PM 22 2217-776 File 1 of 15

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

JAN 14 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

James A. Armbruster, Ph.D.
Chemical Consultants, International
Agent for: PBI/GORDON CORPORATION
7270 W. 98th Terrace, Suite 100
Overland Park, KS 66212

Subject: Label Amendment Submission of 09/01/93 in Response to PR Notice 93-7
EPA Reg. No. 2217-776
ATRINAL PLANT GROWTH REGULATOR

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted subject to the comments reflected on the enclosed sheet. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

By the next label printing make all the specified changes to your labeling. Send to EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling

AND

- WITHIN one year from date of this acceptance.

Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,

Jim Tompkins, Deputy Chief
Registration Support Branch
Registration Division (7505W)

Attachment

3 of 15

ATRIMMEC®

PLANT GROWTH REGULATOR

For Systemic Chemical Pinching & Pruning of Ornamental Plants

ACTIVE INGREDIENT:	
Dikegulac-sodium (Sodium salt of 2,3:4,6-bis-O-(1-methylethylidene)-a-L-xylo-2-Hexulofuranosonic acid	18.5%
INERT INGREDIENTS	81.5%
TOTAL	100.0%

Contains 1.67 lb. dikegulac-sodium per gallon or 200 grams active ingredient per liter.
Atrimmec® is a registered trademark of PBI/Gordon Corporation.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See Back Panel for Additional Precautionary Statement

NET CONTENTS ONE US GALLON (3.785 LITERS)

662/993WPS AP

EPA REG. NO. 2217-776
EPA EST. NO. 2217-KS-1

Manufactured by PBI/GORDON CORPORATION
KANSAS CITY, KANSAS 66118

ACCEPTED
with COMMENTS
In EPA Letter Dated

JAN 14 1994

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 2217-776

STOP! READ THE ENTIRE LABEL FIRST. OBSERVE ALL PRECAUTIONS AND FOLLOW DIRECTIONS CAREFULLY.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION: May be harmful if inhaled. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists. Do not use on food or fodder crops.

Personal Protective Equipment (PPE):
Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:
Users should:
◆Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Environmental Hazards: For terrestrial uses, 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 washwaters.

DIRECTIONS FOR USE

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

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 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 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 in your State responsible for pesticide regulation.

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

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, wear: coveralls, waterproof gloves, and shoes plus socks.

STORAGE AND DISPOSAL

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

STORAGE: Store in original container in a locked storage area. Keep from freezing. To prevent cross-contamination, do not store near other pesticides, fertilizers, seeds, food or feed.

PRODUCT 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.

ATRIMMEC FOR GREENHOUSE AND NURSERY CROPS

WHAT ATRIMMEC DOES: ATRIMMEC is a systemic plant growth regulator applied as a foliar spray that reduces or breaks apical dominance and enhances lateral branching.

ATRIMMEC is absorbed through the leaves and translocated to the shoot tips. Pinching effect is limited to sprayed branches.

ATRIMMEC will chemically pinch unpruned shoots and will also increase branching of trimmed shoots.

ATRIMMEC produces full, well-branched plants with more abundant bloom.

ATRIMMEC reduces the need for mechanical pinching and pruning.

CONSIDERATIONS WHEN USING ATRIMMEC FOR GREENHOUSE AND NURSERY CROPS

- Best response is obtained on lush spring growth or under good growing conditions. Avoid treating plants under cool weather conditions or extremely hot summer temperatures.
- Plants must be well rooted and actively growing. Do not treat wilted or dormant plants. Plants must be healthy and not under stress from drought, nutritional deficiency or disease. Avoid treating plants under conditions favoring root disease, such as standing water in poorly drained soil.
- ATRIMMEC should be applied on shorter, more tender new shoots than usually considered appropriate for hand pinching.
- For optimal results, remove any flower buds or flowers present, and trim all long shoots.
- ATRIMMEC is best absorbed by soft, fully developed leaves. If plants have been heavily pruned at least two pairs of expanded leaves should remain on each shoot.
- For best results use ATRIMMEC on rooted cuttings or young liners. One application is usually sufficient to get good frame branching. Subsequent pinching of older plants can be done with ATRIMMEC to further improve branching.
- In frost-susceptible regions, the final treatment should be made sufficiently early in the season so that the new growth will harden off before frost.
- Overdosing with ATRIMMEC may result in marked chlorosis, necrotic terminal shoots and delayed regrowth. Underdosing may result in little or no pinching effect.

