Crop and Pest Management Guidelines

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Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

- Acephate 97 UP
- Adept
- Akari
- *Ambush 25W
- Ardent 0.15EC
- *Aria
- *Astro
- Attain TR
- Avatar
- Avid 0.15EC
- Aza-Direct
- Azatin XL
- Beethoven TR
- *Benefit 60WP
- BioBit HP
- BotaniGard 22WP
- BotaniGard ES
- Citation
- Conserve SC
- Deadline Bullets
- Deadline M-Ps
- Decathlon 20WP
- *Dibrom 8E
- DiPel PRO DF
- *Discus N/G
- Distance
- *Duraguard ME
- *DuraPlex TR
- Durham Metaldehyde Granules 3.5
- Durham Metaldehyde Granules 7.5
- *Endeavor
- Enstar AQ
- *†Flagship 0.22G
- *†Flagship 25WG
- *Floramite SC
- Gnatrol WDG
- *Hexygon DF
- *Imida E-Pro 1%
- *Imida E-Pro 2F
- *Imida E-Pro 60WSP
- Javelin WG
- Judo
- Kontos
- *Lada 2F
- Magus
- *Marathon 1G
- *Marathon 60WP
- *Marathon II
- *Mavrik Aquaflow
- *Menace GC 7.9% Flowable
- Merlin
- *Mesurol 75-W
- *Mesurol Pro
- Millenium
- Molt-X
- M-Pede
- Nemasys
- Nemasys-H

1300 Orthene TR (Prescription Treatment)
Ovation SC
Overture 35 WP
Pedestal
*Perm-Up 3.2EC
*Pounce 25 WP
Precise
Preclude TR
*Prentox PyronylCrop Spray
*ProMITE 50WP
PureSpray Green
*Pylon
Pyrenone Crop Spray
*Pyreth-It Formula 2
*Pyrethrum TR
Quali-Pro Abamectin0.15EC
Safari 20 SG
Sanmite
ScanMask
*Scimitar GC
Shuttle O
Sirocco
Sluggo Ag
SuffOil-X
*Talstar S
*†Talus 70 DF
*Tame 2.4EC
Tame/Orthene TR
*TetraSan
Triact 70
TriStar 30 SG
TriStar 70 WSP
Ultra-Pure Oil
*Up-Star SC
*Wisdom Flowable

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
Acephate 97 UP	acephate 97.4% DG	70506-8	24	1B
Registered against: aphids, leafrollers, mealybugs, scale (crawlers), thrips, whiteflies For use on certain greenhouse floral and foliage plant crops, and outdoor floral crops and ground covers. Application to poinsettias after bract formation may result in phytotoxicity on certain varieties. Do not apply to roses or chrysanthemums with open blooms. Some phytotoxicity has been observed on certain foliage plants and some chrysanthemum varieties. See label for complete plant list, rates, and specific instructions.				
Adept	diflubenzuron 25% WP	400-477	12	15
Registered against: armyworms, fungus gnat larvae, leafminers (leps), shore fly larvae, whiteflies (suppression) For use in enclosed commercial structures such as greenhouses, shadehouses, and lathhouses only. Product works by disrupting normal molting processes of insect larvae. Apply as soil drench or coarse spray to soil surface for control of certain soil-inhabiting insects. Do not reuse potting media that has been treated with product. For optimum control when applying as a soil treatment, it is recommended that breeding areas under benches and other non-crop areas be treated at the same time as crop is treated. For control of certain foliar-feeding insects, apply as foliar spray. Do not apply to poinsettias, hibiscus, or Rieger begonia. When using as a foliar spray to control whitefly, use product in combination or in rotation with other effective insecticides. Do not apply to pots grown on capillary water mats. See label for specific rates and instructions.				
Akari	fenpyroximate 5%	71711-4	12	21
Registered against: mites For use on greenhouse ornamental, floral and foliage crops, indoor ornamental plantings and plantscapes. Apply as a foliar spray, and good coverage Is necessary. Product stops mite damage immediately after application and provides stop-feeding action together with a cessation of egg laying, and mites die in 4 to 7 days. Do not apply more than 48 fl oz of product per crop cycle or per growing season, whichever is longer. Do not apply product in successive miticide applications in the same greenhouse, allow at least 2 different chemicals with different modes of action to be used between treatments. See label for plant list, rates, and specific instructions.				
***Ambush 25W**	permethrin 25% WP	5481-502	12	3
Registered against: caterpillars				

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	For use on nursery stock, field-grown and greenhouse roses. Apply as a foliar spray. Avoid spraying chrysanthemum blooms, not all cultivars have been tested for phytotoxicity. Application to blooms may cause petal browning. See label for plant list, rates, and specific instructions.			
Ardent 0.15EC	abamectin 2% EC	100-896	12	6
	Registered against: aphids (suppression), leafminers, mites, thrips (suppression), whiteflies (suppression) For use on shadehouse, greenhouse, field-grown ornamentals, and foliage plants. Apply as foliar spray. Do not apply less than 8 fl. oz. or more than 16 fl. oz. per acre. Do not make more than six applications per copping cycle. Do not use more frequently than at seven-day intervals. Rotate with products that have different modes of action. Do not use product for suppression of aphids, whiteflies, and thrips on roses, chrysanthemums, and gerbera. These ornamentals are primary hosts of mites and Liriomyza leafminers for which product applications should be targeted. Not recommended for use on ferns and Shasta daisies. See label for resistance management techniques and specific rates and instructions.			
***Aria**	flonicamid 50%WDG	279-3287	12	9C
	Registered against: aphids, mealybugs, thrips, whiteflies			
	For use on herbaceous and woody ornamentals, annuals and perennials in greenhouses. Product is packaged in water-soluble packets. Product stop insect feeding with 30 minutes, but insects may remain on plants for up to 5 days. Product has residual control. Treat when insects appear. For improved knockdown of heavy infestations, apply as a tank mix with a pyrethroid or other fast acting material. Do not apply this product more than two times consecutively before rotating to another chemistry. Certain pansy cultivars have exhibited sensitivity to product. See label for specific rates and instructions.			
***Astro**	permethrin 36.8% EC	279-3141	12	3
	Registered against: ants, aphids, armyworms, Japanese beetles, lace bugs, leaf-feeding caterpillars, leafhoppers, leafminers, leafrollers, lygus bugs, mealybugs, plant bugs, root weevils (adults), whiteflies			
	For use on ornamentals in greenhouses, landscaped areas, and field- and container-grown foliage and flowering plants. Apply when insects appear or feeding is noticed. Higher rates should be used as pest populations increase. Direct application to blooms may cause browning of petals. Marginal leaf burn may occur on Salvia, Dieffenbachia, and Pteris fern. See label for specific rates and instructions.			
Attain TR	bifenthrin 4%	499-472	12	3
	Registered against: aphids, caterpillars, fungus gnats, leafrollers, mealybugs, mites, plant bugs, scale, thrips, whiteflies			
	For use on greenhouse bedding plants, cut flowers, flowering hanging baskets, foliage plants, potted flowering plants, and ornamentals. For best results apply during early evening when foliage is dry and temperature is between 60-80°F. Greenhouse should be ventilated before reentry. Do not re-apply product within 48 hours of a previous application. See label for plant list, rates, and specific instructions.			
Avatar	acephate 75% SP	81964-2-81943	24	1B
	Registered against: aphids, beetles (Japanese), leafrollers, mealybugs, plant bugs, scale (crawlers), thrips, whiteflies			
	For use on greenhouse floral and foliage plant crops, and outdoor floral crops and ground covers. Do not apply to chrysanthemums and roses with open blooms. Phytotoxicity has occurred on poinsettia after bract formation. Certain chrysanthemums and specific foliage plants have exhibited phytotoxicity after product application – see label for list of specific varieties. See label for plant list, rates, and specific instructions.			
Avid 0.15EC	abamectin 2% EC	100-896	12	6
	Registered against: aphids (suppression), leafminers, mites, thrips (suppression), whiteflies (suppression)			
	For use on shadehouse, greenhouse, field-grown ornamentals, and foliage plants. Apply as foliar spray. Product has translaminar properties. Do not apply less than 8 fl. oz. or more than 16 fl. oz. per acre. Do not make more than six applications per copping cycle. Do not use more frequently than at seven-day intervals. Rotate with products that have different modes of action. Do not use product for suppression of aphids whiteflies, and thrips on roses, chrysanthemums, and gerbera. These ornamentals are primary hosts of mites and Liriomyza leafminers for which product applications should be targeted. Not recommended for use on ferns and Shasta daisies. See label for resistance management techniques and for specific rates and instructions.			
Aza-Direct	azadirachtin 1.2%	71908-1-10163	4	unknown
	Registered against: aphids, beetles, caterpillars, flies, fungus gnats, true bugs, leafrollers, leafminers, mealybugs, midges, mites, psyllids, plant bugs, scale, thrips, weevils, whiteflies			
	For use as a drench or as a foliar spray on plants grown in greenhouses, shadehouses, and nurseries. Product controls target pests on contact or by ingestion. The product acts on pests by way of repellence, antifeedance and interference with the molting process. Apply when insects appear or feeding is noticed. The optimum pH range for application is 5-6.5. If needed, the pH of the water can be adjusted by use of a suitable buffering agent. Product can be used on vegetables, herbs and spices, and other miscellaneous crops. See label for specific rates and instructions.			
Azatin XL	azadirachtin 3% EC	70051-27-59807	4	unknown

