

PM 23 100-691 2-9-98 10/29

FEB 9 1998

Ms. Karen S. Stumpf
Novartis Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300

Dear Ms. Stumpf:

Subject: Pennant® Liquid Herbicide
Subject: EPA Registration No. 100-691
Application and Your Letter Dated January 21, 1998,
Requested Label Revisions, WPS Personal Protective
Equipment and Precautionary Statements and Statements
of Practical Treatment

The proposed label revisions listed in your application
have been reviewed and found acceptable as amendments to the
subject pesticide product registration under the Federal
Insecticide, Fungicide and Rodenticide Act (FIFRA) as amended
provided that you:

- o Submit one (1) copy of the final printed labeling
prior to sniping this product under the subject labeling.

If this condition is not complied with, the registration
will be subject to cancellation in accordance with FIFRA
section 6(e). Your release for shipment of this product
under the subject labeling constitutes acceptance of this
condition. A stamped copy of the labeling is enclosed for
your records.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Herbicide Branch
Registration Division (7505C)

Enclosure

CONCURRENCES

SYMBOL							
SURNAME							
DATE	Wilson:Diskette:Metolachlor: 02-09-98						

2/29

ACCEPTED
with COMMENTS
In EPA Letter Dated

FEB 9 1998

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

100-691

(Front Label)

Pennant® Liquid

HERBICIDE

For weed control in nurseries, turf, and landscape plantings

Active Ingredient:

Metolachlor: 2-chloro-N-(2-ethyl-6-methylphenyl)-

N-(2-methoxy-1-methylethyl) acetamide86.4%

Inert Ingredients:13.6%

Total:100.0%

Pennant Liquid contains 8 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See additional precautionary statements and directions for use inside
booklet.

EPA Reg. No. 100-691

EPA Est. 42761-MS-1^R

EPA Est. 5905-GA-01^H

EPA Est. 11773-IA-01^W

(Superscript is first letter of lot number on jug) (gallon)

(Superscript is first letter of lot number on bottle) (quart and 4 fl. oz.)

One Gallon

U.S. Standard Measure

One Quart

U.S. Standard Measure

4 fl. oz.

U.S. Standard Measure

This booklet manufactured using post-consumer, recycled paper.

NCP 96L1J 0797 - 1 gal.

NCP 96L6G 0797 - 1 qt.

NCP 96L7E 0797 - 4 fl. oz.

[QUARK/PENNANT/N-PENNANT-LIQ] - ccg - 12/2/97

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.

Do not enter or allow others to enter the treated area until sprays have dried.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, AND/OR ILLEGAL RESIDUES.

GENERAL INFORMATION

Pennant Liquid herbicide controls many annual grasses, certain broadleaf weeds, and yellow nutsedge.

Pennant Liquid may be used on commercial and residential turf and other noncrop land, including, but not limited to: airports, roadsides, golf courses, sports fields, public recreational areas, ornamental gardens, cemeteries, and other landscaped areas. Pennant Liquid may also be used in and around container and field-grown ornamentals, nonbearing nursery stock, and on sod farms.

DO NOT USE IN GREENHOUSES OR OTHER ENCLOSED STRUCTURES.

Do not apply under conditions which favor runoff or wind erosion of soil containing this product to non-target areas.

To prevent off-site movement due to runoff or wind erosion.

1. Avoid treating powdery dry or light sand soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.
2. Do not apply to impervious substrates such as paved or highly compacted surfaces.
3. Do not use tailwater from the first flood or furrow irrigation of treated fields to treat non-target crops unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.

NOTICE TO USER: Plant tolerances to Pennant Liquid herbicide have been found to be acceptable in the specific genera and species listed on this label. Because of the large number of species and varieties of plants, it is impossible to test each for tolerance to Pennant Liquid. Neither the manufacturer nor the seller has determined whether or not Pennant Liquid can be used safely on plants not specified on this label. Therefore, the professional user should determine if Pennant Liquid can be used safely by testing the recommended rates on a particular group of similar unlabeled ornamental plants in a small area before widespread use or by checking with the local weed specialist for guidance. Likewise, if the professional user plans to apply Pennant Liquid for control of weed species not listed on this label, Pennant Liquid should be tested on a small-scale basis before widespread use or the local weed specialist contacted for guidance.

Mixing Instructions

Pennant Liquid Alone: Mix Pennant Liquid with water or fluid fertilizer and apply as a spray. Fill the spray tank $\frac{1}{2}$ - $\frac{3}{4}$ full with water or fluid fertilizer, start agitation, add the proper amount of Pennant Liquid, then add the rest of the water or fluid fertilizer. Agitate continuously during mixing and application to maintain a uniform emulsion.