AFTER TREATING PLANTS WITH ATRIMMEC

- Allow sufficient time for the chemical pinching response. There is no visible effect for the first 7 to 10 days. Trimming or hand pinching after applying ATRIMMEC may interfere with the action of the product.

- 1 to 2 weeks after treatment, the terminal growth and young leaves will often show distinct yellowing or chlorosis. This is normal and indicates ATRIMMEC is working. This effect is transient and cannot be stopped by giving additional nutrients.
- ATRIMMEC treated plants will not grow for some weeks and thus will require less fertilizer and water than hand-pinched plants, until the axillary buds break and new growth begins. Do not over-fertilize and overwater during this period.
- If growing conditions favor disease, make preventive fungicide applications.
- Give the plants enough space and light for new shoots to develop after axillary buds have broken.
- Cuttings taken from ATRIMMEC treated plants root and grow normally.

DIRECTIONS FOR USE ON GREENHOUSE AND NURSERY ORNAMENTALS (TABLE 1)

Suggested use rates of ATRIMMEC vary with different species. Where a dosage range is given, use a concentration in the lower part of the indicated range for tender, sensitive varieties; use a concentration in the higher part of the suggested range for vigorous, rank-growing varieties or if temporary retardation of growth is desired.

Sprays should be applied either to unpinched shoots when they reach 1 to 3 inches (3 to 8 cm) long or to trimmed plants within 3 days after cutting back new growth. Most plants should be treated only once per year.

Spray entire plant until wet, just short of run-off. Thorough coverage of foliage is the key to good results. One gallon of finished spray solution covers 400 to 600 square feet (1 liter per 10 to 15 square meters).

TABLE 1: CHEMICAL PINCHING OF GREENHOUSE AND NURSERY CROPS

Species of Ornamental Plant	Concentration of ATRIMMEC in Water	
	fluid ounces per gallon	approximately ml/liter
Abelia x grandiflora	1/2	4
Acacia farnesiana - Sweet acacia	1	8
Aeschynanthus spp. - Lipstick vine	1/3 to 2/3	2 1/2 to 5
Arborvitae - *Thuja occidentalis*	1/4	2
Azaleas (Rhododendron hybrids) Start treating rooted cuttings. Greenhouse azaleas may be treated several times during the first year of growth. For the final pinch treat no later than early July to avoid delayed bud development and subsequent bloom.	2 to 4	15 to 30
Begonia - Elatior hybrids *Begonia x cheimantha* Treat unpinched plants with 2 to 3 inch (5 to 8 cm) long shoots 8 to 10 weeks before finishing for sale. Rooted leaf cuttings can also be treated.	1/2 to 1	4 to 8
Bottlebrush - *Callistemon lanceolatus*	1 to 2	8 to 16
Bougainvillea - *Bougainvillea spp.*	1	8
Buddleia spp. - Butterfly bush	1/3 to 1	2 1/2 to 8
Callistemon lanceolatus - Bottlebrush	1 to 2	8 to 16