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
Registered against: aphids, armyworms, beetles, black vine weevils, caterpillars, chafers, cutworms, fungus gnats, leafhoppers, leafminers, leafrollers, mealybugs, sawflies, shore flies, thrips, whiteflies				
Can be used indoors and outdoors on ornamentals and horticultural crops. Maintain dilute Azatin solutions at a pH between 3 and 7, and apply solution soon after preparation. Controls insect larvae when they ingest or come in contact with it. Interferes with insect's ability to molt. Product can be used as a soil drench for controlling soil-borne insect larvae – apply to moderately moist soils. Thoroughly wet the soil with product, but do not apply to the point of excessive drip from pots. See label for specific rates and instructions.				
Beethoven TR	etoxazole 5% aerosol	499-533	4 (See notes.)	10B
Registered against: mites, whiteflies (suppression)				
REI is 24h without ventilation. For use on all ornamental crops in greenhouses. Apply product when pest (or plant damage typical of an indicated pest) is seen. For best results, apply during early evening when foliage is dry and greenhouse temperatures are between 60-80°F. See label for specific instructions.				
***Benefit 60WP**	imidacloprid 60%	42750-153-58185	12	4A
Registered against: aphids, beetles (larvae), black vine weevil, caterpillars, fungus gnats (larvae), lace bugs, leafhoppers, leafminers, mealybugs, sawflies (larvae), scale, thrips (suppression), weevils (root), whiteflies				
For use on ornamentals in greenhouses, nurseries, and interior plantscapes, also can be applied to grassy areas in nurseries for certain insect control. Product is systemic and can be applied as a foliar spray, or can be applied to the soil media. Product comes in water-soluble packets. Product can also be used in ebb and flood applications. No soil injection on Long Island. Do not apply product to soils that are water logged or saturated. See label for plant list, rates, and specific instructions.				
BioBit HP	*Bacillus thuringiensis* subsp. *kurstaki* 58.2% WP	73049-54	4	11B2
Registered against: caterpillars				
For use on flowers, bedding plants, ornamentals, and greenhouse crops. May be used to control small immatures; apply when eggs start hatching and larvae are small. Must be ingested to be effective, so thorough coverage is essential. Larvae must be actively feeding on treated, exposed plant parts. See label for specific rates and instructions.				
BotaniGard 22WP	*Beauveria bassiana* 22%WP Strain GHA	82074-2	4	Biological
Registered against: aphids, mealybugs, thrips, weevils, whiteflies				
For use on ornamentals and vegetables in indoor and outdoor nurseries, greenhouses, shadehouses, commercial landscapes/interiorscapes, and on turf. Designed for application without additional wetting agents and spreaders. Do not tank mix with fungicides. Acts by contact: spores must attach to cuticle of target insect to be effective, so thorough coverage is essential. Most effective when used early, before high insect populations develop. Typically it takes three to seven days for insects to die and 7 to 10 days after first spray to see a reduction in an insect population. Product may be used as a pre-plant dip for cuttings. For soil applications do not apply to water-saturated soils. See label for plant list, rates, and specific instructions.				
BotaniGard ES	*Beauveria bassiana* Strain GHA 11.3%ES	82074-1	4	Biological
Registered against: aphids, beetles, mealybugs, plant bugs, thrips, weevils, whiteflies				
For use on ornamentals and vegetables in indoor and outdoor nurseries, greenhouses, and landscapes. Acts by contact: spores must attach to cuticle of target insect to be effective, so thorough coverage is essential. Most effective when used early, before high insect populations develop. Typically it takes three to seven days for insects to die and 7 to 10 days after first spray to see a reduction in an insect population. Do not tank mix with fungicides. See label for plant list, rates, and specific instructions.				
Citation	cyromazine 75% WP	100-667	12	17
Registered against: larvae of dipterous leafminers, fungus gnats, shore flies				
For use on landscape ornamentals, container-grown ornamentals, greenhouses, lath and shadehouses, and ornamental crops. For use on shore fly larvae only on greenhouse ornamental crops and in interiorscapes. Product is an insect growth regulator and will not kill adult insects. Rotate with insecticides that have different modes of action for leafminer control. Product comes in water-soluble bags. See label for specific rates and instructions.				
Conserve SC	spinosad 11.6% SC	62719-291	4	5
Registered against: ants (fire), beetles, caterpillars, gall midges, leafminers, mites, shoreflies, sawflies (larvae), thrips				
For use on ornamentals in nurseries, greenhouses, lath houses, shadehouses, or growing outdoors. Fermentation-derived insect control agent; because of its unique mode of action, can be used in resistance management programs in rotation with any other class of products. Product should not be used more than 10 times in a 12 month period, and for control of leafminers, spider mites, or diamondback moths do not apply more than 6 times in 12 months. Except for greenhouses and structures that can be altered to be closed or open, do not reapply within less than 7 days. Product is a Group 5 insecticide and users should follow				

