

## Insect and Mite Management Suggestions for Commercial Poinsettia Production <sup>1</sup>

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The vibrant red, pink, white or variegated poinsettia is synonymous with Christmas, and greenhouse, shade house and open field nurseries produce them to coincide with the Thanksgiving to Christmas holiday season. Consumers enjoy poinsettias as hanging baskets, 4 to 8-inch pots and chest high, single-stem trees, although multiple stem plants in 6-inch pots account for greatest sales. Regardless of growth type, poinsettias add seasonal essence to homes, shopping malls, churches and businesses.

Twenty-nine major farms produced 12.4 million pots of poinsettias in Florida during 2007 wholesale valued at \$36.5 million. These were sold in the southeastern U.S.

Important arthropod pests include silverleaf whitefly, fungus gnats, and several others throughout the state. The poinsettia hornworm, or ello moth, is notably important in south Florida.

Table 1 lists the chemical control measures that are presently available to commercial poinsettia

producers in Florida and includes beneficial nematodes and microbial insecticides, components of biological control. The arthropod pest groups most likely to damage poinsettia are presented alphabetically as section headings as follows:

- Armyworms (see also Caterpillars)
- Caterpillars (see also Armyworms and Poinsettia Hornworm)
- Fungus Gnats
- Mealybugs
- Poinsettia Hornworm (see also Caterpillars)
- Scales
- Shore Flies
- Slugs & Snails
- Spider Mites

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2. James F. Price, associate professor, Curtis Nagle, biologist and Elzie McCord, Jr., adjunct professor, University of Florida Entomology and Nematology Department, Gulf Coast Research and Education Center, Cooperative Extension Service, Institute of Food and Agricultural Sciences, Bradenton, FL 34203. The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication does not signify our approval to the exclusion of other products of suitable composition. All chemicals should be used in accordance with directions on the manufacturer's label. Use pesticides safely. Read and follow directions on the manufacturer's label.

- Thrips
- Whiteflies

For each pest presented, products available for its control are organized by common chemical name of the pesticide product's active ingredient (a.i.). Usually only one or a few examples of each formulation is given; however, there may be other products as effective as those listed. The products' permitted use sites (field or greenhouse) as well as notes taken from labels are provided to qualify some uses.

Precautionary statements, re-entry intervals, restricted use status, and registrants are available in a separate publication, *Insecticides, Miticides & Molluscicides Available to Florida's Floricultural Industry* (ENY-679) (<http://edis.ifas.ufl.edu/IN472>), to aid in the selection and safe use of appropriate pesticides. More detailed information about a pesticide product should be sought on a current specimen label. Electronic versions of specimen labels are usually available at the Web sites of CDMS (<http://www.cdms.net/manuf/default.asp>), C&P Press (<http://www.greenbook.net/>) or the affiliated manufacturer.

Many pesticides decompose in the spray tank when mixed with water above pH 7. Growers should test the pH of their water and, when above 7, should add a buffering solution to maintain pH in the 6.5 to 7 range.

This summary is only a guide to aid in selection of pesticides. Care has been given to provide accurate and up-to-date information, but it is possible that through label changes, errors, etc., improper uses may be indicated. In all cases it is the responsibility of the applicator to read, understand, and comply with the label that accompanies each pesticide container.

As an additional precaution, keep the telephone number and address of the nearest county poison control center in a convenient location in case of an accidental poisoning. Also, keep clean copies of labels of all pesticides that are on the premises. In the event of a poisoning, the label of the pesticide involved should be taken to the poison control center or hospital.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Literature
<b>Armyworms (Lepidoptera: Noctuidae) See also Caterpillars</b>			
Azadirachtin	Azatrol EC	F, G	Nursery (F); waxy bloom on certain ornamentals reduced after an application. Caution is advised with applications to poinsettia; spotting of plants possible.
<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain ABTS-1857	XenTari Dry Flowable	F, G	May be used to control small armyworms; test results apply full coverage sprays when populations are present. Where 4th or 5th instar larvae are present, an insecticide should be used in combination.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain BMP 123	Baritone Bio-Insecticide	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain ABTS-351	Biobit HP Dipel Pro DF	F, G	May be used to control armyworms (1st and 2nd instar) if populations are light and full coverage sprays are used. If armyworms or heavy populations are present, an insecticide should be used to enhance control.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG2348	Condor Bioinsecticide	F, G	Do not use in combination with any chlorpyrifos (Bravo, Terranil etc.). Mixing with other insecticides and surfactants could increase the risk of phytotoxicity.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7826	Lepinox WDG	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7841	Crymax Bioinsecticide	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-11	Javelin WG	F,G	For most consistent control apply at first instar larvae (1st and 2nd instar larvae).
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-12	Deliver	F, G	
Bifenthrin	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Shade house and nursery (F)
	OnyxPro	F	
	Talstar Nursery Flowable	F, G	Shade house and nursery (F); do not apply more than 1.5 lbs per acre per year for outdoor applications.
	TalstarOne Multi-Insecticide	G	
Carbaryl	AllPro 10% Carbaryl Dust	F	Fall armyworm
	Carbaryl 4L Carbaryl 80S Sevin 80 WSP	F	Nursery; application to wet foliage or during rain may cause injury to tender foliage.
	Cutworm & Cricket Bait	F	
	Sevin SL	F	Fall armyworm and <i>Pseudaletia unipuncta</i> (fall armyworm); this product is not registered for control of fall armyworm species.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Dursban 50W	F	Nursery
	Quali-Pro Chlorpyrifos 4E	F, G	Nursery (F); beet, fall and yellowstriped armyworm; incorporation treatment of field grown nurseries, potted or balled and burlapped nursery.
Cyfluthrin	Decathlon 20WP	F, G	

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Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Field grown nurseries and container stock management: Foliar application of any other insecticide following a Discus soil application in the shade house is not recommended. Outdoor applications of Discus are not recommended. Total of 244 oz. (0.62 lb. a.i.) per acre per season. Discus may be re-applied every 14 to 28 days.
Deltamethrin	Deltagard GC 5SC	F	Leaf-feeding caterpillars; nursery
Diflubenzuron	CityplaceDimilin StateSC	F, G	Shade house (F)
Fenpropathrin	Tame 2.4EC	F, G	Beet armyworm; nursery and shade house applications require a 7-day retreatment interval.
Permethrin	Ambush 25W	F, G	Beet armyworm; field grown nursery stock; apply more than 2.0 lbs. a.i. per acre per season. Ambush may cause browning of petals.
	Perm-Up 25DF	F	Field grown nursery stock; beet armyworm; apply more than 2.0 lbs. a.i. per acre per season.
	Permethrin E-Pro	F, G	Field and container grown nursery stock; apply more than 2.0 lbs. a.i. per acre per season.
	Pounce 25WP	F	Field grown nursery stock; beet armyworm
<i>Steinernema carpocapsae</i>	Millenium	F, G	See label for precautions on compatibility with other pesticides. In greenhouse applications also spray the undersides of benches where caterpillars can breed.
<b>Caterpillars (Lepidoptera) See also Section headings for these named caterpillars: Armyworms, Poinsettia Hornworms</b>			
Acetamiprid	TriStar 30 SG	F, G	Do not make more than five applications per season, more than once every 7 days. Do not apply more than 0.55 lb. a.i./acre of TriStar 30 SG/acre (0.55 lb. a.i./acre) of other chloronicotinyls/neonicotinyls, such as imidacloprid, may result in resistance to TriStar. To prevent resistance, rotate with other classes of insecticides.
	TriStar 70 WSP	F, G	Do not make more than five applications per season, more than once every 7 days. Do not apply more than 0.55 lb. a.i./acre of TriStar 70 WSP/acre of other chloronicotinyls/neonicotinyls, such as imidacloprid, may result in resistance to TriStar. To prevent resistance, rotate with other classes of insecticides.
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae. Reduces damage by repelling and deterring feeding.
	Azatrol EC	F, G	Lepidoptera moths; nursery (F); waxy banded moth; plants may be reduced after an application. Application recommended when making application to plant foliage and blossoms is possible.
	Ornazin 3% EC	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain ABTS-1857	XenTari Dry Flowable	F, G	Azalea caterpillar; diamondback moth; oleander moth; sod webworm
<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain GC-91	Jackpot WP	F	Loopers, budworms, diamondback moth; apply against small, newly-hatched larvae.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain ABTS-351	Biobit HP	F, G	Loopers, tobacco budworm, <i>Heliothis</i> , diamondback moth, ello moth (hornworm)
	Dipel Pro DF	F, G	Ello moth (hornworm), fall webworm, io moth, leafroller, saltmarsh caterpillar, tobacco

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<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain BMP 123	Baritone Bio-Insecticide	F, G	Loopers, tobacco budworm, omnivorous (hornworm)
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG2348	Condor Bioinsecticide	F, G	Ello moth (hornworm), io moth, loopers, tobacco budworm; precautions: Do not use chlorothalonil based fungicide (Bravo, T) or other oil based products or surfactants to avoid phytotoxicity.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7826	Lepinox WDG	F, G	Ello moth (hornworm), io moth, loopers, tobacco budworm, saddleback caterpillar
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7841	Crymax Bioinsecticide	F, G	Ello moth (hornworm), io moth, loopers, tobacco budworm
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-11	Javelin WG	F, G	Bollworm, cutworm, <i>Helicoverpa</i> spp., <i>H. virescens</i> , loopers, obliquebanded leafroller, omnivorous leaf-tier, redbanded leafroller, saltmarsh caterpillar, tobacco budworm, tobacco hornworm
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-12	Deliver	F, G	Bollworm, cutworm, <i>Helicoverpa</i> spp., <i>H. virescens</i> , loopers, obliquebanded leafroller, omnivorous leaf-tier, redbanded leafroller, saltmarsh caterpillar, tobacco budworm, tobacco hornworm
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Leaf-feeding caterpillars; do not tank mix with fungicides for a minimum of 48 hours after application
<i>Beauveria bassiana</i> strain GHA	Mycotrol O	F, G	Nursery and shade house (F); cabbage looper; use with a thermal pulse fogger.
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol.
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Leaf-feeding caterpillars; shade house a
	OnyxPro	F	Leaf-feeding caterpillars
	Talstar Nursery Flowable	F, G	Leaf-feeding caterpillars; shade house a more than 0.2 lbs. a.i. per acre per year
	TalstarOne Multi-Insecticide	G	Leaf-feeding caterpillars
Carbaryl	AllPro 10% Carbaryl Dust	F	Leafrollers
	Carbaryl 4L Carbaryl 80S Sevin 80 WSP	F	Cutworms, leafrollers, puss caterpillar, s application to wet foliage or during period of rain may cause injury to tender foliage.
	Cutworm & Cricket Bait	F	Cutworms
	Sevin SL	F	Cutworms, leafrollers, puss caterpillar, s
Chlorfenapyr	Pylon Miticide	G	Do not apply Pylon more than two times or three times during a growing cycle (not more than 1.0 product/100 gal. / crop / season or 0.64 product/100 gal. / crop / season) (start to finish for one ornamental crop). Do not use on consecutive crops in a greenhouse or shade house in combination with other effective miticides. Pylon has a different mode of action. Phytotoxicity is reported on some varieties of poinsettia. Additions of crop nutrients, fertilizers or other tank additives have been reported to increase the likelihood of foliar injury.

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Chlorpyrifos	Chlorpyrifos E-Pro 2	F	Nursery; cutworms, hornworms, leafroller, obliquebanded, pandemis; for effective should be applied before leaves are tight sawflies (exposed)
	Duraguard ME	F, G	Nursery (F); hornworms; direct spray to cause petal drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Nursery (F); cutworms, hornworms, leafroller, Obliquebanded, pandemis; for effective should be applied before leaves are tight sawflies (exposed); pre-plant incorporation nursery stock; containerized, potted or bare stock (soil treatment).
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol.
Cryolite	Kryocide	F	
Cyfluthrin	Decathlon 20WP	F, G	Bud worms, cutworms, leaf-feeding caterpillars
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Leaf-feeding caterpillars, cutworms (supernumerary) nurseries and container stocks; resistant to application of any chloronicotinyl insecticide; application in the same crop is not recommended; applications of Discus can not exceed 2 per acre per year. Foliar applications maximum 28 days.
Deltamethrin	Deltagard GC 5SC	F	Cutworms, leaf-feeding caterpillars, leafroller nursery
Fenoxycarb	Preclude TR	G	Total release aerosol
Fenpropathrin	Tame 2.4 EC	F, G	Nursery and shade house (F); leafroller

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Imidacloprid	placeMarathon 1% G	F, G	Cutworm (suppression); nursery (F); for in beds, applications can not exceed a t year. On plants with a production cycle, application is not to exceed a frequency weeks for a particular plant. On stock pl production cycle of greater than 1 year, once a year. Woody perennials: Onset of herbaceous species. A delay of 2 or mo expected. Longer delays may be expect Application should therefore be made in activity.
	placeMarathon 60 WP	F, G	Cutworm (suppression); nursery (F); thi a soil treatment only. Woody perennials slower than in herbaceous species. A d should be expected. Longer delays may plants. Application should therefore be n insect activity. For outdoor ornamentals can not exceed a total of 10.7 oz. (0.4 lb per year. On plants with a production cy application is not to exceed a frequency weeks for a particular plant. On stock pl production cycle of greater than 1 year, once a year. Do not allow leachate runo application, in order to retain the produc the active ingredient.
	placeMarathon II	F, G	Cutworm (suppression); for outdoor orn applications cannot exceed a total of 1.0 per year.
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Cutworms, leaf-feeding caterpillars; nur do not apply more than 0.36 lb. a.i. per
Permethrin	Ambush 25W	F, G	Cutworms, <i>Heliothis</i> spp, omnivorous le stock (F); do not apply more than 2.0 lb Application to blooming plants may caus
	Astro	G	Leaf-feeding caterpillars; do not apply m per year. Application to blooming plants petals.
	Permethrin E-Pro	F, G	Leaf-feeding caterpillars; field and conta (F); do not apply more than 2.0 lbs. a.i.
	Perm-UP 3.2 EC	F, G	Cabbage looper, leaf-feeding caterpillar
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Buck moth larvae, saw fly larvae, cutwo products containing chlorothalonil shou cause severe phytotoxicity.
	M-Pede	F, G	Cutworm; tank mixes with chlorothalonil Potential for injury increases on plants s drought, or insect, mite or disease press be sensitive; bracts may be injured whe
Pyrethrins	PyGanic Crop Protection EC 1.4	F, G	
	PyGanic Crop Protection EC 5.0		

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Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Hornworm, moths; total release aerosol
	EverGreen EC 60-6 Pyrenone Crop Spray Pyreth-It	F, G	
Pyrethrins, piperonyl butoxide & silicon dioxide	Diatect II Multipurpose	F	
Pyrethrins, rotenone & other associated resins	Pyrellin EC	F, G	Apply in intervals of 7 days or less.
Refined petroleum distillate	Saf-T-Side Spray Oil	F, G	Leafrollers, leaftiers; this insecticides m suffocation of eggs, larvae and nymphs bodied insects. Do not use in combinati before or after spraying with fungicides oxythioquinox (Morestan) or any product not use with carbaryl (Sevin) or dimetho with any product whose label recommen use in combination with NPK foliar fertili
	Ultra-Fine Oil	F, G	Leafrollers, leaftiers; in field, caution: Sp consecutive sprays. The frequency of c not exceed once every 2 weeks. Early r recommended. For greenhouse pests li initially, then, as the pest is controlled, c every 2-3 weeks as needed. Do not tan miticide whose label indicates that it sho not use with captan, chlorothalonil, dime oxythioquinox, propargite, or any produ
Spinosad	Conserve SC Turf and Ornamental	F, G	Regardless of the crop or pest being tre spider mites and/or diamondback moths times in a 12 month period inside a gree can be altered to be closed or open. If C leafminers, spider mites and/or diamon apply more than six times in a 12 month or a structure that can be altered to be c commercial production of herbaceous o including plant propagation beds, do no a 12 month period per crop regardless o (excluding leafminers, spider mites and Conserve SC is used for leafminers, spi diamondback moth control do not apply month period per crop regardless if othe treated. Because generations of a spec control products and never apply more t applications of Conserve SC or product ingredient or having the same mode of a greenhouses and structures that can be open, do not reapply within less than 7
<i>Steinernema carpocapsae</i>	Millenium	F, G	Cutworms; sod webworms; tropical sod see label for precautions on compatibilit greenhouse applications also spray the tops, sides and undersides of benches where can breed.