Species of Ornamental Plant	Concentration of ATRIMMEC in Water	
	fluid ounces per gallon	approximately ml/liter
Cherry-laurel - *Prunus laurocerasus*	1 to 2	8 to 16
Cissus spp. - Grape ivy	1/2 to 1	4 to 8
Clerodendrum spp. - Glorybower	2/3 to 1 1/3	5 to 10
Cleyera japonica	2	16
Cotoneaster spp.	1/2 to 1	4 to 8
Crape myrtle - *Lagerstroemia indica* For miniature crape myrtle varieties, use 1 fluid ounce of ATRIMMEC per gallon.	1 to 2	8 to 16
Elaeagnus spp.	1 to 1 1/2	8 to 12
Eugenia myrtifolia	1 to 1 1/2	8 to 12
Eyonymus spp.	1/2 to 1	4 to 8
Fatshedera lizei	3/4 to 1	6 to 8
Forsythia spp.	1 to 2	8 to 16
Fuchsia hybrids Treated rooted cuttings with 2 to 3 pairs of leaves or as soon as branching becomes desirable, but not later than 10 to 12 weeks before finishing for sale.	1/2 to 1 1/2	4 to 12
Gardenia jasminoides	1 1/2 to 3	12 to 24
Gelsemium sempervirens	1 to 2	8 to 16
Glorybower - *Clerodendrum spp.*	2/3 to 1 1/3	5 to 10
Grape ivy - *Cissus spp.*	1/2 to 1	4 to 8
Hedera helix - English ivy	1	8
Holly - *Ilex spp* To induce branching treat vegetative growth in early spring. To prevent berry set on Japanese holly, *Ilex crenata*, use 2/3 to 1 1/2 fluid ounces of ATRIMMEC per gallon at any time from prebloom, tight bud stage through midbloom.	2/3 to 2 1/2	5 to 20
Ivy, English - *Hedera helix*	1	8
Ivy, Geranium - *Pelargonium peltatum*	1	8
Juniperus spp. - Juniper	1/4 to 1/2	2 to 4
Kalanchoe hybrids To induce lateral branching, more compact growth with a greater number of inflorescences, treat 2 days after pinching the main shoot.	2/3 to 1 1/2	5 to 12
Lagerstroemia indica - Crape myrtle For miniature crape myrtle varieties use 1 fluid ounce ATRIMMEC per gallon.	1 to 2	8 to 16

Lantana camara	1/2 to 1	4 to 8
Ligustrum spp. - Privet	1/2 to 1	4 to 8
Lipstick vine - *Aeschynanthus spp.*	1/3 to 2/3	2 1/2 to 5
Oleander - *Nerium oleander*	1 to 1 1/2	8 to 12
Osmanthus spp.	1 to 2	8 to 16
Pachystachys lutea- Shrimp plant Treat 1 day after mechanical pinching.	1/2 to 1	4 to 8
Pelargonium peltatum - Ivy geranium	1	8
Photinia fraseri After mechanical pinching or trimming apply two treatments at a 10 to 14 day interval to induce lateral bud break.	2 to 4	15 to 30
Pittosporum tobira	1 to 2	8 to 16
Privet - *Ligustrum spp.*	1/2 to 1	4 to 8
Prunus laurocerasus - Cherry-laurel	1 to 2	8 to 16
Pyracantha coccinea	2 to 3	16 to 24
Raphiolepis indica Apply a single treatment or two treatments at a 10 to 14 day interval to induce lateral bud break.	1 1/2 to 2 1/2	12 to 20
Schefflera arboricola	2	16
Shrimp plant - *Pachystachys lutea* Treat 1 day after mechanical pinching.	1/2 to 1	4 to 8
Thuja occidentalis - Arborvitae	1/4	2
Verbena hybrids Treat unpinched seedlings, or plants from cuttings 1 day after manual pinching.	1/3 to 2/3	2 1/2 to 5
Viburnum spp.	1 1/2 to 2	12 to 16
Xylosma spp.	1 1/2 to 2	12 to 16

Non-Agricultural Use Requirements

The requirements in this box apply to use 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.

Keep all unprotected persons, livestock, and pets away from treated area or where there is a danger of drift.

ATRIMMEC® IS EASY TO USE:

- Mix with water in a well-rinsed sprayer. Finished spray should be used the same day it is prepared. Do not mix ATRIMMEC with fertilizers or other chemicals.
- A surfactant is incorporated in the product. No additional wetting agent is needed.
- Plant foliage should be dry when spray is applied.
- On very hot, sunny days, spray preferably early in the morning or late in the afternoon.
- Spray entire plant until wet, just short of run-off. Thorough coverage of foliage is the key to good results.
- Avoid spray drift to neighboring plants.
- After spray has dried, respraying may overdose previously treated plants. Be careful to avoid overlapping treatment of plants.
- If treated plants are subject to rainfall or overhead irrigation within 6 hours after spraying, effectiveness may be reduced.
- Trimming after applying ATRIMMEC may interfere with the action of the product.