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	specific greenhouse IPM techniques on label to avoid pest resistance. Product has specific recommendations for use in commercial aquatic plant production – read label. See label for specific rates and instructions.			
Deadline Bullets	metaldehyde 4%	5481-507	12	unknown
	Registered against: slugs, snails			
	Apply as a soil surface treatment. For use in ornamental greenhouses, ornamental plantings, commercial ornamental nurseries, and ground covers. For best results apply in evening. Especially beneficial if applied following rain or watering.			
Deadline M-Ps	metaldehyde 4%G	5481-511	12	unknown
	Registered against: slugs, snails			
	For use on ornamental greenhouses, plantings, and nurseries. Most plants show tolerance to product. However, on tender plants such as orchids, making a test application before a broadcast application over the plants is recommended. For best results, apply in evening. Best if applied following rain or watering. See label for complete plant list, rates, and specific instructions.			
Decathlon 20WP	cyfluthrin 20% WP	432-1402-59807	12	3
	Registered against: aphids, beetles, caterpillars, fungus gnats, grasshoppers, lace bugs, leafhoppers, leafrollers, mealybugs, midges, pillbugs, plant bugs, sawfly larvae, scale (crawlers), sowbugs, spittlebugs, thrips, whiteflies			
	For use on ornamentals in nurseries and greenhouses, outdoor landscaped areas, and interior plantscapes. Good spray coverage is necessary to provide the most effective level of control. See label for specific rates and instructions.			
***Dibrom 8E**	naled 62% EC	5481-479	24 (see label)	1B
	Registered against: aphids, leafrollers, mealybugs, spider mites, whiteflies (adults)			
	For use in greenhouses as a vapor treatment of roses and other ornamentals. Has good fumigant action. May be applied to steam pipes, or in open pans on hot plates, but can be corrosive to metals. Avoid over treatment and direct application to plants. May injure certain rose and chrysanthemum varieties, Wandering Jew, poinsettias, and Dutchman's Pipe. Do not apply this product when air temperature is above 90°F due to phytotoxicity issues. See label for specific rates and instructions.			
DiPel PRO DF	*Bacillus thuringiensis* subsp. *kurstaki* 54% DF	73049-39	4	11B2
	Registered against: caterpillars			
	For use in greenhouses, shadehouses, and outdoor nursery crops, on flowers, bedding plants, and ornamentals. Product may be used for any labeled pest in both field and greenhouse uses. Product controls pests by stopping their feeding activity. Larvae of targeted insect pest must ingest deposits of product to be affected. Treat when larvae are young. See label for complete plant list, rates, and specific instructions.			
***Discus N/G**	cyfluthrin (0.7%) + imidacloprid (2.94%)	432-1393-59807	12	3 and 4A
	Registered against: ants, aphids, beetles, caterpillars, fungus gnats, leafminers, lace bugs, leafhoppers, mealybugs, scale crawlers, thrips (suppression), whiteflies. See label for full range of pests.			
	No soil injection on Long Island. May be used on ornamentals grown in greenhouses, nurseries, and interior plantscapes. May be applied as foliar spray or drench.			
Distance	pyriproxyfen 11.23%	59639-96	12	7C
	Registered against: aphids (suppression only), fungus gnats, scale, shore flies, whiteflies			
	For use on indoor (greenhouse, lath, and shadehouse and interiorscapes) and outdoor ornamentals, including flowering and foliage crops, and ground covers. Will not control adult insects and is recommended to be used in combination and/or rotation with other IPM materials. Product has translaminar activity. Apply no more than two times per cropping cycle or no more than two times per six months. Do not apply to Boston fern, coral bells, Gardenia, ghost plant, salvia, or schefflera. Do not apply to poinsettias after bract formation. See label for complete plant list, rates, and specific instructions.			
***Duraguard ME**	chlorpyrifos 20% ME	499-367	24	1B
	Registered against: ants, aphids, beetles, caterpillars, fungus gnats, Japanese beetles, leafhoppers, leafminers, mealybugs (incl. root mealybugs), mites, plant bugs, scale, thrips, weevils (root)			
	For use in commercial ornamental greenhouses and nurseries. Do not use on kalanchoes. Can be applied as a foliar spray and as a coarse spray to soil surface. Direct treatment to some open blooms may cause petal drop. See label for plant list, specific rates, and instructions.			
***DuraPlex TR**	chlorpyrifos 8% + cyfluthrin 1.6% TR	499-405	24	1B
	Registered against: aphids, caterpillars, fungus gnats, mealybugs, mites, scale, shore flies, thrips, whiteflies			
	Labeled for use in greenhouses only as a total release spray. May be used on bedding plants, cut flowers, hanging baskets, foliage plants, flowering plants, and ornamentals. For best results, apply during early			

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	evening when foliage is dry and temperature is between 60-80°F. See label for specific rates and instructions.			
Durham Metaldehyde Granules 3.5	metaldehyde 3.5%G	5481-91	12	unknown
	Registered against: slugs, snails			
	For use in ornamental greenhouses, ornamental gardens, planted borders, and groundcovers. Water the infested area thoroughly before applying product. Broadcast or sprinkle product evenly. Do not rewater for 48 hours. Do not apply directly to plants unless prior experience has shown the plant to be tolerant to this product. See label for complete plant list, rates, and specific instructions.			
Durham Metaldehyde Granules 7.5	metaldehyde 7.5%G	5481-103	12	unknown
	Registered against: slugs, snails			
	For use in ornamental greenhouses, ornamental gardens, planted borders, and groundcovers. Water the infested area thoroughly before applying product. Broadcast or sprinkle product evenly. Do not rewater for 48 hours. Do not apply directly to plants unless prior experience has shown the plant to be tolerant to this product. See label for complete plant list, rates, and specific instructions.			
***Endeavor**	pymetrozine 50%WDG	100-913	12	9B
	Registered against: aphids, whiteflies			
	For use on landscape-, field-, and container-grown ornamentals, ground covers, and ornamental plants in greenhouses, lath and shadehouses, and interiorscapes. Product controls pests by stopping their feeding activity. Insects stop feeding within hours but remain on the plant for a short time (two to four days). Product has some residual activity and will control pests that move onto plant after spraying. Do not apply to poinsettias after bract formation. Some restrictions regarding application amounts apply; see label for complete plant list, rates, and specific instructions.			
Enstar AQ	s-kinoprene 18.4%	2724-793	4	7A
	Registered against: aphids, fungus gnat larvae, leafminers, mealybugs, scale, thrips, whiteflies			
	For use in greenhouses, shadehouses, lathhouses and interiorscapes on ornamentals. Some varieties of roses show delayed damage. See label for specific rates and instructions.			
***†Flagship 0.22G**	thiamethoxam 0.22%	100-960	12	4A
	Registered against: aphids, beetles (larvae), mealybugs, and whiteflies.			
	In New York State, use limited to Christmas trees and plants grown in greenhouses. Apply to soil or growing media preventatively. Irrigation causes the active ingredient to to be released from the granule into the media to be taken up by roots. Systemic product – allow a minimum of one week for smaller plants to translocate Flagship 0.22G to feeding sites of the target pest. If leaching, allow at least 7 days after watering-in for maximum uptake of Flagship 0.22G by the plant's root system. Use is prohibited in Nassau or Suffolk counties.			
***†Flagship 25WG**	thiamethoxam 25	100-955	See Label	4A
	Registered against: ants, aphids, fungus gnats, lace bugs, leaf gall forming insects, leafhoppers, leafminers, mealybugs, root aphids, soft scales, foliar-feeding thrips, whiteflies, and beetles (larvae).			
	In New York State, use limited to Christmas trees and plants grown in greenhouses, including vegetable plants grown for re-sale to consumers. Apply to foliage or soil or growing media. Flagship 25WG applied to foliage is rapidly absorbed and distributed within leaves for rapid control of foliar feeding insects. Flagship 25WG applied to soil will kill soil pests upon contact or ingestion and is also readily taken up by plant roots, moving upwards in the plant to the site of pest infestation. May be applied by handheld application equipment, automatic cold foggers, and chemigation. Follow label directions. Use is prohibited in Nassau or Suffolk counties.			
***Floramite SC**	bifenazate 22.6%SC	400-508-59807	12	25
	Registered against: mites			
	For use on ornamental plants (including bedding plants, flowering plants, foliage plants, bulb crops, perennial plants, and woody plants) in greenhouses, shade houses, nurseries, landscapes, and interiorscapes. Product should be applied as soon as mites appear and will provide residual control for up to 21 days. Product is primarily active on the motile stages of mites but also has ovicidal activity against spider mites. Do not use product in successive applications. Make only one application of product before rotating to products of an alternative chemical class, and use at least two alternative products between treatments of product. Do not make more than 2 applications per crop per year. Product degrades rapidly when mixed and stored with alkaline water of high temperature (122°F). See label for complete plant list, rates, and specific instructions.			
Gnatrol WDG	*Bacillus thuringiensis* subsp. *Israelensis* 37.4% WDG	73049-56	4	11A1
	Registered against: larval fungus gnats			
	May be used on ornamentals and nursery plantings in greenhouse or potting soil mixtures, vegetable plants, indoor ornamental and plantscapes. Apply product with adequate water by soil drench to sufficiently wet the			