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Tau-fluvalinate	Mavrik Aquaflow	F, G	Leaf-feeding caterpillars; do not exceed or 16 applications per year for immature in containers up to 5 gal.; for mature orn plants in containers larger than 5 gal. or applications per month or 24 application applications: Do not exceed four applic applications per crop.
<b>Fungus Gnats (Diptera: Sciaridae)</b>			
Acephate	1300 Orthene TR	G	Total release aerosol
Acephate & fenprothrin	Tame/Orthene TR	G	Do not apply within 48 hours of a previous aerosol
Acetamiprid	TriStar 30 SG	F, G	Larvae; do not make more than five app reapply more than once every 7 days. D ounces of TriStar 30 SG/acre (0.55 lb. a Resistance to other chloronicotinylnec and Marathon, may result in resistance minimize resistance, rotate with other cl
	TriStar 70 WSP	F, G	Larvae; do not make more than five app reapply more than once every 7 days. D water soluble packs per acre (0.55 lb. a Resistance to other chloronicotinylnec and Marathon, may result in resistance minimize resistance, rotate with other cl
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae damage by repelling and deterring feed
	Azatrol EC	F, G	Diptera; nursery (F); waxy bloom on cer be reduced after an application. Caution making applications to poinsettia; spotti blossoms is possible.
	Ornazin 3% EC	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>israelensis</i> strain 65-52	Gnatrol Biological Larvicide	F, G	Soil drench for control of larvae only; pla mixtures only (F)
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Do not tank mix with fungicides. Wait a application before applying fungicides.
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Adults; nursery and shade house (F)
	OnyxPro	F	Adults
	Talstar Flowable TalstarOne Multi-Insecticide	G	
	Talstar Nursery Flowable	F, G	Shade house and nursery (F); do not ap per acre per year for outdoor applicatio
	Talstar Nursery Granular	F	Larvae; containerized nursery stock; for potting media used in containerized pla

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Chlorfenapyr	Pylon	G	Phytotoxicity is likely to occur to some v stage fungus gnat larvae ( <i>Bradysia</i> sp.) than two times consecutively or a total o growing cycle (not more than 41 fl. oz. o season or 0.64 lbs. of a.i. / 100 gal. / cro one ornamental crop). Do not apply Pyl greenhouse unless the Pylon is applied effective miticides or insecticides with a Additions of crop oils, surfactants, and f additives have been shown to increase
Chlorpyrifos	Chlorpyrifos E-Pro 2 Chlorpyrifos Pro 2	F	Gnats; nursery
	Duraguard ME	F, G	Nursery (F); potted plants and hanging open blooms may cause petal drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Gnats; nursery (F); pre-plant incorporati nursery stock; containerized, potted or b stock (soil treatment).
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Cyfluthrin	Decathlon 20WP	F, G	
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Field grown nurseries and container sto management: Foliar application of any o following a Discus soil application in the recommended. For outdoor ornamenta not exceed a total of 244 oz. (0.62 lb. a. applications may be re-applied every 14
Cyromazine	Citation	F, G	Container and shade house grown (F); For control of fungus gnats and shore fl surfaces where insect pests may breed
Deltamethrin	Deltagard GC 5SC	F	Nursery

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Dinotefuran	Safari 2 G	F, G	Larvae; nursery and shade house (F); d (0.54 lbs ai) per acre of nursery per year of resistance, do not make more than on cycle or 3 months, whichever is shorter. media; do not apply to dry or saturated actively taking up water from soil. For op apply until roots from transplanted plugs least 1/2 inch. Poinsettias: For optimal o plants 1 to 3 weeks after pinch.
	Safari 20 SG	F, G	Larvae; nursery and shade house (F); a foliage or as a soil drench. Do not apply a.i.) per acre of nursery per year. For c broadcast applications can not exceed a (0.54 lb. a.i.) per acre per year. Resista recommendations: Do not apply Safari 2 group 4A insecticides to consecutive ge pest species. Regarding Safari or other not drench soil media more than one tim months, whichever is shorter. Do not m broadcast sprays, or one soil drench an spray, to a single crop during a 2 month puddling of irrigation water after applica areas that are water logged, saturated, penetration into the root zone of the pla when plants are dormant or not actively
Imidacloprid	placeMarathon 1% G	F, G	soil Larvae; nursery (F); for outdoor orname applications can not exceed a total of 4o plants with a production cycle of less th to exceed a frequency of more than onc particular plant. On stock plants and wo cycle of greater than 1 year, applicatio year. Woody perennials: Onset of prote herbaceous species. A delay of 2 or mo expected. Longer delays may be expec Application should therefore be made in activity.
	Marathon 60 WP	F, G	Larvae; nursery (F); this product is to be only. Woody perennials: Onset of prote herbaceous species. A delay of 2 or mo expected. Longer delays may be expec Application should therefore be made in activity. For outdoor ornamentals grown not exceed a total of 10.7 oz. (0.4 lbs. a year. On plants with a production cycle application is not to exceed a frequency weeks for a particular plant. On stock p production cycle of greater than 1 year, once a year. Do not allow leachate runo application, in order to retain the produc the active ingredient.
	Marathon II	F, G	Larvae; for outdoor ornamentals, broad exceed a total of 1.6 pt. (0.4 lbs. a.i.) pe

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Permethrin	Astro	G	Do not apply more than 2.0 lbs. a.i. per acre per year. Blooming plants may cause browning of leaves.
	Perm-UP 3.2 EC	F, G	Field and container grown nursery stock.
	Permethrin E-Pro	F, G	Field and container grown nursery stock. Do not apply more than 2.0 lbs. a.i. per acre per year.
Pyrethrins	PyGanic Crop Protection EC 1.4	F, G	
	PyGanic Crop Protection EC 5.0		
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR	G	Total release aerosol
	Pyrethrum TR Micro		
	EverGreen EC 60.6	F, G	
	Pyrenone Crop Spray		
Pyriproxyfen	Distance Insect Growth Regulator	F, G	For foliar spray application, apply Distance Insect Growth Regulator per cropping cycle or no more than two drench applications. For drench application, if a second application is needed, a minimum of 21 days between applications is required. Do not drench plants more than one time per year. Do not apply to poinsettia after bract formation.
Refined petroleum distillate	Saf-T-Side Spray Oil	G	This insecticide's mode of action is through suffocation of larvae and nymphs of insects, and adults. Do not use in combination with or immediately after application of fungicides such as Captan, Folpet, or any product containing sulfur. Also do not use in combination with dimethoate (Cygon). Do not use with any product containing sulfur. Do not use with any foliar fertilizer applications.
	Ultra-Fine Oil	G	For greenhouse pests listed, use once a week until the pest is controlled, decrease the frequency as needed. Do not tank mix with insecticides. Do not use if label indicates that it should not be used with chlorothalonil, dimethoate, methiocarb, or any product containing sulfur.
S-kinoprene	Enstar II	G	Application should be made to poinsettia before bract formation. Foliar damage on some sensitive varieties.
<i>Steinernema feltiae</i>	Nemasys	G	Larvae; treat entire house or plant inventory. For new plants, treat new plants as they are introduced. For established pests, it may take 2 to 3 weeks for pest adults to be noticeably reduced. For fungus gnats, wash nematodes off plant and onto soil. For scale, irrigate to cause runoff from the tops of plants.
Thiamethoxam	Flagship 25WG	F, G	Field nursery, shade house and container grown. Do not apply more than 0.5 lbs. a.i. per acre per crop or year, whichever is less.
<b>Mealybugs (Homoptera: Pseudococcidae)</b>			
Acephate	1300 Orthene TR	G	Total release aerosol
	Acephate 97UP	G	Applications on poinsettias after bract formation. Avoid phytotoxicity on certain varieties.
	Bracket 90		
	Precise	F, G	Container grown nursery stock; potted plants in 12 inch diameter pots. Irrigate immediately after application to avoid excessive irrigation, to position plants in shade. Do not apply to freshly rooted cuttings.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Acephate & fenpropathrin	Tame/Orthene TR	G	Do not apply within 48 hours of a previous aerosol
Acetamiprid	TriStar 30 SG	F, G	Do not make more than five applications; more than once every 7 days. Do not apply more than 0.55 lb. a.i./acre (0.55 lb. a.i./acre) of TriStar 30 SG/acre (0.55 lb. a.i./acre) with other chloronicotinyls/neonicotinyls, such as imidacloprid, which may result in resistance to TriStar. To avoid resistance, rotate with other classes of insecticides.
	TriStar 70 WSP	F, G	Do not make more than five applications; more than once every 7 days. Do not apply more than 0.55 lb. a.i./acre (0.55 lb. a.i./acre) of TriStar 70 WSP/acre (0.55 lb. a.i./acre) with other chloronicotinyls/neonicotinyls, such as imidacloprid, which may result in resistance to TriStar. To avoid resistance, rotate with other classes of insecticides.
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae; reduces damage by repelling and deterring feeding.
	Azatrol EC	F, G	Nursery (F); waxy bloom on certain ornamentals reduced after an application. Caution is advised with applications to poinsettia; spotting of plants possible.
	Ornazin 3% EC	F, G	
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Do not tank mix with fungicides. Wait 24 hours after application before applying fungicides.
<i>Beauveria bassiana</i> strain GHA	Botanigard 22WP	F, G	Nursery and shade house (F); do not apply through a fogger.
	Botanigard ES	F, G	Nursery and shade house (F); citrus mealybug; do not apply through a thermomist; do not apply to poinsettias after bract formation.
	Mycotrol O	F, G	Nursery and shade house (F); citrus mealybug; do not apply through a thermomist.
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Nursery and shade house (F);
	OnyxPro	F	
	Talstar Flowable TalstarOne Multi-Insecticide	G	
	Talstar Nursery Flowable	F, G	Nursery and shade house (F); do not apply more than 0.55 lb. a.i./acre per acre per year for outdoor application.
	Talstar Nursery Granular	F	Containerized nursery stocks; for soil in container media used in containerized plantings.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Buprofezin	Talus 40 SC	F, G	Citrus mealybug, longtailed mealybug, M... more than two applications of Talus 40SC... usefulness of Talus, do not make more... applications. Prior to subsequent applic... chemistry with a different mode of action... chemicals not previously used as pestic... cross-resistant to other classes of insect... inhibiting chitin biosynthesis on the liste... oviposition of adults and reduces viabili...
	Talus Insect Growth Regulator	F, G	Citrus mealybug, longtailed mealybug, M... more than two applications per crop per... usefulness of Talus, do not make more... applications. Prior to subsequent applic... chemistry with a different mode of action... chemicals not previously used as pestic... cross-resistant to other classes of insect... inhibiting chitin biosynthesis on the liste... oviposition of adults and reduces viabili...
Carbaryl	AllPro Carbaryl 50 WP Sevin SL	F	To avoid possible injury to tender foliage... or when rain or high humidity is expecte...
	Carbaryl 4L Sevin 80 WSP	F	Nursery; application to wet foliage or du... may cause injury to tender foliage.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Dursban 50W	F	Nursery
	Duraguard ME	F, G	Mealybugs, root mealybugs; potted plan... nursery (F); direct spray to some open b... drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Citrus mealybug, nursery (F); pre-plant... field grown nursery stock; containerized... burlapped nursery stock (soil treatment)
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Clothianidin	Celero 16 WSG	F, G	Do not apply more than a total of 40 oz. (... a.i.) per acre per season. When waterin... watering to the point of overflowing or le... application.
Cyfluthrin	Decathlon 20WP	F, G	
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Field grown nurseries and container sto... management: Foliar application of any o... following a Discus soil application in the... recommended. Outdoor applications of... total of 244 oz. (0.62 lb. a.i.) per acre pe... may be re-applied every 14 to 28 days.
Deltamethrin	Deltagard GC 5SC	F	Nursery
Dimethoate	5 lb. Dimethoate Systemic	F	Do not use on ornamental plants grown... use on any ornamental stock plants gro... propagation material, such as cuttings... for grafting or budding. Do not use in sp...
	Dimethoate 267 Dimethoate 4E	F	Do not use on any ornamental stock pla... propagation material, such as cuttings... containing oil.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Dinotefuran	Safari 2 G	F, G	Nursery and shade house (F); do not apply more than 1.5 lbs ai) per acre of nursery per year. To manage resistance, do not make more than one application per cycle or 3 months, whichever is shorter. Do not apply to dry media; do not apply to dry or saturated media; do not apply to actively taking up water from soil. For outdoor applications, apply until roots from transplanted plugs are at least 1/2 inch. Poinsettias: For optimal control, apply to plants 1 to 3 weeks after pinch.
	Safari 20 SG	F, G	Nursery and shade house (F); application can be made as a soil drench or as a soil drench. Do not apply more than 1.5 lbs ai) per acre of nursery per year. For outdoor applications can not exceed a total of 2.0 lbs ai) per acre per year. Resistance management: Do not apply Safari 20SG insecticide or other group 4A insecticide to consecutive generations of the same crop. Regarding Safari or other group 4A insecticide, do not apply to media more than one time per crop cycle or 3 months, whichever is shorter. Do not make more than two foliar applications, one soil drench and one foliar or broadcast application during a 2 month period. Avoid runoff or drift after application. Avoid application to arid, dry, or saturated, or which will not allow penetration to the plant. Avoid soil application when plants are actively taking up water from the soil.
Fenoxycarb	Preclude TR	G	Total release aerosol
Fenprothrin	Tame 2.4EC	F, G	Nursery and shade house (F); do not use more than once per retreatment interval.
Fenpyroximate	Akari 5SC	F, G	Suppression; do not apply more than 48 applications per growing season, whichever is longer. Mix with other products to provide protection. Do not use in successive applications in the same crop. Use at least two different chemicals with two different modes of action used between treatments of Akari 5SC.
Flonicamid	Aria	G	This product stops insect feeding within 24 hours. Residuals remain on plants for up to 5 days. This product provides residual control. Resistance management: Do not use this product more than two times consecutively. Do not use another chemistry. Do not exceed 16 applications per year, whichever is shorter.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Imidacloprid	placeMarathon 1% G	F, G	Nursery (F); plants grown in containers, outdoor ornamentals grown in beds, apply total of 40 lbs. per acre per year. On plants less than 1 year, application is not to exceed more than once each 16 weeks for a particular crop. On woody crops with a production cycle of less than 1 year, application may not exceed once a year.
	Marathon 60WP	F, G	Nursery (F); this product is to be applied to outdoor ornamentals grown in beds, apply total of 10.7 oz. (0.4 lbs. a.i.) per acre per year. On plants with a production cycle of less than 1 year, apply with a frequency of more than once each 16 weeks. On stock plants and woody crops with a production cycle of more than 1 year, application may not exceed once a year. Avoid leachate runoff for the first 10 days after application. Retain the product and facilitate full uptake.
	Marathon II	F, G	For outdoor ornamentals, broadcast application total of 1.6 pt. (0.4 lbs. a.i.) per acre per year.
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Nursery and shade house (F); do not apply to outdoor plants per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	
Methidathion	Supracide 25-W	F	Nursery stock
Naled	Dibrom 8 Emulsive	G	Spotting, bronzing or localized burning of leaves under climatic conditions such as slow drying of leaves caused by drought or high temperature. Under normal treatment, avoid over-treatment and direct application. Leaf injury may result. Poinsettias may be injured.
Neem oil	Triact 70	F, G	Nursery (F); applications should be made in the evening to minimize the potential for leaf burn.
Permethrin	Astro	G	Do not apply more than 2.0 lbs. a.i. per acre per year. On blooming plants may cause browning of leaves.
	Perm-UP 3.2 EC	F, G	Field and container grown nursery stock
	Permethrin E-Pro	F, G	Field and container grown nursery stock. Do not apply more than 2.0 lbs. a.i. per acre per year.
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Tank mixes with products containing chlorothalonil should be avoided as they can cause severe phytotoxicity.
	M-Pede	F, G	Tank mixes with chlorothalonil should be avoided. Increases on plants stressed by heat, high humidity, mite or disease pressure. Poinsettia plants may be injured when sprayed.
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Total release aerosol
	EverGreen EC 60-6 Pyrenone Crop Spray	F, G	
Pyrethrins, piperonyl butoxide technical & silicon dioxide	Diatect II Multipurpose	F	