ATRIMMEC - FOR LANDSCAPE MAINTENANCE

WHAT ATRIMMEC DOES: ATRIMMEC is a growth retardant for use on hedges, shrubs, trees and ground covers. It can also be used on certain trees and shrubs to prevent flowering and fruit set.

ATRIMMEC is a systemic plant growth regulator usually applied as a foliar spray. It is absorbed by the leaves and translocated to the shoot tips. Growth retardant effect is limited to sprayed branches.

ATRIMMEC solutions may also be injected into the trunks of larger trees to retard growth of certain broadleaf species along rights-of-way, city streets, parks, and other areas where there is need for reducing the frequency of manual pruning.

ATRIMMEC temporarily stops shoot elongation and promotes lateral branching. This reduces the need for trimming and pruning. It can also improve the appearance of landscape ornamentals by gradually filling in growth and providing a more uniform, compact shape.

CONSIDERATIONS WHEN USING ATRIMMEC FOR LANDSCAPE MAINTENANCE

LOOKING FOR A FORMAL APPEARANCE? Trim the shrub or ground cover to shape, leaving at least two pairs of expanded leaves on each shoot to absorb the spray. Apply ATRIMMEC within three days.

LOOKING FOR A MORE NATURAL APPEARANCE? Either trim only the long, wild shoots and immediately apply ATRIMMEC spray or trim shrub or ground cover to shape, allow the new shoots to grow at least two inches (5 cm.) and then apply ATRIMMEC spray.

TIMING TREE TRUNK INJECTIONS? On deciduous trees, best results are obtained when winter trimmed or untrimmed trees are injected with ATRIMMEC solution after the first flush of leaves is 3/4 to fully developed and before shoot growth begins. Broadleaf evergreens may be treated during seasonal flushes of growth.

GENERAL INDICATIONS FOR USING ATRIMMEC

After an application of ATRIMMEC in spring, plants can usually be maintained in acceptable shape for a full season. Under extremely good growing conditions or in areas with a long growing season, two treatments per year may be considered on certain species. However, in areas with a short growing season only a single spring treatment is recommended.

Plants must be well rooted and actively growing. Do not treat wilted or dormant plants. Plants must be healthy and not under stress from drought, nutritional deficiency or disease. Avoid treating slow growing plants under cool weather conditions or extremely hot summer temperatures.

Best response is obtained on lush spring growth or under good growing conditions.

Temporary reduction or suppression of flowering may be observed in shrubs and ground covers such as alyssum, oleander, star jasmine and gazania, but normal bloom returns 3 to 6 weeks after spraying.

Chlorosis of the growing tip and terminal growth may occur a few weeks after the spraying of some species. This is usually transient but may persist up to 6 weeks on certain shrubs such as forsythia, oleander and privet. Fully expanded foliage is not affected.

Overdosing with ATRIMMEC may result in marked chlorosis and necrotic terminal shoots. Underdosing may result in little or no growth retardant effect.

DIRECTIONS FOR USE FOR GROWTH CONTROL OF LANDSCAPE ORNAMENTALS (TABLE 2)

Suggested use rates of ATRIMMEC vary with different species. Where a dosage range is given, use a concentration in the lower part of the indicated range for tender, sensitive varieties; use a concentration in the higher part of the suggested range for vigorous, rank-growing varieties.

Spray volume will vary with the size of plants and amount of foliage. Spray to wet short of run-off. On hedges, shrubs and ground covers one gallon of finished spray solution covers 400 to 600 square feet (1 liter per 10 to 15 square meters). Small trees up to 16 feet (5 meters) tall require 1 to 5 gallons (5 to 20 liters) per tree. Larger trees 20 to 30 feet (6 to 9 meters) in height will require 10 to 15 gallons (40 to 60 liters) of finished spray solution per tree. Thorough coverage provides the best results.