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Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	soil surface above and under benches where larvae are found. Areas under benches should be treated at high rates as this is one of the primary breeding areas. Reapply as needed.			
***Hexygon DF**	hexythiazox 50% WDG	10163-251	12	10A
	Registered against: mites (eggs and immatures)			
	Product will also control immature motile stages of target mite species that are sprayed or move onto treated surfaces. Adult mites are not directly affected, but eggs produced by females in contact with treated surfaces will be rendered inviable. Product does have some residual activity. See label for specific rates and instructions.			
***Imida E-Pro 1%**	imidacloprid 1%G	81959-19	12	4A
	Registered against: aphids, beetles (larvae), black vine weevil, caterpillars, fungus gnats (larvae), lace bugs, leafhoppers, leafminers, mealybugs, scale, thrips (suppression), weevils (root), whiteflies			
	For use on ornamentals in greenhouses, nurseries, and interior plantscapes, also can be applied to grassy areas in nurseries for certain insect control. Product is systemic and is applied to the soil media. Do not apply product to soils that are water logged or saturated. See label for plant list, rates, and specific instructions.			
***Imida E-Pro 2F**	imidacloprid 21.4%F	81959-22	12	4A
	Registered against: aphids, beetles (larvae), black vine weevil, caterpillars, fungus gnats (larvae), lace bugs, leafhoppers, leafminers, mealybugs, sawflies (larvae), scale, thrips (suppression), weevils (root), whiteflies			
	For use on ornamentals in greenhouses, nurseries, and interior plantscapes, also can be applied to grassy areas in nurseries for certain insect control. Product is systemic and can be applied as a foliar spray, or can be applied to the soil media. Product can also be used in ebb and flood applications. No soil injection on Long Island. Do not apply product to soils that are water logged or saturated. See label for plant list, rates, and specific instructions.			
***Imida E-Pro 60WSP**	imidacloprid 60% WSP	81959-24	12	4A
	Registered against: aphids, beetles (larvae), black vine weevil, caterpillars, fungus gnats (larvae), lace bugs, leafhoppers, leafminers, mealybugs, sawflies (larvae), scale, thrips (suppression), weevils (root), whiteflies			
	For use on ornamentals in greenhouses, nurseries, and interior plantscapes, also can be applied to grassy areas in nurseries for certain insect control. Product is systemic and can be applied as a foliar spray, or can be applied to the soil media. Product comes in water-soluble packets. Product can also be used in ebb and flood applications. No soil injection on Long Island. Do not apply product to soils that are water logged or saturated. See label for plant list, rates, and specific instructions.			
Javelin WG	*Bacillus thuringiensis* subsp. *kurstaki* 85%	70051-66	4	11B2
	Registered against: caterpillar larvae and leafrollers			
	For use on flowers and ornamentals in greenhouses and outdoors. Apply at first sign of newly hatched worms (1st and 2nd instar larvae). Product attacks the larval gut and must be ingested. See label for specific rates and instructions.			
Judo	spiromesifen 45.2%	432-1280-59807 SLN NY-07 0001	12	23
	Registered against: broad mites, cyclamen mites, mites, whiteflies			
	For use on ornamentals, flowers, and foliage plants in greenhouses. Product is registered with a Special Local Needs Label (SLN) in New York State. User must have SLN. OUTDOOR USE PROHIBITED IN NEW YORK. Product is active on all mite development stages, but is most effective on juvenile stages. Product is effective against whitely nymphs, plus it has a significant effect on the pupal stage. For best results good coverage of the upper and lower leaf surfaces is recommended. Phytotoxicity has been observed after application to geraniums and impatiens, so do not use on these plant species. It is not recommended to use product in successive miticide applications during the same cropping cycle. See label for plant list, rates, and specific instructions.			
Kontos	spirotetramat 22.4%	432-1471-59807	24 (See notes.)	23
	Registered against: aphids, leafhoppers, mealybugs, spider mites, whiteflies.			
	See label for drench REI. For use on many greenhouse ornamentals, vegetable transplants, interiorscapes. See label for list of plants and important plant safety information. Do not apply to greenhouse grown vegetables other than vegetable transplants. If spider mite populations are heavy at time of application, control may not be achieved rapidly enough. For spider mites, make applications preventatively or when populations are first detected, and apply as a drench, not a foliar spray. For all pests, start treatments prior to establishment of high pest populations and reapply on an as-needed basis. See label instructions for drench or foliar spray applications.			
***Lada 2F**	imidacloprid 21.4% F	83100-6-83979	12	4A
	Registered against: aphids, beetles (larvae), black vine weevil (larvae), caterpillars, fungus gnats (larvae), lace bugs, leafhoppers, leafminers, mealybugs, sawflies (larvae), scale (soft), thrips (suppression), weevils (root), whiteflies			