**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Pyrethrins, rotenone & other associated resins	Pyrellin EC	F, G	Apply in intervals of 7 days or less.
Pyriproxyfen	Distance Insect Growth Regulator	F, G	Suppression; for foliar spray application than two times per cropping cycle or no months. For srench application, if a se allow a minimum of 21 days between ap application: Do not drench plants more Do not apply to poinsettia after bract for
Refined petroleum distillate	Saf-T-Side Spray Oil	F, G	This insecticides mode of action is throu larvae and nymphs of insects, and adult not use in combination with or immediat with fungicides such as Captan, Folpet, any product containing sulfur. Also do n or dimethoate (Cygon). Do not use with recommends the use of no oils. Do not foliar fertilizer applications.
	Ultra-Fine Oil	F, G	In field, caution: Spray no more than fou frequency of consecutive sprays should weeks. Early morning applications are r greenhouse pests listed, use once a we is controlled, decrease the frequency to Do not tank mix with insecticide or mitic it should not be used with oil. Do not us dimethoate, methiocarb, oxythioquinox, containing sulfur.
S-kinoprene	Enstar II	G	Mealybugs, root (ground) mealybug; ap poinsettia before bract formation. Foliar varieties can result.
Tau-fluvalinate	Mavrik Aquaflo	F, G	Do not exceed four applications per mo year for immature ornamental plants ou gal.; for mature ornamental specimen p larger than 5 gal. outdoors, do not exce month or 24 applications per year. Gree exceed four applications per month or 1
Thiamethoxam	Flagship 0.22G	F, G	Field nursery, shade house and contain lbs. (0.265 lb a.i.) of product per acre pe shorter.
	Flagship 25WG	F, G	Field nursery, shade house and contain per acre per crop or year, which ever is
<b>Poinsettia Hornworm (Lepidoptera: Sphingidae) See also Caterpillars</b>			
Azadirachtin	Ornazin 3% EC	F	Hornworms
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain ABTS-351	Biobit HP Dipel Pro DF	F, G	Ello moth (hornworm)
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain BMP 123	Baritone Bio-Insecticide	F, G	Ello moth (hornworm)
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG2348	Condor Bioinsecticide	F, G	Ello moth (hornworm), precautions: Do any chlorothalonil based fungicide (Brav other oil based products or surfactants phytotoxicity.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7826	Lepinox WDG	F, G	Ello moth (hornworm)

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7841	Crymax Bioinsecticide	F, G	Ello moth (hornworm)
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-11	Javelin WG	F, G	Hornworms
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-12	Deliver	F, G	Hornworms
Carbaryl	Carbaryl 4L Carbaryl 80S Sevin 80 WSP	F	Nursery; application to wet foliage or during rain may cause injury to tender foliage.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Chlorpyrifos Pro 2 Dursban 50W	F	Nursery; hornworms
	Duraguard ME	F, G	Hornworms; potted plants and hanging baskets; spray to some open blooms may cause injury.
	Quali-Pro Chlorpyrifos 4E	F, G	Hornworms; nursery (F); pre-plant incorporation on grown nursery stock; containerized, potted plants; nursery stock (soil treatment).
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	Hornworm
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Hornworm; total release aerosol
	EverGreen EC 60-6 Pyrenone Crop Spray	F, G	Hornworm
<b>Scales (Homoptera: Diaspididae; Coccidae)</b>			
Acephate	1300 Orthene TR	G	Total release aerosol
	Acephate 97UP Bracket 90 Orthene Turf Tree & Ornamental Spray 97	G	Crawlers; applications on poinsettias after rain may result in phytotoxicity on certain varieties.
	Tame/Orthene TR	G	Do not apply within 48 hours of a previous application of aerosol
Acetamiprid	TriStar 30 SG	F, G	Hard and soft scales; do not make more than one application per year. Do not reapply more than once every 30 days. Do not apply more than 23.9 ounces of TriStar 30 SG per acre per year. Resistance to other chloronicotinyl insecticides, Merit and Marathon, may result in resistance. To minimize resistance, rotate with other classes of insecticides.
	TriStar 70 WSP	F, G	Hard and soft scales; do not make more than one application per year. Do not reapply more than once every 30 days. Do not apply more than 22 water soluble packs per acre per year. Resistance to other chloronicotinyl insecticides, Merit and Marathon, may result in resistance. To minimize resistance, rotate with other classes of insecticides.
Azadirachtin	Ornazin 3% EC	F, G	Soft Scales (G)

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Brown soft scales; California red scale (crawlers); nursery and shade house (F)
	OnyxPro	F	
	Talstar Flowable TalstarOne Multi-Insecticide	G	Brown soft scales; California red scale (crawlers)
	Talstar Nursery Flowable	F, G	Brown soft scales; California red scale (crawlers); nursery and shade house (F lbs. a.i. per acre per year for outdoor ap
Buprofezin	Talus 40 SC	F, G	Soft scales, armored scales; make no m Talus 40SC per year. To preserve usefu more than two consecutive applications applications, use an alternative chemist action. Talus belongs to a class of chem pesticides and not known to be cross-re insecticides. In addition to inhibiting chit insects, Talus suppresses oviposition of of eggs.
	Talus Insect Growth Regulator	F, G	Soft scales, armored scales; make no m per crop per season. To preserve usefu more than two consecutive applications applications, use an alternative chemist action. Talus belongs to a class of chem pesticides and not known to be cross-re insecticides. In addition to inhibiting chit insects, Talus suppresses oviposition of of eggs.
Carbaryl	Carbaryl 4L Carbaryl 80S Sevin 80 WSP	F	Crawlers; nursery; application to wet fol humidity may cause injury to tender folia
	Sevin SL	F	Crawlers; application to wet foliage or d humidity may cause injury to tender folia
Chlorpyrifos	Chlorpyrifos E-Pro 2 Dursban 50W	F	Nursery
	Duraguard ME	F, G	Mealybugs, root mealybugs; potted plan nursery (F); direct spray to some open b drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Scales: Cottony cushion, euonymus, Fl lecanium, oystershell, San Jose, tea; nu incorporation treatment of field grown n potted or balled and burlapped nursery
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Cyfluthrin	Decathlon 20WP	F, G	Crawlers

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Crawlers for foliar insect control; armored soft scale for systemic and contact/ingestion control in grown nurseries and container stocks; r... Foliar application of any chloronicotinyl... Discus soil application in the same crop... Outdoor applications of Discus can not... (0.62 lb. a.i.) per acre per year. Foliar ap... every 14 to 28 days.
Deltamethrin	Deltagard GC 5SC	F	Nursery; crawlers
Dinotefuran	Safari 2 G	F, G	Nursery and shade house (F); do not ap... lbs ai) per acre of nursery per year. To o... resistance, do not make more than one... cycle or 3 months, whichever is shorter... media; do not apply to dry or saturated... actively taking up water from soil. For o... apply until roots from transplanted plugs... least 1/2 inch. Poinsettias: For optimal o... plants 1 to 3 weeks after pinch.
	Safari 20 SG	F, G	Nursery and shade house (F); applicatio... or as a soil drench. Do not apply more t... acre of nursery per year. For outdoor o... applications can not exceed a total of 2... a.i.) per acre per year. Resistance mana... Do not apply Safari 20SG insecticide or... to consecutive generations of the same... Regarding Safari or other group 4A inse... media more than one time per crop cycl... shorter. Do not make more than two foli... one soil drench and one foliar or broadc... during a 2 month period. Avoid runoff or... after application. Avoid application to ar... saturated, or which will not allow penetr... the plant. Avoid soil application when pl... actively taking up water from the soil.
Fenoxycarb	Preclude TR	G	Total release aerosol
Fenpropathrin	Tame 2.4EC	F, G	San Jose scale (crawlers); nursery & sh... less than a 7 day retreatment interval.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Imidacloprid	Marathon 1% G	F, G	Armored scale (suppression); nursery (F); for outdoor containers, flats, beds and benches; for indoor applications in beds, applications can not exceed a total of 1.0 lb. a.i. per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of once every 6 weeks for a particular plant. On stock plants with a production cycle of greater than 1 year, application is once a year.
	Marathon 60WP	F, G	Armored scale (suppression); nursery (F); applied as a soil treatment only. For outdoor applications in beds, applications can not exceed a total of 1.0 lb. a.i. per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of once every 6 weeks for a particular plant. On stock plants with a production cycle of greater than 1 year, application is once a year. Do not allow leachate runoff after application, in order to retain the product in the soil. Do not use the active ingredient.
	placeMarathon II	F, G	Armored scale (suppression); for outdoor applications cannot exceed a total of 1.0 lb. a.i. per acre per year.
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Crawlers; nursery and shade house (F); applications cannot exceed 1.0 lb. a.i. per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	Euonymus scale, Florida red scale, magnolia scale, soft brown scale (crawlers); for stock plants that have settled on foliage.
Methidathion	Supracide 25-W	F	Nursery stock
Neem oil	Triact 70	F, G	Nursery (F); applications should be made in the evening to minimize the potential for leaf burn.
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Tank mixes with products containing chlorothalonil should be avoided as they can cause severe phytotoxicity.
	M-Pede	F, G	Tank mixes with chlorothalonil should be avoided as phytotoxicity increases on plants stressed by high temperatures, insect, mite or disease pressure. Poinsettia bracts may be injured when sprayed.
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Total release aerosol
Pyriproxyfen	Distance Insect Growth Regulator	F, G	California red scale, euonymus scale, Florida red scale, snow scale; for foliar spray applications do not apply more than two times per cropping cycle. For drench application, if needed, allow a minimum of 21 days between applications. For drench application: Do not drench plants during the crop cycle. Do not apply to poinsettia after

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label
Refined petroleum distillate	JMS Stylet-Oil	F, G	Do not spray wet foliage. Do not spray when rain is anticipated within 48 hours of an oil application when plants are under heat or moisture stress. Do not use spreader stickers, Nu-Film-P, or Nu-Film-F on oil spray materials. Do not use the following fungicides with oil spray: Captan, Folpet, oxythioquinoximethoxy compounds (Du-Ter). Do not apply products within 7 days of an oil application. Do not use chlorothalonil (Kelthane) or dimethoate (Cygon) in a spray application product on ornamentals. Do not use products if 2 weeks have elapsed between the use of an insecticide, anilazine (Dyrene), chlorothalonil (Bravo), chlorpyrifos (Kelthane), Dikar, dinocap (Karathane), disulfoton (Pounce). Do not apply micronized sulfur within 14 days of application and do not apply oil within 14 days of wettable or dusting sulfur. Observe all label rate recommendations which appear on the label. Do not use Acephate (Orthene), benomyl (Benlate), carbendazim (Carbonate (CCN)), copper hydroxide (Kocide), copper fungicide (XL), Mancozeb, Maneb, methamidophos (Prothiofos), (Ridomil) and triadimefon (Bayleton).
	Saf-T-Side Spray Oil	F, G	This insecticide mode of action is through contact with larvae and nymphs of insects, and adults. Do not use in combination with or immediately after with fungicides such as Captan, Folpet, or any product containing sulfur. Also do not use with dimethoate (Cygon). Do not use with any product that recommends the use of no oils. Do not use with foliar fertilizer applications.
	Ultra-Fine Oil	F, G	Immature scales (F); in field, caution: Spray every 2-3 consecutive sprays. The frequency of applications should not exceed once every 2 weeks. Early applications are recommended. For greenhouse pests like scales, apply initially, then, as the pest is controlled, apply every 2-3 weeks as needed. Do not tank mix with an acaricide whose label indicates that it should not be used with oxythioquinoximethoxy, propargite, or any product containing sulfur.
S-kinoprene	Enstar II	G	Armored scales, soft-bodied scales; apply to poinsettia before bract formation. Foliar applications on varieties can result.
Thiamethoxam	Flagship 25WG	F, G	Soft scales; field nursery, shade house applications should not exceed 8 oz. per acre per crop or year.
<b>Shore Flies (Diptera: Ephydriidae)</b>			
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae. Reduces damage by repelling and deterring feeding.
	Azatrol EC	F, G	Diptera; nursery (F); waxy bloom on certain varieties can be reduced after an application. Caution: Avoid making applications to poinsettia; spotting of blossoms is possible.
	Ornazin 3% EC	F, G	

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Do not tank mix with fungicides. Wait a application before applying fungicides.
Chlorpyrifos	Duraguard ME	F, G	Nursery (F); potted plants and hanging open blooms may cause petal drop.
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Cyromazine	Citation	G	Will not control adult stages. For contro flies, apply Citation to all surfaces where
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Tank mixes with products containing ch avoided as they can cause severe phyt
	M-Pede	F, G	Tank mixes with chlorothalonil should b injury increases on plants stressed by h insect, mite or disease pressure. Poinse bracts may be injured when sprayed.
Pyriproxyfen	Distance Insect Growth Regulator	F, G	For foliar spray application, apply Distar per cropping cycle or no more than two srench application, if a second applica minimum of 21 days between applicatio Do not drench plants more than one tim apply to poinsettia after bract formation.
<i>Steinernema carpocapsae</i>	Millenium	F, G	For shore flies, three applications must See label for precautions on compatibil greenhouse applications also spray the tops, sides and undersides of benches insects can breed.
<b>Slugs &amp; Snails (Mollusca: Gastropoda: Pulmonata: Limacidae)</b>			
Iron phosphate	Sluggo-Ag	F, G	
Metaldehyde	Deadline Bullets Deadline M-Ps Mini-pellets	F, G	Test first on extremely tender plants. Fe evening. Do not apply pellets in piles.
	Slug-Fest	F, G	Do not apply directly to plants unless pr the plant to be tolerant. Thoroughly wa application. For best results apply in the
	Trails End 3.5 Trails End LG	G	Do not apply directly to plants. Use onl Trail's End should never be applied to d be made following irrigation for best res preferred. Do not re-water for 48 hours
Methiocarb	Mesurool 75-W, Pro	F, G	Nursery & mature plantings (F); Do not applications per year per crop. Applicat apart. Do not apply with oil.
<b>Spider Mites (Acari: Tetranychidae)</b>			
Abamectin	Avid 0.15EC Lucid	F, G	Twospotted spider mite
Acephate	1300 Orthene TR	G	Total release aerosol
Acephate & fenpropathrin	Tame/Orthene TR	G	Total release aerosol; do not apply with application.
Acequinocyl	Shuttle 15 SC	F, G	Twospotted spider mite; do not to exce Allow a minimum of 14 days between tr with strongly alkaline material and do no (Fosetyl).

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Azadirachtin	Azatrol EC	F, G	Acarina (mites); nursery (F); waxy bloom plants may be reduced after an application; recommended when making application; plant foliage and blossoms is possible.
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Mites; do not tank mix with fungicides. Wash after application before applying fungicides.
Bifenazate	Floramite	F, G	Do not make more than two applications; do not apply more than 16 oz per acre per year of Floramite before rotating to products of another chemical class and use at least two alternate products before Floramite.
	CityplaceFloramite StateSC	F, G	Apply only one application before rotating to an alternative chemical class. Use at least 30 days between treatments of CityplaceFloramite; do not apply more than two applications per crop per year; do not apply more than 32 fl. oz. per acre per year.
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Nursery and shade house (F)
	OnyxPro	F	
	Talstar Flowable TalstarOne Multi-Insecticide	G	
	Talstar Nursery Flowable	F, G	Nursery and shade house (F); do not apply more than 16 oz per acre per year for outdoor application
Chlorfenapyr	Pylon	G	Phytotoxicity is likely to occur to some varieties; do not apply Pylon more than two times consecutively; do not apply more than two times during a growing cycle (not more than 1.28 gal. / crop / season or 0.64 lbs. of a.i. / 1000 sq. ft. (start to finish for one ornamental crop). Do not apply consecutively in a greenhouse unless in combination with other effective miticides of a different mode of action. Additions of crop nutrients, fertilizers or other tank additives have been shown to increase the likelihood of foliar injury. Pylon is not ovicidal.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Dursban 50W	F	Mites; nursery; when large numbers of mites are present, apply a second spray 3-5 days after initial application of hatched nymphs.
	Duraguard ME	F, G	Potted plants and hanging baskets; nursery; open blooms may cause petal drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Twospotted spider mite; nursery (F); pre-treatment of field grown nursery stock.
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Mites; total release aerosol
Clofentezine	CityplaceOvation StateSC	F, G	Twospotted spider mite; nursery stock, field grown (F); recommended application frequency: once per cycle in greenhouse, saran house, and once per each crop cycle occurring with field grown ornamentals.
Deltamethrin	Deltagard GC 5SC	F	Mites (suppression only); nursery



