

THRIPS MANAGEMENT PROGRAM FOR ORNAMENTAL HORTICULTURE

This document presents a program to manage thrips including Western Flower Thrips (*Frankliniella occidentalis*) and Chilli Thrips (*Scirtothrips dorsalis*). This program does not recommend insecticide applications when thrips are first detected. However, it does outline steps to manage and maintain thrips populations throughout initial propagation and growth stages at levels that allow the final plant material to be shipped. Growers should apply insecticides when scouting reports identify population density levels where experience and/or extension personnel dictate action be taken. These densities would depend on many factors including the crop, source(s) of infestation, history of viral infection, and environmental conditions.

Western flower thrips vector impatiens necrotic spot virus (INSV) and tomato spotted wilt virus (TSWV) in less than 30 minutes during feeding. Because of the potential to vector viral diseases, it is important to practice good scouting, sanitation, and exclusion practices wherever possible. Check with your local extension specialist for the latest information associated with these practices.

Thrips Management

Sanitation. Remove weeds, old plant debris, and growing medium from within and around the greenhouse. Eliminate old stock plants as these are a source of thrips and viruses. Removing old flowers may reduce the number of WFT adults and eggs. Place flowers into a sealed bag or container and dispose of immediately.

Exclusion. Screen greenhouse openings such as vents and sidewalls with the appropriate screen size (<0.88 mm) to exclude adult thrips from entering the greenhouse. Airflow may be obstructed with the use of screening containing small pore sizes so the screened surface area must be increased to compensate. Check with your local extension specialist about proper screen sizing.

Chemical Control. No insecticide will provide complete control of thrips. It is important to initiate management strategies before thrips populations increase to moderate or

Key for Suggested Thrips Applications

1. Plants are susceptible to virus
 - a. Yes 2
 - b. No 3
2. Virus is present or has been present
 - a. Yes Program A
 - b. No 3
3. Thrips are present
 - a. Yes 4
 - b. No Monitor Plants Closely
4. Plants are ready to be shipped
 - a. Yes 5
 - b. No 6
5. Plants are heavily infested
 - a. Yes Program A
 - b. No Program B
6. Plants are heavily infested
 - a. Yes Program A
 - b. No 7
7. Biological controls are being used
 - a. Yes 8
 - b. No Program B
8. Biological controls have been released
 - a. Yes Program C
 - b. No Program D

high levels. Reapply as needed based on label requirements. Use the shortest labeled interval when pest pressure is high and temperatures are warm. Insecticides should be rotated by changing modes of action with each treatment or at most with each generation of thrips unless the label indicates otherwise. Modes of action are included on the table found on pg. 2.

Biological Control. Several biological control agents (BCA) are available for managing thrips, including predators (i.e. *Neoseiulus* or *Amblyseius* spp., *Orius* spp. and *Hypoaspis* mites), nematodes (*Steinernema feltiae*) and entomopathogenic fungi (i.e. *Beauveria bassiana*). The key to using biological control against WFT is to release biological control agents early. Releases must be

initiated before thrips enter terminal or flower buds. Biological control agents will not control an existing high population of thrips before significant crop damage occurs.

Program A. Aggressive Treatment Program

Plants are virus hosts and thrips are present. Plants are ready to be shipped and thrips populations are present in high enough numbers to reduce crop marketability. Plants have thrips populations that need to be managed but the plants are not virus hosts.

Actions: Remove any plants expressing virus symptoms. Rotate insecticides with different IRAC classes. If after treatment, thrips populations are not reduced as expected, do not use that insecticide for at least one thrips generation.

Program B. Maintenance Treatment Program – not using biological control agents

Plants are virus hosts but they have no thrips. Plants are not virus hosts but have low thrips populations.

Actions: Same as Program A with applications only made when thrips populations exceed thresholds. If both viral symptoms and thrips are noticed during scouting, initiate aggressive treatment program.

Program C. Maintenance Treatment Program – using biological control agents

Plants are virus hosts but no thrips are present. Plants are not viral hosts but have low thrips populations.

Actions: Same as Program B except use insecticides that have minimal impact on biological control agents.

Program D. Maintenance Treatment Program – prior to introducing biological control agents

Plants are virus hosts but thrips are not present. Plants are not viral hosts but have low thrips populations.

Actions: Prepare to introduce biological control agents into Maintenance Treatment Program.