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	For use on outdoor ornamentals and flowers. Can also be used in and around greenhouses and gardens for millipedes, sowbugs, and springtails. Injury may occur on ferns, Crassula, petunias, and lantana. See label for specific rates and instructions. No soil injection on Long Island.			
Magus	fenazaquin 18.79%	10163-297	12	21
	Registered against: mites (twospotted spider mites, Lewis mites, broad mites, cyclamen mites, rust mites, carnation shoot mites), whiteflies			
	For use on ornamental plants grown in greenhouses, shade houses, and other sites (see label). Not for use on roses. Apply to foliage with thorough coverage. No more than one application per crop.			
***Marathon 1G**	imidacloprid 1% G	432-1329-59807	12	4A
	Registered against: aphids, beetles, black vine weevil, lace bugs, leafminers, mealybugs, thrips, whiteflies			
	For use on ornamental plants in commercial nurseries and greenhouses. Systemic insecticide: must be placed where roots of the plant can absorb the active ingredient. Apply when root systems are well established. See label for specific rates and instructions.			
***Marathon 60WP**	imidacloprid 60% WP	432-1361-59807	12	4A
	Registered against: adelgids, aphids, beetles, black vine weevil, lace bugs, leafminers, mealybugs, thrips (suppression), whiteflies			
	For use only on greenhouse and nursery ornamental plants. For application as a soil treatment only; is a systemic insecticide. Apply when root systems are well established. No soil injection on Long Island. See label for complete plant list, rates, and specific instructions.			
***Marathon II**	imidacloprid 21.4%ES	432-1369-59807	12	4A
	Registered against: aphids, beetles, caterpillars, fungus gnats (larvae), lace bugs, leafhoppers, leafminers, mealybugs, sawflies (larvae), thrips (suppression), whiteflies			
	For use on ornamentals in greenhouses, nurseries, and interior plantscapes. Product can be applied as a broadcast or foliar application or as a soil application to grassy areas. Apply as coarse droplets when applying as a foliar spray. Active ingredient in product has sufficient residual activity so that applications can be made before egg-laying activity of target pests. Do not apply as a foliar treatment following a soil application of other imidacloprid products. No soil injection on Long Island. Do not apply product to soils that are water logged or saturated. See label for complete plant list, rates, and specific instructions.			
***Mavrik Aquaflow**	fluvalinate 22% FC	2724-478	12	3
	Registered against: aphids, beetles, black vine weevil, caterpillars, leafhoppers, mealybugs, mites, plant bugs, sowbugs, thrips, whiteflies			
	For use on indoor (including greenhouse) ornamentals and ornamental plantings and plantscapes. Can also be used as a dip for flower and foliage cuttings. Immerse basket of cuttings into a dilute solution until thoroughly wet. Spray water should be buffered to pH 5-7. Do not apply more than 4 sprays per month. Effectiveness against green peach aphid may vary because of insecticide resistance. See label for complete plant list, rates, and specific instructions.			
***Menace GC 7.9% Flowable**	bifenthrin 7.9% F	228-458	12	3
	Registered against: ants, aphids, beetles, black vine weevil, caterpillars, earwigs, fungus gnats, grasshoppers, lace bugs, leafhoppers, leafminers, leafrollers, mealybugs, millipedes, plant bugs, scale (crawlers), sowbugs, thrips (citrus), whiteflies			
	Use on foliage plants and flowers, landscape ornamentals, interiorscapes, plantscapes, greenhouses and nurseries. Not for use on sod farms in New York state. There are other New York state restrictions, please see label. Apply as a full coverage foliar spray. Product can also be used as a preventative and curative topical drench for larval control in potting media of containerized plants. Product can also be used as a bare root preventive dip for root weevils. See label for complete plant list, rates, and specific instructions.			
Merlin	abamectin 2.0%	81943-29	12	6
	Registered against: aphids (suppression), leafminers, mites (spider mites, cyclamen mites, broad mites, rust and bud mites), thrips (suppression), whiteflies (suppression)			
	For use on shadehouse, greenhouse, field-grown ornamentals, and foliage plants. Apply as foliar spray. Product has translaminar properties. Do not apply less than 8 fl. oz. or more than 16 fl. oz. per acre. Do not use product for suppression of aphids whiteflies, and thrips on roses, chrysanthemums, and gerbera. These ornamentals are primary hosts of mites and Liriomyzaleafminers for which product applications should be targeted. Not recommended for use on ferns and Shasta daisies. See label for resistance management techniques and for specific rates and instructions.			
***Mesurol 75-W**	methiocarb 75% WP	10163-231	24	1A
	Registered against: aphids, mites, slugs, snails, western flower thrips			
	May be used on nursery and greenhouse ornamentals. Do not apply in conjunction with foliar fertilizers. Effectiveness of product may be reduced when the spray solution has a pH greater than 7. Do not make more than 2 applications per year per crop; applications must be at least 10 days apart. See label for specific rates and instructions.			

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
***Mesurol Pro**	methiocarb 2% G	10163-228	24	1A
Registered against: slugs, snails, sowbugs				
For use on ornamental plants growing in nurseries and greenhouses and for established ornamental plantings. Product is a bait and should be broadcast over plant foliage or applied to soil around plants. For best results, lightly water area to be treated before applying bait. See label for complete plant list, rates, and specific instructions.				
Millenium	*Steinernema carpocapsae*	NA	NA	Biological
Registered against: black vine weevils (larvae), caterpillars, shoreflies (larvae)				
Can be used on ornamental plants in nurseries, greenhouses, landscapes, and interiorscapes. Product is a naturally occurring, insect-parasitic nematode that seeks out fungus gnat larvae, enters their natural body openings, and releases symbiotic bacteria that kill the pests. Can be used as a preventive or a curative control. Apply as soon as possible after potting or placement in the greenhouse. Works best in soil at temperatures from 50-90°F. Apply solution to moist soil or growing media. See label for complete plant list, rates, and specific instructions.				
Molt-X	azadirachtin 3%	68539-11	4	unknown
Registered against: whiteflies, leafminers, soft scales, mealybugs, thrips, aphids, lacebugs, fungus gnats (larvae), shore flies (larvae), various bugs, caterpillars, beetles, weevils				
Follow label directions. Molt-X is an insect growth regulator and does not control adult insects. However, Molt -X is also effective as a repellent towards adults of some species. Controls insects in the larval, pupal, and nymphal stages by interfering with the metabolism of ecdysone. For use as a drench or as a foliar spray on plants grown in greenhouses, shadehouses, and nurseries. Product can be used on vegetables, herbs and spices, and other miscellaneous crops. Molt-X will break down in the spray solution if not used within 8 hours. Molt-X will break down in spray tank mixtures that have pH values exceeding 7.0. The recommended pH range is between 5.5 and 6.5. Apply when insects appear or feeding is noticed. If needed, the pH of the water can be adjusted by use of a suitable buffering agent. Product can be used on vegetables, herbs and spices, and other miscellaneous crops. See label for specific rates and instructions.				
M-Pede	potassium salts of fatty acids 49% EC	62719-515	12	NS
Registered against: aphids, caterpillars, earwigs, lace bugs, leafhoppers, mealybugs, mites, plant bugs, sawflies, scale, thrips, whiteflies				
For use on greenhouse and outdoor ornamentals. Kills by contact so complete coverage is essential. Do not use if plants are stressed, such as under hot, humid, or drought conditions. Use soft water for best results. Follow label directions to avoid phytotoxicity. Do not use on new transplants, unrooted cuttings, or plant material stressed by drought. Test *Euphorbia* for phytotoxicity before full-scale application. If wilting occurs on sprayed plants within a few hours, rinse with a clean water spray. Avoid application when leaf temperature exceeds 90°F. Mixing soap with other insecticides may increase effectiveness and retard the development of insecticide resistance. The resulting mixture may be more phytotoxic, however, so exercise caution. Potential for plant injury increases when this product is used and the pH of the final solution is lowered below 8.0. See label for specific rates and instructions.				
Nemasys	*Steinernema* sp. 27%	NA	NA	Biological
Registered against: fungus gnat larvae, thrips (Western Flower)				
Can be used on ornamental plants in nurseries, greenhouses, landscapes, and interiorscapes. Naturally occurring, insect-parasitic nematode that seeks out fungus gnat larvae, enters their natural body openings, and releases symbiotic bacteria that kill the pests. Can be used as a preventive or curative control. Apply as soon as possible after potting or placement in the greenhouse. Apply solution to moist soil or growing media. See label for complete plant list, rates, and specific instructions.				
Nemasys-H	*Heterorhabditis megidis*	NA	NA	Biological
For use in container-grown crops. Controls the larval stages of black vine weevil. Product is a naturally occurring, insect-parasitic nematode that enters larvae and releases symbiotic bacteria that kill the target pest. Soil or media temperatures should be between 50º and 86º F for at least two weeks after application. Soil should be moist prior to, during, and after application. See label for complete plant list, rates, and specific instructions.				
1300 Orthene TR (Prescription Treatment)	acephate 12% TR	499-421	24	1B
Registered against: aphids, caterpillars, fungus gnats, lace bugs, leafminers, leaffrollers, lygus bugs, mealybugs, mites, scale, thrips, whiteflies				
For use in commercial greenhouses. Apply during early evening when foliage is dry. Greenhouse temperatures should be between 60° and 80°F for best results. Greenhouse should be ventilated before reentry. See label for complete plant list, rates, and specific instructions.				
Ovation SC	clofentezine 42% SC	66222-53-58185	12	10A
Registered against: mites				