**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Dicofol	Kelthane 50WSP	F, G	Nursery (F); twospotted spider mite, str applicators must be in enclosed cabs or management: As a general rule, rotate different modes of action and limit the n average of one per season. Do not mak per crop or season. If two applications a season, no application should be made
Dimethoate	5 lb. Dimethoate	F	Mites; do not use on ornamental plants not use on any ornamental stock plants propagation material, such as cuttings, for grafting or budding. Do not use in sp
	Dimethoate 267 Dimethoate 4E	F	Nursery; mites; do not use on any orna a source of propagation material, such a stocks or scions for grafting or budding. containing oil.
Etoxazole	TetraSan 5 WDG	F, G	Controls in egg and nymph stages of gr poinsettia after bract formation. Resista apply more than two times per cropping period. Apply second application, if neco days after the first application. If rapid c required, apply in combination with a co
Fenbutatin-oxide	ProMite 50WP	F, G	Twospotted spider mite; when daily tem average below 70° F., performance is re prebract only.
Fenoxycarb	Preclude TR	G	Mites; total release aerosol
Fenpropathrin	Tame 2.4EC	F, G	Nursery & shade house (F); twospotted than a 7 day retreatment interval.
Fenpyroximate	Akari 5SC	F, G	Do not apply more than 48 fl. oz. per cro season, whichever is longer. Do Not use in the same production area. Allow at le with two different modes of action to be Akari 5SC. For mite control: Make sequ miticide, with a different mode of action, Akari application.
Hexythiazox	Hexygon DF	F, G	Nursery and shade house (F); southern mite; apply only once per crop cycle. If a year do not apply more than once per y
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Mites; nursery and shade house (F); do a.i. per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	
Methiocarb	Mesurol 75-W	F, G	Mites; nursery & mature plantings (F); d applications per year per crop. Applicat apart. Do not apply with oil.
Milbemectin	Ultiflora	F	Nursery; maximum rate is 128 fl.oz. Ulti season. Allow at least 3 days between s use in combination with spray oils witho

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Naled	Dibrom 8 Emulsive	G	Spider mites; spotting, bronzing or local certain climatic conditions such as slow stress caused by drought or high temperature vapor treatment, avoid over-treatment a plants as injury may result.
Neem oil	Triact 70	F, G	Mites; nursery (F); applications should b late evening to minimize the potential fo
Oxydemeton-methyl	MSR Spray Concentrate	F	Mites; field grown nursery stock; do not applications per season.
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Mites; tank mixes with products contain avoided as they can cause severe phyt
	M-Pede	F, G	Mites; tank mixes with chlorothalonil sh injury increases on plants stressed by h insect, mite or disease pressure. Poinse bracts may be injured when sprayed.
Potassium silicate	Sil-Matrix Fungicide/Miticide/Insecticide	F	Mites (suppression); for mite and insect applications when pests first appear and necessary to maintain suppression, but days.
Propargite	Ornamite	F	Two spider mite, southern red mite; app exceeding 85° may result in phytotoxic sprays per year is three. Minimum spray
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR	G	Mites; total release aerosol
Pyrethrins, piperonyl butoxide technical & silicon dioxide	Diatect II Multipurpose	F	Mites
Pyrethrins, rotenone & other associated resins	Pyrellin EC	F, G	Mites; apply in intervals of 7 days or les
Pyridaben	Sanmite 75W	F, G	Southern red mite, tumid mite, twospott exceed 21.34 ounces per acre per year successive miticide applications. Use in treatments having different modes of ac

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label
Refined petroleum distillate	JMS Stylet-Oil	F, G	Mites; do not spray wet foliage. Do not spray when high temperatures are anticipated within 48 hours. Do not spray above 90 F, or when plants are under high stress. Do not tank mix with spreader stickers, Nutri-film, or non-ionized nutrient spray materials. Do not spray within 7 days with or following an oil spray: Captan, Fenoxprophos (Morestan), organic tin compounds (Duo), propargite (Omite) within 30 days of an oil application, chlorothalonil (Bravo), dicofol (Kelthane), or any other oil spray program with this product on ornamentals. Do not spray following unless at least 2 weeks have passed since the oil and the chemical anilazine (Dyrene), fenprophos (Dichloran (Botran), dicofol (Kelthane), Deltamethrin, permethrin (Ambush, Pounce). Do not spray within 10 days of an oil application and do not tank mix with applicaton of wettable or dusting sulfur. Do not use with the precautions and rate recommendations for these products: Acephate (Orthene), ammonium carbonate (CCN), copper hydroxide, fenvalerate (Asana XL), Mancozeb, Mancozeb (Monitor), metalaxyl (Ridomil) and triadimenol.
	Saf-T-Side Spray Oil	F, G	Mites; this insecticides mode of action is contact. It kills eggs, larvae and nymphs of insects, and adults of some insects. Do not use in combination with fungicides after spraying with fungicides such as Captan, Fenoxprophos (Morestan) or any product containing sulfur. Do not use carbaryl (Sevin) or dimethoate (Cygon). Do not use whose label recommends the use of no tank mix. Do not use in combination with NPK foliar fertilizer applications.
	Ultra-Fine Oil	F, G	In field, caution: Spray no more than four times a week. Frequency of consecutive sprays should not exceed four weeks. Early morning applications are recommended for greenhouse pests listed, use once a week. When pest is controlled, decrease the frequency to once a month. Do not tank mix with insecticide or miticide. Do not use if it should not be used with oil. Do not use with dimethoate, methiocarb, oxythioquinox, or any product containing sulfur.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Spinosad	Conserve SC Turf and Ornamental	F, G	Regardless of the crop or pest being treated, spider mites and/or diamondback moths should be applied no more than six times in a 12 month period inside a greenhouse or structure that can be altered to be closed or open. If Conserve SC is used for leafminers, spider mites and/or diamondback moth control do not apply more than six times in a 12 month period per crop regardless of whether the crop is in a greenhouse or a structure that can be altered to be closed or open, do not reapply within less than 7 days. Nursery and shade house (F); provides control of all developmental stages of mites. Management: Using Judo in successive applications the same cropping cycle is not recommended more than four times per season.
Spiromesifen	Judo	F, G	Twospotted spider mite; application not recommended if temperature will exceed 90° F. within 3 days to risk of crop injury. Greenhouse crops may experience sulfur injury. Do not use within 2 weeks of application except for dormant, delayed dormant or overwintered plants with a suitable oil.
Sulfur	Microthiol Disperss Micronized Wettable Sulfur	F, G	Mites (suppression); twospotted spider mite; application not recommended for dipping; for maximum mite control use as an acaricide. Do not exceed four applications per year for immature ornamentals in containers up to 5 gal.; for mature ornamentals in containers larger than 5 gal. use no more than four applications per month or 24 applications per year. Do not exceed four applications per crop.
Tau-fluvalinate	Mavrik Aquaflo	F, G	Mites (suppression); twospotted spider mite; application not recommended for dipping; for maximum mite control use as an acaricide. Do not exceed four applications per year for immature ornamentals in containers up to 5 gal.; for mature ornamentals in containers larger than 5 gal. use no more than four applications per month or 24 applications per year. Do not exceed four applications per crop.
<b>Thrips (Thysanoptera: Thripidae)</b>			
Abamectin	Avid 0.15EC Lucid	F, G	Suppression; young immatures must be present.
Acephate	1300 Orthene TR	G	Total release aerosol
	Acephate 97UP Bracket 90 Orthene Turf Tree & Ornamental Spray 97	G	Applications on poinsettias after bract formation to avoid phytotoxicity on certain varieties.
Acephate & fenpropathrin	Tame/Orthene TR	G	Do not apply within 48 hours of a previous application of an aerosol.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Literature
Acetamiprid	TriStar 30 SG	F, G	Citrus thrips and other thrips, such as citrus flower thrips; do not make more than five applications per year; do not reapply more than once every 7 days. 23.9 ounces of TriStar 30 SG/acre (0.55 lb/acre). Resistance to other chloronicotinyls/nicotinoids and placeMarathon, may result in resistance. To minimize resistance, rotate with other insecticides.
	TriStar 70 WSP	F, G	Citrus thrips and other thrips, such as citrus flower thrips; do not make more than five applications per year; do not reapply more than once every 7 days. 22 water soluble packs per acre (0.55 lb/acre). Resistance to other chloronicotinyls/nicotinoids and placeMarathon, may result in resistance. To minimize resistance, rotate with other insecticides.
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae. Reduces damage by repelling and deterring feeding.
	Azatrol EC	F, G	Nursery (F); waxy bloom on certain ornamentals reduced after an application. Caution is advised when making applications to poinsettia; spotting of blossoms is possible.
	Ornazin 3% EC	F, G	
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Do not tank mix with fungicides. Wait at least 24 hours after application before applying fungicides.
<i>Beauveria bassiana</i> strain GHA	Botanigard 22WP	F, G	Nursery and shade house (F); do not apply through fogger.
	Botanigard ES	F, G	Nursery and shade house (F); Thrips populations reduced; do not apply through a thermal pulse fogger on poinsettias after bract formation.
	Mycotrol O	F, G	Nursery and shade house (F); Thrips populations reduced; do not apply through a thermal pulse fogger.
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Nursery and shade house (F)
	OnyxPro	F	
	Talstar Flowable TalstarOne Multi-Insecticide	G	
	Talstar Nursery Flowable	F, G	Nursery and shade house (F); do not apply more than once per acre per year for outdoor application.
Carbaryl	AllPro 10% Carbaryl Dust	F	Exposed thrips
	AllPro Carbaryl 50 WP	F	Exposed thrips; to avoid possible injury to tender foliage, apply to wet foliage or when rain or high humidity is expected the next 2 days.
	Carbaryl 4L Carbaryl 80S Sevin 80 WSP	F	Exposed thrips; nursery; application to wet foliage or in areas of high humidity may cause injury to tender foliage.
	Sevin SL	F	Exposed thrips; application to wet foliage or in areas of high humidity may cause injury to tender foliage.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Chlorpyrifos	Chlorpyrifos E-Pro 2 Dursban 50W	F	Exposed thrips; nursery
	Duraguard ME	F, G	Nursery (F); hanging baskets and potted open blooms may cause petal drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Nursery (F); exposed thrips; pre-plant in field grown nursery stock; containerized burlapped nursery stock (soil treatment)
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Cyfluthrin	Decathlon 20WP	F, G	
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Suppression; field grown nurseries and management: Foliar application of any following a Discus soil application in the recommended. Outdoor applications of total of 244 oz. (0.62 lb. a.i.) per acre per may be re-applied every 14 to 28 days.
Dinotefuran	Safari 2 G	F, G	Suppression; nursery and shade house 27 lbs. (0.54 lbs ai) per acre of nursery development of resistance, do not make application per crop cycle or 3 months, apply to moist soil or media; do not app when plants are not actively taking up w performance, do not apply until roots fro liners have grown at least 1/2 inch. Poi of whiteflies, treat plants 1 to 3 weeks a
	Safari 20 SG	F, G	Chili thrips (suppression); nursery and s can be made to foliage or as a soil dren 2.7 lbs. (0.54 lb. a.i.) per acre of nursery ornamentals, broadcast applications can lbs. of product (0.54 lb. a.i.) per acre pe management recommendations: Do no insecticide or other group 4A insecticide generations of the same insect pest spe other group 4A insecticides: Do not dre one time per crop cycle or 3 months, wh make more than two foliar or broadcast and one foliar or broadcast spray, to a s period. Avoid runoff or puddling of irriga Avoid application to areas that are wate will not allow penetration into the root zo application when plants are dormant or from the soil.
Fenoxycarb	Preclude TR	G	Total release aerosol
Fenpropathrin	Tame 2.4EC	F, G	Nursery & shade house (F); do not use retreatment interval.
Fonicamid	Aria	G	Suppression on flowers; this product sto minutes, but insects may remain on plan product gives excellent residual control. strategy: Do not apply this product mor consecutively before rotating to another 16 applications per crop or year whiche

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Imidacloprid	Marathon 1% G	F, G	Suppression on foliage only; nursery (F) grown in beds, applications can not exceed per year. On plants with a production cycle application is not to exceed a frequency of 2 weeks for a particular plant. On stock plants with a production cycle of greater than 1 year, applications once a year. Woody perennials: Onset of application in herbaceous species. A delay of 2 or 3 weeks is expected. Longer delays may be expected. Application should therefore be made in early spring activity.
	Marathon 60WP	F, G	Suppression on foliage only; nursery (F) grown in beds as a soil treatment only. For outdoor ornamentals, applications can not exceed a total of 10 applications per year. On plants with a production cycle application is not to exceed a frequency of 2 weeks for a particular plant. On stock plants with a production cycle of greater than 1 year, applications once a year. Do not allow leachate runoff after application, in order to retain the product in the soil. the active ingredient.
	placeMarathon II	F, G	Thrips are suppressed on foliage only, nursery & outdoor ornamentals, broadcast application of 1.6 pt. (0.4 lbs. a.i.) per acre per year.
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Nursery and shade house (F); do not apply more than once per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	
Methiocarb	Mesurool 75-W	F, G	Western flower thrips; nursery & mature plants; do not apply more than two applications per year per acre at least 10 days apart. Do not apply with rain.
Oxydemeton-methyl	MSR Spray Concentrate	F	Field grown nursery stock; do not make more than one application per season.
Permethrin	Ambush 25W	F	Citrus thrips; field grown nursery stock; do not apply more than 2.0 lbs. a.i. per acre per season. Application to blooming plants may cause browning of petals.
	Astro	G	Citrus thrips; do not apply more than 2.0 lbs. a.i. per acre per season. Application to blooming plants may cause browning of petals.
	Permethrin 3.2 EC	F	Citrus thrips; field grown nursery stock; do not apply more than 2.0 lbs. a.i. per acre per season. Application to blooming plants may cause browning of petals.
	Permethrin E-Pro	F, G	Field and container grown nursery stock; do not apply more than 2.0 lbs. a.i. per acre per season.
	Perm-UP 25DF	F	Citrus thrips; field grown nursery stock; do not apply more than 2.0 lbs. a.i. per acre per season.
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Exposed thrips; tank mixes with products containing surfactants should be avoided as they can cause severe injury.
	M-Pede	F, G	Exposed thrips; tank mixes with chlorothalonil. Potential for injury increases on plants stressed by drought, or insect, mite or disease pressure. Plants may be sensitive; bracts may be injured when wet.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Total release aerosol
	EverGreen EC 60-6 Pyreth-It Pyrenone Crop Spray	F, G	
Pyrethrins, piperonyl butoxide technical & silicon dioxide	Diatect II Multipurpose	F	
Pyrethrins, rotenone & other associated resins	Pyrellin EC	F, G	Apply in intervals of 7 days or less.
Refined petroleum distillate	Saf-T-Side Spray Oil	G	This insecticides mode of action is through suffocation of larvae and nymphs of insects, and adults. Do not use in combination with or immediately after application with fungicides such as Captan, Folpet, or any product containing sulfur. Also do not use with dimethoate (Cygon). Do not use with foliar fertilizer applications.
	Ultra-Fine Oil	G	For greenhouse pests listed, use once a pest is controlled, decrease the frequency as needed. Do not tank mix with insecticides. Indicates that it should not be used with chlorothalonil, dimethoate, methiocarb, or any product containing sulfur.
S-kinoprene	Enstar II	G	Application should be made to poinsettia foliage. Foliar damage on some sensitive varieties. Coverage of foliage is essential for control. Apply to top and bottom surfaces of leaves until runoff.
Spinosad	Conserve SC Turf and Ornamental	F, G	Exposed thrips (such as western flower thrips) and diamondback moths do not apply more than six times in a 12 month period inside a greenhouse or a structure altered to be closed or open. If Conserve SC is used for thrips and/or diamondback moth control do not apply more than six times in a 12 month period inside a greenhouse or a structure altered to be closed or open. For areas with herbaceous ornamentals in nurseries, in beds, do not apply more than 10 times in a 12 month period regardless of the pest being treated (excluding spider mites and/or diamondback moths); if Conserve SC is used for leafminers, spider mites and/or diamondback moths, do not apply more than six times in a 12 month period. If other insect pests are also being treated, rotate control products. If a specific pest may overlap, rotate control products more than three consecutive applications. Do not use products containing the same active ingredient or mode of action. Except for greenhouse applications, do not use in areas altered to be closed or open, do not re-



