

*Summary of Pesticides Registered  
for Use and Control Of Common Greenhouse Pests  
By John Erwin, Department of Horticultural Science, University of Minnesota*

The tables shown below are a summary of chemical pesticides identified as effective on each pest, appropriate rates, and the chemical class as identified by the Olympic Chemical Co. I developed these tables in an effort to make both your and my life easier. Always remember that you must follow the use registration on the bag of pesticide you have! Also, you can only use pesticides that are registered for use in your state and only for the specific uses identified (i.e. indoor greenhouse, nursery etc.). If you have any questions, call your state extension specialist (Mark Ascerno/Mike Mcdonough): 612-624-3278) or your state Department of Agriculture. In addition, rotate pesticides across—NOT WITHIN— chemical families. In other words, pick three pesticides from different classes and rotate among those pesticides to control any given pest.

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Aphids	Orthene T & O 75 SP	acephate	1 - 2 tsp	1/3 - 2/3 lb		J
	Azatin XL 3 EC	azadirachtin	3/4 - 1 tsp	12 - 16 fl ozz	4	B
	Naturalis-O 7.16 EC	<i>Beauveria bassiana</i>	2 tsp - 2 tbsp	30 - 100 oz	4	B
	BotaniGard 22 WP	<i>Beauveria bassiana</i>	2 tsp	1 lb	12	B
	BotaniGard 11.3 EC	<i>Beauveria bassiana</i>	1 - 2 tsp	1 pt - 1 qt	12	B
	Dycarb 76 WP	bendicarb	1 tbsp	12 - 20 oz		C
	Ficam 76 WP	bendicarb	1 tbsp	12 - 20 oz		C
	Turcam 76 WP	bendicarb	1 tbsp	12 - 20 oz		C
	Talstar 10 WP	befenthrin	1 - 5 tsp	6.4 - 32 oz		K
	Talstar 7.9 F	befenthrin	1/2 - 2.4 tsp	2 - 10 fl oz		K
	PT 1800 Attain 0.5 A	befenthrin	*	*		K
	Duraguard 20 ME	chloryrifos	1/2 - 1 tbsp	1 1/2 - 3 pt.	12	J
	Cinnamite 30 EC	cinnamaldehyde	5 tsp	85 oz	4	B
	Decathlon 20 WP	cyfluthrin	1/4 tsp	1.9 oz		K
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	1 - 2 lb		J
	PT 1500 Knox-Out 1 A	diazinon	*	*		J
	Vapona	dichlorvos	*	*		J
	Thiodan 24.2 EC	endosulfan	2 tsp	2 pt	24	E
	Thiodan 50 WP	endosulfan	1 tbsp	1 lb	24	E
	Tame 30 EC	fenpropathrin	2/3 tsp	10 2/3 oz		K
	Mavrik 22.3 F	fluvalinate	1/8 - 5/8 tsp	2 - 10 oz		K
	UltraFine 98.8 EC	horticultural oil	2 1/2 - 5 tbsp	1 - 2 gal	4	H
	Sun Spray 98.8 EC	horticultural oil	2 1/2 - 5 tbsp	1 - 2 gal	4	H