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	For use on ornamentals in greenhouses, saran, and shade houses, outdoor container, and field grown nursery stock. Product is highly active on mite eggs and early mite stages. It has shown activity and persistence up to 45 days after application. Product is magenta in color and may leave a residue on light colored flowers or foliage. Spray application should be directed in a manner to cover all plant surfaces, especially the undersides of leaves. Product is recommended only once per cop cycle in greenhouse, saran, and shade house culture. See label for plant list, rates, and specific instructions.			
Overture 35 WP	pyridalyl 35%	59639-125	12	M5
	Registered against: caterpillars, thrips			
	For use on greenhouse grown ornamentals, including flowering and foliage crops, ground covers, shrubs and ornamental trees, and non-bearing fruit and nut trees grown indoors. Product controls insects by both contact and ingestion activity and also has translaminar activity on a variety of plants. To optimize resistance management practices, do not apply product more than three times per cropping cycle or no more than three times per six months. See label for plant list, rates, and specific instructions.			
Pedestal	novaluron 10%	66222-40-400	12	15
	Registered against: armyworms, leafminers (suppression only), thrips, whiteflies			
	For use on container grown ornamentals in greenhouses, shadehouses, and nurseries. Product is an insect growth regulator and is applied as a foliar spray. Product affect developing immature stages of insects by disrupting the molting process, and fully developed adult stages of the pest are not affected. Do not use product more than once within each generation cycle and do not make more than two applications per crop per year. Do not apply to poinsettias. See label for complete plant list, rates, and specific instructions.			
***Perm-Up 3.2EC**	permethrin 36.8%EC	70506-9	12	3
	Registered against: ants, aphids, caterpillars, fungus gnats, lace bugs, leafhoppers, leafminers, leafrollers, mealybugs, plant bugs, sawflies, thrips, whiteflies			
	For use on chrysanthemums, field-grown ornamentals, nursery stock, field-grown and greenhouse roses. Apply product when insects appear or feeding is noticed. Use higher rates as pest populations increase. Avoid spraying chrysanthemum blooms; not all cultivars have been tested for phytotoxicity. Marginal leaf burn has been noticed on Salvia, Dieffenbachia, Pteris fern. Application to blooms may cause petal browning. See label for complete plant list, rates, and specific instructions.			
***Pounce 25 WP**	permethrin 25% WP	279-3051	12	3
	Registered against: caterpillars, lace bugs, leafhoppers, leafminers, whiteflies			
	For field-grown ornamental nursery stock, chrysanthemums, field grown and greenhouse roses. Apply when insects appear or feeding is noticed. Avoid spraying blooms of chrysanthemums. Leaf burn may occur on salvia and Pteris fern. See label for specific rates and instructions.			
Precise	acephate 4% G	84886-2	12	1B
	Registered against: ants, aphids, black vine weevil, mealybugs			
	For use on greenhouse, lathhouse, shadehouse, and outdoor container–grown nursery stock. Product is a water-soluble granular insecticide that is readily absorbed by plant foliage and roots to provide systemic control of feeding insects. Do not apply to freshly rooted cuttings. Can be used on limited greenhouse crops. See label for complete plant list, rates, and specific instructions.			
Preclude TR	fenoxycarb 4.8% TR	499-437	12	7B
	Registered against: aphids, caterpillars, leafminers, mealybugs, scale, thrips, weevils, whiteflies			
	For use in greenhouses. Apply in early evening when foliage is dry. Greenhouse temperatures should be between 60° and 80°F for best results. Product is an insect growth regulator. Initially two applications should be made one week apart. Additional applications should be made as necessary, but not more than one time per week. See label for specific rates and instructions.			
***Prentox Pyronyl Crop Spray**	pyrethrins (6%) + piperonyl butoxide (60%) EC	655-489	12	3 + 27A
	Registered against: ants, aphids, beetles, caterpillars, earwigs, fungus gnats, grasshoppers, lacebugs, leafhoppers, leafminers, leafrollers, mealybugs, millipedes, mites, pillbugs, sowbugs, spittlebugs, springtails, thrips, whiteflies May be used on greenhouse and outdoor ornamentals, herbs, and spices. May be combined with other insecticides for a quicker and more complete kill where insect resistance may a problem, and as an insect "exciter" to flush insects out of hiding and into contact with other spray residues. If use of a spreader/sticker spray adjuvant is desired, use a natural vegetable oil product. See label for specific rates and instructions.			
***ProMITE 50WP**	fenbutatin 50%WP	67690-40	48	12B
	Registered against: mites For use on greenhouse and outdoor ornamentals. For best results apply when mite populations are just beginning to build. Product performs best when the daily temperature averages above 70°F. Product comes pre-measured in water-soluble bags. Do not use in sprayers that have any residues of boron or chlorine, as the soluble bag will precipitate in the tank. Apply only to the foliage of chrysanthemums (pre-bloom) and			

