Be on the lookout for spider mites on veg & fruit crops

by Celeste Welty, Extension Entomologist, 7/14/2018

Now that the weather has turned hot and dry, it is likely that spider mite infestations will be found in various crops. In some fields, the mite infestation is worst on a field edge by a dusty road. Because mites are tiny, they are often overlooked or misdiagnosed as a disease. Infested leaves have fine webbing on the leaf undersides. Tomato leaves damaged by spider mites usually have yellow blotches, while bean leaves show white stipples or pin-prick markings from mite feeding. Pumpkins can tolerate moderate levels of mites, but watermelons are more sensitive to injury from mite feeding. A simple method of diagnosing spider mites is to shake leaves over a piece of paper and look for moving specks that are visible to the naked eye. A closer look with a magnifier can show the tiny mites that are white, marked with two large dark spots on the middle of the body.

Mites can be suppressed by overhead irrigation. Mites have many natural enemies that kill them, such as specialized predatory mites or generalist lacewings, ladybugs, and pirate bugs, but these helpful predators are often killed by pesticides. Chemical intervention can be needed to keep the crop alive if spider mites are abundant. When a mite infestation is limited to field edges, infested fields should be scouted, and a miticide applied as a spot treatment to isolated infestations. Mite control is better when higher volumes of water are used; 25 gallons of water per acre is better than 10 gal/A. Several pesticides are registered for spider mite control; some are restricted use and some are for general use, as shown for vegetable crops in Table 1 and for hops and fruit crops in Table 2. At some locations, organophosphates are still effective for mite control, with Dimethoate being the best bet and MSR (Metasystox-R) as another choice. Dimethoate is an option for melons but is not allowed on squash or cucumbers; it has been a preferred product for mite control on soybeans. Dimethoate is prohibited from use on ornamental crops in high tunnels and greenhouses but is not prohibited from vegetable crops in high tunnels and greenhouses. Where organophosphates are not effective, Agri-Mek (abamectin) is generally the most effective product for mite control but it is a restricted-use product, while Acramite (bifenazate) and Oberon (spiromesifen) are nearly as good but are not restricted-use products. Although Brigade (bifenthrin) and Danitol (fenpropathrin) are labeled for spider mite control when used at the high end of the rate range, they are generally not as effective as the true miticides. Dicofol is an old miticide that is still effective at some sites, but does not perform well at sites where resistant populations have developed. Vydate (oxamyl) is a Restricted Use product that is registered for use on eggplant for mite control. On organic farms, insecticidal soap can be used for mite control but thorough coverage of the undersides of leaves is needed for good control.

Table 1. Summary of products for control of spider mites on specified vegetable crops.

Product name & common name	*Use*	*Pre-harvest interval, by crop*							
		Beans	*Melons*	*Cucum-bers*	*Squash, pump-kins*	*Tomato*	*Pepper*	*Egg-plant*	*Sweet corn*
Acramite 50WS (bifenazate)	general	3 days	3 days	3 days	3 days	3 days	3 days	3 days	not registered
Dimethoate 4EC (dimethoate)	general; not in green-house	0 days	3 days[a]	not registered	not registered	7 days[a]	0 days[a]	not registered	not registered
Dicofol 4E (dicofol)	general	21 days	not registered	2 days	2 days	2 days	2 days	not registered	not registered
Kanemite 15SC (acequinocyl)	general	7 days	1 day	not registered	not registered	1 day	1 day	1 day	not registered
Nealta 1.67SC (cyflumetofen)	general	not registered	not registered	not registered	not registered	3 days	not registered	not registered	not registered
Oberon 2SC (spiromesifen)	general	not registered	7 days	7 days	7 days	1 day	1 day	1 day	5 days
Onager (hexythiazox)	general	not registered	not registered	not registered	not registered	1 day (greenhouse)	1 day	1 day	not registered
Portal 0.4EC or **FujiMite** 5EC (fenpyroximate)	general	1 day	3 days	1 day	not registered	1 day	1 day	1 day	not registered
Zeal 72WSP (etoxazole)	general	not registered	7 days	7 days	7 days	not registered	7 days	7 days	not registered
Zeal 72WDG (etoxazole)	general	not registered	7 days	7 days	7 days	not registered	not registered	not registered	not registered
Agri-Mek 0.7 SC or 0.15EC (abamectin)	restricted	7 days	7 days	7 days	7 days	7 days[b]	7 days	7 days	7 days
MSR (Metasystox-R) 2EC (oxydemeton-methyl)	restricted	not registered	14 days	14 days	14 days	not registered	not registered	not registered	not registered
Vendex 50WP (fenbutatin-oxide)	restricted	not registered	not registered	not registered	not registered	not registered	not registered	3 days	not registered
Vydate L 2WSL (oxamyl)	restricted	not registered	1 day[a]	1 day[a]	1 day[a]	3 days[a]	7 days[a]	1 day	not registered