Thrips Management Program 2011. Potential Insecticide Choices (see note below)

Foliar Applied Insecticides (active ingredients)	IRAC Class	Registered Use Site(s)	Knock Down	Residual Control (days)	REI	Thrips Efficacy				Life Stage			Treatment Program			
						Western Flower	Chilli	***Gynaikothrips	Gladiolus	Immatures	Pupae	Adults	A	B	C	D
													Aggressive	Maintenance w/out biological	Maintenance with Biologicals	Maintenance prior to biologicals
Aria (flonicamid)	9c	G, N	M	7-14	12 h	P - E	P - E	P	P	x	?	x	?	B	C	D
Avid EC (abamectin) or generic	6	G, N, S	F	Contact	12 h	P - G	G - E	P	E	x	?	x	A	B	C **	D
Azatin XL, Ornazin, etc. (azadirachtin)	18B	G, N, S	S	7	4 h	P	?	P	P	x	?	?	?	?	C	D
BotaniGard (<i>Beauveria bassiana</i>)	M	G, I, N, S	M	3	4 h	P - E	?	P	?	x	x	?	?	B	C *	D
Conserve SC (spinosad)	5	G, N	F	5	4 h	P - E	E	P - G	E	x	?	x	A	B	C **	D
Flagship 25WG (thiamethoxam)	4A	G, L, N, S	F	?	12 h	P - E	E	G	E	?	?	?	A	B	?	?
Hachi-Hachi EC (tolfenpyrad)	21A	G	F	7-14	12h	F-E	G	?	E	x	?	x	A	B	NO	?
Mesurool 75WP (methiocarb)	1A	G, N	F	Contact	24 h	P - E	?	?	F	x	?	x	A	B	NO	?
M-Pede (potassium salts of fatty acids)	M	G, I, N	F	Contact	12 h	?	?	?	?	x	?	?	?	B	C **	D
Acephate 97 UP and generics	1B	G, N	F	7	24 h	?	?	P	G	?	?	?	A	B	NO	?
Overture 25 WP (pyridalyl)	Unknown	G	M	7-14	12 h	P - E	F	P	F	?	?	?	A	B	C	D
Pedestal (novaluron)	15	G, N, S	S	7-14	12 h	G	?	?	G	x	?	?	A	B	C **	D
Preclude-TR (fenoxycarb)	7B	G	S	7	12 h	?	?	?	?	x	?	?	?	B	?	?
Pylon 2SC (chlorfenapyr)	13	G	M	7	12 h	F - E	E	?	G	?	?	?	A	B	?	?
Safari 20SG (dinotefuran)	4A	G, N	M	7	12 h	P - G	G - E	E	G	?	?	?	A	B	?	?
Scimitar GC (lambda-cyhalothrin)	3	G, N, S	F	7	24 h	P	P	?	?	?	?	?	?	B	NO	NO
Talstar (bifenthrin) and generics	3	G, I, N	F	?	12 h	?	P - F	P - E	?	?	?	?	?	B	NO	NO
TriStar (acetamiprid)	4A	G, L, N, S	F	?	12 h	P - E	E	F	E	?	?	?	A	B	NO	D
Ultra pure oil, SuffOil-X, etc. (paraffinic oil)	M	G, N	F	Contact	4 h	G - E	?	?	?	x	x	x		B	C **	D

Registered Use Sites: G = Greenhouse; L = Lath House; I = Indoors; N = Nursery; S = Shade House

Knockdown: Fast (< 1 day), Medium (1-7 days), Slow (>7 days).

Efficacy: P = Poor (< 70% control); F = Fair (70% to 85% control); G = Good (85% to 95% control), E = Excellent (>95% control) on immatures and/or adults 1 to 3 weeks after first app.

* Results of efficacy trials have been variable for entomopathogens and impact on beneficial organisms is presumed to be less than that of traditional pesticide chemistries but the data are sparse.

** This insecticide is toxic to many BCA's but has a short residual and may be suitable for treating hot spots and re-introducing BCA's soon thereafter.

*** *Gynaikothrips sp.* produces galls making it very difficult to control them with contact insecticides.

Contributors in alphabetical order:

James Bethke	Graeme Murphy
Joe Chamberlin	Ron Oetting
Jeff Dobbs	Lance Osborne
Marla Faver	Cristi Palmer (editor)
Kevin Heinz	Mike Parrella
Richard Lindquist	Nancy Rechcigl
Scott Ludwig	Rick Yates (editor)
Cindy McKenzie	Raymond Cloyd

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