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	poinsettias (pre-bract). Some ferns, and other ornamentals, have exhibited signs of phytotoxicity. See label for complete plant list, rates, and specific instructions.			
PureSpray Green	petroleum oil (98%)	69526-9	4	M
	Registered against: aphids, fungus gnats, leafminers, mealybugs, scale (soft and hard), spider mites, thrips, whiteflies			
	For use as foliar spray on greenhouse ornamentals including ageratum, ferns, petunia, begonias, carnation, chrysanthemum, coleus, New Guinea impatiens, portulaca, Rieger begonias. Follow label directions. See label for plant safety information.			
***Pylon**	chlorfenopyr 21.4%	241-374	12	13
	Registered against: caterpillars, fungus gnats (larvae), broad mites, cyclamen mites, spider mites, thrips			
	For use on greenhouse ornamentals. May be used on non-edible ornamental plants. Product has good contact and excellent stomach activity. Product is not ovicidal, and should be used in combination with a registered ovicidalmiticide when moderate to high populations of eggs are present. Make two consecutive applications of product with 5-7 days when under high mite pressure. Product has translaminar properties. Phytotoxicity is likely to occur to some varieties of: carnations, dianthus, kalanchoe, poinsettia, roses, salvia and zinnias. See label for complete plant list, rates, and specific instructions.			
Pyrenone Crop Spray	pyrethrins (6%) + piperonyl butoxide (60%) EC	432-1033	12	3 + 27A
	Registered against: ants, aphids, beetles, caterpillars, earwigs, fungus gnats, grasshoppers, lace bugs, leafhoppers, leafminers, leafrollers, mealybugs, millipedes, mites, plant bugs, sowbugs, spittlebugs, springtails, thrips, whiteflies			
	May be used on greenhouse and outdoor ornamentals, herbs, and spices. May be combined with other insecticides for a quicker and more complete kill where insect resistance may a problem, and as an insect “exciter” to flush insects out of hiding and into contact with other spray residues. If use of a spreader/sticker spray adjuvant is desired, use a natural vegetable oil product. See label for specific rates and instructions.			
***Pyreth-It Formula 2**	pyrethrins (6%) + piperonyl butoxide (60%) EC	499-475	12	3 + 27A
	Registered against: ants, aphids, beetles, caterpillars, earwigs, fungus gnats, grasshoppers, lace bugs, leafhoppers, leafminers, leafrollers, mealybugs, millipedes, mites, plant bugs, sowbugs, spittlebugs, springtails, thrips, whiteflies, many others (see label)			
	May be used on greenhouse and outdoor ornamentals, vegetables, herbs, and spices. May be combined with other insecticides for a quicker and more complete kill where insect resistance may a problem, and as an insect “exciter” to flush insects out of hiding and into contact with other spray residues. See label for specific rates and instructions.			
***Pyrethrum TR**	pyrethrins (4%) + piperonyl butoxide (16%) aerosol	499-479	12	3 + 27A
	Registered against: ants, aphids, beetles, caterpillars, centipedes, fungus gnats (adults), grasshoppers, leafhoppers, mealybugs, mites, scale, thrips, whiteflies, many others (see label)			
	Total release aerosol formulation. May be used on bedding plants, potted crops, cut flowers, ornamental foliage plants, vegetables, and herbs. Follow label directions.			
Quali-Pro Abamectin 0.15EC	abamectin 1.9% EC	72167-42-73220/ 73220-10	12	6
	Registered against: aphids (suppression), leafminers, mites, thrips (suppression), whiteflies (suppression)			
	For use on shadehouse, greenhouse, field-grown ornamentals, and foliage plants. Apply as foliar spray. Product has translaminar properties. Do not apply less than 8 fl. oz. or more than 16 fl. oz. per acre. Do not make more than six applications per copping cycle. Do not use more frequently than at seven-day intervals. Rotate with products that have different modes of action. Do not use product for suppression of aphids whiteflies, and thrips on roses, chrysanthemums, and gerbera. These ornamentals are primary hosts of mites and Liriomyza leafminers for which product applications should be targeted. Not recommended for use on ferns and Shasta daisies. See label for resistance management techniques and for specific rates and instructions.			
Safari 20 SG	dinotefuran 20%	33657-16-59639 SLN: NY-07 0007	12	4A
	Registered against: aphids, beetles (Japanese, adults), leafminers, mealybugs, scale, thrips (supp), whiteflies			
	For foliar and systemic insect control on ornamental plants, flowers, and foliage plants in greenhouses. In New York State, applicators must have Special Local Needs label #NY-070007 in their possession at time of application. Product can only be use in greenhouses in New York state – outdoor use is prohibited. Do not apply until after target plants are through blooming and pollen and nectar are no longer present. No more than two foliar or broadcast applications and/or one soil application should be made per crop per year. See label for complete plant list, rates, and specific instructions.			
Sanmite	pyridaben 75% WP	81880-5-10163	12	21

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
Registered against: mites (broad mites, European red mite, two-spotted mites), whiteflies				
Labeled for use in greenhouses, on outdoor ornamental plants, flowers, and foliage crops. Do not use in successive miticide applications; rotate other miticides with different modes of action. See label for plant lists, specific rates and instructions.				
ScanMask	*Steinernema feltiae*	NA	NA	Biological
Registered against: black vine weevils, caterpillars, fungus gnat larvae				
Can be used on ornamental plants in nurseries, greenhouses, landscapes, and interiorscapes. Product is a naturally occurring, insect-parasitic nematode that seeks out fungus gnat larvae, enters their natural body openings, and releases symbiotic bacteria that kill the pests. Can be used as a preventive or a curative control. Apply as soon as possible after potting or placement in the greenhouse. Works best in soil at temperatures from 50-85°F. Apply solution to moist soil or growing media. See label for complete plant list, rates, and specific instructions.				
***Scimitar GC**	lambda-cyhalothrin (9.7%)	100-1088	24	3
Registered against: ants, aphids, various beetles, broad mites, various caterpillars, lacebugs, leafhoppers, leafminers, pillbugs, plant bugs, roaches, scale crawlers, spider mites, spittlebugs, thrips, whiteflies				
May be used on ornamentals grown in greenhouses, shadehouses, and nurseries. Follow label directions.				
Shuttle O	acequinocyl 15.8% SC	66330-38-59807	12	20B
Registered against: spider mites				
For use on commercial greenhouse, shadehouse, ornamental, floral, foliage and ornamental nursery crops. Apply as a foliar spray. Thorough coverage is important, but product does have residual control. Do not mix with strongly alkaline material. Do not use product in successive miticide applications, use product in rotation with other treatments having different modes of action. See label for pesticide resistance information. Do not use on miniature roses or impatiens, or test before widespread use. See label for specific rates and instructions.				
Sirocco	bifenazate 43.2% + abamectin 2.2%	400-582-59807	12	6 + un
Registered against: mites (two-spotted spider mites, spruce spider mites, Lewis mites, cyclamen mites, broad mites, bud mites, other spider mites,), leafminers; aphids (suppression only), thrips (suppression only), and whiteflies (suppression only).				
For use on bedding plants, foliage plants, bulb crops, perennials and shrubs and trees, including non-bearing fruit trees grown in greenhouses, shade houses, nurseries, landscapes and interiorscapes. Apply to foliage with thorough coverage. Do not apply more than two applications per crop per year.				
Sluggo Ag	iron phosphate 1% G	67702-3-54705	none	unknown
Registered against: slugs, snails				
For use in greenhouses, on outdoor ornamentals, and on outdoor container-grown nursery plants. For terrestrial use only. See label for complete plant list, rates, and specific instructions.				
SuffOil-X	petroleum oil 80%	48813-1-68539	4	M
Registered against: aphids, fungus gnats, leafminers, mealybugs, mites, scales, thrips, whiteflies				
Mode of action is through suffocation of eggs, larvae, and nymphs of insects and mites and adults of soft-bodied insects. This mode of action necessitates total spray coverage. Labeled for azalea, camellia, carnation, fuchsia, gladiolus, hibiscus, iris, lily, mums, orchids, poinsettia, rhododendron, rose, vines, flower, foliage and bedding plants. Read and follow label directions. See label for plant safety information.				
***Talstar S**	bifenthrin 7.9% F	279-3155	12	3
Registered against: ants, aphids, bagworms, black vine weevils, centipedes, crickets, cutworms, earwigs, flea beetles, fungus gnats, grasshoppers, Japanese beetle (adults), lace bugs, leafhoppers, leafminers, leafrollers, mealybugs, millipedes, mites, plant bugs, scale, sowbugs, thrips, weevils, whiteflies				
For use on landscape ornamentals and in greenhouses. Use of an alternate class of chemistry in a treatment program is recommended to prevent or delay pest resistance. May not be effective against some aphid populations due to insecticide resistance. Thorough coverage is important. Product can be used for larval control in potting media of containerized plants – see label for preventative and curative treatment recommendations. See label for specific rates and instructions.				
***†Talus 70 DF**	buprofezin 70% DF	71711-21-67690	12	16
Registered against: whiteflies, mealybugs, scale (soft scales and armored scales), leafhoppers and planthoppers				
No sale, use, or distribution on Long Island. May be used on all greenhouse ornamentals and greenhouse tomatoes. Follow label directions.				
***Tame 2.4EC**	fenpropathrin 30.9% EC	59639-77	24	3
Registered against: aphids, black vine weevils, Japanese beetles, lace bugs, leafhoppers, leafminers, mealybugs, mites, whiteflies				
For use on indoor ornamental plantings in greenhouses, lathhouses, shadehouses and on outdoor ornamental and nursery plantings in commercial nurseries. Can be tank mixed with Orthene TT&O WSP				

