67690-20 12/20/2005 1/17

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PESTICIDE PROGRAMS
Registration Division (7505C)
Ariel Rios Building
1200 Pennsylvania Ave., N.W.
Washington, DC 20460-0001

EPA Reg. Number	Date of Issuance
67690-20	DEC 20 2005

Term of Issuance
Conditional

NOTICE OF PESTICIDE
__X__ Registration
___Reregistration
(under FIFRA, as amended)

Name of Pesticide Product
Topflor Ornamental Plant Growth Regulator

Name and Address of Registrant (include ZIP Code):
Sepro Corporation
11550 N. Meridian St., Suite 600
Carmel, IN 46032 - 4565

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

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

Registration is in no way to be construed as an endorsement or approval 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 sec. 3(c)(5)(A) provided that you:

1. Submit and/or cite all data required for registration when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for re-registration of your product under FIFRA Section 4.

Signature of Approving Official:
Tony Kish
Product Manager (22)
Fungicide Branch
Registration Division (7505c)

Date:
DEC 20 2005

EPA Form 8570-6

2. You must submit the following conditional data listed below, before the due date of June 30, 2008:

A. Freshwater Fish Early Life Stage (72-4a) - Bluegill Sunfish
B. Freshwater Invertebrate Life Cycle Study (72-4B) - Daphnia magna
C. Avian Reproduction (71-4) - Mallard Duck
D. Avian Reproduction (71-4) - Bobwhite Quail
E. Aquatic Vascular Plant Study - (122-2) - Duckweed
F. Tier I Terrestrial Plant Studies - 123-1a and 123-1b)

3. You must submit two copies of a final printed label within 30 days from the data of this notice which makes the following changes:

A. Add the phrase "EPA registration No. 67690-20".

B. On page 1, change the phrase "Base Container Label" to "Box Container Label."

C. On page 6, "Pesticide Disposal", changed "...may be disposed..." to "...must be disposed...".

D. Table 5 on page 13 lists a drench rate of 0.01-0.03 for Exacum which is not reflected in table 2 on page 9. This must be rectified.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release of shipment of the product constitutes acceptance of these conditions.

A copy of the label is stamped "Accepted with Comments" is enclosed for your records.

If you have any questions regarding this submission, contact Rose Kearns of my team at (703) 305-5611 or myself at (703) 308-9443.

Sincerely,

Tony Kish
Product Manager (22)
Fungicide Branch
Registration Division (7505C)

Enclosure

3/17

(Base container label):
SePRO (logo)

Topflor™

Ornamental Plant Growth Regulator

A growth regulator for use on ornamental plants grown in containers in commercial nurseries, greenhouses and shadehouses.

Active Ingredient:
flurprimidol: α-(1-methylethyl)-α-[4-(trifluoromethoxy)phenyl]-5-pyrimidinemethanol.....0.38%
Inert Ingredients.....99.62%
Total.....100.0%

Contains 14.4 gm of active ingredient per gallon.

Keep Out of Reach of Children

CAUTION PRECAUCION

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

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)
Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material.
- 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.

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.

ACCEPTED
with COMMENTS
In EPA Letter Dated:
DEC 20 2005
Under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 67690-20

First Aid	
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 poison control center or doctor for 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 swallowed	• Call a poison control center or doctor for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vommiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to a unconcious person.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advise.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment	

Environmental Hazards

Do not apply directly to water or 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 washwaters or rinsate.

Directions for Use

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons either directly or indirectly through drift. Only protected workers 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, forest, 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 Protection 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
- Shoes plus socks
- Long sleeved shirt and long pants

Refer to label booklet for complete Directions for Use.

Notice: Read the entire label before using. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer", "Inherent Risks of Use" and "Limitation of Remedies" inside label booklet.**

In case of emergency endangering health or the environment involving this product, call collect 317-580-8282.

EPA Reg. No. 67690-xx

EPA Est. No. xxxxx-xx-xx

*Trademark of SePRO Corporation
SePRO Corporation • Carmel, IN 46032, U.S.A.

