	:										•	1
Active Ingredient	Application Rate (tsp/gal)	Spray or Drench?	Mobility	Group	Scale	Mealybugs	Thrips	Whiteflies	Aphids	Mites	pillars	Fungus Ghats
Commonly Available Pesticides	ble Pesticide	Š										
Bayer Products	6 @ 1.47%	Spray	Xylem	40	<	<	ninnraccion	<	<	if fluvalinate		
Imidacloprid varies		Drench	Mobile	7	>	^	suppression	>	>	present		
Cygon 2E	1_2	Sprav	Xylem	1R	٧	<	~		<	~		
Dimethoate 23%	1 - 2	opiay	Mobile	ī	>	>	^		>	>		
Malathion 50% EC	1 _ 4	Sprav	Contact	_	٧	<	~	<	<			
Malathion 50% EC		opiay	COLLIGICA	_	>	>	^	>	>			
Orthene Powder	۷	Spray	Locally	٠	^	<	~	<	<			
Acephate 97%	-	Drench	Systemic		>	^	^	>	>			
Orthenex	D.	Sprav	Locally	_	٨	<	~	Κ	~	suppression		
Acephate, Fenbutatin oxide	d	Oplay	Systemic	_	>	>	^	>	>	ouppi cooloii		
Permetrol	13	Sprav	Contact	ယ	λ	×	Y	×	×	×		
Permethrin 10%		Oplay	COLLIGIC	c	>	>	^	>	>	>		
Ultra Pure Oil Paraffinic Oil	2.5	Spray	Contact	16	×	×	×	×		×		
Thuricide	2 /	Spray	Contact	<u>د</u>							<	<
Bacillus Thuringensis 1		Drench	0011001	-							,	>
Specialty Pesticides	des											
Akari 5 SC Fenpyroximate 5%	0.96 - 1.4	Spray	Contact	21A		suppression		suppression		all mites but Tenuipalpidae		
Avid 0.15 EC	0.24-mites	Sprav	Locally	ກ			suppression	suppression	suppression	all 4 groups of		
Abamectin 2.0%	0.48-thrips	Oplay	Systemic	c			040000000000000000000000000000000000000	04001011	00000	mites		
Conserve	0.6-thrips	Sprav	Locally	IJ.			×				×	
Spinosad 11.6%	1.2-mites	00.03	Systemic	c			;				;	
Decathlon 20 WP	0.18-0.27	Spray	Contact	ω	crawler stage	×	×	×	×		×	×
		,	-									
Flagship 25 WG Thiamethoxam 25%	0.5 - 1	Spray Drench	Xylem Mobile	4A	×	×	×	×	×		×	×
Floramite SC	0.24 - 0.48	Sprav	Contact	25						spider mites		
Bifenazate 22.6%		(p. e.)	9	ļ								
Kontos	1-02	Spray	Amphi-	23	crawler stage	×	suppression	×	×	all mites but		
spirotetramat 22.4%		Drench	mobile	1	90	;	7	;	;	Tenuipalpidae		
Marathon II	0.10	Spray	Xylem	4A	×	×	suppression	×	×			
Imidacloprid 21.4%	0	Drench	Mobile	15.7	>	>	000000	,	>			

Chemical Name Active Ingredient	Application Rate (tsp/gal)	Spray or Drench?	Mobility	IRAC MoA Group	Scale	Mealybugs	Thrips	Whiteflies	Aphids	Mites	Cater- pillars	Fungus Ghats
Specialty Pesticides (continued)	des (continue)d)										
Marathon 60 WP	0.16	Spray	Xylem	4A	×	×	suppression	×	×			
Imidacloprid 60%		Drench	Mobile									
Mavrik Aqua Flow Fluvalinate 22.3%	0.24 - 0.6	Spray	Contact	ω		×	×	×	×	suppression	×	
Merit 75 WP	0.10	Spray	Xylem	4A	X	×		×	×			
Imidacloprid 75%		Drench	Mobile		,	;		>	;			
Overture 35 WP Pyridalyl 35%	2.1	Spray	Locally Systemic	Unknown			×				×	