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	spray – see label for rates and recommendations. To aid in preventing insect resistance, products from other chemical classes should be included with or alternated with this product in a spray program. Additional restrictions regarding applications near water are in effect in New York state. See label for specific rates and instructions.			
Tame/Orthene TR	fenpropathrin 1% + acephate 1.5%	499-441	24	3 + 1B
	Registered against: aphids, caterpillars, fungus gnats, lace bugs, leafrollers, leafminers, Lygus bugs, mealybugs, spider mites, scale, thrips, whiteflies			
	For use on ornamentals indoors in commercial greenhouses. Product is a total release aerosol, for best results apply during early evening when foliage is dry and temperature is between 60°-80°F. Make one to three applications per week depending on the severity of the infestation. Do not apply product within 48 hours of a previous application. See label for specific rates and instructions.			
***TetraSan**	etoxazole 5%WDG	59639-108	12	10B
	Registered against: mites			
	For use in greenhouses, shadehouses, and interiorscapes and on outdoor ornamentals. Product is a miticide that controls major tetranychid mite species in egg and nymph stages of growth. Product will not kill adult mites, but it is transovarial, meaning that treated adults will not produce viable eggs. Product has strong translaminar movement within plant leaves. Spray contacting the upper surface of leaves will absorb into the leaves and locally translocate within the leaf. For resistance management, apply product no more than two times per cropping cycle or no more than two times per six months. Do not apply to poinsettia after bract formation. See label for complete plant list, rates, and specific instructions.			
Triact 70	neem oil 70%EC	70051-2-59807	4	18B + NS
	Registered against: aphids, leafhoppers, mealybugs, mites, scale, whiteflies			
	For use on plants in and around commercial nurseries, greenhouses, and interiorscapes. Do not apply to wilted or otherwise stressed plants, or to newly transplanted materials before root establishment. Do not apply to known sensitive plants without prior testing. Product not suggested for use on cut roses. Do not spray on impatiens flowers. Product is also a fungicide. See label for specific rates and instructions.			
TriStar 30 SG	acetamiprid 30%SG	8033-94-1001	12	4A
	Registered against: aphids, beetles (adults), caterpillars, fungus gnats (larvae), leafhoppers, leafminers, mealybugs, plant bugs, sawflies, scale, thrips, whiteflies			
	For use in greenhouses, lathhouses, shadehouses, and on outdoor ornamentals. Do not make more than 5 applications per year and do not reapply more than once every 7 days. Product is applied as a foliar spray and thorough coverage is important. Product can also be applied as a directed spray to soil media to control fungus gnat larvae. Product is compatible with many surfactants, miticides, and insecticides. See label for complete plant list, rates, and specific instructions.			
TriStar 70 WSP	acetamiprid 70% WSP	8033-22	12	4A
	Registered against: aphids, beetles (adults), caterpillars, fungus gnats (larvae), leafhoppers, leafminers, mealybugs, scale, thrips, whiteflies			
	For use in greenhouses, lathhouses, shadehouses, and on outdoor ornamentals. Do not make more than 5 applications per year and do not reapply more than once every 7 days. Product comes in water-soluble bags, and is applied as a foliar spray. Product can also be applied as a directed spray to soil media to control fungus gnat larvae. See label for complete plant list, rates, and specific instructions.			
Ultra-Pure Oil	petroleum oil 98%	69526-5-499	4	M
	Registered against: aphids, fungus gnats, leafminers, mealybugs, scales (soft and hard), spider mites, thrips, whiteflies			
	Product is labeled for greenhouses, nurseries, container gardens, bedding plants, flowering and foliage plants, vegetables and herbs. Follow label directions. See label for plant safety information.			
***Up-Star SC**	bifenthrin 7.9% F	70506-23	12	3
	Registered against: ants, aphids, bagworms, black vine weevils, caterpillars, centipedes, crickets, cutworms, earwigs, flea beetles, fungus gnats, grasshoppers, Japanese beetle (adults), lace bugs, leafhoppers, leafminers, leafrollers, mealybugs, millipedes, mites, plant bugs, scale, sowbugs, thrips, weevils, whiteflies			
	For use on ornamentals and flowers in greenhouses, nurseries, shadehouses, and lathhouses. Do not apply when a temperature inversion exists. Use as a foliar application. Can be used as a drench application for larval control – see label for specifics. See label for complete plant list, insect list, and specific rates and instructions.			
***Wisdom Flowable**	bifenthrin 7.9% F	5481-519	12	3
	Registered against: ants, aphids, bagworms, black vine weevils, centipedes, crickets, cutworms, earwigs, flea beetles, fungus gnats, grasshoppers, Japanese beetle (adults), lace bugs, leafhoppers, leafminers, leafrollers, mealybugs, millipedes, mites, plant bugs, scale, sowbugs, thrips, weevils, whiteflies			
	For use on landscape ornamentals and in greenhouses. Use of an alternate class of chemistry in a treatment program is recommended to prevent or delay pest resistance. May not be effective against some aphid populations due to insecticide resistance. Thorough coverage is important. Product can be used for larval			

Table 8.2. Insecticides for control of arthropod pests of ornamentals, listed by product trade name

Trade Name	Chemical Name/Formulation	EPA Reg. No.	REI§	Chemical Class[1]
	control in potting media of containerized plants – see label for preventative and curative treatment recommendations. See label for specific rates and instructions.			

NOTES:

*Restricted-use pesticide; may be purchased and used only by certified applicators or used by someone under the direct supervision of a certified applicator

† Not for use in Nassau and Suffolk Counties; pesticide labels that indicate “Not for use on Long Island, N.Y.” means that use is prohibited in Nassau and Suffolk Counties only.

Trade or brand names in this summary are given with the understanding that endorsement is not intended or criticism implied for those products not mentioned. Other labeled formulations may also be available for use. Read label carefully before using any of these chemicals.

A suitable spreader sticker might improve efficacy on plants having glossy or waxy leaves. However, be sure to follow label directions/precautions, and test for phytotoxicity on a few plants before extensive use.

[1]Chemical Classes: Refer to Table 7.3.1 for Mode of Action classifications

Back to Top | Table of Contents | Buy Print Version

Back Whiteflies

9 Management of Greenhouse Weeds Next

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