Ornamental Plant Growth Regulator

Net Contents x Quart

(laminated booklet, cover):

(logo) SePRO

Topflor™

Ornamental Plant Growth Regulator

A growth regulator for use on ornamental plants grown in containers in commerical nurseries, greenhouses and shadehouses.

Active Ingredient:

flurprimidol: α-(1-methylethyl)-α-[4-(trifluoromethoxy)phenyl]-5-pyrimidinemethanol	0.38%
Inert Ingredients	99.62%
Total	100.0%

Contains 14.4 gm of active ingredient per gallon.

Keep Out of Reach of Children

CAUTION PRECAUCION

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

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to inside of label booklet for complete Directions for Use.

Notice: Read the entire label before using. Use only according to label directions. **Before buying or using this product, read "Warranty Disclaimer", "Inherent Risks of Use" and "Limitation of Remedies" inside label booklet.**

In case of emergency endangering health or the environment involving this product, call collect 317-580-8282.

EPA Reg. No. 67690-xx EPA Est. No. xxxxx-xx-x

*Trademark of SePRO Corporation

SePRO Corporation • Carmel, IN 46032, U.S.A.

Ornamental Plant Growth Regulator **Net Contents x Quart**

(Page 1 through end of datapack)

Keep Out of Reach of Children

CAUTION

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Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)
Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- chemical resistant gloves made of any waterproof material
- 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.

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.

First Aid	
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 poison control center or doctor for 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 swallowed	• Call a poison control center or doctor for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vommiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to a unconcious person.
If inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advise.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment	

Environmental Hazards

Do not apply directly to water or 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 washwaters or rinsate.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
Read all Directions for Use carefully before applying.

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
- Shoes plus socks
- Long sleeved shirt and long pants

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.
Pesticide Storage: Avoid freezing. Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL INFORMATION

Topflor Plant Growth Regulator is for use on ornamental plants grown in containers in nurseries, greenhouses and shadehouses. Use of Topflor effectively reduces internode elongation through the inhibition of gibberellin biosynthesis, resulting in a more desirable compact plant. Topflor has been shown to increase the quality of plants even in the absence of growth reduction. Some of these desirable qualities include darker leaf color, higher chlorophyll content, greater leaf thickness, stronger stems, and decreased water loss. When used as directed, Topflor produces no phytotoxic effects. **Do not reuse pots, trays, or other containers that previously were used in the production of a crop that was treated with Topflor.**

FACTORS AFFECTING PLANT RESPONSE TO TOPFLOR

There are many factors that can affect a plant's response to the application of Topflor. They include cultivar, application technique, environmental conditions, cultural practices and container size. Therefore, the amount of Topflor that is required for the desired plant height may vary.

CULTIVARS OR VARIETIES within a given plant species may respond differently to Topflor. Varieties that are taller or more vigorous generally require more Topflor than naturally short or less vigorous varieties. Growers may consult university research and extension specialists and plant or seed suppliers for vigor and other growth characteristics for newly released varieties.

ENVIRONMENTAL CONDITIONS can also strongly influence the response to Topflor and, therefore, the amount of product applied. Growers in warm climates may need to use higher rates and/or more applications compared to those in cooler climates. The Topflor rate as well as number of applications may also vary depending on the time of year, with higher rates and/or more applications needed during warmer months.

CULTURAL PRACTICES may affect the plant's response to Topflor. Plants that are grown at close spacing or in small pots and using high water and fertility levels may require higher rates of Topflor to achieve the desired response. The effectiveness of a Topflor drench application may be reduced in root media that utilizes a high amount of pine bark.

MIXING INSTRUCTIONS

The sprayer must be clean and not contaminated with other chemicals. Use the Dilution Table (Table 1) to determine the amount of Topflor and water needed for the required concentration. Fill the spray tank with half the required amount of water. Measure the desired Topflor volume accurately and add it to the tank. Fill tank with the remaining amount of required water. Agitate the Topflor and water mixture frequently to assure uniform distribution during application.