TABLE 2: Growth Control of Landscape Ornamentals

Species of Ornamental Plant	Concentration of ATRIMMEC in Water	
	fluid ounces per gallon	approximately ml/liter
Arborvitae (*Thuja occidentialis*)	1	8
Abelia *(Abelia x grandiflora)*	1	8
Alyssum *(Alyssum spp.)*	2	16
Ash, Arizona or Velvet *(Fraxinus velutina)*	1 to 2	8 to 16
Ash, Shamel *(Fraxinus uhdei)*	1 to 2	8 to 16
Barberry *(Berberis spp.)*	1	8
Bottlebrush *(Callistemon spp.)*	2 to 3	16 to 24
Bougainvillea *(Bougainvillea spp.)* Temporary suppression of flowering may be observed 3 to 6 weeks after spraying.	2	16
Buddieia spp. (Butterfly bush)	1 to 2	8 to 16
Butterfly bush (*Buddieia spp.*)	1 to 2	8 to 16
Calistemon spp. (Bottlebrush)	2 to 3	16 to 24

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Species of Ornamental Plant	Concentration of ATRIMMEC in Water	
	fluid ounces per gallon	approximately ml/liter
Cape honeysuckle (*Tecomania capensis*)	2 to 3	16 to 24
Cherry-laurel *(Prunus spp.)*	2 to 3	16 to 24
Cotoneaster *(Cotoneaster spp.)*	1 to 2	8 to 16
Crataegus spp. (Hawthorn)	1 to 2	8 to 16
Cypress *(Cupressus spp.)*	1	8
Elaeagnus *(Elaeagnus spp.)*	2 to 3	16 to 24
Elm, Chinese *(Ulmus parvifolia)*	2	16
Elm, Siberian *(Ulmus pumila)*	1 to 2	8 to 16
Euonymus *(Euonymus spp.)*	2 to 3	16 to 24
Eugenia *(Eugenia myrtifolia)*	2	16
Ficus *(Ficus repens)*	2 to 3	16 to 24
Fig, Laurel *(Ficus nitida)*	2	16
Firethorn *(Pyracantha spp.)*	2 to 3	16 to 24
Forsythia *(Forsythia spp.)* Treat only spring growth. Summer treatments may retard flower bud set and development.	2	16
Fraxinus velutina (Arizona or Velvet Ash)	1 to 2	8 to 16
Fraxinus uhdea (Shamel Ash)	1 to 2	8 to 16
Gazania *(Gazania spp.)*	2	16
Hardy orange *(Poncirus trifoliata)*	2	16
Hawthorn *(Crataegus spp.)*	1 to 2	8 to 16
Hedera canariensis (Algerian Ivy)	2 to 3	16 to 24
Hedera helix (English Ivy)	2	16
Holly *(Ilex spp.)* Use 3 fluid ounces of ATRIMMEC per gallon for growth control of Yaupon holly *(Ilex crenata)* Avoid spraying Japanese holly *(Ilex crenata)* just before or during the flowering period if berry display is desired.	2 to 3	16 to 24
Honeysuckle *(Lonicera spp.)*	3	24
Ivy, Algerian *(Hedera canariensis)*	3	24
Ivy, English *(Hedera helix)*	2 to 3	16 to 24
Jasmine, Star *(Tracheiospermum jasminoides)*	2	16
Orange jessamine *(Murraya paniculata)*	2	16
Juniper *(Juniperus spp.)*	1	8
Lantana *(Lantana camara)*	1 to 2	8 to 16