Safari 20 SG	0.5 - 1	Spray	Xylem	^								
Dinotefuran 20%	1.5 - 3.0	Drench	Mobile	4A	×	×	suppression	*	suppression			
Sanmite 75 WP Pyridaben 75%	1 - 1.5	Spray	Contact	21A				×		all mites but Eriophyid		
Shuttle Acequinocyl 15.8%	0.38 - 0.77	Spray	Contact	20B						all mites but Tarsonemid		
Sirocco Bifenazate 43.2%, Aba	0.18 - 0.36	Spray	Locally Systemic	6, unclassified			suppression	suppression	suppression	all mites but Tenuipalpidae		
Sultan Cyflumetofen 18.7%	0.82	Spray	Contact	25						spider mites		
Talstar P Bifenthrin 7.9%	0.65 - 1.3	Spray	Contact	3	crawler stage	×	×	×	×	spider mites, broad mites		×
Tristar 8.5 SL Acetamiprid 8.5%	0.5-0.8 scale 0.75-1.5 thrip	Spray	Locally Systemic	4A	×	×	×	×	×			×
Insect Growth Regulators	gulators											
AzaGuard, Azatin 3 Azadirachtin 3%	0.5 - 2	Spray	Contact	unclassified	×	×	×	×	×		×	use as drench
Distance Pyriproxygen 11.23%	0.48 - 0.72	Spray	Locally Systemic	7C	×	suppression		×	suppression			use as drench
Enstar AQ Kinoprene 18.4%	1 - 2	Spray	Contact	7C	×	×	×	×	×			use as drench
TetraSan 5 WDG Etoxazole 5%	0.84 - 1.7	Spray	Locally Systemic	8						spider mites, Tenuipalpidae		

Chemical Name Application Spray Chemical Name Application Spray Chemical Name Application Spray Chemical Name Application Comments and Caveats - Aways Check Product Label for Information on Proper Use						
Iliable Pesticides	Chemical Name Active Ingredient	Application Rate (tsp/gal)	Spray or Drench?	Mobility	IRAC MoA Group	
6 @ 1.47% Spray Xylem 12 @ 0.74% Drench Mobile Xylem 1 Not labeled for use on orchids, son orchidas, so	Commonly Availal	ble Pesticide	Š			
12 @ 0.74% Drench Mobile 1	Bayer Products	(9)	Spray	Xylem	77	
1-2 Spray Xylem 1B Not labeled for use on orchids, sor use. Use in cool weather only. No luse. Use in cool weather only. No luse only if temperatures below 90 luse with outer miticides, should have a pH below 7. Label says it is not recommended luse only in odendrobium luse with weak fertilizer to enhance up	Imidacloprid varies	12 @ 0.74%	Drench	Mobile	5	with summer oil. Use with weak fertilizer to enhance uptake.
1 - 4 Spray Contact 1 Harms some ferns. 1 Spray Locally 1 Repeat at 2 week intervals if crawl times consecutively. Can be mixe Fernbutatin oxide is a miticide, Ace Spray Systemic 1 Fernbutatin oxide is a miticide, Ace Fernbutatin ox	Cygon 2E	1_2	Spray	Xylem	1B	Not labeled for use on orchids, some growers have reported severe phytotoxicity after
1 - 4 Spray Contact 1 Repeat at 2 week intervals if crawl Imperent Imperent at 2 week intervals if crawl Imperent	Dimethoate 23%	- <u>-</u>	oplay	Mobile	ē	Use in cool weather only.