[a] Product registered for use on this crop but mites not on list of target pests for this crop, however mites listed as target pest on other crops.
[b] 7 days outdoors, or 1 day for commercial greenhouse tomatoes.

- Celeste Welty, Extension Entomologist, Ohio State University, 7/28/2016, revised 2/26/2018.

Table 2. Summary of products for control of spider mites on fruit crops and hops.

Product name & common name	*Mode of action group*	*Use*	*Pre-harvest interval, by crop*						
			Hops	*Straw-berry*	*Bramble s*	*Blue-berry*	*Grape*	*Apple*	*Peach*
Acramite 50WS (bifenazate)	20	general	14 days	1 day	1 day	not registered	14 days	7 days	3 days
Apollo (clofentezine)	10A	general	not registered	not registered	not registered	not registered	21 days	45 days	21 days
Dicofol 4E (dicofol)	unknown	general	7 days	2 days	not registered	not registered	7 days	7 days	not registered
Envidor (spirodiclofen)	23	general	14 days	not registered	not registered	not registered	14 days	7 days	7 days
Kanemite 15SC (acequinocyl)	20B	general	7 days	1 day	1 day	not registered	7 days	14 days	not registered
Movento (spirotetramat)	23	general	7 days	not registered	not registered	not registered	(7 days but suppression only)	(7 days but suppression only)	(7 days but suppression only)
Nealta (cyflumetofen)	25	general	not registered	1 day	not registered	not registered	14 days	7 days	not registered
Nexter 75WP or SC (pyridaben)	21A	general	not registered	1 d (75WP) 10 d (SC)	not registered	not registered	7 days	25 days	7 days
Onager (hexythiazox)	10A	general	not registered	not registered	not registered	not registered	7 days	28 days	7 days
Portal 0.4EC or **FujiMite** 5EC (fenpyroximate)	21A	general	15 days	1 day	not registered	not registered	14 days	14 days	7 days
Savey (hexythiazox)	10A	general	up to burr	3 days	3 days	not registered	not registered	28 days	28 days
Zeal 72WSP (etoxazole)	10B	general	7 days	1 day	0 days	not registered	14 days	14 days	7 days
Agri-Mek 0.7 SC or 0.15EC (abamectin[1])	6	restricted	28 days	3 days	7 days	not registered	28 days	28 days	21 days
MSR (Metasystox-R) 2EC (oxydemeton-methyl)	1B	restricted	not registered	not registered	not registered	not registered	non-bearing only	non-bearing only	non-bearing only
Omite 6E (propargite)	12C	restricted	14 days	not registered	non-bearing only	non-bearing only	not registered	not registered	not registered
Vendex 50WP (fenbutatin-oxide)	12B	restricted	not registered	1 day	not registered	not registered	28 days	14 days	14 days
Vydate L 2WSL (oxamyl)	1A	restricted	not registered	not registered	not registered	not registered	not registered	14 days	non-bearing only

[1] **Avid** is another brand name for abamectin.

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