trees, or in vegetable gardens.
- DO NOT apply when wind speed is more than 10 mph as drift may cause damage or death of non-target area vegetation. DO NOT apply when conditions favor drift from target area.
- DO NOT use a lawn type sprayer with a fine mist spray, as wind drift is more likely to occur.
- DO NOT mist, spray, or pour spray solutions on or near vegetables, flowers, ornamentals, shrubs, trees, and other desirable plants, especially plants belonging to the Solanaceae family such as tomatoes, potatoes, eggplants, and bell peppers.
- DO NOT apply through any type of irrigation system.
- DO NOT apply aerially.
- DO NOT use to formulate or reformulate any other pesticide product which is not registered by EPA.

Use Precautions-Turfgrass

- 1) DO NOT apply Cavalcade PQ to areas where dichondra, colonial bentgrass, velvet bentgrass, or annual bluegrass (*Poa annua*) are desirable species.
- 2) DO NOT cut (harvest) treated sod before 90 days after application. To avoid turfgrass injury, do not apply to newly set sod until the sod has rooted and exposed edges have filled in.
- 3) DO NOT apply Cavalcade PQ to turf stressed by conditions such as drought, low fertility, or pest damage.
- 4) DO NOT disturb the pre-emergent herbicide barrier with cultural practices. Reduced weed control may result.
- 5) DO NOT **apply Cavalcade PQ to golf course putting greens.**

Follow all applicable directions, restrictions, and precautions on the labels of EPA-registered tank mix partners. For best results, weeds should not be under stress from lack of water, excessive water, low fertility, mowing shock, excessive hot or cold temperatures, or injury from other herbicide applications.

TURFGRASS TANK-MIXES

Read and follow the applicable Restrictions and Limitations and Directions For Use on all

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products involved in tank mixing. The most restrictive labeling applies to any tank mix. To increase spectrum of control of broadleaf weed species a tank mix with 2,4-D, triclopyr, MCPA, MCPP, Three Way™, Trimec®, or other broadleaf herbicide can be used. For sedge control applications of Cavalcade PQ herbicide with Basagran® SG, Basagran® T/O, Lescogran™, Image® 70 DG or MSMA can be made.

Physical incompatibility, reduced weed control, or turf injury may result from mixing Cavalcade PQ herbicide with other pesticides (fungicides, herbicides, insecticides, or miticides), additives, or fertilizers.

Before tank-mixing a simple jar test is recommended to insure compatibility of herbicides or other pesticide and/or additives (see Compatibility/Jar Test for Mix Components section on this label). Refer to EPA-registered labels for specific use directions, precautions, and limitations before tank mixing with Cavalcade PQ herbicide and follow those that are most restrictive.

Tank mixes are permitted only in states where the tank mix partners(s) are registered for the application site and the turf and ornamental species listed. When using Cavalcade PQ in a tank mixture with other pesticides, observe the most restrictive label limitations and precautions on the labels of the products used.

SPRAYING INSTRUCTIONS FOR CAVALCADE PQ HERBICIDE

Apply with properly calibrated ground equipment in sufficient water per acre to provide uniform spray distribution (at least 20 gallons of water per acre or at least 0.5 gallon per 1,000 sq. ft.). Low pressure (e.g., 20-40 psi) sprayers are recommended.

Maintain continuous agitation during spraying with good mechanical or bypass agitation. Nozzle screens must be no finer than 50 mesh (100 mesh is finer than 50 mesh). Check sprayer routinely to determine proper calibration. Flat fan, flood or cone nozzles may be used. Nozzles should be arranged to obtain uniform coverage of turf and weeds to be controlled. Boom height, nozzle selection, and pressure should be adjusted to provide uniform coverage and minimize spray drift.

Do not overlap applications that will increase rates above those listed on this label.

Do not apply when wind is greater than 10 mph, as drift to non-target areas may occur.

Procedure For Cleaning Spray Equipment:

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner, according to the manufacturer's directions, before and after applying this product.

Table 1. Post-emergent application of Cavalcade PQ, used as directed on this label, will control the following weeds:

Grasses controlled	Broadleaf weeds controlled
Barnyardgrass	Bindweed, field
Bluegrass, annual (<i>Poa annua</i>)	Clover, hop
Crabgrass (Large and Smooth) ^{1/}	Clover, red
Foxtails, annual	Clover, white
Signalgrass, broadleaf ^{2/}	Dandelion, common
	Dollarweed
	Geranium, Carolina
	Medic, black
	Morning glory
	Speedwell, common
	Speedwell, slender
	Speedwell, thymeleaf
	Violet, wild

1. Biotypes of large and smooth crabgrass in California have shown varied response to Cavalcade PQ herbicide. Do not reapply Cavalcade PQ herbicide if control failure occurs following the application of full or split application rates. Change to a herbicide with a different mode of action.