Species of Ornamental Plant	Concentration of ATRIMMEC in Water	
	fluid ounces per gallon	approximately ml/liter
Ligustrum *(Ligustrum spp.)* Use 2 fluid ounces of ATRIMMEC per gallon on waxleaf privet, *(Ligustrum japonica "Texanum")*	1 to 2	8 to 16
Lippia, Creeping *(Phyla nodiflora canescens)*	2	16
Lonicera spp. (Honeysuckle)	3	24
Morus alba (Mulberry)	2	16
Mulberry, White *(Morus alba)*	2	16
Murraya paniculata (Orange Jessamine)	2	16
Oleander *(Nerium oleander)*	1 to 2	8 to 16
Osmanthus *(Osmanthus spp.)*	2	16
Periwinkle *(Vinca minor)*	2	16
Photinia, Red tip *(Photinia traseri)*	3	24
Pittosporum *(Pittosporum tobira)*	2	16
Podocarpus, Yew *(Podocarpus macrophyllus)*	2	16
Poncirus trifoliata (Hardy Orange)	2	16
Privet *(Ligustrum spp.)* Use 2 fluid ounces of ATRIMMEC per gallon on waxleaf privet *(Ligustrum japonica "Texanum")*	1 to 2	8 to 16
Prunus spp. (Cherry-laurel)	2 to 3	16 to 24
Raphiolepis (*Raphiolepis indica*)	2 to 3	16 to 24
Tecomaria *(Tecomaria capensis)*	2 to 3	16 to 24
Thuja occidentalis (Arborvitaé)	1	8
Trachelospermum jasminoides (Star Jasmine)	2	16
Ulmus parvifolia (Chinese Elm)	2	16
Ulmus pumila (Siberian Elm)	1 to 2	8 to 16
Viburnum *(Viburnum spp.)*	2 to 3	16 to 24
Vinca minor (Periwinkle)	2	16
Willow *(Salix spp.)*	1 to 2	8 to 16
Xylosma *(Xylosma spp.)*	2 to 3	16 to 24

DIRECTIONS FOR USE FOR SUPPRESSION OF FLOWER AND FRUIT FORMATION (TABLE 3)

ATRIMMEC spray applied prebloom or during the flowering period of certain ornamentals reduces or eliminates bloom and prevents fruit set.

Certain landscape trees and shrubs are allergenic during bloom. Ripe fruit falling on sidewalks, streets, and parked cars present a difficult clean-up problem which can often be reduced or prevented with a single spray treatment.

The spray concentration and timing of treatments are given in the table for each species of tree or shrub. ATRIMMEC treatment is generally ineffective for these purposes after fruit has begun to set.

Foliar injury may occur if ATRIMMEC is applied to drought-stressed trees. Treat healthy, vigorously growing trees only.

Complete spray coverage is essential for good results. See suggested spray volumes indicated for growth control of landscape ornamentals.

TABLE 3: SUPPRESSION OF FLOWER AND FRUIT FORMATION

Species of Ornamental Plant	Concentration of ATRIMMEC in Water	
	fluid ounces per gallon	approximately ml/liter
Olive, ornamental *(Olea europaea)*	2 1/3 to 5	20 to 40
Treat at any time from prebloom period after floral rachis has elongated about 1/2 inch (1.3 cm) through early bloom. Best results are obtained in early spring during the tight bud stage of the prebloom period.		
Privet, glossy *(Ligustrum lucidum)*	2/3 to 1 1/2	5 to 12
Treat when flower parts have elongated 1 to 3 inches (2.5 to 7.5 cm), since subsequent vegetative growth will cover the dead floral rachis and maintain satisfactory appearance. Treatment at a later stage, when flower parts are 4 to 6 inches (5 to 15 cm), leaves the dead floral parts visible for the remainder of the season.		
Rose, multiflora *(Rosa multiflora)*	2/3 to 1 1/2	5 to 12
Apply ATRIMMEC at any time from the prebloom period when plants are in full foliage and flower buds have formed through early bloom (10 to 15% bloom).		
Holly Japanese *(Ilex crenata)*	2/3 to 1 1/2	5 to 12
To prevent berry set apply at any time from prebloom, tight bud stage through midbloom.		

DIRECTIONS FOR USE TO RETARD GROWTH OF TREES BY TRUNK INJECTIONS (TABLE 4)

ATRIMMEC may be used to retard growth of certain broadleaf tree species along utility rights-of-way, city streets, parks, and other areas where there is a need for reducing the frequency of manual pruning. Tree growth is highly variable depending upon species, location, climatic factors, environmental conditions, etc., and it is recommended that users establish by testing on a limited number of trees the best rates to produce the desired growth reduction under local growing conditions before large scale tree injection programs are pursued. For control of growth, solutions of ATRIMMEC are injected into the tree trunk as described below.

