

Table 1. Selected products for use in controlling mites on ornamental plants.

Mode of action group ^z	Active ingredient	Trade name(s)	Formulation(s)	Mites controlled ^y	Mite stages controlled ^x	Location ^w	Broad crop labeling	REI ^v (hours)	Manufacturer/Distributor ^u	Comments
1A	carbaryl	Carbaryl, Sevin [®]	80 S, 4 SL (43% ai ⁵), 4 S (44.1%)	Eriophyid		O	Yes	12	Drexel, Bayer, Prokoz, others	Thorough coverage of upper- and lower-leaf surfaces is important. Use may increase twospotted spider mite populations.
1B	diazinon	☠ ^t Diazinon [®] AG500	4 EC (48% ai)	Certain spider mites, cyclamen, mites, carnation bud and shoot mites		On	No	12	Helena	Only for certain labeled crops.
	dimethoate	Cygon [®] , Dimethoate	2 EC (23% ai); 4EC (43.5–44.8% ai)	Eriophyid, Tarsonemid, Tenuipalpid, Tetranychid	I, A	On	No	48	Southern Agricultural Insecticides, Cheminova, Drexel, Helena	Label lists only certain plant uses and for some kinds of spider mites.
	disulfoton	☠ ^t Di-Syston [®]	15 G			O	No	48	Bayer	Labeled only for use on firs (Christmas trees).
2A	endosulfan	☠ ^t Endosulfan, ☠ ^t Thionex [®]	3 EC (33.7–34.0% ai)	Taxus bud mite	I, A	On	No	48, 24	Drexel, Makhteshim-Agan	Shrubs and trees.
		☠ ^t Thionex [®]	50 W	Taxus bud mite, cyclamen		On	No	24	Makhteshim-Agan	
3 ^r	bifenthrin	Attain [®] TR	aerosol (4% ai)	Spider		G	Yes	12	Whitmire Micro-Gen	Total release aerosol. Significant resistance has been detected in some populations of spider mites.

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		☠ Attain [®] , Bifenthrin, Broadcide [™] , Talstar [®] , UP-Star, etc.	0.67 F [SC] (7.9% ai)	Spider and broad		G, On, S	Yes	12	Whitmire Micro-Gen, Quali-Pro, Regal, FMC, United Phosphorus	Significant resistance has been detected in some populations of mites.
	cyhalothrin	☠ Scimitar [®]	0.88 GC (9.7% ai)	Spider		G, I, O, S	yes	24	Syngenta	Significant resistance has been detected in some populations of mites.
	fenpropathrin	☠ Tame [®]	2.4 EC (30.9% ai)	Spider		G, I, O, S	Yes	24	Valent	Significant resistance has been detected in some populations of mites.
	fluvalinate	Mavrik Aquaflow [®]	2 F (22.3% ai)	Spider		G, I, O	Yes	12	Wellmark International	Significant resistance has been detected in some populations of mites.
6	abamectin	Abamectin, Avid [®]	0.15 EC (1.9–2% ai)	Eriophyid, Spider, Tarsonemid	I, A	G, O, S	Yes	12	Quali-pro, Syngenta	Translaminar, also suppresses aphids, thrips and whiteflies. Do not use on Shasta daisies or ferns. Resistance has been detected in some populations of twospotted spider mites
	milbemectin	☠ Ultiflora [™]	0.0775 EC (1% ai)	Eriophyid, Spider, Tarsonemid, Tenuipalpid	E, I, A	Of	Yes	12	Gowan	Apply no more than 128 fl oz per acre per year.
10A^q	clofentezine	Ovation [™]	1 SC (42% ai)	Spider	E, I	G, On, S	Yes	12	Scotts	Only one application per crop cycle. Good residual control. Unstable in alkaline solutions. Useful in IPM programs. Bright magenta in color, residue may be noticeable.

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	hexythiazox	Hexygon™	50 WP	Spider	E, I	G, I, O, S Can also be used in landscapes	Yes	12	Gowan	Provides residual control.
10B ^r	etoxazole	TetraSan	5 WDG	Spider, Tenuipalpid	E, I	G, I, Lr, O, S	Yes	12	Valent USA	Translaminar activity, useful in IPM programs. Best used in early stages of infestations. Use no more than twice per cropping cycle. Sterilizes adult mites.
12B ^r	☠ fenbutatin-oxide (also known as hexakis)	ProMITE™ (formerly Vendex)	50 WP	Spider	I, A	G, O	Yes	48	SePRO	For best results, apply when mite populations are just beginning to build. Thorough and complete coverage is necessary for optimum control. Performs best when daily temperature at application averages above 70°F. May be applied when honeybees and beneficial mites are present.
13	chlorfenapyr	Pylon®	2 SC	Eriophyid, Spider, Tarsonemid	I	G	No	12	OHP	Translaminar activity. Avoid applying to blooming flowers. No more than three applications (not more than the 41 fl oz of product per 100 gal per crop per season or 0.64 lb ai per 100 gal per crop per season) should be applied during a crop growing cycle (start to finish for one ornamental crop). Note sensitive plants on label.