Tank Mixtures: Fill the spray tank $\frac{1}{4}$ full with water or fluid fertilizer, and start agitation, then add the tank-mix partner, allowing it to become dispersed. Then add Pennant Liquid, and finally the rest of the water or fluid fertilizer. Agitate continuously during mixing and application to maintain uniformity. Check compatibility of mixture with fluid fertilizer as described below before mixing in spray tank.

Note: Before using Pennant Liquid in a tank mix with fluid fertilizer or registered pesticides, determine the tolerance of the plant species by applying the combination to a limited area during a period of active growth.

Compatibility Test: Since liquid fertilizers can vary, even within the same analysis, always **check compatibility with herbicide(s) each time before use.** Be especially careful when using **complete suspension or fluid fertilizers** as serious compatibility problems are more likely to occur. Commercial application equipment may improve compatibility in some instances. The following test assumes a spray volume of 25 gals./A.; For other spray volumes, make appropriate changes in the ingredients. Check compatibility using this procedure.

1. Add 1 pt. of fertilizer to each of 2 one-qt. jars with tight lids;
2. To one of the jars, add $\frac{1}{4}$ tsp. or 1.1 milliliters of a compatibility

agent approved for this use, such as Compex® or Unite® (1/4 tsp. is equivalent to 2 pts./100 gals. spray). Shake or stir gently to mix.

- 3. To both jars, add the appropriate amount of herbicide(s). If more than one herbicide is used, add them separately with dry herbicides first, flowables next, and emulsifiable concentrates last. After each addition, shake or stir gently to thoroughly mix. The appropriate amount of herbicides for this test follows:

Dry herbicides: For each pound to be applied per acre, add 1.5 level teaspoons to each jar.

Liquid herbicides: For each pint to be applied per acre, add 0.5 teaspoon or 2.5 milliliters to each jar.

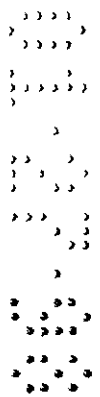
After adding all ingredients, put lids on and tighten, and invert each jar 10 times to mix. Let the mixtures stand 15 minutes and then look for separation, large flakes, precipitates, gels, heavy oily film on the jar, or other signs of incompatibility. Determine if the compatibility agent is needed in the spray mixture by comparing the 2 jars. If either mixture separates, but can be readily remixed, the mixture can be sprayed as long as good agitation is used. If the mixtures are incompatible, test the following methods of improving compatibility: (a) slurry the dry herbicide(s) in water before addition, or (b) add 1/2 of the compatibility agent to the fertilizer and the other 1/2 to the emulsifiable concentrate or flowable herbicide before the addition to the mixture. If incompatibility is still observed, do not use the mixture.

- 4. After conducting the compatibility test, any pesticide wastes should be disposed of according to the instructions given in the **Storage and Disposal** section at the end of this label.

Ground Application: Apply Pennant Liquid alone or in tank mixtures by ground equipment in a minimum of 10 gals. of spray mixture per acre, unless otherwise specified.

Use sprayers that provide accurate and uniform application. For Pennant Liquid tank mixtures with wettable powder or dry flowable formulations, screens and strainers should be no finer than 50-mesh. Rinse sprayer thoroughly with clean water immediately after use.

Calculate the amount of herbicide needed for band treatment by the formula:



$$\frac{\text{band width in inches}}{\text{row width in inches}} \times \text{broadcast rate per acre} = \text{amount needed per acre of field}$$

Aerial Application (Sod Farms Only): Apply Pennant Liquid in water alone or in tank mixtures with AAtrex®, Princep®, or other herbicides registered for use on sod farms in a minimum total volume of 2 gals./A by aircraft. Avoid application under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur. In order to assure that spray will be controllable within the target area when used according to label directions, make applications at a maximum height of 10 ft., using low-drift nozzles at a maximum pressure of 40 psi, and restrict application to periods when wind speed does not exceed 10 mph. To assure that spray will not adversely affect adjacent sensitive-non-target plants, apply Pennant Liquid or Pennant Liquid mixtures at a minimum upwind distance of 400 ft. from sensitive plants.

Avoid application to humans or animals. Flagmen and loaders should avoid inhalation of spray mist and prolonged contact with skin.

Aerial Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator 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 drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

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 should be observed.