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Cyclamen Mite	Thiodan 24.2 EC	endosulfan	2 tsp	2 pt	24	E
	Thiodan 25 WP	endosulfan	2 tbsp	2 lb	24	E
	Thiodan Smoke Gen	endosulfan	*	*	-	E
	Hot Water (115oF)	-	-	-	-	-
Fungus Gnats	Azatin XL 3 EC	azadirachtin	1/2 tsp	8 fl oz	4	B
	Gnatrol 6 AS	<i>Bacillus thuringiensis</i> H-14	1 - 8 tsp	1 - 8 pt	4	B
	Gnatrol 12 AS	<i>Bacillus thuringiensis</i> H-14	1/2 - 4 tsp	1/2 - 4 pt	4	B
	Talstar 10 WP	bifenthrin	1 1/4 - 5 3/4 tsp	6.4 - 32 oz	-	K
	Talstar 7.9 F	bifenthrin	1/2 - 2 1/2 tsp	2 - 10 fl oz	-	K
	PT 1800 Attain 0.4 A	bifenthrin	*	*	-	K
	DuraGuard 20 ME	chlorpyrifos	1/2 - 1 tbsp	1 1/2 - 3 pt	-	J
	Decathlon 20 WP	cyfluthrin	1/5 tsp	1.3 oz	-	K
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	3 - 6 pt	-	J
	PT 1500 Knox-Out 1 A	diazinon	*	*	-	J
	Adept 25 WSP	diflubenzuron		2 packets	12	A
	Precision 25 WP	fenoxycarb	1/2 - 2/3 tsp	4 oz	-	C
	Enstar II 65.1 EC	kinoprene		5 - 10 fl oz	-	I
	Mesuroil 75 WP	methiocarb	1 - 2 tsp	1/2 - 1 lb	24	C
	Astro 36.8 EC	permethrin	1/4 - 1/2 tsp	4 - 8 fl oz	24	K
	Pyrenone 6 EC	pyrethrins	1/8 - 1 1/2 tsp	2 - 12 fl oz	-	K
	PT 1100 Pyrethrum 0.5 A	pyrethrins	*	*	-	K
	PT 1600 X-clude 0.3 A	pyrethrins	*	*	-	K
	PT 170 X-clude 1.1 L	pyrethrins	1 tbsp - 2 fl ozz	3 - 6 pt	-	K
	Distance 11.2 EC	pyriproxyfen	1/3 - 2/3 tsp	6 - 12 fl oz	12	M
	Resmethrin 24.3 EC	pyrethrins	1 tsp	1 pt	-	K
	Resmethrin 1 A	pyrethrins	*	*	-	K
	Olympic Insecticidal	soap	2 1/2 - 5 oz.		-	N

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Leafminer	Avid 2 EC	abamectin B	1/2 tsp	8 oz	-	G
	PT 1300 A	acephate	*	*	-	J
	Azatin XL 3 EC	azadirachtin	2/3 - 1 tsp	10 - 16 fl oz	4	B
	Dycarb 76 WP	bendicarb	7 tsp	2 lb 7 oz	-	C
	Ficam 76 WP	bendicarb	7 tsp	2 lb 7 oz	-	C
	Turcam 76 WP	bendicarb	7 tsp	2 lb 7 oz	-	C
	Talstar 10 WP	befenthrin	1 - 5 tsp	6.4 - 32 oz	-	K
	DuraGuard 20 ME	chlorpyrifos	1/2 - 1 tbsp	1 1/2 - 3 pt	12	J
	Citation 75 WP	cyromazine		2.7 oz	-	P
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	3 - 6 pt	-	J
	Vapona Smoke	dichlorvos	*	*	-	J
	Malathion 57 EC	malathion	2 tsp	2 pt	-	-
	Pramex 13.3 EC	permethrin	1 - 3 tsp	1 - 3 pt	-	K
	Astro 36.8 EC	permethrin	*	*	24	K
Mealybug	Orthene T & O 75 SP	acephate	1 - 2 tsp	1/3 - 2/3 lb	-	J
	PT 1300 3 A	acephate	*	*	-	J
	Azatin XL 3 EC	azadirachtin	2/3 - 1 tsp	10 - 16 fl oz	4	B
	BotaniGard 22 WP	Beauveria bassiana	2 tsp	1 lb	12	B
	BotaniGard 11.3 EC	Beauveria bassiana	1 - 2 tsp	1 pt - 1 qt	12	B
	Dycarb 76 WP	bendicarb	3/4 tsp	5 1/2 oz	-	C
	Ficam 76 WP	bendicarb	3/4 tsp	5 1/2 oz	-	C
	Turcam 76 WP	bendicarb	3/4 tsp	5 1/2 oz	-	C
	Talstar 10 WP	befenthrin	1 1/4 - 5 3/4 tsp	6.4 - 32 oz	-	K
	Talstar 7.9 F	befenthrin	1/2 - 2.4 tsp	2 - 10 fl oz	-	K
	PT 1800 Attain 0.5 A	befenthrin	*	*	-	K
	Duraguard 20 ME	chloryrifos	1/2 - 1 tbsp	1 1/2 - 3 pt.	12	J