**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
<i>Steinernema feltiae</i>	Nemasys	G	Western flower thrips; active only against or plant inventory; in propagation areas introduced for optimum results. Once pe take 2 to 3 weeks before the number of For western flower thrips: Do not apply blackouts during and for at least 2 hours crop remains wet for at least 2 hours fol another light overhead irrigation approx application.
Tau-fluvalinate	Mavrik Aquaflo	F, G	Do not exceed four applications per mo year for immature ornamental plants ou gal.; for mature ornamental specimen p larger than 5 gal. outdoors, do not exce month or 24 applications per year. Gree exceed four applications per month or 1
<b>Whiteflies (Homoptera: Aleyrodidae)</b>			
Abamectin	Avid 0.15EC Lucid	F, G	Suppression; young immatures must be
Acetamiprid	TriStar 30 SG	F, G	Do not make more than five applications more than once every 7 days. Do not ap of TriStar 30 SG/acre (0.55 lb. a.i./acre) other chloronicotinyls/neonicotinyls, suc may result in resistance to TriStar. Ther resistance, rotate with other classes of i
	TriStar 70 WSP	F, G	Do not make more than five applications more than once every 7 days. Do not ap soluble packs per acre (0.55 lb. a.i./acre) other chloronicotinyls/neonicotinyls, suc may result in resistance to TriStar. Ther resistance, rotate with other classes of i
Acephate <sup>3</sup>	1300 Orthene TR	G	Total release aerosol
	Acephate 97UP Bracket 90	G	Applications on poinsettias after bract fo phytotoxicity on certain varieties.
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae damage by repelling and deterring feed
	Azatrol EC	F, G	Nursery (F); waxy bloom on certain orna reduced after an application. Caution is applications to poinsettia; spotting of pla possible.
	Ornazin 3% EC	F, G	
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Do not tank mix with fungicides. Wait a application before applying fungicides.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
<i>Beauveria bassiana</i> strain GHA	Botanigard 22WP	F, G	Nursery and shade house (F); do not apply through fogger.
	Botanigard ES	F, G	Nursery and shade house (F); banded-v blackfly, citrus whitefly, giant whitefly, g silverleaf whitefly, sweetpotato whitefly not apply through a thermal pulse fogger after bract formation.
	Mycotrol O	F, G	Nursery and shade house (F); banded-v blackfly, citrus whitefly, giant whitefly, g silverleaf whitefly, sweetpotato whitefly not apply through a thermal pulse fogger
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol.
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Shade house and nursery (F)
	OnyxPro	F	
	Talstar Nursery Flowable	F, G	Shade house and nursery (F); do not apply more than one time per acre per year for outdoor application
	TalstarOne Multi-Insecticide	G	
Buprofezin	Talus 40 SC	F, G	Silverleaf whitefly, sweet potato whitefly no more than two applications of Talus insect growth regulator with the mode of action inhibitor (ie. cyromazine, diflubenzuron, in the greenhouse within 28 days, do not apply for whitefly application. To preserve usefulness more than two consecutive applications applications, use an alternative chemistry for action. Talus belongs to a class of chemical pesticides and not known to be cross-resistant to insecticides. In addition to inhibiting chitin synthesis in insects, Talus suppresses oviposition of female insects.
	Talus Insect Growth Regulator	F, G	Silverleaf whitefly, sweet potato whitefly no more than two applications per crop of Talus insect growth regulator with the mode of action inhibitor (ie. cyromazine, diflubenzuron, in the greenhouse within 28 days, do not apply for whitefly application. To preserve usefulness more than two consecutive applications applications, use an alternative chemistry for action. Talus belongs to a class of chemical pesticides and not known to be cross-resistant to insecticides. In addition to inhibiting chitin synthesis in insects, Talus suppresses oviposition of female insects.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Dursban 50W	F	Nursery
	Quali-Pro Chlorpyrifos 4E	F, G	Nursery (F); pre-plant incorporation treatment of stock; containerized, potted or balled and balled and balled (soil treatment).
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Clothianidin	Celero 16 WSG	F, G	Do not apply more than a total of 40 oz. a.i.) per acre per season. When watering to the point of overflowing or le application.
Cyfluthrin	Decathlon 20WP	F, G	
Diflubenzuron	CityplaceDimilin StateSC	F, G	Suppression; shade house (F)
Dimethoate	5 lb. Dimethoate	F	Do not use on ornamental plants grown use on any ornamental stock plants gro propagation material, such as cuttings, for grafting or budding. Do not use in sp
	Dimethoate 267 Dimethoate 4E	F	Nursery; do not use on any ornamental source of propagation material, such as or scions for grafting or budding. Do not oil.
Dinotefuran	Safari 2 G	F, G	Whiteflies including silverleaf whitefly, s Q biotypes); nursery and shade house ( 27 lbs. (0.54 lbs ai) per acre of nursery development of resistance, do not make application per crop cycle or 3 months, apply to moist soil or media; do not app when plants are not actively taking up w performance, do not apply until roots fro liners have grown at least 1/2 inch. Poin of whiteflies, treat plants 1 to 3 weeks a
	Safari 20 SG	F, G	Whiteflies including silverleaf whitefly, s Q biotypes); nursery and shade house ( to foliage or as a soil drench. Do not ap lb. a.i.) per acre of nursery per year. For broadcast applications can not exceed a (0.54 lb. a.i.) per acre per year. Resista recommendations: Do not apply Safari 2 group 4A insecticides to consecutive ge pest species. Regarding Safari or other not drench soil media more than one tin months, whichever is shorter. Do not m broadcast sprays, or one soil drench an spray, to a single crop during a 2 month puddling of irrigation water after applica areas that are water logged, saturated, penetration into the root zone of the pla when plants are dormant or not actively
Fenoxycarb	Preclude TR	G	soil Total release aerosol
Fenpropathrin <sup>3</sup>	Tame 2.4EC	F, G	Greenhouse, silverleaf and sweetpotato shade house (F). Do not use less than

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from L
Flonicamid	Aria	G	Suppression of silverleaf whitefly; it is h or tank mix with a product of a different optimal whitefly management. This prod within 30 minutes, but insects may rema This product gives excellent residual co management strategy: Do not apply this times consecutively before rotating to a exceed 16 applications per crop or year
Imidacloprid	placeMarathon 1% G	F, G	Nursery (F); for outdoor ornamentals gr can not exceed a total of 40 lbs. per acre production cycle of less than 1 year, app frequency of more than once each 16 w On stock plants and woody crops with a than 1 year, application may not exceed perennials: Onset of protection is slowe species. A delay of 2 or more weeks sh delays may be expected with larger plan therefore be made in advance of expect
	placeMarathon 60WP	F, G	Nursery (F); this product is to be applie For outdoor ornamentals grown in beds exceed a total of 10.7 oz. (0.4 lbs. a.i.) p with a production cycle of less than 1 ye exceed a frequency of more than once particular plant. On stock plants and wo cycle of greater than 1 year, application year. Do not allow leachate runoff for th application, in order to retain the produc the active ingredient.
	placeMarathon II	F, G	For outdoor ornamentals, broadcast app total of 1.6 pt. (0.4 lbs. a.i.) per acre per
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Nursery and shade house (F); do not ap per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	
Naled	Dibrom 8 Emulsive	G	Adults; spotting, bronzing or localized b certain climatic conditions such as slow stress caused by drought or high temper vapor treatment, avoid over-treatment a plants as injury may result.
Neem oil	Triact 70	F, G	Nursery (F); applications should be ma evening to minimize the potential for lea
Permethrin	Ambush 25W	F	Field grown nursery stock; do not apply acre per season. Application to bloomin browning of petals.
	Astro	G	Do not apply more than 2.0 lb. a.i. per a blooming plants may cause browning of
	Permethrin 3.2 EC	F	Field grown nursery stock; application to browning of petals.
	Permethrin E-Pro	F, G	Field and container grown nursery stock 2.0 lbs. a.i. per acre per year.
	Perm-UP 25DF	F	Field grown nursery stock; do not apply acre per season.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production	Notes from L
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Table 1. Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<b>Armyworms (Lepidoptera: Noctuidae) See also Caterpillars</b>			
Azadirachtin	Azatrol EC	F, G	Nursery (F); waxy bloom on certain ornamental plants may be reduced after an application. Caution is recommended when making applications to poinsettia; spotting of plant foliage and blossoms is possible.
<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain ABTS-1857	XenTari Dry Flowable	F, G	May be used to control small armyworms and/or podworms; for best results apply full coverage sprays when 1st or 2nd instar larvae are present. Where 4th or 5th instar larvae are present a contact insecticide should be used in combination to enhance control.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain BMP 123	Baritone Bio-Insecticide	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain ABTS-351	Biobit HP Dipel Pro DF	F, G	May be used to control armyworms (1st and 2nd instar) when populations are light and full coverage sprays are applied. If mature armyworms or heavy populations are present a contact insecticide should be used to enhance control.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG2348	Condor Bioinsecticide	F, G	Do not use in combination with any chlorothalonil based fungicide (Bravo, Terranil etc.). Mixing with other oil based products or surfactants could increase the risk of phytotoxicity.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7826	Lepinox WDG	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7841	Crymax Bioinsecticide	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-11	Javelin WG	F, G	For most consistent control apply at first sign of newly hatched worms (1st and 2nd instar larvae).
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-12	Deliver	F, G	
Bifenthrin	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Shade house and nursery (F)
	OnyxPro	F	
	Talstar Nursery Flowable	F, G	Shade house and nursery (F); do not apply more than 0.2 lbs. a.i. per acre per year for outdoor applications.
	TalstarOne Multi-Insecticide	G	

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Carbaryl	AllPro 10% Carbaryl Dust	F	Fall armyworm
	Carbaryl 4L	F	Nursery; application to wet foliage or during periods of high humidity may cause injury to tender foliage.
	Carbaryl 80S		
	Sevin 80 WSP		
	Cutworm & Cricket Bait	F	
Chlorpyrifos	Sevin SL	F	Fall armyworm and <i>Pseudaletia unipuncta</i> (often called the 'true armyworm'); this product is not registered for the control of other armyworm species.
	Chlorpyrifos E-Pro 2	F	Nursery
	Dursban 50W		
	Quali-Pro Chlorpyrifos 4E	F, G	Nursery (F); beet, fall and yellowstriped armyworms; pre-plant incorporation treatment of field grown nursery stock; containerized, potted or balled and burlapped nursery stock (soil treatment).
	Decathlon 20WP	F, G	
Cyfluthrin	Discus Nursery Insecticide	F	Field grown nurseries and container stocks; resistance management: Foliar application of any chloronicotini insecticide following a Discus soil application in the same crop is not recommended. Outdoor applications of Discus can not exceed a total of 244 oz. (0.62 lb. a.i.) per acre per year. Foliar applications may be re-applied every 14 to 28 days.
Deltamethrin	Deltagard GC 5SC	F	Leaf-feeding caterpillars; nursery
	CityplaceDimilin StateSC	F, G	Shade house (F)
Diflubenzuron	Tame 2.4EC	F, G	Beet armyworm; nursery and shade house (F); do not use less than a 7-day retreatment interval.
	Ambush 25W	F, G	Beet armyworm; field grown nursery stock (F); do not apply more than 2.0 lbs. a.i. per acre per season. Application to blooming plants may cause browning of petals.
Permethrin	Perm-Up 25DF	F	Field grown nursery stock; beet armyworm; do not apply more than 2.0 lbs. a.i. per acre per season.
	Permethrin E-Pro	F, G	Field and container grown nursery stock (F); beet armyworm; do not apply more than 2.0 lbs. a.i. per acre per year.
	Pounce 25W/P	F	Field grown nursery stock; beet armyworm

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<i>Steinernema carpocapsae</i>	Millenium	F, G	See label for precautions on compatibility with other pesticides. For greenhouse applications also spray the surface of the pots, the tops, sides and undersides of benches and other areas insects where can breed.
<b>Caterpillars (Lepidoptera) See also Section headings for these named caterpillars: Armyworms, Poinsettia Hornworm</b>			
Acetamiprid	TriStar 30 SG	F, G	Do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 23.9 ounces of TriStar 30 SG/acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
	TriStar 70 WSP	F, G	Do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 22 water soluble packs per acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae. It also reduces crop damage by repelling and deterring feeding of all stages of insect.
	Azatrol EC	F, G	Lepidoptera moths; nursery (F); waxy bloom on certain ornamental plants may be reduced after an application. Caution is recommended when making applications to poinsettia; spotting of plant foliage and blossoms is possible.
	Ornazin 3% EC	F, G	
<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain ABTS-1857	XenTari Dry Flowable	F, G	Azalea caterpillar; diamondback moth; ello moth (hornworm); oleander moth; sod webworm
<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain GC-91	Jackpot WP	F	Loopers, budworms, diamondback moth; Jackpot is most effective against small, newly-hatched larvae.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain ABTS-351	Biobit HP	F, G	Loopers, tobacco budworm, <i>Heliothis</i> , omnivorous leafroller, diamondback moth, ello moth (hornworm), io moth, oleander moth
	Dipel Pro DF	F, G	Ello moth (hornworm), fall webworm, io moth, loopers, omnivorous leafroller, saltmarsh caterpillar, tobacco budworm, <i>Heliothis</i>
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain BMP 123	Baritone Bio-Insecticide	F, G	Loopers, tobacco budworm, omnivorous leafroller, ello moth (hornworm)

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG2348	Condor Bioinsecticide	F, G	Eilo moth (hornworm), io moth, loopers, omnivorous leafroller, tobacco budworm; precautions: Do not use in combination with any chlorothalonil based fungicide (Bravo, Terrail etc.). Mixing with other oil based products or surfactants could increase the risk of phytotoxicity.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7826	Lepinox WDG	F, G	Eilo moth (hornworm), io moth, loopers, omnivorous leafroller, tobacco budworm, saddleback caterpillar, tortrix
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7841	Crymax Bioinsecticide	F, G	Eilo moth (hornworm), io moth, loopers, omnivorous leafroller, tobacco budworm
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-11	Javelin WG	F, G	Bollworm, cutworm, <i>Helicoverpa</i> spp., <i>Heliothis</i> spp., hornworms, loopers, obliquebanded leafroller, omnivorous leafroller, omnivorous leaflier, redbanded leafroller, saltmarsh caterpillar, tobacco budworm, tobacco hornworm
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-12	Deliver	F, G	Bollworm, cutworm, <i>Helicoverpa</i> spp., <i>Heliothis</i> spp., hornworms, loopers, obliquebanded leafroller, omnivorous leafroller, omnivorous leaflier, redbanded leafroller, saltmarsh caterpillar, tobacco budworm, tobacco hornworm
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Leaf-feeding caterpillars; do not tank mix with fungicides. Wait a minimum of 48 hours after application before applying fungicides.
<i>Beauveria bassiana</i> strain GHA	Mycotrol O	F, G	Nursery and shade house (F); cabbage looper; do not apply through a thermal pulse fogger.
Bifenthrin	Attain TR	G	Total release aerosol.
	Attain TR Micro		
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Leaf-feeding caterpillars; shade house and nursery (F)
Carbaryl	OnyxPro	F	Leaf-feeding caterpillars
	Talstar Nursery Flowable	F, G	Leaf-feeding caterpillars; shade house and nursery (F); do not apply more than 0.2 lbs. a.i. per acre per year for outdoor applications.
	TalstarOne Multi-Insecticide	G	Leaf-feeding caterpillars
	AllPro 10% Carbaryl Dust	F	Leafrollers
	Carbaryl 4L Carbaryl 80S Sevin 80 WSP	F	Cutworms, leafrollers, puss caterpillar, sawflies (exposed); nursery; application to wet foliage or during periods of high humidity may cause injury to tender foliage.
Cutworm & Cricket Bait	Cutworm & Cricket Bait	F	Cutworms
	Sevin SL	F	Cutworms, leafrollers, puss caterpillar, sawflies (exposed)



**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Chlorfenapyr	Pylon Miticide	G	Do not apply Pylon more than two times consecutively or a total of three times during a growing cycle (not more than 41 fl. oz. of product/100 gal. / crop / season or 0.64 lbs. of a.i. / 100 gal. / crop / season) (start to finish for one ornamental crop). Do not apply Pylon to consecutive crops in a greenhouse unless the Pylon is applied in combination with other effective miticides or insecticides with a different mode of action. Phytotoxicity is likely to occur to some varieties of poinsettia. Additions of crop oils, surfactants, and fertilizers or other tank additives have been shown to increase the likelihood of foliar injury.
Chlorpyrifos	Chlorpyrifos E-Pro 2	F	Nursery; cutworms, hornworms, leafrollers, (such as: obliquebanded, pandemis; for effective control of leafrollers, spray should be applied before leaves are tightly rolled.), puss caterpillars, sawflies (exposed)
	Duraguard ME	F, G	Nursery (F); hornworms; direct spray to some open blooms may cause petal drop.
Chlorpyrifos & cyfluthrin	Quali-Pro Chlorpyrifos 4E	F, G	Nursery (F); cutworms, hornworms, leafrollers, (such as: Obliquebanded, pandemis; for effective control of leafrollers, spray should be applied before leaves are tightly rolled.), puss caterpillars, sawflies (exposed); pre-plant incorporation treatment of field grown nursery stock; containerized, potted or balled and burlapped nursery stock (soil treatment).
	Duraplex TR	G	Total release aerosol.
Cryolite	Kryocide	F	
Cyfluthrin	Decathlon 20WP	F, G	Bud worms, cutworms, leaf-feeding caterpillars
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Leaf-feeding caterpillars, cutworms (suppression); field grown nurseries and container stocks; resistance management: Foliar application of any chloronicotinyl insecticide following a Discus soil applications of Discus can not exceed a total of 244 oz. (0.62 lb. a.i.) per acre per year. Foliar applications may be re-applied every 14 to 28 days.
Deltamethrin	Deltagard GC 5SC	F	Cutworms, leaf-feeding caterpillars, leafrollers, leaf skeletonizers; nursery
Fenoxycarb	Preclude TR	G	Total release aerosol
Fenpropathrin	Tame 2.4 EC	F, G	Nursery and shade house (F); leafrollers