2. Under certain conditions applications of Cavalcade PQ herbicide made to annual grasses at 2 - 4 tiller may not provide complete control. A sequential application will be required for grass control in these situations. Optimum control is achieved when applications of Cavalcade PQ herbicide + methylated seed oil is applied either before second tiller or as weed grasses mature.

Table 2. Pre-emergent application of Cavalcade PQ, used as directed on this label, will control the following weeds:

Barnyardgrass	Goosegrass ^{5/}	Purslane, common
Bluegrass, annual (<i>Poa annua</i>) ^{1/}	Henbit ^{2/}	Pusley, Florida
Carpet weed	Itchgrass	Rescuegrass ^{4/}
Chickweed, common ^{2/}	Johnsongrass (from seed)	Shepherds purse ^{2/}
Chickweed, mouseear (from seed)	Junglerice	Signalgrass, broadleaf
Crabgrass (Large, Smooth) ^{3/}	Knotweed ^{2/}	Speedwell, Persian
Crowfootgrass	Kochia	Sprangletop
Cupgrass, woolly	Lambsquarter, common	Spurge, prostrate
Foxtails, annual	Lovegrass	Witchgrass
Pigweed	Panicum (Texas, Fall, Browntop)	Woodsorrel, yellow (from seed)

1. In areas where *Poa annua* is a winter annual, apply Cavalcade PQ in August or September to

established, non-over-seeded turf before *Poa annua* seeds germinate. These timings are approximate. Consult State Extension Service for more specific timing for your area.

2. To control this weed, apply Cavalcade PQ in late summer, fall, or winter before weed seeds germinate.

3. Fall applications for spring crabgrass control in cool-season grasses: In those areas where the ground freezes in the winter, Cavalcade PQ can be applied in the fall at rates of 1.5-2.3 lbs./A (0.49-0.75 lb proflaminate & 0.49 -0.75 lb quinclorac/A) after the soil temperature falls below 50°F but before the ground freezes. This application will control crabgrass the following spring.

4. Suppression only.

5. In any area a single application of 1.5-2.3 lbs./A of Cavalcade PQ (0.49-0.75 lb proflaminate & 0.49 - 0.75 lb quinclorac/A) will control goosegrass. However, under heavy goosegrass pressure and/or an extended growing season, most effective control may be obtained by making an initial application of 1.5-2.3 lbs./A (0.49-0.75 lb proflaminate & 0.49 -0.75 lb quinclorac/A) followed, after 60-90 days, by a second application that does not exceed the maximum rate for that turfgrass species listed in Table 3.

Maximum Use Rates-Turfgrass

Cavalcade PQ can be applied to the turfgrass species listed in the following table. Do not apply more than the highest rate listed per treatment for each species. Do not apply more than the maximum annual rate in a calendar year.

Table 3. Application Rates of Cavalcade PQ by Turfgrass Species ¹

Turf Species Established Turf	Rate per treatment Lbs./Acre (Lbs. P⁴, Lbs. Q⁴/Acre)	Rate per treatment oz./1000 sq. ft.	Maximum Annual Lbs./Acre (Lbs. P⁴, Lbs. Q⁴/Acre)
<i>Northern Highly Tolerant</i>			
Bluegrass, Kentucky ² Buffalograss Ryegrass, Perennial ²	1.0 – 2.30 (0.33, 0.33 – 0.75, 0.75)	0.36 – 0.83	3.00 (0.98, 0.98)
Fescue, Tall	1.0 – 2.30 (0.33, 0.33 – 0.75, 0.75)	0.36 – 0.83	4.60 (1.50, 1.50)
<i>Northern Moderately Tolerant</i>			
Fescue, Fine	1.0 – 2.30 (0.33, 0.33 – 0.75, 0.75)	0.36 – 0.83	2.30 (0.75, 0.75)
Bentgrass, creeping	1.0 – 1.50 (0.33, 0.33 – 0.49, 0.49)	0.36 – 0.48	1.50 (0.49, 0.49)
<i>Southern Moderately Tolerant</i>			
Bermudagrass hybrid ³	2.0 – 2.30 (0.65, 0.65 – 0.75, 0.75)	0.72 – 0.83	4.60 (1.50, 1.50)
<i>Southern Highly Tolerant</i>			
Bermudagrass, common ³ Zoysiagrass	2.0 – 2.30 (0.65, 0.65 – 0.75, 0.75)	0.72 – 0.83	4.60 (1.50, 1.50)
Seashore paspalum	1.50 (0.49, 0.49)	0.48	4.60 (1.50, 1.50)