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Mealy Bug (cont.)	Decathlon 20 WP	cyfluthrin	1/4 tsp	1.9 oz	-	K
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	1 - 2 lb	-	J
	PT 1500 Knox- Out 1 A	diazinon	*	*	-	J
	Vapona 5 A	dichlorvos	*	*	-	J
	Vapona 81 EC	dichlorvos	•	*	-	J
	Tame 30 EC	fenpropathrin	1 tsp	16 fl oz	-	K
	Mavrik 22.3 F	fluvalinate	1/8 - 5/8 tsp	2 - 10 oz	-	K
	UltraFine 98.8 EC	horticultural oil	2 1/2 - 5 tbsp	1 - 2 gal	4	H
	Sun Spray 98.8 EC	horticultural oil	2 1/2 - 5 tbsp	1 - 2 gal	4	H
	Marathon 1 G	imidacloprid	*	*	12	F
	Marathon 60 WP	imidacloprid	•	*	12	F
	Enstar II 65.1 EC	kinoprene	1/2 - 2/3 tsp	5 - 10 fl oz	-	I
	Topcide 10 WSP	lambda- cyhallothrin	*	2 - 4 packets	24	K
	Malathion 25 WP	malathion	2 tsp	40 oz	-	-
	Malathion 57 EC	malathion	2 tsp	2 pt	-	-
	Dibrom 60 EC	naled	*	*	-	-
	Astro 36.8 EC	permethrin	1/4 - 1/2 tsp	4 - 8 oz	24	K
	Pyrenone 6 EC	pyrethrins	1/8 - 1 1/2 tsp	2 - 12 fl oz	-	K
	PT 1100 Pyre- thrum 0.5 A	pyrethrins	*	•	-	K
	PT 1600 X-clude 0.3 A	pyrethrins	*	*	-	K
	PT 170 X-clude 1.1 L	pyrethrins	1 tbsp - 2 fl ozz	3 - 6 pt	-	K
	Resmethrin 24.3 EC	pyrethrins	1 tsp	1 pt	-	K
	Resmethrin 1 A	pyrethrins	*	*	-	K
	Olympic Insecti- cidal 25 EC	soap	2 1/2 - 5 oz.	-	-	N
	Olympic Insecti- cidal 49.5 EC	soap	2 1/2 oz	2 gal	12	N
	M-Pede 49 EC	soap	2 1/2 oz	7 1/2 qt	12	N
	Dithio	sulfotepp	*	*	-	-
	Plantfume 103 15A	sulfotepp	*	*	-	-

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Mite	Naturalis-O 7.16 EC	<i>Beauveria bassiana</i>	2 tsp - 2 tbsp	30 - 100 oz	4	B
	Cinnamite 30 EC	cinnamaldehyde	5 tsp	85 oz	4	B
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	3 - 6 pt		J
	Kelthane T/O 50 WP	dicofol	1 tbsp	1/2 - 1 lb	12	E
	Kelthane 35 35 WP	dicofol	1 1/2 tbsp	1 - 1 1/3 lb	12	E
	Tame 30 EC	fenpropathrin	1/2 - 1 tsp	8 - 16 oz		K
	Mavrik 22.3 F	fluvalinate	1/8 - 5/8 tsp	2 - 10 oz		K
	Mesuroi 75 WP	methiocarb	2 - 4 tsp	1 - 2 lb	24	C
	Olympic Insecticidal 25 EC	soap	2 1/2 - 5 oz.			N
	Olympic Insecticidal 49.5 EC	soap	2 1/2 oz	2 gal	12	N
Scale	Orthene T & O 75 SP	acephate	2 tsp	2/3 lb		J
	Azatin XL 3 EC	azadirachtin	1/2 tsp	8 fl oz	4	B
	Duraguard 20 ME	chlorpyrifos	1/2 - 1 tsp	1 1/2 - 3 pt	12	J
	Decathlon 20 WP	cyfluthrin	1/4 tsp	1.9 oz		K
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	3 - 6 pt		J
	Precision 25 WP	fenoxy carb	*	2 - 4 oz		C
	Sunspray Ultra-Fine Spray Oil 98.8 EC	oil	2 1/2 - 5 tbsp	1 - 2 gal	4	H
	Marathon 60 WP	imidacloprid	*	*	12	F
	Enstar II 65.1 EC	kinoprene	1/2 - 2/3 tsp	5 - 10 oz	4	I
	Topcide 10 WSP	lambda-cyhalothrin	*	1 - 4 packets	24	K
	X-clude 0.3 A	pyrethrins	*	*		K
	Olympic Insecticidal 25 EC	soap	2 1/2 - 5 oz.			N
	Olympic Insecticidal 49.5 EC	soap	2 1/2 oz	2 gal	12	N
	M-Pede 49 EC	soap	2 1/2 oz	7 1/2 qt	12	N

