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Insect Controls for the Greenhouse Industry Michigan State University Michigan State University Extension Replaces NCR 558 David R Smitley and Terrance W. Davis, Department of Entomology Issued March 1999 1 pages

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# Insect Controls for the Greenhouse Industry

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1	Conserve SC	spinosad	1.0 lb ai/gal	Dow Agrosciences	11.6	caution		4				x				X		actinomycete	Do not apply more than 10 times in a 12-month period. Do not apply to vegetables. Do not apply more than 3 times in a row without rotating with a different chemistry.
2	Avid 0.15EC	abamectin	0.15 lb ai/gal	Novartis	1.9	warning		12		(X)		X			X	(X)	(X)	antibiotic	
3	BotaniGard ES	Beauveria bassiana	80 billion spores/gal	Mycotech	11.3	warning	0	12		X			X			x	X	biological	Treat every 7 days while insects are active. Do not tank-mix with fungicides.
4	Gnatrol	Bacillus thurin- giensis israelensis	2.19 BIU/gal	Abbott	0.6	caution	0	4			x							biological	Make 3 weekly applications when all stages present, sufficiently wet the soil surface above & below benches where larvae found. Applications must be timed for a stage of development when larvae are present in the soil.
5	Naturalis-O	Beauveria bassiana	7.16%	Troy Biosciences	7.2	caution		4		x	x		X		X	x	x	biological	Treat every 7 days while insects are active. Do not tank-mix with fungicides.
6	Dycarb 76 WP	bendiocarb	76 WP	Scotts	76.0	warning		12		x	(X)		X	X		x	x	carbamate	Check label for species list. Do not apply to cardoon,
7	Turcam	bendiocarb	76 WP	AgoEvo	76.0	warning		12	0	x	(X)		X	X		x	x	carbamate	Tip burn may occur on coleus or cardoon at high rates.
8	Marathon	imidacloprid	1 G	Olympic	1.0	caution		12		X	(X)	x	X	X			X	chloronicotinyl	Not to be used more than once every 16 weeks. Thrips in buds will only be suppressed.
	Mosether 60 WD	imidaalaasid	co WD	Olympia	60.0	caution		12		v	())	v	×	v			v	chloropicotinul	be used as food crops. Thrips suppression.
9	Marathon 60 WP	imidacioprid	60 WP	Olympic	00.0	caution		12			(X)	X						chloromcotinyi	Do not apply to soils that are water-logged, or saturated. Do not apply to bedding plants intended to be used as food crops. Thrips suppression.
10	Adept	diflubenzuron	25 W	Uniroyal	25.0	caution		12			X	X					X	insect growth regulator	May damage poinsettia.
11	Citation	cyromazine	75 WP	Novartis	75.0	caution		12			X	X						insect growth regulator	
12	Distance	pyriproxyfen	0.86 lb ai/gal	Valent	11.2	caution		12			X			X			X	insect growth regulator	Do not apply more than 2 times per cropping cycle or per 6 months.
13	Enstar II	s-kinoprene	.625 lb/pint	Wellmark	65.1	warning		4		X	X		X	X			X	insect growth regulator	Apply pre-bloom
14	Precision	fenoxycarb	25 WP	Novartis	25.0	caution		12			X			X		X	X	insect growth regulator	
15	PT Preclude TR	fenoxycarb	aerosol	Whitmire Micro-gen	0.6	caution		12		X				X		X	X	insect growth regulator	
16	Pyrigro	pyriproxyfen	1.3% ME	Whitmire Micro-gen	1.3	caution		12		v	X			X		×	X	insect growth regulator	Do not apply more than 2 times per cropping cycle or per 6 months.
17	Azatin XL	azadirachtin	U.265 Ib al/gal	Ulympic	3.0	caution	U	4		X	X	X	X			X	×		Must contact insect. Aprild suppression only.
19	Fulex Nicotine	nicotine	smoke	Fuller System	14.0	danger	0	***	0	X		^	<b>^</b>			X	^	nicotine	Can be used on tomatoes, cucumbers and lettuce.
20	Sunspray Ultra-	paraffinic oil	liquid	Sun Corp.	98.8	caution	0	4		X	x	X	X	x	x	x	x	oil	Do not spray plants under stress. Target pest must be completely covered with spray. Check label for list of plants that can be treated. May cause injury to flowers