TABLE 1: TOPFLOR DILUTION TABLE

PPM TOPFLOR DESIRED CONCENTRATION	ML PER GALLON SOLUTION	FL. OZ. PER GALLON SOLUTION	FL. OZ. PER 10 GALLON SOLUTION	FL. OZ. PER 100 GALLON SOLUTION
0.5	0.493	0.017	0.17	1.67
1	0.987	0.033	0.33	3.34
2	1.974	0.067	0.67	6.67
3	2.961	0.100	1.00	10.01
4	3.947	0.133	1.33	13.35
5	4.934	0.167	1.67	16.69
10	9.87	0.33	3.34	33.37
15	14.80	0.50	5.01	50.06
20	19.74	0.67	6.67	66.75
25	24.67	0.83	8.34	83.43
30	29.61	1.00	10.01	100.12
35	34.54	1.17	11.68	116.81
40	39.47	1.33	13.35	133.49
50	49.34	1.67	16.69	166.87
60	59.21	2.00	20.02	200.24
80	78.95	2.67	26.70	266.98
100	98.68	3.34	33.37	333.73
200	197.37	6.67	66.75	667.46

APPLICATION TECHNIQUES

Plants absorb Topflor through foliage, stems, and roots. **Topflor may be applied as a spray, drench or chemigation to achieve the desired plant height control.** Use industry standard application equipment, which may include backpack sprayers, low-pressure hand wand drench applicators, or other similar equipment. Additionally, standard chemigation equipment and practices may also be used. Multiple or split applications may allow greater treatment flexibility, more uniform growth regulation, and safety from over-application and may be, therefore, desirable.

SPRAY APPLICATIONS

Topflor applied as a foliar spray is absorbed through plant foliage and stems. Additional growth regulation will result from root uptake of Topflor reaching the root medium as runoff from foliar treatments or over-spray.

Dilute Topflor to the desired concentration using Table 1.

When applying as a spray, the following should be noted:

- Do not use additional wetting agents in combination with Topflor as crop injury may occur.
- The spray technique used should provide consistent and uniform coverage over all treated plants. Uneven application or over-application may result in irregular or excessive growth control.
- Adequate spray volume should be used to thoroughly wet the plant foliage. The spray volume that drips down to the stem or media may be desirable as it will be taken up by the stems and roots increasing the effectiveness of Topflor. However, too much runoff into the media may result in excessive height control.
- Apply uniformly at a rate of 1 gallon of spray per 200 sq. ft. of growing area, regardless of plant spacing. For small plants in small containers or plug trays that are closely spaced, use 0.5-1 gallon of spray per 200 sq. ft. of growing area. For larger plants with a well-developed canopy, a spray volume of 1.5 gallons per 200 sq. ft. of growing area is recommended.
- Typical foliar application rate is 0.5 ppm to 80 ppm (varies by cultivar), applied in 1 gallon of spray mix over 200 square feet.
- Do not allow spray drift to contact non-target plants.

DRENCH APPLICATIONS

Topflor applied as a drench provides treatment accuracy for consistently uniform results. Topflor is readily absorbed by the roots and translocated to the terminals. Root medium should be moist, but not wet at the time of treatment. Best results are obtained when moisture content allows the drench treatment to become well distributed and retained entirely within the pot. This may be achieved by watering the plants the day before treating. Response may be variable if part of the drench solution is lost to flow-through or if root medium is too dry to allow for even distribution of the treatment, especially when multiple cuttings are in the same container. Generally, a volume of 2 fl. oz. (59 ml) is required to treat a 4-inch pot or 4 fl. oz. (118 ml) for treatment of a 6-inch pot (Table 2). Typical application rate is 1 gallon of drench solution (typically 0.25 ppm to 10 ppm) (varies by cultivar), per 32 six inch potted plants. Dilute Topflor to the required concentration using the method described in Table 1. When applying as a drench, the use of pine bark in root media may reduce the effectiveness of drench treatments.

