

Fast Fonz Facts for 21 July 2018

I apologize for the length of this message and the attachments, but I am getting a lot of calls about insects. For those of you in the Thumb, note a special concern with the dry weather conditions & sucking pests. chris

ARMYWORM (pictures attached)

Isolated, but spectacular, armyworm infestations have been found in the western half of the state and the UP. There was an initial flight of moths into Michigan in late April/ early May. Not much came of that flight in either wheat or corn. There was a second unusual dump of moths in mid-June in the western half of Michigan, leading to infestations in isolated corn, sorghum, and hay fields. Many of the affected fields seem to have weed problems (thus attractive for egg laying). The reports I received are from Van Buren Co, further north to Isabella, Kalkaska, Montcalm, and Osceola Co's, plus the UP. Now that the larvae are 1-1.5 inches, eating a lot, and/ or marching across the road, people are suddenly taking notice. I attached a few picture of impressive defoliation by larvae. Most of us old-timers recall this type of feeding (especially back in the non-Bt corn days), but many younger people have not seen anything like it. Some have questioned the speed at which damage occurred. For many insects, 90-95% of what they consume is in their last stage. In their early stages, they are toddlers that don't eat much, thus outbreak levels of small larvae can be present in a field with few signs from the road. But in the final stage, the larvae are like voracious teenage boys, eating continuously and a lot. Corn plants can be reduced to stalks seemingly overnight, and damage is obvious at 55 mph. The lesson here is that most of these infestations were probably avoidable, with better weed control and timely scouting. When weed control is poor in an area, armyworms are attracted for egg laying. If there are no local pheromone traps, moth flight goes unnoticed. When fields are not scouted, wimpy 'toddler stage' larvae are missed, and they grow into harder-to-kill teenagers that do real damage.

THINGS that SUCK (miticide list attached)

Soybean aphids are generally low, a few fields here and there with visible numbers. Several small infestations that I found 2-3 weeks ago in the Thumb already are gone = eaten by other insects or parasitized.

Potato leafhopper adults and nymphs are in most crops now. No unusual concerns except for dry beans & alfalfa in dry areas like the Thumb. The impact of PLH feeding is worse under drought. The thresholds for PLH are good: dry beans = 1 PLH per trifoliate; alfalfa = 20 PLH in 100 sweeps for new growth, 50 PLH per 100 sweeps in 3-8 inch growth, and 1 per sweep in taller stands.

Over the last month I have had calls about **thrips** in the Thumb, where the weather remains persistently dry. [note that the word 'thrips' is both plural and singular. One thrips is called a thrips]. Thrips were first reported in corn in Michigan and Ontario, but they are also in beets and dry beans, especially in fields adjacent to harvested wheat fields. Thrips are tiny, torpedo-shaped insects that feed in a unique way. Instead of using two mandibles (i.e. chompers) like most chewing insects, the right mandible of a thrips is small and non-functional. The thrips uses its left mandible to cut into plant tissue, then it injects saliva and slurps up the plant juices from the damaged cell. This type of feeding is sometimes termed 'punch and suck', and it can be devastating. The punctured cells collapse or dry out. When a large number of thrips are present, leaves have silvery patches where many cells have died. Under the worst damage, leaves dry up and die. Thrips are normally a pest in limited situations, for example in hot, protected greenhouses. Although thrips are always present in field crops in Michigan, they are typically in very lower numbers, and in fact they are an important food source for some of the beneficial insects we depend on to control other pests. In an open field situation, they are simply kept in check by environmental conditions and predation. Thrips are such a rare issue in Midwestern field crops that there are few, if any, scouting guidelines, thresholds, or control recommendations available for various crops. I confess am struggling to provide guidance on thrips management. My best guess is to delay spraying for thrips unless or until the upper part of the plant (newer growth) is being affected by feeding. A change in current weather patterns - rainfall and higher humidity - would go a long way to reducing thrips and help plants recover from feeding.

