

Insecticides and Miticides for the Treatment of Orchid Pests

by Sue Bottom, sbottom15@gmail.com

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Chemical Name Active Ingredient	Application Rate (tsp/gal)	Spray or Drench?	Mobility	Product Cost	IRAC MoA Group	Scale	Mealybugs	Thrips	Whiteflies	Aphids	Mites	Caterpillars	Fungus Ghats
Commonly Available Pesticides													
Cygon 2E Dimethoate 23%	1 - 2	Spray	Xylem Mobile		1B	x	x	x		x	x		
Imidacloprid 1.47% Imidacloprid	1.5 @ 1.47% 6 @ 1.47%	Spray Drench	Xylem Mobile		4A	x	x	suppression	x	x			
Malathion 50% EC Malathion 50% EC	1 - 4	Spray	Contact		1	x	x	x	x	x			
Orthene Powder Acephate 97%	1	Spray Drench	Locally Systemic		1	x	x	x	x	x			
Orthenex Acephate, Fenbutatin oxide	6	Spray	Locally Systemic		1	x	x	x	x	x	suppression		
Permetrol Permethrin 10%	1.3	Spray	Contact		3	x	x	x	x	x	x		
Ultra Pure Oil Paraffinic Oil	6 - 7.5	Spray	Contact		16	x	x	x	x		x		
Thuricide Bacillus Thuringensis 1	7.5	Spray Drench	Contact		11							x	x
Specialty Pesticides													
Akari 5 SC Fenpyroximate 5%	0.96 - 1.4	Spray	Contact	\$145 / quart	21A		suppression		suppression		all mites but Tenuipalpidae		
Aria Fonicamid 50%	0.23 - 0.46	Spray	Locally Systemic	\$150 / 160 g	9C	x	x	x	x	x			
Avid 0.15 EC Abamectin 2.0%	0.24-mites 0.48-thrips	Spray	Locally Systemic	\$93 / cup	6			suppression	suppression	suppression	all 4 groups of mites		
Conserve Spinosad 11.6%	0.6-thrips 1.2-mites	Spray	Locally Systemic	\$144 / quart	5			x				x	
Decathlon 20 WP Cyfluthrin 20%	0.18-0.27	Spray	Contact	\$90 / cup	3	crawler stage	x	x	x	x		x	x
Flagship 25 WG Thiamethoxam 25%	0.5 - 1	Spray Drench	Xylem Mobile	\$145 / 8 wt oz	4A	x	x	x	x	x		x	x
Floramite SC Bifenazate 22.6%	0.24 - 0.48	Spray	Contact	\$97 / quart	25						spider mites		
Kontos spirotetramat 22.4%	.1 - 0.2	Spray Drench	Amphi-mobile	\$170 / 250 ml	23	crawler stage	x	suppression	x	x	all mites but Tenuipalpidae		
Marathon II Imidacloprid 21.4%	0.10	Spray Drench	Xylem Mobile	\$110 / 250 ml	4A	x	x	suppression	x	x			