TABLE 2. DRENCH VOLUME APPLICATION GUIDELINES

Pot Diameter (Inches)	Drench Volume		mg a.i. Topflor/pot from solutions mixed at the following ppm*			
	fl oz/pot	ml/pot	1 ppm	2 ppm	3 ppm	4 ppm
4	2	59	0.059	0.118	0.177	0.236
5	3	89	0.089	0.177	0.266	0.356
6	4	118	0.118	0.236	0.355	0.473
8	10	296	0.295	0.590	0.888	1.183
10	25	740	0.740	1.480	2.220	2.960
12	40	1184	1.178	2.360	3.543	4.727

***Refer to Table 1 for mixing instructions**

NOTE: The recommended drench volumes were based on the soil capacity of a common 6-inch "azalea-type" pot. Extrapolating the recommendation for this type pot to smaller or larger containers may not be correct for the total drench volume, but should only be used as a guideline. The user must determine the appropriate rate and drench volume needed to achieve the desired result, based on both pot size and root medium used.

CHEMIGATION (Not for use in California)

Pesticide labels contain directions for use which are necessary for effecting the purpose for which the product is intended and to protect health and the environment. The following information is intended to decrease environmental risks of pesticide contamination of ground water and will decrease direct human exposure to pesticide treated irrigation water by providing appropriate directions for use.

Apply this product only through pressurized drench (flood), sprinkler, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation systems.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
If you have questions about calibration, you should contact equipment manufacturers, or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

- Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

- Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

PRESSURIZED DRENCH (FLOOD) SYSTEM

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlocked to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump. (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

SPRINKLER (SPRAY) CHEMIGATION

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

- Systems must use a metering pump, such as a positive displacement injection pump, (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

DRIP (TRICKLE) CHEMIGATION

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump, (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

GENERAL INFORMATION

Pesticide supply tanks are recommended for the application of these products. See label instructions for dilution use rates and timing of applications. Agitate prior to use.
Since the material is used in an injections proportioner the pesticide is to be applied continuously for the duration of the water application.

APPLICATION RATES

The amount of Topflor required for an optimum growth response depends upon several factors: desired height, duration of growth response and degree of control, pot size, stage of growth, method of application, season and cultivar response. Species-specific cultural practices such as watering, potting media, fertilization, temperature and light conditions also affect the growth response to a given dosage. Therefore, growers should establish specific application rates based on small-scale treatments under actual use conditions and keep records as to plant species and cultivar sensitivity before Topflor is applied to a large number of plants. The rates recommended on this label are rate ranges and should be used only as a guideline.

For spray, drench and chemigation applications, do not exceed the maximum recommended rate of 0.36 lbs ai/A for single applications. Do not exceed more than 3.0 lbs ai/A/year. Rate (lbs ai/A) will determine the maximum number of seasonal applications allowed not to exceed 3.0 lbs ai/A/year. If required, repeat applications to the same crop may be applied at 5 to 21 day intervals.

NOTICE TO USER: Plant tolerance to Topflor has been found to be acceptable in research trials for the general plant species listed on this label. However, due to the large number of species of ornamental and nursery plants and their associated varieties and cultivars and due to variable growing conditions, it is impossible to test every plant and variety or cultivar for tolerance to Topflor. The Manufacturer has not determined whether Topflor can be used safely on all ornamental plants. Whereas Topflor has been shown to be safe and effective in a limited number of research trials on certain varieties or cultivars of the plant types listed, the professional user should determine if Topflor can be used safely prior to commercial use. Prior to wide-scale use, users should conduct small-scale tests under local growing conditions using the general guideline rates listed below. For species and their varieties or cultivars not specifically listed on the label, the user assumes all risk from phytotoxicity or unacceptable growth effects.

Topflor is effective in controlling the height of most ornamental crops. The use and rate recommendations for the species that follow should be a starting point in determining the best rate for your specific cultural and environmental growing conditions. Before Topflor is applied to a large number of plants, read and understand the section titled **Application Rates.**

Bedding Plants

Topflor is effective on a wide range of bedding plants for height control. See Table 3 for application rate guidelines for a variety of common bedding plants. For specific plants not identified on Table 3, use 0.5-80 PPM spray as the recommended general guideline rates for plugs to finished bedding plants.