1. Cavalcade PQ may be applied more than once a year as long as the total amount applied is not greater than maximum annual rate for the individual turf species.
2. Note: Under ideal conditions for disease development, these species may be more prone to rust infection
3. May be used on newly-sprigged or plugged Bermudagrass at rates not to exceed 1.5 lb/A (0.48 oz/1000 sq. ft. Newly-sprigged or plugged Bermudagrass stolon rooting may be temporarily retarded.
4. P = Prodiamine, Q = Quinclorac

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Table 4. Sensitive/Susceptible Turfgrass Species

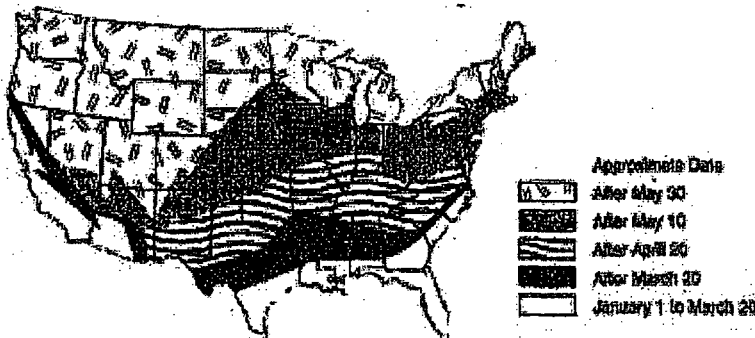
Northern Turfgrass species Not Tolerant	Southern Turfgrass Species Not Tolerant
Bluegrass, Annual Ryegrass, Annual Fescue, Red Fescue, Hard Fescue, Chewings Bluegrass, <i>Poa trivialis</i> Bentgrass, seaside Bentgrass colonial	Bahiagrass Centipedegrass Dichondra St Augustinegrass

Cavalcade PQ used as a pre-emergence herbicide, when properly applied, will control certain grass and broadleaf weeds in established turfgrasses including:

- Golf courses **excluding** putting greens
- Lawns
- Sod nurseries

For optimum weed control, Cavalcade PQ should be activated by at least 0.5 inches of rainfall or irrigation before weed seeds germinate and within 2-7 days following application. See the map below for approximate crabgrass seed germination dates

CRABGRASS SEED GERMINATION DATES



When to Apply Cavalcade PQ before seeding/over-seeding turf:

Cavalcade PQ will inhibit the development of turfgrass species seeded or over-seeded too soon after application. Follow rates and intervals in Table 4 for best over-seeding/reseeding results.

Table 5. Number of months, given by typical turf growing zones, before seeding turfgrass varieties if Cavalcade PQ is applied primarily for pre-emergence weed control (85 – 90% bare soil at application) as a single application.

Amount of Cavalcade PQ Lbs. Product/A (Lbs. P*, Lbs. Q*/A)	Months Before Over-seeding by Turf Growing Zones **		
	North	Transition	South
1.5 (0.49, 0.49)	4	4	4
2.0 (0.65, 0.65)	5	4	4
2.3 (0.75, 0.75)	6	5	5

Notes: P*= proflam, Q*=Quinclorac; ** In AZ, CA, NV, and TX, application of Cavalcade PQ 6-8 weeks before over-seeding with perennial ryegrass can be used in established bermudagrass.

When to Apply Cavalcade PQ After Over-seeding Turf

Injury to desirable seedlings is likely if Cavalcade PQ is applied before the secondary roots of seedlings are in the second inch of soil (not thatch plus soil). To reduce the potential to injure over-seeded turf, wait 60 days after seeding or until after the second mowing, whichever is longer, before applying Cavalcade PQ.

Poa annua control in Established Bermudagrass Over-seeded with Perennial Ryegrass (AZ, CA, NV, and TX only)

Use on golf courses (excluding golf course putting greens, lawns, and sod nurseries when over-seeding with perennial ryegrass (minimum seeding rate of 350 lbs/A).

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

PESTICIDE STORAGE: Store in original container away from feed or foodstuffs and separated from other pesticides.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of at an approved waste disposal facility.

CONTAINER DISPOSAL:

Paper and plastic film bags or boxes- Nonrefillable container. Do not reuse or refill this container. Completely empty container into application equipment. Then dispose of empty bag or box in a sanitary landfill or incinerate; or, if allowed by state and local authorities, burn locally. Stay out of smoke from burning container.

Fiber drums with plastic liners- Nonrefillable container. Do not reuse or refill this container. Completely empty the plastic liner by shaking and tapping sides and bottom to loosen clinging particles. Pour residues into application equipment. Dispose of empty liner at an incineration facility. Offer the fiber drum for recycling or re-use. If the fiber drum cannot be recycled or re-used, dispose of at an incineration facility.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or

other emergency, call CHEMTREC (phone: 1-800-424-9300) day or night.

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