1 Spray Locally Itimes consecutively. Can be mixed for Orthene above. 1.3 Spray Contact 3 2.5 Spray Contact 16 With fungicide, copper or Captan. I for Orthene above. 2.6 Spray Contact 11 Spray Contact 11 Spray Contact 11 With fungicide, copper or Captan. I for Orthene above. 2.6 Spray Contact 11 Spray Contact 21A Primarily active on larval stages, no tract 1.2-mites Spray Systemic Can be used 3 times consecutively Systemic Can be used 3 times consecutively Systemic Can be used 3 times consecutively Spray Systemic Spray Systemic Spray Systemic Spray Systemic Can be used 3 times consecutively Systemic Spray Systemic Sp	Malathion 50% EC		Sprav	Contact	_	Harms some ferns
1 Spray Locally 1 times consecutively. Can be mixe Fenbutatin oxide is a miticide, Ace Spray Systemic 1 for Orthene above. 1.3 Spray Contact 3 Use only if temperatures below 90 with fungicide, copper or Captan. I for Orthene above. 2.5 Spray Contact 16 with fungicide, copper or Captan. I with fungicide, copper or C	Malathion 50% EC		oplay	Collidor	-	
6 Spray Locally 1.3 Spray Contact 2.5 Spray Contact 16 Use only if temperatures below 90' with fungicide, copper or Captan. I 2-4 Spray Contact 1.2-mites Spray Contact 0.6-thrips Spray Contact 1.2-mites Spray Contact 0.6-thrips Spray Contact 1.2-mites Spray Contact 1.2-mites Spray Contact 1.2-mites Spray Contact 1.3 Use only if temperatures below 90' with fungicide, copper or Captan. I Spray Contact 1.1 Captan. I With fungicide, copper or Captan. I With fung	Orthene Powder	٠	Spray	Locally	,	
1.3 Spray Contact 3 2.5 Spray Contact 16 With fungicide, copper or Captan. I s 1	Acephate 97%	-	Drench	Systemic		times consecutively. Can be mixed with fungicide.
1.3 Spray Contact 3 2.5 Spray Contact 16 2.4 Spray Contact 11 Spray Contact 11 Cides 0.96 - 1.4 Spray Contact 21A 0.24-mites Spray Systemic 6 0.6-thrips Spray Systemic 12-mites Spray Systemic 5 0.18-0.27 Spray Contact 3 0.5 - 1 Spray Xylem Mobile 4A 0.1 - 0.2 Spray Amphi- Spray Spray Spray Spray Contact 25 Spray Spray Contact 25 Drench Mobile 23 Drench Mobile 4A	Orthenex	6	Sprav	Locally	1	
1.3 Spray Contact 3 2.5 Spray Contact 16 2-4 Spray Contact 11 cides 0.96-1.4 Spray Contact 11 0.24-mites Spray Contact 21A 0.6-thrips Spray Systemic 6 0.6-thrips Spray Systemic 3 0.12-mites Spray Contact 3 0.12-mites Spray Contact 3	Acephate, Fenbutatin oxide	c	Oplay	Systemic	-	for Orthene above.
2.5 Spray Contact 16 Spray Contact 16 Spray Contact 11 Spray Contact 11 Spray Contact 11 O.96 - 1.4 Spray Contact 21A O.24-mites Spray Systemic 0.6-thrips Spray Systemic Locally 1.2-mites Spray Systemic 5 P O.18-0.27 Spray Contact 3 O.24 - 0.48 Spray Contact 3 O.24 - 0.48 Spray Contact 25 Drench Mobile 23 O.10 Spray Xylem Mobile 23 Drench Mobile 4A	Permetrol	13	Sprav	Contact	2	