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Specialty Pesticides (continued)													
Marathon 60 WP Imidacloprid 60%	0.16	Spray Drench	Xylem Mobile	\$53 / 100 gm	4A	x	x	suppression	x	x			
Mavrik Aqua Flow Fluvalinate 22.3%	0.24 - 0.6	Spray	Contact	\$115 / quart	3		x	x	x	x	suppression	x	
Merit 75 WP Imidacloprid 75%	0.06	Spray Drench	Xylem Mobile	\$35 / 2 wt oz	4A	x	x		x	x			
Overture 35 WP Pyridalyl 35%	2.1	Spray	Locally Systemic	\$107 / 1 lb	Unknown			x				x	
Safari 20 SG Dinotefuran 20%	0.5 - 1 1.5 - 3.0	Spray Drench	Xylem Mobile	\$115 / 1.5 cups	4A	x	x	suppression	x	suppression			
Sanmite 75 WP Pyridaben 75%	1 - 1.5	Spray	Contact	\$110 / 4 wt oz	21A				x		all mites but Eriophyid		
Shuttle Acequinocyl 15.8%	0.38 - 0.77	Spray	Contact	\$140 / quart	20B						all mites but Tarsonemid		
Sirocco Bifenazate 43.2%, Aba	0.18 - 0.36	Spray	Locally Systemic	\$190 / cup	6, unclassified			suppression	suppression	suppression	all mites but Tenuipalpidae		
Sultan Cyflumetofen 18.7%	0.82	Spray	Contact	\$162 / quart	25						spider mites		
Talstar P (Bifen I/T) Bifenthrin 7.9%	0.65 - 1.3	Spray	Contact	\$45 / 3 quarts	3	crawler stage	x	x	x	x	spider mites, broad mites		x
Tristar 8.5 SL Acetamiprid 8.5%	0.5-0.8 scale 0.75-1.5 thrip	Spray	Locally Systemic	\$45 / 4 fl oz	4A	x	x	x	x	x			x
Insect Growth Regulators													
AzaGuard, Azatin Azadirachtin 3%	0.5 - 2	Spray	Contact	\$151 / quart	unclassified	x	x	x	x	x		x	use as drench
Distance Pyriproxygen 11.23%	0.48 - 0.72	Spray	Locally Systemic	\$260 / quart	7C	x	suppression		x	suppression			use as drench
Enstar AQ Kinoprene 18.4%	1 - 2	Spray	Contact	\$135 / quart	7C	x	x	x	x	x			use as drench
TetraSan 5 WDG Etoxazole 5%	0.84 - 1.7	Spray	Locally Systemic	\$130/lb	8						spider mites, Tenuipalpidae		

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Chemical Name Active Ingredient	Application Rate (tsp/gal)	Spray or Drench?	Mobility	Product Cost	IRAC MoA Group	Comments and Caveats - Always Check Product Label for Information on Proper Use and Precautions
Commonly Available Pesticides						
Cygon 2E Dimethoate 23%	1 - 2	Spray	Xylem Mobile		1B	Not labeled for use on orchids, some growers have reported severe phytotoxicity after use. Use in cool weather only. Not for use on toolumnias.
Imidacloprid 1.47% Imidacloprid	1.5 @ 1.47% 6 @ 1.47%	Spray Drench	Xylem Mobile		4A	Many products of differing imidacloprid strengths, some contain fluvinate for mites. Do not use with summer oil. Use with weak fertilizer to enhance uptake.
Malathion 50% EC Malathion 50% EC	1 - 4	Spray	Contact		1	Harms some ferns.
Orthene Powder Acephate 97%	1	Spray Drench	Locally Systemic		1	Repeat at 2 week intervals if crawlers continuously appearing. Apply no more than 3 times consecutively. Can be mixed with fungicide.
Orthenex Acephate, Fenbutatin oxide	6	Spray	Locally Systemic		1	Fenbutatin oxide is a miticide, Acephate is an insecticide. Same additional comments as for Orthene above.
Permetrol Permethrin 10%	1.3	Spray	Contact		3	
Ultra Pure Oil Paraffinic Oil	6 - 7.5	Spray	Contact		16	Use only if temperatures below 90°F. Don't apply within 30 days of using sulfur or mix with fungicide, copper or Captan. Don't apply to ferns or palms.
Thuricide Bacillus Thuringensis 1	7.5	Spray Drench	Contact		11	
Specialty Pesticides						
Akari 5 SC Fenpyroximate 5%	0.96 - 1.4	Spray	Contact	\$145 / quart	21A	Primarily active on larval stages, no translaminar activity.
Aria Flonicamid 50%	0.23 - 0.46	Spray	Locally Systemic	\$150 / 160 g	9C	
Avid 0.15 EC Abamectin 2.0%	0.24-mites 0.48-thrips	Spray	Locally Systemic	\$93 / cup	6	Harms some ferns and shasta daisies. Use weekly for 3 weeks when thrips immature then alternate. Residual control may be enhanced by adding summer oil.
Conserve Spinosad 11.6%	0.6-thrips 1.2-mites	Spray	Locally Systemic	\$144 / quart	5	Can be used 3 times consecutively on one generation of thrips then alternate. Can spray flowers for thrips without damage.
Decathlon 20 WP Cyfluthrin 20%	0.18-0.27	Spray	Contact	\$90 / cup	3	
Flagship 25 WG Thiamethoxam 25%	0.5 - 1	Spray Drench	Xylem Mobile	\$145 / 8 wt oz	4A	Effective for armored scale, not soft scale.
Floramite SC Bifenazate 22.6%	0.24 - 0.48	Spray	Contact	\$97 / quart	25	Alternate use with other miticides, does not control broad mites or flat mites. Spray should have a pH below 7.
Kontos spirotetramat 22.4%	.1 - 0.2	Spray Drench	Amphi- mobile	\$170 / 250 ml	23	Label says it is not recommended for use on orchids, among other crops.
Marathon II Imidacloprid 21.4%	0.10	Spray Drench	Xylem Mobile	\$110 / 250 ml	4A	Some growers report phytotoxicity on thin leaved orchids, very concentrated formulation. Do not use with summer oil. Use with weak fertilizer to enhance uptake.