Why be cautious about, or delay, spraying for thrips? My concern is with the current dry conditions in the Thumb. For example MSU weather stations in Fairgrove, Sandusky, and Pigeon recorded less than 2.5 inches of rain since June 1. Spraying thrips now might be the gateway to a **spider mite** outbreak in a few weeks, if it stays dry. An insecticide application will control thrips (at least for a time) but also kill beneficial insects that feed on both thrips and mites.

Something I haven't revealed yet – in addition to feeding on plants, thrips are PREDATORS of spider mites, poking into mite eggs and sucking out the juices. One of my colleagues in Texas, where spider mite routinely is a problem, views thrips as semi-beneficial. Before spraying thrips, it would be wise to think about how spraying thrips now will play out in the next few weeks if it stays dry. That spray might be better used against mites four weeks from now, or in a worse case scenario, might be responsible for flaring mites in the first place.

If you must for PLH in dry beans or if you don't believe me about thrips, at least choose the right product. Use something with a lower chance of flaring mites – dimethoate, orthene/ acephate, Lannate, Lorsban, bifenthrin. Check that your crop is on the label for that active ingredient. Get good coverage. Note the honey bee warnings on the label. Some insecticides, like dimethoate, have had previous issues with bee kills, and under drought conditions bees may be more likely to forage in field crops if they can't find other sources of nectar and pollen. I attached a miticide list for field crops, prepared back in 2016, just in case it is needed in the next few weeks.

WESTERN BEAN CUTWORM

Western bean is flying, with a couple of high catch locations in St. Joe and Branch Counties, and very high trap catches to the east in SW Ontario. See the current map at <https://www.cornpest.ca/wbc-trap-network/interactive-map-of-weekly-wbc-trap-catches/>. Thus far, however, few egg masses have been found in my scouting and anecdotal reports from field scouts also show low/no infestation. Under dry conditions it is harder for WBC females to survive and make batches of eggs. Irrigated fields might be attractive tho.

If you are trapping WBC, remember to add your trap locations and weekly data to the regional trapping network web site at <https://www.cornpest.ca/wbc-trap-network/>.

The Canadian Corn Pest Coalition funds the site so it is FREE for trappers in Ontario, Quebec, and Michigan. The site uses our data to generate a weekly interactive map for the region and provide a visual snap shot of WBC population levels and movement. But the mapping only works if people contribute trap catches on a weekly basis (ideally entered on Monday). Michigan data is sparse so far, although I know that many people are trapping. Consider taking the time to create an account and enter numbers to flesh out the state map. If you have multiple locations that you trap weekly, but don't have time to enter data, give me shout at difonzo@msu.edu. Maybe we can bargain to have my student enter the data for you.

Dr. Chris DiFonzo
Field Crops Entomologist
Michigan State University
Department of Entomology
288 Farm Lane, Rm 243 Natural Science
East Lansing, MI 48824
517-353-5328