2.5 Spray Contact 16 Spray Contact 11 Spray Contact 11 Spray Contact 11 O.96 - 1.4 Spray Contact 21A O.24-mites Spray Systemic 0.6-thrips Spray Systemic 5 O.18-0.27 Spray Contact 3 O.5 - 1 Spray Xylem Mobile 4A O.24 - 0.48 Spray Contact 25 Spray Spray Xylem Mobile 23 O.10 Spray Xylem Mobile 23 O.10 Spray Xylem Mobile 4A	Permethrin 10%		oplay	Collida	c	
cides 0.96 - 1.4 Spray Contact 11 0.24-mites O.6-thrips Spray Systemic O.18-0.27 Spray Contact 3 P 0.18-0.27 Spray Contact 3 O.24 - 0.48 Spray Contact 3 1.1 - 0.2 Spray Amphi- 23 O.10 Spray Xylem Mobile 4A O.10 Spray Xylem Mobile 4A	Ultra Pure Oil Paraffinic Oil	2.5	Spray	Contact	16	nperatures below 90°
cides O.96 - 1.4 Spray Contact 21A O.24-mites Spray Systemic 0.6-thrips 1.2-mites Spray Systemic 5 O.18-0.27 Spray Contact 3 O.24 - 0.48 Spray Contact 3 O.24 - 0.48 Spray Contact 25 O.11 Ozench Mobile 23 O.10 Ozench Mobile 4A O.10 Ozench Mobile 4A O.10 Ozench Mobile 4A	Thuricide		Spray	Captant	7	
cides O.96 - 1.4 Spray Contact 21A O.24-mites Spray Locally O.48-thrips Spray Systemic O.6-thrips Spray Contact 3 P O.18-0.27 Spray Contact 3 O.5 - 1 Spray Xylem 4A O.24 - 0.48 Spray Contact 25 O.11 - 0.2 Spray Amphi- O.10 Spray Xylem Mobile 23 O.10 Spray Xylem Mobile 4A	Bacillus Thuringensis 1	- 1	Drench	Contact	=	
0.96 - 1.4 Spray Contact 21A 0.24-mites Spray Locally 0.48-thrips Spray Systemic 5 1.2-mites Spray Systemic 5 P 0.18-0.27 Spray Contact 3 O.5 - 1 Spray Xylem Mobile 4A 0.24 - 0.48 Spray Contact 25 Drench Mobile 23 0.1 - 0.2 Spray Xylem Mobile 23 Drench Mobile 4A	Specialty Pesticid	es				
0.24-mites Spray Locally 0.48-thrips Spray Systemic 6 0.6-thrips Spray Locally 1.2-mites Spray Contact 3 P 0.18-0.27 Spray Contact 3 O.5-1 Spray Xylem Mobile 4A O.24-0.48 Spray Contact 25 I.1-0.2 Spray Amphinobile Spray Xylem Mobile 23 O.10 Drench Mobile 4A	Akari 5 SC Fenovroximate 5%	0.96 - 1.4	Spray	Contact	21A	Primarily active on larval stages, no translaminar activity.
0.48-thrips Systemic O.6-thrips Spray Systemic O.6-thrips Spray Locally 1.2-mites Spray Systemic Systemic Spray Contact 3 P 0.18-0.27 Spray Contact 3 O.5-1 Spray Xylem AA Mobile	Avid 0.15 EC	0.24-mites	Sprav	Locally	9	Harms some ferns and shasta daisies. Use weekly for 3 weeks when thrips immature then
0.6-thrips Locally 1.2-mites Spray Systemic 5 P	Abamectin 2.0%	U.48-thrips		Systemic		alternate. Residual control may be enhanced by adding summer oil.
P 0.18-0.27 Spray Contact 3 O.5-1 Spray Xylem 4A O.24-0.48 Spray Contact 25 I.1-0.2 Spray Amphi- Spray Mobile 23 O.10 Spray Xylem Mobile 4A	Conserve	0.6-thrips	Spray	Locally	IJ.	Can be used 3 times consecutively on one generation of thrips then alternate. Can spray
P 0.18-0.27 Spray Contact 3 0.5-1 Spray Xylem 4A 0.24-0.48 Spray Contact 25 1-0.2 Spray Amphi- Drench Mobile 23 Spray Xylem AA O.10 Spray Xylem 4A	Spinosad 11.6%	1.2-mites		Systemic		nowers for unips without damage.