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Imidacloprid	placeMarathon 1% G	F, G	Cutworm (suppression); nursery (F); for outdoor ornamentals grown in beds, applications can not exceed a total of 40 lbs. per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year. Woody perennials: Onset of protection is slower than in herbaceous species. A delay of 2 or more weeks should be expected. Longer delays may be expected with larger plants. Application should therefore be made in advance of expected insect activity.
	placeMarathon 60 WP	F, G	Cutworm (suppression); nursery (F); this product is to be applied as a soil treatment only. Woody perennials: Onset of protection is slower than in herbaceous species. A delay of 2 or more weeks should be expected. Longer delays may be expected with larger plants. Application should therefore be made in advance of expected insect activity. For outdoor ornamentals grown in beds, applications can not exceed a total of 10.7 oz. (0.4 lbs. active ingredient) per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year. Do not allow leachate runoff for the first 10 days after application, in order to retain the product and facilitate full uptake of the active ingredient.
	placeMarathon II	F, G	Cutworm (suppression); for outdoor ornamentals, broadcast applications cannot exceed a total of 1.6 pt. (0.4 lbs. a.i.) per acre per year.
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Cutworms, leaf-feeding caterpillars; nursery and shade house (F); do not apply more than 0.36 lb. a.i. per acre per year.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Permethrin	Ambush 25W  Astro	F, G  G	Cutworms, <i>Heliothis</i> spp, omnivorous leafroller; field grown nursery stock (F); do not apply more than 2.0 lbs. a.i. per acre per season. Application to blooming plants may cause browning of petals. Leaf-feeding caterpillars; do not apply more than 2.0 lb. a.i. per acre per year. Application to blooming plants may cause browning of petals.
Potassium salts of fatty acids	Permethrin E-Pro	F, G	Leaf-feeding caterpillars; field and container grown nursery stock (F); do not apply more than 2.0 lbs. a.i. per acre per year.
	Perm-UP 3.2 EC	F, G	Cabbage looper, leaf-feeding caterpillars, leafrollers
	AllPro Insecticidal Soap 40%	F, G	Buck moth larvae, saw fly larvae, cutworms; tank mixes with products containing chlorothalonil should be avoided as they can cause severe phytotoxicity.
Pyrethrins	M-Pede	F, G	Cutworm; tank mixes with chlorothalonil should be avoided. Potential for injury increases on plants stressed by heat, humidity, drought, or insect, mite or disease pressure. Poinsettia plants may be sensitive; bracts may be injured when sprayed.
	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Hornworm, moths; total release aerosol
	EverGreen EC 60-6 Pyrenone Crop Spray Pyreth-It	F, G	
	Diatect II Multipurpose	F	
Pyrethrins, piperonyl butoxide & silicon dioxide			
Pyrethrins, rotenone & other associated resins	Pyrellin EC	F, G	Apply in intervals of 7 days or less.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Refined petroleum distillate	Saf-T-Side Spray Oil	F, G	Leafrollers, leaf tiers; this insecticide mode of action is through suffocation of eggs, larvae and nymphs of insects, and adults of soft bodied insects. Do not use in combination with or immediately before or after spraying with fungicides such as Captan, Folpet, oxythioquinox (Morestan) or any product containing sulfur. Also do not use with carbaryl (Sevin) or dimethoate (Cygon). Do not use with any product whose label recommends the use of no oils. Do not use in combination with NPK foliar fertilizer applications.
	Ultra-Fine Oil	F, G	Leafrollers, leaf tiers; in field, caution: Spray no more than four consecutive sprays. The frequency of consecutive sprays should not exceed once every 2 weeks. Early morning applications are recommended. For greenhouse pests listed, use once a week initially, then, as the pest is controlled, decrease the frequency to every 2-3 weeks as needed. Do not tank mix with insecticide or miticide whose label indicates that it should not be used with oil. Do not use with captan, chlorothalonil, dimethoate, methiocarb, oxythioquinox, propargite, or any product containing sulfur.
Spinosad	Conserve SC Turf and Ornamental	F, G	Regardless of the crop or pest being treated (excluding leafminers, spider mites and/or diamondback moths) do not apply more than 10 times in a 12 month period inside a greenhouse or a structure that can be altered to be closed or open. If Conserve SC is used for leafminers, spider mites and/or diamondback moth control do not apply more than six times in a 12 month period inside a greenhouse or a structure that can be altered to be closed or open. For areas of commercial production of herbaceous ornamentals in nurseries, including plant propagation beds, do not apply more than 10 times in a 12 month period per crop regardless of the pest being treated (excluding leafminers, spider mites and/or diamondback moths); if Conserve SC is used for leafminers, spider mites and/or diamondback moth control do not apply more than six times in a 12 month period per crop regardless if other insect pests are also being treated. Because generations of a specific pest may overlap, rotate control products and never apply more than three consecutive applications of Conserve SC or products containing the same active ingredient or having the same mode of action. Except for greenhouses and structures that can be altered to be closed or open, do not reapply within less than 7 days.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<i>Steinernema carpocapsae</i>	Millenium	F, G	Cutworms; sod webworms; tropical sod webworms; banana moths; see label for precautions on compatibility with other pesticides. For greenhouse applications also spray the surface of the pots, the tops, sides and undersides of benches and other areas insects where can breed.
Tau-fluvalinate	Mavrik Aquaflo	F, G	Leaf-feeding caterpillars; do not exceed four applications per month or 16 applications per year for immature ornamental plants outdoors in containers up to 5 gal.; for mature ornamental specimen plants or plants in containers larger than 5 gal. outdoors, do not exceed four applications per month or 24 applications per year. Greenhouse applications: Do not exceed four applications per month or 16 applications per crop.
<b>Fungus Gnats (Diptera: Sciaridae)</b>			
Acephate	1300 Orthene TR	G	Total release aerosol
Acephate & fenpropathrin	Tame/Orthene TR	G	Do not apply within 48 hours of a previous application. Total release aerosol
Acetamiprid	TriStar 30 SG	F, G	Larvae; do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 23.9 ounces of TriStar 30 SG/acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
	TriStar 70 WSP	F, G	Larvae; do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 22 water soluble packs per acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae. It also reduces crop damage by repelling and deterring feeding of all stages of insect.
	Azatrol EC	F, G	Diptera; nursery (F); waxy bloom on certain ornamental plants may be reduced after an application. Caution is recommended when making applications to poinsettia; spotting of plant foliage and blossoms is possible.
	Ornazin 3% EC	F, G	

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<i>Bacillus thuringiensis</i> subsp. <i>israelensis</i> strain 65-52	Gnatrol Biological Larvicide	F, G	Soil drench for control of larvae only; plantings in potting soil mixtures only (F)
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Do not tank mix with fungicides. Wait a minimum of 48 hours after application before applying fungicides.
Bifenthrin	Attain TR Attain TR Micro	G	Total release aerosol
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Adults; nursery and shade house (F)
	OnyxPro	F	Adults
	Talstar Flowable	G	
	TalstarOne Multi-Insecticide		
	Talstar Nursery Flowable	F, G	Shade house and nursery (F); do not apply more than 0.2 lbs. a.i. per acre per year for outdoor applications.
	Talstar Nursery Granular	F	Larvae; containerized nursery stock; for soil incorporation into potting media used in containerized plantings.
Chlorfenapyr	Pylon	G	Phytotoxicity is likely to occur to some varieties of poinsettia. Early stage fungus gnat larvae ( <i>Bradysia</i> sp.); do not apply Pylon more than two times consecutively or a total of three times during a growing cycle (not more than 41 fl. oz. of product/100 gal. / crop / season or 0.64 lbs. of a.i. / 100 gal. / crop / season) (start to finish for one ornamental crop). Do not apply Pylon to consecutive crops in a greenhouse unless the Pylon is applied in combination with other effective miticides or insecticides with a different mode of action. Additions of crop oils, surfactants, and fertilizers or other tank additives have been shown to increase the likelihood of foliar injury.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Chlorpyrifos Pro 2	F	Gnats; nursery
	Duraguard ME	F, G	Nursery (F); potted plants and hanging baskets; direct spray to some open blooms may cause petal drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Gnats; nursery (F); pre-plant incorporation treatment of field grown nursery stock; containerized, potted or balled and burlapped nursery stock (soil treatment).
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Cyfluthrin	Decathlon 20WP	F, G	

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Field grown nurseries and container stocks; resistance management: Foliar application of any chloronicotinyl insecticide following a Discus soil application in the same crop is not recommended. For outdoor ornamentals applications of Discus can not exceed a total of 244 oz. (0.62 lb. a.i.) per acre per year. Foliar applications may be re-applied every 14 to 28 days.
Cyromazine	Citation	F, G	Container and shade house grown (F); will not control adult stages. For control of fungus gnats and shore flies, apply Citation to all surfaces where insect pests may breed.
Deltamethrin	Deltagard GC 5SC	F	Nursery
Dinotefuran	Safari 2 G	F, G	Larvae; nursery and shade house (F); do not apply more than 27 lbs. (0.54 lbs ai) per acre of nursery per year. To delay the development of resistance, do not make more than one soil application per crop cycle or 3 months, whichever is shorter. Only apply to moist soil or media; do not apply to dry or saturated soil or when plants are not actively taking up water from soil. For optimal performance, do not apply until roots from transplanted plugs or liners have grown at least 1/2 inch. Poinsettias: For optimal control of whiteflies, treat plants 1 to 3 weeks after pinch.
	Safari 20 SG	F, G	Larvae; nursery and shade house (F); applications can be made to foliage or as a soil drench. Do not apply more than 2.7 lbs. (0.54 lb. a.i.) per acre of nursery per year. For outdoor ornamentals, broadcast applications can not exceed a total of 2.7 lbs. of product (0.54 lb. a.i.) per acre per year. Resistance management recommendations: Do not apply Safari 20SG insecticide or other group 4A insecticides to consecutive generations of the same insect pest species. Regarding Safari or other group 4A insecticides: Do not drench soil media more than one time per crop cycle or 3 months, whichever is shorter. Do not make more than two foliar or broadcast sprays, or one soil drench and one foliar or broadcast spray, to a single crop during a 2 month period. Avoid runoff or puddling of irrigation water after application. Avoid application to areas that are water logged, saturated, or which will not allow penetration into the root zone of the plant. Avoid soil application when plants are dormant or not actively taking up water from the soil.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Imidacloprid	Marathon 1% G	F, G	Larvae; nursery (F); for outdoor ornamentals grown in beds, applications can not exceed a total of 40 lbs. per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year. Woody perennials: Onset of protection is slower than in herbaceous species. A delay of 2 or more weeks should be expected. Longer delays may be expected with larger plants. Application should therefore be made in advance of expected insect activity.
	Marathon 60 WP	F, G	Larvae; nursery (F); this product is to be applied as a soil treatment only. Woody perennials: Onset of protection is slower than in herbaceous species. A delay of 2 or more weeks should be expected. Longer delays may be expected with larger plants. Application should therefore be made in advance of expected insect activity. For outdoor ornamentals grown in beds, applications can not exceed a total of 10.7 oz. (0.4 lbs. active ingredient) per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year. Do not allow leachate runoff for the first 10 days after application, in order to retain the product and facilitate full uptake of the active ingredient.
Permethrin	Marathon II  Astro  Perm-UP 3.2 EC Permethrin E-Pro	F, G  G  F, G F, G	Larvae; for outdoor ornamentals, broadcast applications cannot exceed a total of 1.6 pt. (0.4 lbs. a.i.) per acre per year. Do not apply more than 2.0 lbs. a.i. per acre per year. Application to blooming plants may cause browning of petals. Field and container grown nursery stock (F)
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	Field and container grown nursery stock (F); do not apply more than 2.0 lbs. a.i. per acre per year.



**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Total release aerosol
	EverGreen EC 60.6 Pyrenone Crop Spray	F, G	
Pyriproxyfen	Distance Insect Growth Regulator	F, G	For foliar spray application, apply Distance no more than two times per cropping cycle or no more than two times per 6 months. For sprinch application, if a second application is needed, allow a minimum of 21 days between applications. For drench application: Do not drench plants more than one time per crop cycle. Do not apply to poinsettia after bract formation.
Refined petroleum distillate	Saf-T-Side Spray Oil	G	This insecticides mode of action is through suffocation of eggs, larvae and nymphs of insects, and adults of soft bodied insects. Do not use in combination with or immediately before or after spraying with fungicides such as Captan, Folpet, oxythioquinox (Morestan) or any product containing sulfur. Also do not use with carbaryl (Sevin) or dimethoate (Cygon). Do not use with any product whose label recommends the use of no oils. Do not use in combination with NPK foliar fertilizer applications.
	Ultra-Fine Oil	G	For greenhouse pests listed, use once a week initially, then, as the pest is controlled, decrease the frequency to every 2-3 weeks as needed. Do not tank mix with insecticide or miticide whose label indicates that it should not be used with oil. Do not use with captan, chlorothalonil, dimethoate, methiocarb, oxythioquinox, propargite, or any product containing sulfur.
S-kinoprene	Enstar II	G	Application should be made to poinsettia before bract formation. Foliar damage on some sensitive varieties can result.
<i>Steinernema feltiae</i>	Nemasys	G	Larvae; treat entire house or plant inventory, in propagation areas treat new plants as they are introduced for optimum results. Once pests are established it may take 2 to 3 weeks before the number of adults is noticeably reduced. For fungus gnats: Irrigate immediately to wash nematodes off plant and onto soil medium surface. Do not irrigate to cause runoff from the tops of pots or liners.
Thiamethoxam	Flagship 25WG	F, G	Field nursery, shade house and containers (F); do not exceed 8 oz. per acre per crop or year, which ever is shorter.
<b>Mealybugs (Homoptera: Pseudococcidae)</b>			