TABLE 3: SPRAY RATE RANGE TRIAL GUIDELINES FOR SOME BEDDING PLANTS*

Plant	Rate Range (PPM)	Plant	Rate Range (PPM)
Ageratum	20-60	Nemesia[1]	10-15
Celosia, flame	10-40	Osteospermum	20-60
Coleus, seed	20-40	Pansy	2.5-7.5
Geranium, zonal	15-25	Petunia	20-60
Impatiens	20-60	Salvia	20-80
Marigold	20-60	Vinca[2]	2.5-10

*These rate ranges were determined largely under mid-Atlantic conditions using medium-vigor cultivars. Rates should be adjusted to reflect the need for higher rates for vigorous cultivars and in the Sunbelt Region and lower rates in the Northern Belt Region. Topflor is not recommended for use on fibrous begonia. Overly stunted plants can result if they receive spray drift from applications to surrounding crops.

[1]Nemesia: A rate of 10-15 PPM is recommended for a single spray application. Alternatively, apply twice at 5 PPM with the second application made two weeks after the first.
[2]Annual vinca (periwinkle): Growers should note that black spotting may result from higher rates of spray application, especially at high temperatures.

Drench: Apply to uniformly moist root media. Apply at a solution concentration at general guideline rates of 0.25-4 PPM at the recommended volume per pot (See Table 2). Rates for a specific plant species/cultivar and set of use conditions should be determined in small-scale treatments prior to large-scale applications. The user should determine his/her own optimum rates noting that the above-listed rate range encompasses production in the warmer and cooler climates.

Bedding Plant Plugs

Spray applications of Topflor may be used to control the height of certain aggressive species of bedding plant plugs. Over-regulation and poor performance after transplanting the plug can occur if rates are too high or if used on overly-responsive crops. Due to the responsiveness of bedding plant plugs to Topflor, it should only be used on Geranium, Impatiens, Marigolds, and Petunia. Do not use Topflor on sensitive bedding plant plugs including Begonia, Pansy, Salvia, and Vinca.

Differences in environmental factors and cultural practices during plug production can have a dramatic impact on plant growth regulator rates and results. Growers should conduct trials on a small scale under their growing conditions to determine the optimum rate that will provide proper efficacy while ensuring desirable growth and crop performance in the finishing stage. A trial spray application of 1-8 PPM is the suggested general guideline rate, which should be adjusted based upon trial results and user observations. Application timing is suggested after the development of the first 1-2 true leaves. Application volume generally should be 0.5-1 gallon per 200 sq. ft. of treatment area. Do not apply as a drench to bedding plant plugs.

Bulb or Fibrous Root Crops

Topflor is very effective on most bulb crops. Topflor is more effective when applied as a drench rather than a spray on most bulb crops (See Table 4). For bulb species not listed in Table 4, the grower should determine the optimum rate for the species grown under their cultural and environmental conditions by running trials on a small number of plants. In general, apply a soil drench to uniformly moist rooting media approximately 2 weeks after planting when new growth reaches 1 inch.

TABLE 4: RATE RANGE GUIDELINES FOR SOME BULB CROPS

Plant	Spray Rate Range (PPM)	Drench Rate Range mg a.i./pot
Calla Lily	ND	1-2.5
Canna Lily	50-80	ND
Dahlia	NR	0.5-2
Oriental Hybrid Lily "Stargazer"	ND	0.25-0.5
Tulip[1]	80-100	0.5-1
Hyacinth	ND	0.5-1
Caladium	NR	0.5-2

*These rate ranges were determined largely under mid-Atlantic conditions using medium-vigor to vigorous cultivars. Rates should be adjusted to reflect the need for higher rates in the Sunbelt Region and lower rates in the Northern Belt Region or for less vigorous cultivars.
[1]Tulip spray for control of post-harvest stretch.
ND = Rates for this application technique have not been determined.
NR = Not a recommended use.

Flowering /Foliage Potted Plants

Topflor is effective when applied as a spray or drench on a wide variety of flowering and foliage plants.