0.5 - 1 Spray Xylem AA O.24 - 0.48 Spray Contact 25 O.1 - 0.2 Spray Amphi- Drench Mobile 23 O.10 Spray Xylem Mobile 4A	Decathlon 20 WP Cyfluthrin 20%	0.18-0.27	Spray	Contact	3	
0.24 - 0.48 Spray Contact 25 1 - 0.2 Spray Amphi- Drench Mobile 23 0.10 Spray Xylem 4A	Flagship 25 WG Thiamethoxam 25%	0.5 - 1	Spray Drench	Xylem Mobile	4A	Effective for armored scale, not soft scale.
.1-0.2 Spray Amphi- Drench mobile 23 Spray Xylem 4A O.10 Drench Mobile 4A	Floramite SC Bifenazate 22.6%	0.24 - 0.48	Spray	Contact	25	iticides,
1.4% 0.10 Spray Xylem 4A Drench Mobile 4A	Kontos spirotetramat 22.4%		Spray Drench	Amphi- mobile	23	
	Marathon II Imidacloprid 21.4%	0.10	Spray Drench	Xylem Mobile	4A	Apply to cattleyas only, no dendrobiums and no thin leafed orchids. Do not use with summer oil. Use with weak fertilizer to enhance uptake.

Chemical Name Active Ingredient	Application Rate (tsp/gal)	Spray or Drench?	Mobility	IRAC MoA Group	Comments and Caveats - Always Check Product Label for Information on Proper Use and Precautions
Specialty Pesticides	les (continued)	d)			
Marathon 60 WP	0.16	Spray	Xylem	4A	Apply to cattleyas only, no dendrobiums and no thin leafed orchids. Do not use with summer oil.
Mayrik Agua Flow			I VIO		At low to medium use rates controls aphids thrips whiteflies leaf-feeding caternillars: at
Fluvalinate 22.3%	0.24 - 0.6	Spray	Contact	ω	higher rates, mites will also be suppressed or controlled.
Merit 75 WP	010	Spray	Xylem	VV	See Marathon comments; Merit is 3 times stronger and the same application rate is
Imidacloprid 75%	0.	Drench	Mobile	7	listed, my results suggest it is phytotoxic at this application rate.
Overture 35 WP	2	Sprav	Locally	Unknown	Translaminar, controls insects by both contact and ingestion activity, although contact
Pyridalyl 35%	1: -	opiay	Systemic	CINIOWI	activity is dominant and faster than ingested activity
Safari 20 SG	0.5 - 1	Spray	Xylem	40	like spreader sticker to increase effectiveness
Dinotefuran 20%	1.5 - 3.0	Drench	Mobile	4	Osc spicader sticker to increase effective less.
Sanmite 75 WP Pyridaben 75%	1 - 1.5	Spray	Contact	21A	Alternate use with other miticides.
Shuttle Acequinocyl 15.8%	0.38 - 0.77	Spray	Contact	20B	Do not tank mix with Aliette or surfactant
Sirocco Bifenazate 43.2%, Aba	0.18 - 0.36	Spray	Locally Systemic	6, unclassified	Not compatible with many products in tank mixes, check label.
Sultan	0.82	Spray	Contact	25	
Taletar P					Mite control most effective in spring to early summer. Treat late in day. Thorough
Bifenthrin 7.9%	0.65 - 1.3	opray	Contact	C	coverage necessary.
Tristar 8.5 SL	0.5-0.8 scale	Sprav	Locally	44	Use higher rate when insect populations high. Do not apply more than 5 times per year.
Acetamiprid 8.5%	U./3-1.3 thrip		Oyatellic		System with translammar, not labeled for diench applications.
Insect Growth Regulators	gulators				
AzaGuard, Azatin 3 Azadirachtin 3%	0.5 - 2	Spray	Contact	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	7C	Harms some ferns.
Enstar AQ Kinoprene 18.4%	1 - 2	Spray	Contact	7C	
TetraSan 5 WDG Etoxazole 5%	0.84 - 1.7	Spray	Locally Systemic	8	Kills mite eggs and nymphs but not adult, apply with adulticide if infested, treated adult mites will not produce viable eggs. Translaminar.