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Acephate	1300 Orthene TR	G	Total release aerosol
	Acephate 97UP Bracket 90	G	Applications on poinsettias after bract formation may result in phytotoxicity on certain varieties.
	Precise	F, G	Container grown nursery stock; potted plants: For use on 3 inch to 12 inch diameter pots. Irrigate immediately after application, but avoid excessive irrigation, to position product in the root zone. Do not apply to freshly rooted cuttings.
Acephate & fenpropathrin	Tame/Orthene TR	G	Do not apply within 48 hours of a previous application. Total release aerosol
Acetamiprid	TriStar 30 SG	F, G	Do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 23.9 ounces of TriStar 30 SG/acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
	TriStar 70 WSP	F, G	Do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 22 water soluble packs per acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae. It also reduces crop damage by repelling and deterring feeding of all stages of insect.
	Azatrol EC	F, G	Nursery (F); waxy bloom on certain ornamental plants may be reduced after an application. Caution is recommended when making applications to poinsettia; spotting of plant foliage and blossoms is possible.
	Ornazin 3% EC Naturalis L	F, G F, G	Do not tank mix with fungicides. Wait a minimum of 48 hours after application before applying fungicides.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<i>Beauveria bassiana</i> strain GHA	Botanigard 22WP	F, G	Nursery and shade house (F); do not apply through a thermal pulse fogger.
	Botanigard ES	F, G	Nursery and shade house (F); citrus mealybug, longtailed mealybug; do not apply through a thermal pulse fogger. Do not apply to poinsettias after bract formation.
	Mycotrol O	F, G	Nursery and shade house (F); citrus mealybug, longtailed mealybug; do not apply through a thermal pulse fogger.
	Attain TR	G	Total release aerosol
	Attain TR Micro	F, G	Nursery and shade house (F);
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	
Bifenthrin	OnyxPro	F	
	Talstar Flowable	G	
	TalstarOne Multi-Insecticide	G	
	Talstar Nursery Flowable	F, G	Nursery and shade house (F); do not apply more than 0.2 lbs. a.i. per acre per year for outdoor applications.
	Talstar Nursery Granular	F	Containerized nursery stocks; for soil incorporation into potting media used in containerized plantings.
	Talus 40 SC	F, G	Citrus mealybug, longtailed mealybug, Mexican mealybug, make no more than two applications of Talus 40SC per year. To preserve usefulness of Talus, do not make more than two consecutive applications. Prior to subsequent applications, use an alternative chemistry with a different mode of action. Talus belongs to a class of chemicals not previously used as pesticides and not known to be cross-resistant to other classes of insecticides. In addition to inhibiting chitin biosynthesis on the listed insects, Talus suppresses oviposition of adults and reduces viability of eggs.
Buprofezin	Talus Insect Growth Regulator	F, G	Citrus mealybug, longtailed mealybug, Mexican mealybug, make no more than two applications per crop per season. To preserve usefulness of Talus, do not make more than two consecutive applications. Prior to subsequent applications, use an alternative chemistry with a different mode of action. Talus belongs to a class of chemicals not previously used as pesticides and not known to be cross-resistant to other classes of insecticides. In addition to inhibiting chitin biosynthesis on the listed insects, Talus suppresses oviposition of adults and reduces viability of eggs.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Carbaryl	AllPro Carbaryl 50 WP Sevin SL	F	To avoid possible injury to tender foliage, do not apply to wet foliage or when rain or high humidity is expected during the next 2 days.
	Carbaryl 4L Sevin 80 WSP	F	Nursery; application to wet foliage or during periods of high humidity may cause injury to tender foliage.
	Chlorpyrifos E-Pro 2 Dursban 50W	F	Nursery
Chlorpyrifos	Duraguard ME	F, G	Mealybugs, root mealybugs; potted plants and hanging baskets; nursery (F); direct spray to some open blooms may cause petal drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Citrus mealybug, nursery (F); pre-plant incorporation treatment of field grown nursery stock; containerized, potted or balled and burlapped nursery stock (soil treatment).
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Clothianidin	Celero 16 WSG	F, G	Do not apply more than a total of 40 oz. of Celero 16WSG (0.4 lb. a.i.) per acre per season. When watering treated pots, avoid watering to the point of overflowing or leaching for 10 days after application.
Cyfluthrin	Decathlon 20WP	F, G	
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Field grown nurseries and container stocks; resistance management: Foliar application of any chloronicotini insecticide following a Discus soil application in the same crop is not recommended. Outdoor applications of Discus can not exceed a total of 244 oz. (0.62 lb. a.i.) per acre per year. Foliar applications may be re-applied every 14 to 28 days.
Deltamethrin	Deltagard GC 5SC	F	Nursery
Dimethoate	5 lb. Dimethoate Systemic	F	Do not use on ornamental plants grown in shade houses. Do not use on any ornamental stock plants grown as a source of propagation material, such as cuttings, layers, root stocks or scions for grafting or budding. Do not use in spray mixes containing oil.
		F	Do not use on any ornamental stock plants grown as a source of propagation material, such as cuttings. Do not use in mixtures containing oil.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Dinotefuran	Safari 2 G	F, G	Nursery and shade house (F); do not apply more than 27 lbs. (0.54 lbs ai) per acre of nursery per year. To delay the development of resistance, do not make more than one soil application per crop cycle or 3 months, whichever is shorter. Only apply to moist soil or media; do not apply to dry or saturated soil or when plants are not actively taking up water from soil. For optimal performance, do not apply until roots from transplanted plugs or liners have grown at least 1/2 inch. Poinsettias: For optimal control of whiteflies, treat plants 1 to 3 weeks after pinch.
	Safari 20 SG	F, G	Nursery and shade house (F); applications can be made to foliage or as a soil drench. Do not apply more than 2.7 lbs. (0.54 lb. a.i.) per acre of nursery per year. For outdoor ornamentals, broadcast applications can not exceed a total of 2.7 lbs. of product (0.54 lb. a.i.) per acre per year. Resistance management recommendations: Do not apply Safari 20SG insecticide or other group 4A insecticides to consecutive generations of the same insect pest species. Regarding Safari or other group 4A insecticides: Do not drench soil media more than one time per crop cycle or 3 months, whichever is shorter. Do not make more than two foliar or broadcast sprays, or one soil drench and one foliar or broadcast spray, to a single crop during a 2 month period. Avoid runoff or puddling of irrigation water after application. Avoid application to areas that are water logged, saturated, or which will not allow penetration into the root zone of the plant. Avoid soil application when plants are dormant or not actively taking up water from the soil.
Fenoxycarb	Preclude TR	G	Total release aerosol
Fenpropathrin	Tame 2.4EC	F, G	Nursery and shade house (F); do not use less than a 7-day retreatment interval.
Fenpyroximate	Akari 5SC	F, G	Suppression; do not apply more than 48 fl. oz. per crop cycle or per growing season, whichever is longer. Must be used in a program with other products to provide protection against mealybugs. Do Not use in successive applications in the same production area. Allow at least two different chemicals with two different modes of action to be used between treatments of Akari 5SC.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Flonicamid	Aria	G	This product stops insect feeding within 30 minutes, but insects may remain on plants for up to 5 days. This product gives excellent residual control. Resistance management strategy: Do not apply this product more than two times consecutively before rotating to another chemistry. Do not exceed 16 applications per crop or year whichever is shorter.
Imidacloprid	placeMarathon 1% G	F, G	Nursery (F); plants grown in containers, flats, beds and benches; for outdoor ornamentals grown in beds, applications can not exceed a total of 40 lbs. per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year.
	Marathon 60WP	F, G	Nursery (F); this product is to be applied as a soil treatment only. For outdoor ornamentals grown in beds, applications can not exceed a total of 10.7 oz. (0.4 lbs. a.i.) per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year. Do not allow leachate runoff for the first 10 days after application, in order to retain the product and facilitate full uptake of the active ingredient.
	Marathon II	F, G	For outdoor ornamentals, broadcast applications cannot exceed a total of 1.6 pt. (0.4 lbs. a.i.) per acre per year.
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Nursery and shade house (F); do not apply more than 0.36 lb. a.i. per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	
Methodathion	Supracide 25-W	F	Nursery stock
Naled	Dibrom 8 Emulsive	G	Spotting, bronzing or localized burning can occur under certain climatic conditions such as slow drying and high humidity or stress caused by drought or high temperature. In greenhouse: A vapor treatment, avoid over-treatment and direct application to plants as injury may result. Poinsettias may be injured by vapor.
Neem oil	Triact 70	F, G	Nursery (F); applications should be made in early morning or late evening to minimize the potential for leaf burn.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Permethrin	Astro	G	Do not apply more than 2.0 lbs. a.i. per acre per year. Application to blooming plants may cause browning of petals.
	Perm-UP 3.2 EC	F, G	Field and container grown nursery stock (F)
	Permethrin E-Pro	F, G	Field and container grown nursery stock (F); do not apply more than 2.0 lbs. a.i. per acre per year.
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Tank mixes with products containing chlorothalonil should be avoided as they can cause severe phytotoxicity.
	M-Pede	F, G	Tank mixes with chlorothalonil should be avoided. Potential for injury increases on plants stressed by heat, humidity, drought, or insect mite or disease pressure. Poinsettia plants may be sensitive; bracts may be injured when sprayed.
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Total release aerosol
	EverGreen EC 60-6 Pyrenone Crop Spray	F, G	
	Diatect II Multipurpose	F	
Pyrethrins, piperonyl butoxide technical & silicon dioxide	Pyrellin EC	F, G	Apply in intervals of 7 days or less.
Pyrethrins, rotenone & other associated resins	Distance Insect Growth Regulator	F, G	Suppression; for foliar spray application, apply Distance no more than two times per cropping cycle or no more than two times per 6 months. For sprinch application, if a second application is needed, allow a minimum of 21 days between applications. For drench application: Do not drench plants more than one time per crop cycle. Do not apply to poinsettia after bract formation.
Pyriproxyfen			

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Refined petroleum distillate	Saf-T-Side Spray Oil	F, G	This insecticides mode of action is through suffocation of eggs, larvae and nymphs of insects, and adults of soft bodied insects. Do not use in combination with or immediately before or after spraying with fungicides such as Captan, Folpet, oxythioquinox (Morestan) or any product containing sulfur. Also do not use with carbaryl (Sevin) or dimethoate (Cygon). Do not use with any product whose label recommends the use of no oils. Do not use in combination with NPK foliar fertilizer applications.
	Ultra-Fine Oil	F, G	In field, caution: Spray no more than four consecutive sprays. The frequency of consecutive sprays should not exceed once every 2 weeks. Early morning applications are recommended. For greenhouse pests listed, use once a week initially, then, as the pest is controlled, decrease the frequency to every 2-3 weeks as needed. Do not tank mix with insecticide or miticide whose label indicates that it should not be used with oil. Do not use with captan, chlorothalonil, dimethoate, methiocarb, oxythioquinox, propargite, or any product containing sulfur.
S-kinoprene	Enstar II	G	Mealybugs, root (ground) mealybug; application should be made to poinsettia before bract formation. Foliar damage on some sensitive varieties can result.
Tau-fluvalinate	Mavrik Aquaflo	F, G	Do not exceed four applications per month or 16 applications per year for immature ornamental plants outdoors in containers up to 5 gal.; for mature ornamental specimen plants or plants in containers larger than 5 gal. outdoors, do not exceed four applications per month or 24 applications per year. Greenhouse applications: Do not exceed four applications per month or 16 applications per crop.
	Flagship 0.22G	F, G	Field nursery, shade house and containers (F); do not exceed 120 lbs. (0.265 lb a.i.) of product per acre per crop or year, whichever is shorter.
Thiamethoxam	Flagship 25WG	F, G	Field nursery, shade house and containers (F); do not exceed 8 oz. per acre per crop or year, which ever is shorter.
	<b>Poinsettia Hornworm (Lepidoptera: Sphingidae) See also Caterpillars</b>		
Azadirachtin	Ornazin 3% EC	F	Hornworms
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain ABTS-351	Biobit HP	F, G	Eilto moth (hornworm)
	Dipel Pro DF		



**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain BMP 123	Baritone Bio-Insecticide	F, G	Eilo moth (hornworm)
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG2348	Condor Bioinsecticide	F, G	Eilo moth (hornworm), precautions: Do not use in combination with any chlorothalonil based fungicide (Bravo, Terranil etc.). Mixing with other oil based products or surfactants could increase the risk of phytotoxicity.
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7826	Lepinox WDG	F, G	Eilo moth (hornworm)
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain EG7841	Crymax Bioinsecticide	F, G	Eilo moth (hornworm)
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-11	Javelin WG	F, G	Hornworms
<i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> strain SA-12	Deliver	F, G	Hornworms
Carbaryl	Carbaryl 4L Carbaryl 80S Sevin 80 WSP	F	Nursery; application to wet foliage or during periods of high humidity may cause injury to tender foliage.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Chlorpyrifos Pro 2 Dursban 50W Duraguard ME	F	Nursery; hornworms
	Quali-Pro Chlorpyrifos 4E	F, G	Hornworms; potted plants and hanging baskets; nursery (F); direct spray to some open blooms may cause petal drop.
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	Hornworms; nursery (F); pre-plant incorporation treatment of field grown nursery stock; containerized, potted or balled and burlapped nursery stock (soil treatment).
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro EverGreen EC 60-6 Pyrenone Crop Spray	G	Hornworm
		F, G	Hornworm; total release aerosol
		F, G	Hornworm
<b>Scales (Homoptera: Diaspididae; Coccidae)</b>			

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Acephate	1300 Orthene TR	G	Total release aerosol
	Acephate 97UP Bracket 90 Orthene Turf Tree & Ornamental Spray 97	G	Crawlers; applications on poinsettias after bract formation may result in phytotoxicity on certain varieties.
	Tame/Orthene TR	G	Do not apply within 48 hours of a previous application. Total release aerosol
Acetamiprid	TriStar 30 SG	F, G	Hard and soft scales; do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 23.9 ounces of TriStar 30 SG/acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
	TriStar 70 WSP	F, G	Hard and soft scales; do not make more than five applications per year. Do not reapply more than once every 7 days. Do not apply more than 22 water soluble packs per acre (0.55 lb. a.i./acre) per year. Resistance to other chloronicotinyls/neonicotinyls, such as Merit and Marathon, may result in resistance to TriStar. Therefore, to minimize resistance, rotate with other classes of insecticides.
Azadirachtin	Ornazin 3% EC	F, G	Soft Scales (G)
Bifenthrin	Attain TR	G	Total release aerosol
	Attain TR Micro	F, G	Brown soft scales; California red scale (crawlers); San Jose scale (crawlers); nursery and shade house (F)
	OnyxPro	F	Brown soft scales; California red scale (crawlers); San Jose scale (crawlers)
	Talstar Flowable TalstarOne Multi-Insecticide Talstar Nursery Flowable	F, G	Brown soft scales; California red scale (crawlers); San Jose scale (crawlers); nursery and shade house (F); do not apply more than 0.2 lbs. a.i. per acre per year for outdoor applications.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Buprofezin	Talus 40 SC	F, G	Soft scales, armored scales; make no more than two applications of Talus 40SC per year. To preserve usefulness of Talus, do not make more than two consecutive applications. Prior to subsequent applications, use an alternative chemistry with a different mode of action. Talus belongs to a class of chemicals not previously used as pesticides and not known to be cross-resistant to other classes of insecticides. In addition to inhibiting chitin biosynthesis on the listed insects, Talus suppresses oviposition of adults and reduces viability of eggs.
	Talus Insect Growth Regulator	F, G	Soft scales, armored scales; make no more than two applications per crop per season. To preserve usefulness of Talus, do not make more than two consecutive applications. Prior to subsequent applications, use an alternative chemistry with a different mode of action. Talus belongs to a class of chemicals not previously used as pesticides and not known to be cross-resistant to other classes of insecticides. In addition to inhibiting chitin biosynthesis on the listed insects, Talus suppresses oviposition of adults and reduces viability of eggs.
Carbaryl	Carbaryl 4L Carbaryl 80S Sevin 80 WSP Sevin SL	F	Crawlers; nursery: application to wet foliage or during periods of high humidity may cause injury to tender foliage.
		F	Crawlers; application to wet foliage or during periods of high humidity may cause injury to tender foliage.
Chlorpyrifos	Chlorpyrifos E-Pro 2 Dursban 50W Duraguard ME	F	Nursery
		F, G	Mealybugs, root mealybugs; potted plants and hanging baskets; nursery (F); direct spray to some open blooms may cause petal drop.
	Quali-Pro Chlorpyrifos 4E	F, G	Scales: Cottony cushion, euonymus, Florida wax, hemispherical, lecanium, oystershell, San Jose, tea; nursery (F); pre-plant incorporation treatment of field grown nursery stock; containerized, potted or balled and burlapped nursery stock (soil treatment).
Chlorpyrifos & cyfluthrin	Duraplex TR	G	Total release aerosol
Cyfluthrin	Decathlon 20WP	F, G	Crawlers

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Cyfluthrin & imidacloprid	Discus Nursery Insecticide	F	Crawlers for foliar insect control; armored scale (suppression) and soft scale for systemic and contact/ingestion insect control; field grown nurseries and container stocks; resistance management: Foliar application of any chloronicotinyl insecticide following a Discus soil application in the same crop is not recommended. Outdoor applications of Discus can not exceed a total of 244 oz. (0.62 lb. a.i.) per acre per year. Foliar applications may be re-applied every 14 to 28 days.
Deltamethrin	Deltagard GC 5SC	F	Nursery; crawlers
Dinotefuran	Safari 2 G	F, G	Nursery and shade house (F); do not apply more than 27 lbs. (0.54 lbs ai) per acre of nursery per year. To delay the development of resistance, do not make more than one soil application per crop cycle or 3 months, whichever is shorter. Only apply to moist soil or media; do not apply to dry or saturated soil or when plants are not actively taking up water from soil. For optimal performance, do not apply until roots from transplanted plugs or liners have grown at least 1/2 inch. Poinsettias: For optimal control of whiteflies, treat plants 1 to 3 weeks after pinch.
Fenoxycarb	Safari 20 SG  Preclude TR	F, G  G	Nursery and shade house (F); applications can be made to foliage or as a soil drench. Do not apply more than 2.7 lbs. (0.54 lb. a.i.) per acre of nursery per year. For outdoor ornamentals, broadcast applications can not exceed a total of 2.7 lbs. of product (0.54 lb. a.i.) per acre per year. Resistance management recommendations: Do not apply Safari 20SG insecticide or other group 4A insecticides to consecutive generations of the same insect pest species. Regarding Safari or other group 4A insecticides: Do not drench soil media more than one time per crop cycle or 3 months, whichever is shorter. Do not make more than two foliar or broadcast sprays, or one soil drench and one foliar or broadcast spray, to a single crop during a 2 month period. Avoid runoff or puddling of irrigation water after application. Avoid application to areas that are water logged, saturated, or which will not allow penetration into the root zone of the plant. Avoid soil application when plants are dormant or not actively taking up water from the soil.
	Preclude TR	G	Total release aerosol