21	Dibrom 8 Emulsive	naled	8 lb ai/gal	Valent	62.0	danger	0	24		X			X		X		x	organophosphate	To be applied as a fumigant on steam pipes. Roses, mums, wandering iew poinsettia, and Dutchman's pipe may be damaged by Dibrom vanor
22	Fulex DDVP	dichlorvos	smoke	Fuller System	12.0	danger	0	***	0	X			X		x		x	organophosphate	Can also be used on tomatoes, radishes, cucumbers and lettuce.
23	Fulex Dithio	sulfotep	smoke	Fuller System	14.0	danger		***	0	X			X	X		x	x	organophosphate	
24	Fulex Thiodan Smoke	endosulfan	smoke	Fuller System	15.0	danger	0	***		X							x	organophosphate	Can be used on tomatoes and cucumbers.
25	Gowan Endosulfan 3EC	endosulfan	3 EC	Gowan	34.0	danger	0	24		x							x	organophosphate	Do not apply to "Bonnafon Deluxe", "Fred Shoesmith" or "White Knight" chrysanthemums.
26	Gowan Endosulfan 50 WSB	endosulfan	50 WSB	Gowan	50.0	danger	0	24		X							x	organophosphate	Do not apply to "Bonnafon Deluxe", "Fred Shoesmith" or "White Knight" chrysanthemums.
27	Kelthane T/O	dicofol	50 WP	Rohm & Haas	50.0	caution		12							X			organophosphate	
28	KnoxOut GH	diazinon	2 lb ai/gal	Cleary	23.0	caution		12	0	x	X	Х	X	X	X	X	X	organophosphate	Will not control whitefly - suppression only. Check the label for the list of plants that can be treated and for the plants exhibiting a phytotoxic reaction.
29	Mesurol 75-W	methiocarb	75 W	Gowan	75.0	warning		24	0	X	(X)	-			X	(X)		organophosphate	
30	Orthene T, T & O Spray 97	acephate	97 S	Valent	97.0	caution		24		x		(X)	x	x		X	X	organophosphate	A number of varieties of chrysanthemum have exhibited phytotoxic reactions. Only labelled for use on anthurium, cacti, carnation, rose, orchids, some foliage plants, young poinsettia and some varieties of chrysanthemum.
31	Orthene Turf, Tree & Ornamental Spray	acephate	75 WP	Valent	75.0	caution		24		x		(X)	x	x		x	X	organophosphate	A number of varieties of chrysanthemum have exhibited phytotoxic reactions. Only labelled for use on anthurium, cacti, carnation, rose, orchids, some foliage plants, young poinsettia and some varieties of chrysanthemum.
32	PT 1300 Orthene TR	acephate	aerosol	Whitmire Micro-gen	3.0	warning		24		x	X	X	x	X	X	X	x	organophosphate	
33	PT Duraguard ME	chloropyrifos	liquid	Whitmire Micro-gen	20.0	caution		12		X	X	х	X	X	X	X		organophosphate	
34	PT Duraplex TR	chloropyrifos /cvfluthrin	aerosol	Whitmire Micro-gen	8.0/1.6	warning		12		x			X	X	X	X	X	organophosphate/	
35	Sanmite	pyridaben	75 WP	BASF	75.0	danger		12							x	(X)	x	pyridazinone	
36	Astro	permethrin	3.2 lb ai/gal	FMC	36.8	caution		12	0	X	X	X	X				X	synthetic pyrethroid	Direct application to blooms may cause browning of petals. Marginal leaf burn
																			may occur on salvia, diffenbachia and Pteris fern.
37	Decathlon 20 WP	cyfluthrin	20 WP	Olympic	20.0	caution		12		X	X		X	X		X	X	synthetic pyrethroid	
38	Mavrik Aquaflow	nvrethrip	2 Ibs/gal	Wellmark	22.3	caution	0	12		X	v		v	v	X	X	X	synthetic pyrethroid	
23	Pyrethrum TR	& PBO	at10501	windinge wildro-gen	1.0	caution		12			^		×	X	X		^	synthetic pyretiirola	
40	PT Attain TR	bifenthrin	aerosol	Whitmire Micro-gen	0.5	caution		12		X	X		X	X	X	X	X	synthetic pyrethroid	
41	Talstar GH	bifenthrin	0.67 lb ai/gal	Whitmire Micro-gen	7.9	caution		12		X	X		X		X	X	X	synthetic pyrethroid	
42	Talstar Nursery Flowable	bifenthrin	0.66 F	Whitmire Micro-gen	7.9	caution		12	0	X	X		X		X	X	X	synthetic pyrethroid	
43	Tame 2.4 EC Spray	fenpropathrin	2.4 lb ai/gal	Valent	30.9	danger		24	0	X			X		X	X	X	synthetic pyrethroid	
44	Topcide	lambda-cyhalothrin	10 WSP	Uniroyal	10.0	warning		24	0	X		Х		X		X	X	synthetic pyrethroid	