TIMING OF INJECTION: On deciduous trees, best results are obtained when winter trimmed or untrimmed trees are injected with ATRIMMEC solution after the first flush of leaves is 3/4 to fully developed and before shoot growth begins. Broadleaf evergreens may be treated during seasonal flushes of growth.

MIXING: Pour the amount of ATRIMMEC indicated into a partially filled tank, then add the necessary quantity of water to complete the desired volume of solution for injection.

EQUIPMENT: Best results are obtained when the total volume of injected ATRIMMEC is distributed evenly throughout the tree. The pressurized injection system developed by the United States Department of Agriculture, Nursery Crop Research Laboratory, Delaware, Ohio (G.K. Brown - 1978 Journal of Arborculture 4:7-13) has proven effective for injection of ATRIMMEC.

INJECTION TECHNIQUES: Trees that are 6 to 16 inches in DBH (diameter breast height) require 3 injection holes equally spaced around the tree trunk. Trees greater than 16 inches DBH require 6 injection holes. Holes should be in the zone between root flare and about 40 inches above the ground.

Drill injection holes horizontally into the trunk, so that the growth regulator will be injected into the outer sapwood to facilitate rapid uptake. Injection holes should not penetrate the wood more than 2 1/2 inches and drill size should not exceed 7/32 inch. Use injection pressures of 100 to 200 psi to achieve rapid uptake of solution. Do not exceed pressure of 200 psi.

CONCENTRATION OF ATRIMMEC AND VOLUME INJECTED

DILUTE SOLUTIONS: ATRIMMEC at the rates indicated for each tree species should be diluted with water to the required volume for injections.

When tree crown or leaf area is considered larger than normal, use concentrations in the higher part of the suggested range. For trees with very small crowns or leaf area, concentrations in the lower part of the suggested range should be used.

The volume of ATRIMMEC dilute solution injected is dependent upon the tree size. The total injection volume (TIV) of ATRIMMEC solution is determined by measuring the diameter of the tree at breast height (DBH) and utilizing one of the following formulas:

Number of injection holes required	Total injection volume in ml (TIV)	Volume per injection hole
For trees 6 - 16 inches DBH	3 $TIV=(DBH)^2 \times 1.59$	$\frac{TIV}{3}$
For trees greater than 16 inches DBH	6 $TIV=DBH \times 25.25$	$\frac{TIV}{6}$

CONCENTRATE SOLUTION: More concentrated solutions of ATRIMMEC can be used for tree injection. These are prepared by increasing the amount of ATRIMMEC per unit volume by 2 to 4 times the amount recommended for dilute injection solutions and by reducing the TIV by a proportionate amount. The highest suggested concentration for tree injection is a 4X concentration in 1/4 the volume calculated for dilute solutions.

PRECAUTIONS: Do not inject ATRIMMEC into drought-stressed trees or trees that do not appear healthy. Do not inject ATRIMMEC into bearing fruit or nut trees or sugar maple trees tapped for sugar.

TABLE 4: GROWTH CONTROL OF TREES BY TRUNK INJECTION

Species of Tree	Concentration of ATRIMMEC in Water	
	ml of ATRIMMEC diluted with water to 1 liter	fluid ounces ATRIMMEC diluted with water to 1 gallon
Sycamore *(Platanus occidentalis)*	60 to 90	8 to 12
London plane tree *(Platanus acerifolia)*	60 to 90	8 to 12
Bigleaf, Norway, Red and Silver maples *(Acer macrophyllum, A. platanoides, A. rubrum* and *A. saccharinum)*	60 to 90	8 to 12
Eucalyptus *(Eucalyptus spp.)*	60 to 90	8 to 12
(Eucalyptus sideroxylon)	30 to 60	4 to 8
Cottonwood *(Populus deltoides)*	60 to 90	8 to 12
Shamel ash *(Fraxinus uhdei)*	175 to 250	23 to 32
Hackberry *(Celtis occidentalis)*	225 to 375	30 to 50
Water oak *(Quercus nigra)*	250 to 500	32 to 64

LIMITED WARRANTY AND DISCLAIMER. The manufacturer warrants only that the chemical composition of this product conforms to the ingredient statement given on the label, and that the product is reasonably suited for the labeled use when applied according to the Directions for Use.

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