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Specialty Pesticides (continued)						
Marathon 60 WP Imidacloprid 60%	0.16	Spray Drench	Xylem Mobile	\$53 / 100 gm	4A	Some growers report phytotoxicity on thin leaved orchids, very concentrated formulation. Do not use with summer oil. Use with weak fertilizer to enhance uptake.
Mavrik Aqua Flow Fluvalinate 22.3%	0.24 - 0.6	Spray	Contact	\$115 / quart	3	At low to medium use rates, controls aphids, thrips, whiteflies, leaf-feeding caterpillars; at higher rates, mites will also be suppressed or controlled.
Merit 75 WP Imidacloprid 75%	0.06	Spray Drench	Xylem Mobile	\$35 / 2 wt oz	4A	See Marathon comments; Merit is 3 times stronger and the same application rate is listed, my results suggest it is phytotoxic at this application rate.
Overture 35 WP Pyridalyl 35%	2.1	Spray	Locally Systemic	\$107 / 1 lb	Unknown	Translaminar, controls insects by both contact and ingestion activity, although contact activity is dominant and faster than ingested activity
Safari 20 SG Dinotefuran 20%	0.5 - 1 1.5 - 3.0	Spray Drench	Xylem Mobile	\$115 / 1.5 cups	4A	Use spreader sticker to increase effectiveness.
Sanmite 75 WP Pyridaben 75%	1 - 1.5	Spray	Contact	\$110 / 4 wt oz	21A	Alternate use with other miticides.
Shuttle Acequinocyl 15.8%	0.38 - 0.77	Spray	Contact	\$140 / quart	20B	Do not tank mix with Alette or surfactant
Sirocco Bifenazate 43.2%, Aba	0.18 - 0.36	Spray	Locally Systemic	\$190 / cup	6, unclassified	Not compatible with many products in tank mixes, check label.
Sultan Cyflumetofen 18.7%	0.82	Spray	Contact	\$162 / quart	25	
Talstar P (Bifen I/T) Bifenthrin 7.9%	0.65 - 1.3	Spray	Contact	\$45 / 3 quarts	3	Mite control most effective in spring to early summer. Treat late in day. Thorough coverage necessary.
Tristar 8.5 SL Acetamiprid 8.5%	0.5-0.8 scale 0.75-1.5 thrip	Spray	Locally Systemic	\$45 / 4 fl oz	4A	Use higher rate when insect populations high. Do not apply more than 5 times per year. Systemic with translaminar, not labeled for drench applications.
Insect Growth Regulators						
AzaGuard, Azatin Azadirachtin 3%	0.5 - 2	Spray	Contact	\$151 / quart	unclassified	Controls insects in the larval, pupal, and nymphal stages, tank mix with chemicals for adult control. Keep solution pH between 5.5 and 6.5.
Distance Pyriproxygen 11.23%	0.48 - 0.72	Spray	Locally Systemic	\$260 / quart	7C	Harms some ferns.
Enstar AQ Kinoprene 18.4%	1 - 2	Spray	Contact	\$135 / quart	7C	
TetraSan 5 WDG Etoxazole 5%	0.84 - 1.7	Spray	Locally Systemic	\$130/lb	8	Kills mite eggs and nymphs but not adult, apply with adulticide if infested, treated adult mites will not produce viable eggs. Translaminar.