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

Aerial Drift Reduction Advisory Information

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 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 pressures. 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** - Orienting nozzles so that the spray is released parallel to the airstream 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 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

Applications should not be made at a height greater than 10 feet above the top of the largest 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 applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up 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 wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 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 continues 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 potential for drift to adjacent sensitive areas (e.g., residential bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Overhead or Microjet Irrigation Application: Pennant Liquid alone or in tank mixture with other herbicides which are registered for overhead or microjet application may be applied in irrigation water at rates recommended on this label. Apply this product only through an overhead or microjet irrigation system. Do not apply this product through any other type of irrigation system. Crop injury or lack of effectiveness can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension specialists, equipment manufacturers, or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a

textured soils. More than 1 inch of water at application may reduce weed control by moving the herbicide below the effective zone in the soil.

Precaution for overhead or microjet applications: Where sprinkler distribution patterns do not overlap sufficiently, unacceptable weed control may result. Where sprinkler distribution patterns overlap excessively, injury to desirable plants may result.

Dry Bulk Granular Fertilizers

Many dry bulk granular fertilizers may be impregnated or coated with Pennant Liquid alone or with selected Pennant Liquid tank mixtures which are registered and not prohibited from use on dry bulk granular fertilizers.

When applying Pennant Liquid or Pennant Liquid mixtures with dry bulk granular fertilizers, follow all directions for use and precautions on the respective product labels regarding target crops, rates per acre, soil texture, application methods (including timing of application), and rotational crops.

All individual state regulations relating to dry bulk granular fertilizer blending, registration, labeling, and application are the responsibility of the individual and/or company selling the herbicide/fertilizer mixture.

Prepare the granular herbicide/fertilizer mixtures by using any closed drum, belt, ribbon, or other commonly used dry bulk fertilizer blender. Nozzles used to spray Pennant Liquid or Pennant Liquid tank mixtures onto the fertilizer must be placed to provide uniform spray coverage.

If the herbicide/fertilizer mixture is too wet, use a highly absorptive material, such as Agsorb® granules, Microcel E (Johns-Manville Products Corporation), diatomaceous earth, or finely powdered clay, to obtain a dry free-flowing mixture. Add the absorptive material separately and uniformly to the herbicide/fertilizer mixture and blend to form a suitable free-flowing mixture. Generally, less than 2% by weight of absorptive material will be needed.

Calculate amounts of Pennant Liquid and other herbicides needed by the following formula:

<u>2,000</u> lbs. of fertilizer per acre	X	pts./A of liquid or flowable product	=	pts. of liquid or flowable product per ton of fertilizer	» »
<u>2,000</u> lbs. of fertilizer per acre	X	lbs./A of dry product	=	lbs. of dry product per ton of fertilizer	» »

Precautions: To avoid potential for explosion, (1) Do not impregnate Pennant Liquid or Pennant Liquid mixtures on ammonium nitrate, potassium nitrate or sodium nitrate, either alone or in blends with other fertilizers. (2) Do not combine mixtures of Pennant Liquid plus any other herbicide with single superphosphate (0-20-0) or treble superphosphate (0-46-0). (3) Do not use Pennant Liquid or Pennant Liquid mixtures on straight limestone, since absorption will not be achieved. Fertilizer blends containing limestone can be impregnated.

Application

Apply 100-800 lbs. of the herbicide/fertilizer mixture per acre. For best results, apply the mixture uniformly to the soil with properly calibrated equipment immediately after blending. Uniform application of the herbicide/fertilizer mixture is essential to prevent possible crop injury. Non-uniform application may also result in unsatisfactory weed control. In areas where conventional tillage is practiced, a shallow incorporation of the mixture into the soil may improve weed control. On fine- or medium-textured soils in areas where soil incorporation is not planned, i.e., reduced tillage situations or in some conventional tillage situations, make applications approximately 30 days before planting to allow moisture to move the herbicide/fertilizer mixture into the soil. On coarse-textured soils, make applications approximately 14 days prior to planting.

Precaution: To avoid potential injury of ornamental plants, do not use the herbicide/fertilizer mixture where planting beds are to be formed.

NURSERIES AND LANDSCAPE PLANTINGS

Apply Pennant Liquid at rates indicated below to control many annual grasses, certain broadleaf weeds, and yellow nutsedge (see following list). Calibrate applicator before application according to the manufacturer's directions.

