

# THRIPS MANAGEMENT PROGRAM FOR PLANTS FOR PLANTING<sup>1</sup>

<sup>1</sup>referred to in the rest of this document as “plants”

This document presents a program to manage thrips including but not limited to Western Flower Thrips (*Frankliniella occidentalis*) and Chilli Thrips (*Scirtothrips dorsalis*) on plants. This program does not require a pesticide application when the first thrips is detected. However, it does outline steps to manage and maintain thrips populations throughout the initial propagation and active growth stages at levels to enable complete control on final plant material being shipped. Growers should apply pesticides when scouting reports identify population densities at 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). Thrips can vector plant viruses in less than 30 minutes during feeding. Because of the potential to vector virus diseases, it is critical to practice good scouting, sanitation, and exclusion wherever possible. Check with your extension specialist for the latest information in these areas.

## 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.

**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 and as a result the screened surface area must be increased to compensate for this. Check with your extension specialist about proper screen sizing.

**Chemical Control.** No insecticide will provide complete control of thrips. It is important to detect and start

### Key for Suggested Thrips Applications

1. Plants are susceptible to virus of concern	
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 used	
a. Yes .....	8
b. No .....	Program B
8. Biological controls have been released	
a. Yes .....	Program C
b. No .....	Program D

management strategies before thrips populations have a chance to increase to moderate or high levels. Re-application intervals are determined in accordance with 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 natural enemies early. Releases must be initiated before thrips enter terminal or flower buds. Biological control agents will not control a large existing thrips population.

### **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 downgrade the crop.

Plants have a population of thrips that need to be managed but they aren't virus hosts.

**Actions:** Cull any plants expressing virus symptoms. Rotate among products of different IRAC classes in table below.

If after treatment, thrips population does not drop as expected, do not use that product for at least one thrips generation.

### **Program B. Maintenance Treatment Program – without biological controls**

Plants are virus hosts but they are without thrips. Plants are not virus hosts but have low populations.

**Actions:** Same as Program A with applications only when thrips populations exceed threshold levels.

If both virus symptoms and thrips are noticed during scouting, move to aggressive treatment program.

### **Program C. Maintenance Treatment Program – with biological control agents present in crop**

Plants are virus hosts but they are without thrips. Plants are not virus hosts but have low populations.

**Actions:** Same as Program B except utilizing products which don't impact biological control agents.

### **Program D. Maintenance Treatment Program – prior to biological control agent introduction**

Plants are virus hosts but they are without thrips. Plants are not virus hosts but have low populations.

**Actions:** Prepare for reintroducing biological controls into Maintenance Treatment Program.

## Thrips Management Program 2010 Potential Product Choices (see Note below)

Foliar Applied Products (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 Insecticide (flonicamid)	9c	G, N	M	7-14	12 h	P - E	P - E	P	P	x	?	x	?	B	C	D
Avid EC (abamectin)	6	G, N, S	F	Contact	12 h	P - G	G - E	P	E	x	?	x	A	B	C**	D
Azatin XL (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	?	?
Mesurool 75WP (methiocarb)	1A	G, N	F	Contact	24 h	P - E	?	?	F	x	?	x	A	B	?	?
MPEDE (potassium salts of fatty acids)	M	G, I, N	F	Contact	12 h	?	?	?	?	x	?	?	?	B	?	D
Orthene, Acephate 97 UP and generics	1B	G, N	F	7	24 h	?	?	P	G	?	?	?	A	B	?	?
Overture (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 (chlorfenapyr)	13	G	M	7	12 h	F - E	E	?	G	?	?	?	A	B	?	?
Safari SG (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	?	?
Talstar (bifenthrin)	3	G, I, N	F	?	12 h	?	P - F	P - E	?	?	?	?	?	B	?	?
TriStar (acetamiprid)	4A	G, L, N, S	F	?	12 h	P - E	E	F	E	?	?	?	A	B	?	D
Ultra pure oil (paraffinic oil)	M	G, N	F	Contact	4 h	?	?	?	?	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. produce galls making it very difficult to control them with contact insecticides.

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