\*\*\* reentry = 4 after greenhouse is reventilated.

X = Insect pest is listed on label

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# PESTICIDE EMERGENCY INFORMATION

For any type of an emergency involving a pesticide, immediately contact the following emergency information centers for assistance. Current as of December 1998

## **Human Pesticide Poisoning**

## MICHIGAN POISON CONTROL SYSTEM

From anywhere in Michigan, call **1 - 8 0 0 - P 0 I S 0 N 1 1 - 8 0 0 - 7 6 4 - 7 6 6 1** 

# **Special Pesticide Emergencies**

Animal Poisoning	Pesticide Fire	Traffic Accident	Environmental Pollution	Pesticide Disposal Information		
Your veterinarian:	Local fire department:	Local police department or sheriff's department:	Pollution Emergency Alerting System (PEAS), Michigan Department of Environmental Quality:	Michigan Department of Environmental Qualit Waste Management Division. Monday– Friday: 8 a.m.–5 p.m. (517) 373-2730		
Phone No.	Phone No.	Phone No.	District MDEQ Office Phone No.			
or	and	and	and			
Animal Health Diagnostic Laboratory (Toxicology) Michigan State University: (517) 355-0281	Fire Marshal Division, Michigan State Police: M – F: 8–12, 1–5 (517) 322-1924	Operations Division, Michigan State Police: *(517) 336-6605	For environmental emergencies: *1-800-292-4706	National Pesticide Telecommunications Network Provides advice on recognizing		
	* Telephone Number	Operated 24 Hours	*1-800-405-0101 Michigan Deparment of Agriculture Spill Response	and managing pesticide poisoning, toxicology, general pesticide information and emergency response assistance. Funded by EPA, based at Oregon State University		
				7 days a week; excluding holidays 6:30 a.m. – 4:30 p.m. Pacific Time Zone <b>1-800-858-7378</b> FAX: 1-541-737-0761		

"Pesticide Emergency Information" revised by Carolyn J. Randall, Pesticide Education Program, Michigan State University Extension

# **Insect Controls for the Greenhouse Industry**

#### Extension Bulletin - E 2696, (Replaces NCR 558), March 1999

By David R. Smitley and Terrance W. Davis Department of Entomology Michigan State University

The Environmental Protection Agency (EPA) requires that chemicals used in the greenhouse must have Worker Protection Standards and list 'greenhouse' or 'glasshouse' in a location on the label other than the 'Agricultural Use Requirements' box.

The Michigan Department of Agriculture (MDA) has also ruled that if the site, host plant and chemical are listed on the label, insects not on the label may be treated. Any other use inconsistent with the label can lead to injury of crops, humans, animals and the environment and can lead to fines and/or condemnation of the crop.

Vegetables include any plants being used as food or that will be transplanted as food crops later.

Always check the label for updated information. Labels change often. Some chemicals listed in this bulletin may be dropped by the manufacturer or distributor some time after publication. If you have questions about the legality and/or the registration status of pesticides, contact your county Extension office, pesticide dealer or manufacturer.

Do not apply chemicals to plants that are stressed (under high temperature, high humidity or under water stress) because it increases the possibility of phytotoxicity. Always treat a small portion of plants of each variety with any new chemical (or combination of chemicals) and check them for damage 7 days later before treating the whole crop. Chemicals that may not cause phytotoxicity when applied by themselves may cause damage when mixed together.

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