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Shore Fly	Azatin XL 3 EC	azadirachtin	2/3 - 1 tsp	10 - 16 oz	4	B
	Adept 25 WSP	diflubenzuron	*	2 packets	12	A
	Precision 25 WP	fenoxycarb	*	4 oz		C
	Distance 11.2 EC	pyriproxyfen	1/3 - 2/3 tsp	6 - 12 oz	12	M
Sweet Potato Whitefly	Azatin XL 3 EC	azadirachtin	2/3 - 1 tsp	10 - 16 oz	4	B
	Tame 30 EC	fenpropathrin	*	1 2/3 oz		K
	Distance 11.2 EC	pyriproxyfen	1/3 - 2/3 tsp	6 - 12 oz	12	M
Spider Mite	Avid 2 EC	abamectin	1/4 tsp	4 oz		G
	Talstar 10 WP	befenthrin	1 - 5 tsp	6.4 - 32 oz		K
	Talstar 7.9 F	befenthrin	1/2 - 2.4 tsp	2 - 10 fl oz		K
	PT 1800 Attain 0.5 A	befenthrin	•	•		K
	Duraguard 20 ME	chloryrifos	1/2 - 1 tbsp	1 1/2 - 3 pt.	12	J
	Kelthane T/O 50 WP	dicofol	1 tbsp	1/2 - 1 lb	12	E
	Kelthane 35 35 WP	dicofol	1 1/2 tbsp	1 - 1 1/3 lb	12	E
	Pentac 50 WP	dienochlor	1 tsp	8 oz		?
	Pentac 38 F	dienochlor	1/2 tsp	8 fl oz		?
	Mavrik P 22.3 F	fluvalinate	1/8 - 5/8 tsp	2 - 10 fl oz		K
	Ultra Fine Sun Spray 98.8 EC	oil	2 1/2 - 5 tbsp	1 - 2 gal	4	H
	Topcide 10 WSP	lambda-cyhalothrin	•	2 - 4 packets	24	K
PT 1700 1 A	methiocarb	*	*		C	
Dibrom 58 EC	naled	*	•	24	-	
M-Pede 49 EC	soap		2 1/2 oz	7 1/2 qt	12	N
Olympic Insecticidal 49.5 EC	soap		2 1/2 oz	2 gal	12	N

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Thrips	Orthene T & O 75 SP	acephate	2 tsp	2/3 lb		J
	PT 1300 3 A	acephate	*	*		J
	Azatin XL 3 EC	azadirachtin	3/4 - 1 tsp	12 - 16 oz	4	B
	Naturalis-O 7.16 EC	<i>Beauveria bassiana</i>	2 tsp - 2 tbsp	30 - 100 oz	4	B
	Botanigard 22 WP	<i>Beauveria bassiana</i>	2 tsp	1 lb	12	B
	Botanigard 11.3 EC	<i>Beauveria bassiana</i>	1 - 2 tsp	1 pt - 1 qt	12	B
	Carzol 92 SP	formetanate hydrochloride	1 tsp	8 oz	24	-
	Dycarb 76 WP	bendicarb	1 1/2 tsp	12 - 20 oz		C
	Ficam 76 WP	bendicarb	1 1/2 tsp	12 - 20 oz		C
	Turcam 76 WP	bendicarb	1 1/2 tsp	12 - 20 oz		C
	Talstar 10 WP	befenthrin	1 1/2 - 5 tsp	9.6 - 32 oz		K
	Duraguard 20 ME	chlorpyrifos	1/2 - 1 tsp	1 1/2 - 3 pt	12	J
	Decathlon 20 WP	cyfluthrin	1/4 tsp	1.9 oz		K
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	3 - 6 pt		J
	PT 1500 Knox-Out 1 A	diazinon	*	•		J
	Topcide 10 WSP	lambda-cyhalothrin	•	1 - 4 packets	24	K
	Pyrenone 6 EC	pyrethrins	1/8 - 1 1/2 tsp	2 - 12 fl oz		K
	Resmethrin 24.3 EC	pyrethrins	1 tsp	1 pt		K
	Mesuroil 75 WP	methiocarb	2 - 4 tsp	1/2 - 1 lb	24	C
Two-Spotted Spider Mite	Tame 30 EC	acephate	2/3 tsp	8-16 fl oz		J
	Mavrik 22.3 F	fluvalinate	3/8 tsp	5 oz		K
	Sanmite 75 WP	pyridaben		2 - 4 oz	12	L
	Ornamite 30 WP	propargite	1 tsp	1 lb		?

Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Whitefly	Orthene T & O 75 SP	acephate	1 - 2 tsp	1/3 - 2/3 lb		J
	PT 1300 3 A	acephate	*	*		J
	Azatin XL 3 EC	azadirachtin	2/3 - 1 tsp	10 - 16 oz		B
	Naturalis-O 7.16 EC	<i>Beauveria bassiana</i>	2 tsp - 2 tbsp	30 - 100 oz	4	B
	Botanigard 22 WP	<i>Beauveria bassiana</i>	2 tsp	1 lb	12	B
	Botanigard 11.3 EC	<i>Beauveria bassiana</i>	1 - 2 tsp	1 pt - 1 qt	12	B
	Dycarb 76 WP	bendicarb	3/4 tsp	5 1/2 oz		C
	Ficam 76 WP	bendicarb	3/4 tsp	5 1/2 oz		C
	Turcam 76 WP	bendicarb	3/4 tsp	5 1/2 oz		C
	Talstar 10 WP	befenthrin	1 1/4 - 5 3/4 tsp	6.4 - 32 oz		K
	Talstar 7.9 F	befenthrin	1/2 - 2 1/2 tsp	2 - 10 fl oz		K
	PT 1800 Attain 0.5 A	befenthrin	*	*		K
	Decathlon 20 WP	cyfluthrin	1/4 tsp	1.9 oz		K
	Knox-Out 23 EC	diazinon	1 - 2 tbsp	3 - 6 pt		J
	PT 1500 Knox-Out 1 A	diazinon	*	*		J
	Vapona	dichlorvos	*	*		?
	Adept 25 WSP	diflubenzuron		4 - 8 packets	12	A
	Thiodan 24.2 EC	endosulfan	2 tsp	2 pt	24	E
	Thiodan 50 WP	endosulfan	1 tbsp	1 lb	24	E
	PT 1200, Preclude 0.6 A	fenoxycarb	*	*		C
	Precision 25 WP	fenoxycarb		2 - 4 oz		C
	Tame 30 EC	fenpropathrin	2/3 tsp	10 2/3 oz		K
	Mavrik 22.3 F	fluvalinate	1/8 - 5/8 tsp	2 - 10 oz		K
	Sun Spray 98.8 EC	horticultural oil	2 1/2 - 5 tbsp	1 - 2 gal	4	H
	Marathon 1G	imidacloprid	*	*	12	F
	Marathon 60 WP	imidacloprid	*	*	12	F
	Enstar II 65.1 EC	kinoprene	1/2 - 2/3 tsp	5 - 10 oz		I
	Topcide 10 WSP	lambda-cyhalothrin	*	2 - 4 packets	24	K
	PT 1700 1 A	methiocarb	*	*		C



Pest	Trade Name	Chemical Name	Rate/Gallon	Rate/100 Gallon	REI	Olympic Class
Whitefly (cont.)	Dibrom 60 EC	naled	*	*		-
	Astro 36.8 EC	permethrin	1/4 - 1/2 tsp	4 - 8 oz	24	K
	Pyrenone 6 EC	pyrethrins	1/8 - 1 1/2 tsp	2 - 12 fl oz		K
	PT 1100 Pyrethrum 0.5 A	pyrethrins	*	*		K
	PT 1600 X-clude 0.3 A	pyrethrins	•	•		K
	PT 170 X-clude 1.1 L	pyrethrins	1 tbsp - 2 fl oz	3 - 6 pt		K
	Sanmite 75 WP	pyridaben		4 - 6 oz	12	L
	Distance 11.2 EC	pyriproxyfen	1/3 - 2/3 tsp	6 - 12 oz	12	M
	Resmethrin 24.3 EC	pyrethrins	1 tsp	1 pt		K
	Resmethrin 1 A	pyrethrins	•	*		K
	Olympic Insecticidal 25 EC	soap	2 1/2 - 5 oz.			N
	Olympic Insecticidal 49.5 EC	soap	2 1/2 oz	2 gal	12	N
	M-Pede 49 EC	soap	2 1/2 oz	7 1/2 qt	12	N
	Dithio	sulfotepp	*	*		-
	Plantfume 103 15A	sulfotepp	*	*		-

### *Spring greenhouse tour planned for southwest metro*

A tour of spring bedding plant production will be held in the southwest part of the Twin Cities metro region on March 20. Members of the MNLA Commercial Flower Growers Committee are organizing the event. Watch the Bulletin, *MNLA News*, the Flower Growers Fax and your mail for more information.

A fall tour of poinsettia production was held on Nov. 20. About 35 MNLA flower grower members visited Linder's (Lake Elmo) and Gerten's (Inver Grove Heights)