TABLE 5: RATE RANGE TRIAL GUIDELINES FOR SOME FLOWERING/FOLIAGE PLANTS

Plant	Spray Rate Range (PPM)	Drench Rate Range mg a.i./pot
Campanula	10-30	ND
Cape Primrose (*Streptocarpus hybridus*)	5-20	ND
Chrysanthemums[1]	7.5-25	ND
Exacum	25-50	0.01-0.03
Geraniums	10-25	ND
New Guinea Impatiens	5-10	ND
Poinsettia	2.5-80 (see Table 6)	0.03-0.5
Sunflower	30-50	1-2

*These rate ranges were determined largely under mid-Atlantic conditions using medium-vigor cultivars. Rates should be adjusted to reflect the need for higher rates for vigorous cultivars and in the Sunbelt Region and lower rates in the Northern Belt Region.

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[1]Chrysanthemum spray: A rate of 7.5-15 PPM is recommended for sensitive varieties and 15-25 ppm for others. Spray when the axillary shoots following the pinch are 1.5 inches long or before rapid elongation occurs. If a second application is required, it should be made two weeks after the first.
ND = Rates for this application technique have not been determined.

TABLE 6: POINSETTIA GROWTH VIGOR GROUPS AND SPRAY RATE RANGE TRIAL GUIDELINES

Vigor Groups	Example Cultivars	Weeks of growth after pinch (6.5-inch pot) NORTH	Weeks of growth after pinch (6.5-inch pot) SOUTH	Topflor Spray Rate (PPM)
Very Low	'Hollypoint', 'Carousel'	7-8	4-5	NR
Low	'Maren', 'Sonora Red'	5-6	3-5	2.5-20
Moderate	'Freedom Red', 'Orion'	3-4	2-3	15-40
Substantial	'Red Violet', Spotlight Dark Red'	2-3	2-3	30-60
Extreme	'Monet Twilight', 'Snowcap'	2-3	1-2	60-80

These are guidelines to provide relative growth differences among cultivars. They should not be viewed as specific recommendations.
NR = Not a recommended use.

Poinsettia Application Timing

Early Applications: Treat plants at pinch up to 6 weeks after pinch, or 8 to 12 weeks before finishing.

Late Applications: The timing of application should be based upon the height of the poinsettia in relation to height goal. If final plant height goal is 15 inches, then apply Topflor when the plants are 12-13 inches in height. To ensure uniformity, any plants shorter than 12-13 inches should not be treated at that time. Like most PGRs, seasonably late applications of Topflor will reduce plant height, with minimal to no effect on bract size.

Perennial Plants, Herbaceous

Topflor is effective in controlling height of a wide variety of herbaceous perennial plants. Rate ranges for different species and cultivars vary greatly. Trials should be conducted using a general guidelines rate of 20-80 PPM for spray applications. Examples of perennials for which the product has provided optimum height control include:

Acalypha
Arbutilon
Butterfly bush (*Buddleia* sp.)
Coreopsis
Fuchsia
Lantana
Lobelia
Pachystachys
Phlox
Sage, Russian (*Perovskia atriplicifolia*)
Sage, Mexican bush (*Salvia leucantha*)
Scablosa
Verbena
Veronica

Woody Landscape Plants (Container-grown in greenhouses and shadehouses)

Topflor is effective in controlling the height on a wide variety of woody landscape plants using either spray or drench applications. Rate ranges for different species vary greatly. Trials should be conducted using a general guidelines rate of 100-200 PPM for spray applications. Typical application rate is 1 gallon of spray mixture (up to 200 ppm) per 200 square feet of potted plants. Examples of woody nursery plants for which the product has provided optimum height control include:

Abelia
Azalea
Bouganvillea
Cotoneaster dammeri 'Coral Beauty'
Crape myrtle 'Natchez'
Dipladenia

Euonymus kiautschovicus 'Manhattan'
Gardenia jasminoides 'Mystery'
Glory bush (*Tibouchina* sp.)
Holly: *Ilex* X *attentuata* 'Fosteri' (Foster holly)
Ilex X *meserveae* 'China Girl'
Honeysuckle 'Goldflame' (*Lonicera* X *heekrotti*)
Hydrangea
Photinia X *fraseri* (Fraser photinia)
Rhododendron catawbiense 'Nova Zembla'
Rose

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