Weeds Controlled

annual bluegrass	green foxtail	yellow foxtail))))
barnyardgrass	prairie cupgrass	yellow nutsedge))))
(watergrass)	red rice	black nightshade))))
crabgrass	signalgrass	carpetweed))))
crowfootgrass	(Brachiaria)	Florida pusley))))
fall panicum	southwestern cupgrass	galinsoga))))
foxtail millet	witchgrass	pigweed))))
giant foxtail))))
goosegrass))))

Field- and Liner*-Grown Plants and Plants in Landscape Plantings

*Plants transplanted normally in rows in a nursery or similar area for further growth before transplanting to final growing location (place of establishment).

Scientific Name	Common Name/Variety
<i>Abelia</i> spp.	Glossy Abelia
<i>Abies</i> spp.	Fir
<i>Acer</i> spp.	Maple
<i>Achillea</i> spp.	Yarrow
<i>Agapanthus africanus</i>	African Lily
<i>Ageratum</i> spp.	Blue Ageratum
<i>Ajuga reptans</i>	Ajuga
<i>Allium</i> spp.	Allium
<i>Allyssum</i> spp.	Allyssum
<i>Antirrhinum majus</i>	Snapdragon
<i>Aquilegia</i> spp.	Columbine
<i>Artemisia stoleriana</i>	Dusty Miller
<i>Asclepias</i> spp.	Milkweed
<i>Aster</i> spp.	Aster
<i>Aucuba</i> spp.	Aucuba
<i>Berberis</i> spp.	Barberry
<i>Betula</i> spp.	Birch
<i>Bougainvillea</i> spp.	Bougainvillea
<i>Buxus</i> spp.	Boxwood
<i>Camellia</i> spp.	Camellia
<i>Campanula carpatica</i>	Bellflower
<i>Canna indica</i>	Canna Lily
<i>Carex</i> spp.	Carex
<i>Chrysanthemum</i> spp.	Chrysanthemum, Daisy
<i>Citrus</i> spp. **	Citrus
<i>Coreopsis</i> spp.	Coreopsis
<i>Cornus</i> spp.	Dogwood
<i>Cortaderia selloana</i>	Pampas Grass
<i>Cotoneaster</i> spp.	Cotoneaster
<i>Crocus</i> spp.	Crocus
<i>Cryophytum crystallinum</i>	Ice Plant
<i>Cytisus racemosus</i>	Sweet Broom
<i>Daucus carota</i>	Queen Anne's Lace
<i>Delphinium</i> spp.	Delphinium
<i>Dianthus barbatus</i>	Sweet William
<i>Eleagnus</i> spp.	Eleagnus
<i>Endymion</i> spp.	Endymion
<i>Escallonia fradesii</i>	Escallonia
<i>Euonymus</i> spp.	Euonymus
<i>Ficus</i> spp.	Fig
<i>Forsythia</i> spp.	Forsythia
<i>Fraxinus</i> spp.	Ash
<i>Gaillardia</i> spp.	Gaillardia
<i>Gardenia jasminoides</i>	Gardenia
<i>Gazania splendens</i>	Gazania Gold Rush