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20B	acequinocyl	Shuttle™	15 SC	Spider, Tenuipalpid	E (some), I	G, On, S	Yes	12	Arysta LifeScience	Compatible with IPM programs. Do not apply successive applications, rotate with treatments having different modes of action. Not for use on mini-roses.
21A	fenpyroximate	Akari®	5 SC	Eriophyid, Spider Tarsonemid	I	G, I, On	Yes	12	SePRO	Do not apply more than 48 fl oz per crop cycle or growing season.
	pyridaben	Sanmite®	75 WP	Spider, Tarsonemid	I, A (some)	G, O, S	Yes	12	Scotts	Do not exceed 21.34 oz per acre per year.
23	spiromesifen	Judo™	4 F [SC] (45.2% ai)	Eriophyid, Spider, Tarsonemid, Tenuipalpid	E, I, A (some)	G, On, S	Yes	12	OHP	Translaminar activity. Do not apply more than three times per season and do not make successive applications. Check Judo Technical Bulletin at www.OHP.com for list of sensitive plants.
		Forbid™	4 F [SC] (45.2% ai)			OI	na ^p	Bayer		
un^r	bifenazate	Floramite®	2 SC (22.6%)	Spider, Tenuipalpid	E (some), I, A	G, I, O, S	Yes	12	OHP	Compatible with IPM and resistance management programs. Do not apply more than 32 fluid oz per acre per year. Not effective against eriophyid or tarsonemid mites. Adjust spray water pH to below 7.
— oils^r	oil; cottonseed, clove, garlic	GC-Mite™	70 LC	Spider	E, I, A		Yes		JH Biotech	Good coverage important. OMRI listed.
	oil, neem	Triact®	70 EC	Spider	E, I, A	G, O	Yes	4	OHP	

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	oil, paraffinic	Omni Oil, Omni Supreme Spray	6E (98% ai)	Eriophyid, Spider	E, I, A	O	No	4	Helena	Spray no more than 4 times during the growing season; use a two-week-minimum application interval.
		Ultra-Fine [®] Oil	(98.8% ai)	Spider	E, I, A	G, I, O	Yes	4	Whitmire Micro-Gen	
	oil, petroleum	Saf-T-Side	EC (80.0% ai)	Eriophyid, Spider	E, I, A	G, O	No	4	Brandt Consolidated	Total coverage important.
		Omni Supreme Spray (paraffin base)	(98% ai)		E, I, A	O	No	4	Helena	For shade trees and shrubs.
		Target [™]	EC (80.0% ai)		E, I, A	G, O, Sh	Yes	4	Florikan E.S.A.	
		Damoi [™] , PureSpray [™] Green, Ultra-Pure [™] Oil	(98% ai)		E, I, A	G, O, S	Yes	4	Drexel, Petro-Canada, Whitmire Micro-Gen	OMRI listed except Damoi [™] .
	oil, rosemary and mint	EcoTrol [®]	EC (12% ai)	Eriophyid, Spider, Tarsonemid		G, I, O, S	Yes	0	EcoSMART	“Minimum-risk” pesticide, meets the requirements for the USDA National Organic Program. Good coverage very important, leaves an oily residue.
	oil, soybean	Golden Pest Spray Oil [™]	93% ai	Spider	E, I, A	G, O, S	Yes	4	Stoller	OMRI listed.
— soap	soap (potassium salts of fatty acids)	M-Pede [®]	LC (49% ai)	Eriophyid, Spider	E, I, A	G, I, O	Yes	12	Dow AgroSciences	OMRI listed. Thorough coverage very important. Do not use with sulfur or within three days of a sulfur application.

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— sulfur	sulfur, micronized	Thiolux [®] Jet	80 DF	Spider, Tenuipalpid,		G, On	No	24	Syngenta	OMRI listed. Do not use within two weeks of an oil treatment. Complete coverage important.

^z Mode of action classification scheme (version 6.1, Aug 2008) developed by the Insecticide Resistance Action Committee (IRAC) (http://www.irac-online.org/Crop_Protection/MoA.asp). 1 = Acetylcholinesterase inhibitors; 2 = Gamma-aminobutyric acid (GABA)-gated chloride channel antagonists; 3 = Sodium channel modulators; 5 = Nicotinic acetylcholine receptor agonists (allosteric) (not group 4), 6 = Chloride channel activators; 10 = Compounds of unknown or non-specific mode of action (growth inhibitors); 12 = Inhibitors of oxidative phosphorylation, disruptors of ATP formation; 13 = Uncoupler of oxidative phosphorylation via disruption of proton gradient, 20 = Mitochondrial complex III electron transport inhibitors, 21 = Mitochondrial complex I electron transport inhibitors; 23 = Inhibitors of lipid synthesis; un = Compounds with unknown mode of action; — = not IRAC listed but may control mites physically (i.e., desiccation, membrane disruption, suffocation, etc.).


^y Eriophyid (bud, gall, purple tea, rust), Tarsonemid (broad, cyclamen), Tenuipalpidae (flat mites, false spider mites, red palm mite), Tetranychidae [spider mites] (bamboo, clover, Lewis, southern red, spruce, tumid, twospotted).

^x E = egg, I = immatures, A = adult

^w Location: G = greenhouse; I = interiorscape; Lr = residential landscape; Of = outdoor field nurseries; On = outdoor nurseries; O = outdoor (includes landscape and nurseries); S = shadehouse.

^v REI = restricted entry interval.

^u See Table 2 for complete names and addresses.

^t  = restricted-use pesticide

^s ai = active ingredient.

^r Use of pyrethroids can disrupt biological control organisms (predatory beneficials, etc.) and thereby cause subsequent mite population increases following the use of these broad spectrum insecticide/miticides.

^q Can be used in IPM programs where predatory mites are used.

^p na = not applicable.

^o OMRI = Organic Materials Review Institute (www.omri.org).