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Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Fenpropathrin	Tame 2.4EC	F, G	San Jose scale (crawlers); nursery & shade house (F); do not use less than a 7 day retreatment interval.
Imidacloprid	Marathon 1% G	F, G	Armored scale (suppression); nursery (F); plants grown in containers, flats, beds and benches; for outdoor ornamentals grown in beds, applications can not exceed a total of 40 lbs. per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year.
	Marathon 60WP	F, G	Armored scale (suppression); nursery (F); this product is to be applied as a soil treatment only. For outdoor ornamentals grown in beds, applications can not exceed a total of 10.7 oz. (0.4 lbs. a.i.) per acre per year. On plants with a production cycle of less than 1 year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than 1 year, application may not exceed once a year. Do not allow leachate runoff for the first 10 days after application, in order to retain the product and facilitate full uptake of the active ingredient.
Lambda-cyhalothrin	place Marathon II	F, G	Armored scale (suppression); for outdoor ornamentals, broadcast applications cannot exceed a total of 1.6 pt. (0.4 lbs. a.i.) per acre per year.
	Lambda-Cy EC Scimitar GC	F, G	Crawlers; nursery and shade house (F); do not apply more than 0.36 lb. a.i. per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	Euonymus scale, Florida red scale, magnolia scale, oystershell scale, soft brown scale (crawlers); for scales, apply when crawlers have settled on foliage.
Methidathion	Supracide 25-W	F	Nursery stock
Neem oil	Triact 70	F, G	Nursery (F); applications should be made in early morning or late evening to minimize the potential for leaf burn.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Tank mixes with products containing chlorothalonil should be avoided as they can cause severe phytotoxicity.
	M-Pede	F, G	Tank mixes with chlorothalonil should be avoided. Potential for injury increases on plants stressed by heat, humidity, drought, or insect, mite or disease pressure. Poinsettia plants may be sensitive; bracts may be injured when sprayed.
Pyrethrins	PyGanic Crop Protection EC 1.4 PyGanic Crop Protection EC 5.0	F, G	
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR Pyrethrum TR Micro	G	Total release aerosol
Pyriproxyfen	Distance Insect Growth Regulator	F, G	California red scale, euonymus scale, Florida wax scale, San Jose scale, snow scale; for foliar spray application, apply Distance no more than two times per cropping cycle or no more than two times per 6 months. For srench application, if a second application is needed, allow a minimum of 21 days between applications. For drench application: Do not drench plants more than one time per crop cycle. Do not apply to poinsettia after bract formation.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Refined petroleum distillate	JMS Stylet-Oil	F, G	Do not spray wet foliage. Do not spray when freezing temperatures are anticipated within 48 hours of an oil application, above 90 F, or when plants are under heat or moisture stress. Do not tank mix with spreader stickers, Nu-Film-P, or Nu-Film-17, highly ionized nutrient spray materials. Do not use the following during, with or following an oil spray: Captan, Folpet, oxythioquinox (Morestan), organic tin compounds (Du-Ter). Do not apply propargite (Omite) within 30 days of an oil application. Do not use chlorothalonil (Bravo), dicofol (Kelthane) or dimethoate (Cygon) in a spray program with this product on ornamentals. Do not use the following unless at least 2 weeks have elapsed between the use of oil and the chemical anilazine (Dyrene), chlorothalonil (Bravo), dichloran (Botran), dicofol (Kelthane), Dikar, dinocap (Karathane), permethrin (Ambush, Pounce). Do not apply micronized sulfur within 10 days of an oil application and do not apply oil within 14 days of an application of wettable or dusting sulfur. Observe all limitations, precautions and rate recommendations which appear on the label for these products: Acephate (Orthene), benomyl (Benlate), copper ammonium carbonate (CCN), copper hydroxide (Kocide), fenvalerate (Asana XL), Mancozeb, Maneb, methamidophos (Monitor), metalaxyl ( <del>Primo</del> ), and triadimenol ( <del>Bayleton</del> ). This insecticide mode of action is through suffocation of eggs, larvae and nymphs of insects, and adults of soft bodied insects. Do not use in combination with or immediately before or after spraying with fungicides such as Captan, Folpet, oxythioquinox (Morestan) or any product containing sulfur. Also do not use with carbaryl (Sevin) or dimethoate (Cygon). Do not use with any product whose label recommends the use of no oils. Do not use in combination with NPK foliar fertilizer applications.
	Saf-T-Side Spray Oil	F, G	
	Ultra-Fine Oil	F, G	Immature scales (F); in field, caution: Spray no more than four consecutive sprays. The frequency of consecutive sprays should not exceed once every 2 weeks. Early morning applications are recommended. For greenhouse pests listed, use once a week initially, then, as the pest is controlled, decrease the frequency to every 2-3 weeks as needed. Do not tank mix with insecticide or miticide whose label indicates that it should not be used with oil. Do not use with captan, chlorothalonil, dimethoate, methiocarb, oxythioquinox, propargite, or any product containing sulfur.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
S-kinoprene	Enstar II	G	Armored scales, soft-bodied scales; application should be made to poinsettia before bract formation. Foliar damage on some sensitive varieties can result.
Thiamethoxam	Flagship 25WG	F, G	Soft scales; field nursery, shade house and containers (F); do not exceed 8 oz. per acre per crop or year, which ever is shorter.
<b>Shore Flies (Diptera: Ephydriidae)</b>			
Azadirachtin	Azatin XL	F, G	Effective on all larval stages and pupae. It also reduces crop damage by repelling and deterring feeding of all stages of insect.
<i>Beauveria bassiana</i> ATCC 74040	Azatrol EC	F, G	Diptera; nursery (F); waxy bloom on certain ornamental plants may be reduced after an application. Caution is recommended when making applications to poinsettia; spotting of plant foliage and blossoms is possible.
Chlorpyrifos	Ornazin 3% EC	F, G	Do not tank mix with fungicides. Wait a minimum of 48 hours after application before applying fungicides.
Chlorpyrifos & cyfluthrin	Naturalis L	F, G	Nursery (F); potted plants and hanging baskets; direct spray to some open blooms may cause petal drop.
Cyromazine	Duraguard ME	F, G	Total release aerosol
Potassium salts of fatty acids	Duraplex TR	G	Will not control adult stages. For control of fungus gnats and shore flies, apply Citation to all surfaces where insect pests may breed.
	Citation	G	Tank mixes with products containing chlorothalonil should be avoided as they can cause severe phytotoxicity.
Pyriproxyfen	AllPro Insecticidal Soap 40%	F, G	Tank mixes with chlorothalonil should be avoided. Potential for injury increases on plants stressed by heat, humidity, drought, or insect, mite or disease pressure. Poinsettia plants may be sensitive; bracts may be injured when sprayed.
	M-Pede	F, G	For foliar spray application, apply Distance no more than two times per cropping cycle or no more than two times per 6 months. For sprinch application, if a second application is needed, allow a minimum of 21 days between applications. For drench application: Do not drench plants more than one time per crop cycle. Do not apply to poinsettia after bract formation.
	Distance Insect Growth Regulator	F, G	



**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
<i>Steinernema carpocapsae</i>	Millenium	F, G	For shore flies, three applications must be applied at 7 day intervals. See label for precautions on compatibility with other pesticides. For greenhouse applications also spray the surface of the pots, the tops, sides and undersides of benches and other areas where insects can breed.
<b>Slugs &amp; Snails (Mollusca: Gastropoda: Pulmonata: Limacidae)</b>			
Iron phosphate	Sluggo-Ag	F, G	
Metaldehyde	Deadline Bullets	F, G	Test first on extremely tender plants. For best results apply in evening. Do not apply pellets in piles.
	Deadline M-Ps Mini-pellets	F, G	Do not apply directly to plants unless prior experience has shown the plant to be tolerant. Thoroughly water areas to be treated before application. For best results apply in the evening.
	Slug-Fest	F, G	Do not apply directly to plants. Use only as a baiting treatment. Trail's End should never be applied to dry soil. Applications should be made following irrigation for best results; evening applications are preferred. Do not re-water for 48 hours after application.
	Trails End 3.5 Trails End LG	G	
Methiocarb	Mesurol 75-W, Pro	F, G	Nursery & mature plantings (F); Do not make more than two applications per year per crop. Applications must be at least 10 days apart. Do not apply with oil.
<b>Spider Mites (Acari: Tetranychidae)</b>			
Abamectin	Avid 0.15EC	F, G	Twospotted spider mite
	Lucid		
Acephate	1300 Orthene TR	G	Total release aerosol
Acephate & fenpropathrin	Tame/Orthene TR	G	Total release aerosol; do not apply within 48 hours of a previous application.
Acequinocyl	Shuttle 15 SC	F, G	Twospotted spider mite; do not to exceed 25.6 fl. oz./acre/year. Allow a minimum of 14 days between treatments. Do not tank mix with strongly alkaline material and do not combine with Pho-sethyl (Fosetyl).
Azadirachtin	Azatrol EC	F, G	Acarina (mites); nursery (F); waxy bloom on certain ornamental plants may be reduced after an application. Caution is recommended when making applications to poinsettia; spotting of plant foliage and blossoms is possible.
<i>Beauveria bassiana</i> ATCC 74040	Naturalis L	F, G	Mites; do not tank mix with fungicides. Wait a minimum of 48 hours after application before applying fungicides.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Bifenazate	Floramite	F, G	Do not make more than two applications per crop per year. Do not apply more than 16 oz per acre per year. Apply only one application of Floramite before rotating to products of an alternative chemical class and use at least two alternate products between treatments of Floramite.
	CityplaceFloramite StateSC	F, G	Apply only one application before rotating to products of an alternative chemical class. Use at least two alternative products between treatments of CityplaceFloramite StateSC. Do not make more than two applications per crop per year. Do not apply more than 32 fl. oz. per acre per year.
	Attain TR Attain TR Micro	G	Total release aerosol
	Bifenthrin Pro Multi-Insecticide (EPA Reg. No. 51036-391)	F, G	Nursery and shade house (F)
	OnyxPro Talstar Flowable TalstarOne Multi-Insecticide Talstar Nursery Flowable	F G F, G	Nursery and shade house (F); do not apply more than 0.2 lbs. a.i. per acre per year for outdoor applications.
Chlorfenapyr	Pylon	G	Phytotoxicity is likely to occur to some varieties of poinsettia. Do not apply Pylon more than two times consecutively or a total of three times during a growing cycle (not more than 41 fl. oz. of product/100 gal. / crop / season or 0.64 lbs. of a.i. / 100 gal. / crop / season) (start to finish for one ornamental crop). Do not apply Pylon to consecutive crops in a greenhouse unless the Pylon is applied in combination with other effective miticides or insecticides with a different mode of action. Additions of crop oils, surfactants, and fertilizers or other tank additives have been shown to increase the likelihood of foliar injury. Pylon is not ovicidal.
	Chlorpyrifos E-Pro 2 Dursban 50W	F	Mites; nursery; when large numbers of spider mite eggs are present, apply a second spray 3-5 days after initial treatment to control newly hatched nymphs.
	Duraguard ME	F, G	Potted plants and hanging baskets; nursery (F); direct spray to some open blooms may cause petal drop.
Chlorpyrifos	Quali-Pro Chlorpyrifos 4E	F, G	Twospotted spider mite; nursery (F); pre-plant incorporation treatment of field grown nursery stock.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Chlorpyrifos & cyfluthrin Clofentezine	Duraplex TR	G	Mites; total release aerosol
	CityplaceOvation StateSC	F, G	Twospotted spider mite; nursery stock, shade house & container grown (F); recommended application frequency is once per crop cycle in greenhouse, saran house, and shade house culture, and once per each crop cycle occurring within a year for outdoor ornamentals.
Deltamethrin	Deltagard GC 5SC	F	Mites (suppression only); nursery
Dicofol	Keithane 50WSP	F, G	Nursery (F); twospotted spider mite, strawberry spider mite; applicators must be in enclosed cabs or cockpits. Resistance management: As a general rule, rotate use with miticides with different modes of action and limit the number of applications to an average of one per season. Do not make more than two applications per crop or season. If two applications are made in a single growing season, no application should be made during the following year.
Dimethoate	5 lb. Dimethoate	F	Mites; do not use on ornamental plants grown in shade houses. Do not use on any ornamental stock plants grown as a source of propagation material, such as cuttings, layers, root stocks or scions for grafting or budding. Do not use in spray mixes containing oil.
	Dimethoate 267 Dimethoate 4E	F	Nursery; mites; do not use on any ornamental stock plants grown as a source of propagation material, such as cuttings, layers, root stocks or scions for grafting or budding. Do not use in mixtures containing oil.
Etoxazole	TetraSan 5 WDG	F, G	Controls in egg and nymph stages of growth. Do not apply to poinsettia after bract formation. Resistance management: o no apply more than two times per cropping season or within a 6 month period. Apply second application, if necessary, no sooner than 14 days after the first application. If rapid control (less than 7 days) is required, apply in combination with a contact adulticide.
	ProMite 50WP	F, G	Twospotted spider mite; when daily temperatures at application average below 70° F., performance is reduced. Apply to poinsettias prebract only.
Fenbutatin-oxide	Preclude TR	G	Mites; total release aerosol
Fenoxycarb	Tame 2.4EC	F, G	Nursery & shade house (F); twospotted spider mite; do not use less than a 7 day retreatment interval.

**Table 1.** Insect and mite control measures available for commercial poinsettia production in Florida.

Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Fenpyroximate	Akari 5SC	F, G	Do not apply more than 48 fl. oz. per crop cycle or per growing season, whichever is longer. Do Not use in successive applications in the same production area. Allow at least two different chemicals with two different modes of action to be used between treatments of Akari 5SC. For mite control: Make sequential application of a miticide, with a different mode of action, up to 21 days after the initial Akari application.
Hexythiazox	Hexygon DF	F, G	Nursery and shade house (F); southern red mite, twospotted spider mite; apply only once per crop cycle. If crop cycle is longer than 1 year do not apply more than once per year.
Lambda-cyhalothrin	Lambda-Cy EC Scimitar GC	F, G	Mites; nursery and shade house (F); do not apply more than 0.36 lb. a.i. per acre per year.
Malathion	Gowan Malathion 8 F Malathion 5EC	F	
Methiocarb	Mesuroil 75-W	F, G	Mites; nursery & mature plantings (F); do not make more than two applications per year per crop. Applications must be at least 10 days apart. Do not apply with oil.
Milbemectin	Ultiflora	F	Nursery; maximum rate is 128 fl.oz. Ultiflora per acre per growing season. Allow at least 3 days between spray applications. Do not use in combination with spray oils without checking for plant injury.
Naled	Dibrom 8 Emulsive	G	Spider mites; spotting, bronzing or localized burning can occur under certain climatic conditions such as slow drying and high humidity or stress caused by drought or high temperature. In greenhouse: A vapor treatment, avoid over-treatment and direct application to plants as injury may result.
Neem oil	Triact 70	F, G	Mites; nursery (F); applications should be made in early morning or late evening to minimize the potential for leaf burn.
Oxydemeton-methyl	MSR Spray Concentrate	F	Mites; field grown nursery stock; do not make more than two applications per season.
Potassium salts of fatty acids	AllPro Insecticidal Soap 40%	F, G	Mites; tank mixes with products containing chlorothalonil should be avoided as they can cause severe phytotoxicity.
	M-Pede	F, G	Mites; tank mixes with chlorothalonil should be avoided. Potential for injury increases on plants stressed by heat, humidity, drought, or insect, mite or disease pressure. Poinsettia plants may be sensitive; bracts may be injured when sprayed.

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Pesticide Common Name	Trade Name/ Formulation	Production Site <sup>1</sup>	Notes from Label <sup>2</sup>
Potassium silicate	Sil-Matrix Fungicide/Miticide/Insecticide	F	Mites (suppression); for mite and insect suppression, begin applications when pests first appear and repeat applications as necessary to maintain suppression, but no sooner than every 7 days.
Propargite	Ornamite	F	Two spider mite, southern red mite; applications in temperatures exceeding 85° may result in phytotoxic symptoms. Total number of sprays per year is three. Minimum spray interval is 14 days.
Pyrethrins & piperonyl butoxide	1100 Pyrethrum TR	G	Mites; total release aerosol
Pyrethrins, piperonyl butoxide technical & silicon dioxide	Diatect II Multipurpose	F	Mites
Pyrethrins, rotenone & other associated resins	Pyrellin EC	F, G	Mites; apply in intervals of 7 days or less.
Pyridaben	Sanmite 75W	F, G	Southern red mite, tumid mite, twospotted spider mite; do not exceed 21.34 ounces per acre per year. Do not use Sanmite in successive miticide applications. Use in rotation with other treatments having different modes of action.

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