<i>Gelsemium sempervirens</i>	Carolina Jessamine	
<i>Geranium</i> spp.	Geranium	
<i>Geum</i> spp.	Geum	
<i>Gingko biloba</i>	Gingko	
<i>Gladiolus x hortulanus</i>	Gladiolus	
<i>Gleditsia triacanthos</i>	Honey Locust	
<i>Hedera</i> spp.	English Ivy	
<i>Hemerocallis</i> spp.	Daylily	
<i>Hibiscus</i> spp.	Hibiscus	
<i>Hosta lancifolia</i>	Hosta	
<i>Hyacinthus</i> spp.	Hyacinth	
<i>Hydrangea</i> spp.	Hydrangea	
<i>Hypericum</i> spp.	St. John's Wort	
<i>Ilex</i> spp.	Holly	
<i>Illicium</i> spp.	Spicebush	
<i>Impatiens</i> spp.	Impatiens	
<i>Iris</i> spp.	Iris	
<i>Jasmine</i> spp.	Jasmine	
<i>Juniperus</i> spp.	Juniper	
<i>Kalmia</i> spp.	Kalmia	
<i>Lagerstroemia</i> spp.	Crepe Myrtle	
<i>Leucothoe</i> spp.	Leucothoe	
<i>Ligustrum</i> spp.	Privet	
<i>Lilium</i> spp.	Lily	
<i>Liquidambar</i> spp.	Sweetgum	
<i>Liriodendron tulipifera</i>	Tulip Tree	
<i>Liriope</i> spp.	Liriope	
<i>Lonicera</i> spp.	Honeysuckle	
<i>Lupinus</i> spp.	Lupines	
<i>Lythrum</i> spp.	Loosestrife	
<i>Magnolia</i> spp.	Magnolia	
<i>Malus</i> spp.**	Crabapple, Apple	
<i>Mesembryanthemum crystallinum</i>	Ice Plant	
<i>Morea</i> spp.	Fortnight Lily	
<i>Muscari armeniacum</i>	Muscari	
<i>Myrica</i> spp.	Wax Myrtle	
<i>Nandina domestica</i>	Bamboo	
<i>Narcissus</i> spp.	Narcissus	
<i>Nerium oleander</i>	Oleander	
<i>Oenothera</i> spp.	Primrose	
<i>Ophiopogon japonicus</i>	Mondo Grass	
<i>Ornithogalum umbellatum</i>	Star of Bethlehem	
<i>Osmanthus</i> spp.	Osmanthus	
<i>Pachysandra</i> spp.	Pachysandra))))
<i>Pelargonium x hortorum</i>	Geranium))))
<i>Petunia</i> spp.	Petunia))))
<i>Phlox</i> spp.	Phlox))))
<i>Photinia</i> spp.	Photinia))))
<i>Physocarpus</i> spp.	Ninebark))))
<i>Physostegia</i> spp.	Physostegia))))
<i>Picea</i> spp.	Spruce))))
<i>Pieris japonica</i>	Japanese Andromeda))))
<i>Pinus</i> spp.	Pine))))
<i>Pittosporum</i> spp.	Pittosporum))))

TURFGRASS

Warm Season Grasses (Bermudagrass, Centipedegrass, St. Augustinegrass, Bahiagrass, and Zoysiagrass)

Do not use Pennant Liquid on turfgrasses in New York State.

Apply Pennant Liquid **before weeds emerge**. Since soil moisture is necessary to activate Pennant Liquid, irrigate with 1/2 inch of water if rainfall does not occur within 7 days after treatment (See following Precautions).

Weeds Controlled

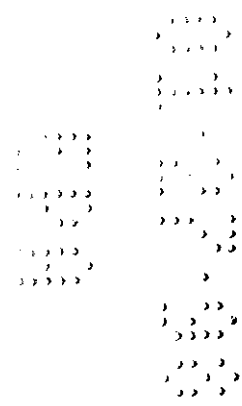
Scientific Name	Common Name	Rate of Pennant Liquid*
<i>Cyperus compressus</i>	Annual sedge	4 pts./A
<i>Cyperus esculentus</i>	Yellow nutsedge	4 pts./A
<i>Digitaria ischaemum</i>	Smooth crabgrass	4 pts./A
<i>Digitaria sanguinalis</i>	Large crabgrass	4 pts./A
<i>Leptochloa fascicularis</i>	Bearded sprangletop	2-4 pts./A
<i>Leptochloa uninervia</i>	Mexican sprangletop	2-4 pts./A
<i>Poa annua</i>	Annual bluegrass	2-4 pts./A

*2 pts./A = 22 ml/1,000 sq. ft.
4 pts./A = 43 ml/1,000 sq. ft.

Note: To minimize potential turf injury, do not apply more than once per year.

Commercial St. Augustinegrass Sod Production

Apply Pennant Liquid **before weeds emerge**. Since soil moisture is necessary to activate Pennant Liquid, irrigate with 1/2 inch of water if rainfall does not occur within 7 days after treatment (See following Precautions).



Weeds Controlled

Scientific Name	Common Name	Rate of Pennant Liquid*
<i>Cyperus compressus</i>	Annual sedge	4 pts./A
<i>Cyperus esculentus</i>	Yellow nutsedge	4 pts./A
<i>Digitaria ischaemum</i>	Smooth crabgrass	4 pts./A
<i>Digitaria sanguinalis</i>	Large crabgrass	4 pts./A
<i>Leptochloa fascicularis</i>	Bearded sprangletop	2-4 pts./A
<i>Leptochloa uninervia</i>	Mexican sprangletop	2-4 pts./A
<i>Poa annua</i>	Annual bluegrass	2-4 pts./A

*2 pts./A = 22 ml/1,000 sq. ft.

4 pts./A = 43 ml/1,000 sq. ft.

Notes: (1) Do not apply more than once every six weeks. (2) Do not apply more than a total of 8 pts./A per year.

Precautions for all uses on turf: Temporary slowing of growth and yellowing may occur following application. To avoid turf injury, (1) use only on turfgrass not under stress from infestations of insects, nematodes, or diseases; (2) do not use on golf greens, tees, or aprons; (3) do not apply over the rooting area of trees or ornamentals not listed on this label; (4) do not seed or overseed with desirable turfgrass 4 months before or 6 months after treatment, and (5) do not apply this product to newly seeded grasses until they have overwintered and have a well-developed rhizome system. (6) Before using Pennant Liquid in the tank mix with fluid fertilizer or other registered pesticides, determine the tolerance of the turf species by applying the combination to a limited area during a period of active growth. (7) In turfgrass areas which have heavy thatch, the weed control of Pennant Liquid may be reduced.

Note: To avoid possible illegal residues, do not graze or feed turf clippings to animals.

STORAGE AND DISPOSAL

Pesticide Disposal

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide, spray mixture, or rinsate is a violation of federal law. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the

22/3/

Personal Protective Equipment

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

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate or viton
- 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.

Engineering Control Statements

Mixers and loaders supporting aerial applications are required to use closed systems. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)]. When using the closed system, the mixers' and loaders' PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems, enclosed cabs, or aircraft 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:

- 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.
- 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.

9309

Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

Ground Water Advisory

This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Surface Water Advisory

Metolachlor can contaminate surface water through ground spray drift. Under some conditions, metolachlor may also have a high potential for runoff into surface water (primarily via dissolution in runoff water), for several months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas within-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

Mixing/Loading Instructions

Care must be taken when using this product to prevent back-siphoning into wells, spills, or improper disposal of excess pesticide, spray mixtures, or rinsates.

Check-valves or antisiphoning devices must be used on all mixing and/or irrigation equipment.

This product may not be mixed or loaded within 50 ft. of perennial or intermittent streams and rivers, natural or impounded lakes and reservoirs. This product may not be mixed/loaded or used within 50 ft. of all wells, including abandoned wells, drainage wells, and sink holes. Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 ft. of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rain water that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest

pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above-specified minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading sites.

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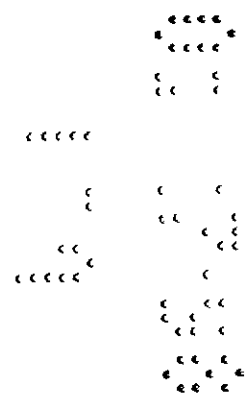
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Novartis Crop Protection, Inc
Turf and Ornamental Products
Greensboro, North Carolina 27419

NCP 96L1J 0797 - 1 gal
NCP 96L6G 0797 - 1 qt
NCP 96L7E 0797 - 4 fl. oz

This booklet manufactured using post-consumer, recycled paper



7/2/9

KEEP OUT OF REACH OF CHILDREN

CAUTION

Precautionary Statements

Hazards to Humans and Domestic Animals

Causes moderate eye irritation. Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes, or clothing. This product may cause skin sensitization reactions in some people.

Statement of Practical Treatment

If in eyes: Flush eyes with plenty of water. Get medical attention if irritation persists.

If swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation persists.

Note to Physician: If swallowed, there is no specific antidote. Induce emesis or lavage stomach. Treat symptomatically. Administration of an aqueous slurry of activated charcoal can be considered.

Environmental Hazards

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

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This chemical is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

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28 of 29

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This product may not be mixed or loaded within 50 ft. of perennial or intermittent streams and rivers, natural or impounded lakes and reservoirs. This product may not be mixed/loaded or used within 50 ft. of all wells, including abandoned wells, drainage, and sink holes*.

*For exceptions to this restriction, see the Environmental Hazards section of the Precautionary Statements in attached booklet

Aerial Drift Management Requirements

Do not apply this product by air unless the supplemental labeling on Aerial Drift Management in attached booklet is followed

Chemigation

Refer to supplemental labeling in attached booklet for use directions for chemigation. Do not apply this product through any irrigation system, unless the supplemental labeling on chemigation is followed

Container Disposal

Do not reuse empty container. Triple rinse (or equivalent), puncture and dispose of in a sanitary landfill, or by incineration, or by open burning, if allowed by state and local authorities. Keep out of smoke from burning containers

This product may be stored at temperatures down to 30 degrees below 0°F

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Novartis Crop Protection, Inc
Turf and Ornamental Products
Greensboro, North Carolina 27419

NCP 96L1J 0797 - 1 gal.

NCP 96L6G 0797 - 1 qt

NCP 96L7E 0797 - 4 fl. oz

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