Cheat Sheet for Spider Mite Spraying in Michigan field crops

CDD #46 2016

Chris DiFonzo, Field Crops Entomologist, Michigan State University, East Lansing

information current as of August 2016

<i>information current as of August 2016</i>				Rate per acre and preharvest interval (PHI), by Crop			
Active (group)	RUP	Application Notes	Formulation(s)	corn*	dry bean	soybean	sugarbeet
abamectin (avermectin)	yes	For best results, apply when mites are first observed. "To avoid illegal residues, must be mixed with a non-ionic activator type wetting, spreading, &/or penetrating spray adjuvant" approved for the crop.	Agri-Mek SC		1.75-3.5 oz (7 days)	1.75-3.5 oz (28 days)	
bifenazate	no	Toxic to bees. Provides quick knockdown & long residual control. Relatively non-toxic to beneficials.	Acramite 4SC		16-24 oz PHI - 7 days		
bifenthrin (pyrethroid)	yes	Highly toxic to bees; do not apply when bees are visiting treated area. Apply when colonies first form prior to leaf damage, before mites disperse in canopy. Under heat/ drought stress, a higher rate or addition of 1 pint/ ac dimethoate can improve control.	Brigade 2EC (= Bifen2Ag Gold, Bifenthrin 2EC, Bifen-ture EC, Fanfare, Sniper, Tailgunner, Tundra EC)	5.12-6.4 oz (30 days)	5.12-6.4 oz (14 days)	5.12-6.4 oz (18 days)	
bifenthrin + cypermethrin (pyrethroids)	yes	Highly toxic to bees; do not apply when bees are visiting treated area.	Hero Hero EW	10.3 oz (Hero) 11.2 oz (Hero EW) (30 days grain, 60 days forage)	10.3 oz (Hero) 11.2 oz (Hero EW) (21 days)	10.3 oz (Hero) 11.2 oz (Hero EW) (21 days)	
bifenthrin + imidacloprid (pyrethroid + neonic)	yes	Highly toxic to bees; do not apply when bees are visiting treated area.	Skyraider		5.12-5.6 oz (14 days)	5.12-6.0 oz (21 days)	
bifenthrin + chlorpyrifos (pyrethroid+OP)	yes	Highly toxic to bees. Apply when colonies first form prior to leaf damage, before mites disperse in canopy. Higher rate may be needed under drought conditions.	Match-UP Tundra Supreme	13.5-16.8 oz (30 days)	Match-Up only 6.6-16.4 oz (14 days)	13.5-16.4 oz (28 days)	
chlorpyrifos (OP)	yes	If large number of eggs are present at time of spray scout treated area in 3-5 days. If new nymphs are present, may need a follow-up application of a non-chlorpyrifos mite product. For sugarbeet, do not tank mix w/ Quadris or Headline fungicides.	Lorsban 4E & Advanced (= Govern 4E, Nufos 4E, Hatchet, Vulcan, Warhawk, Whirl-wind, Yuma 4E,)			½- 1 pint (28 days)	1 pint (30 days)
chlorpyrifos + cyhalothrin (OP+pyrethroid)	yes	Highly toxic to bees; do not apply when bees are visiting treated area.	Cobalt Cobalt Advanced Bolton			13-26 OZ (Cobalt) 11-26 OZ (Advan) 9-18 OZ (Bolton) (30 days)	
dimethoate (OP)	no	Highly toxic to bees; bee kill complaints have occurred in MI involving this chemistry. "Do not apply of bee are visiting area to be treated" (crop or weeds)	Dimate 4E Dimethoate 400, 4E, or 4EC	0.66 -1 pint 28 days grain, 14 days forage)	½-1 pint (0 days)	1 pint (21 days)	

Active (group)	RUP	Application Notes	Formulation(s)	Rate per acre and preharvest interval (PHI), by Crop			
				corn*	dry bean	soybean	sugarbeet
etoxazole (mite growth inhibitor)	no	Mite growth inhibitor. Kills mite eggs & juvenile, not adults. Apply early as populations build. Does not disrupt beneficial insects.	Zeal WDG Zeal SC	1-3 oz (WDG) 2-6 oz (SC) (21 days)		2-6 oz (SC) (do not apply after R5 stage)	
hexythiazox (mite growth inhibitor)	no	Mite growth inhibitor. Kills mite eggs & juvenile, not adults, but exposed females produce nonviable eggs. Does not disrupt beneficial insects.	Onager	10-24 oz (30 days)			
naled (OP)	yes	Highly toxic to bees. Short residual. Do not apply when air temps are >90°F (phytotoxicity can occur)	Dibrom 8E		1 pint (1 day)		1 pint (2 days)
propargite (ATP inhibitor)	yes	'Danger' signal word. Corrosive (skin irritation, irreversible eye damage). Best results obtained by treating early before mite damage occurs. Must be applied to dry leaves. 13 day reentry interval.	Comite	32-48 oz (30 days)			
spiromesifen (lipid biosynthesis inhibitor)	no	Active on all mite stages, but juveniles more susceptible than adults. Apply as population begins to build. Adjuvant may improve coverage & control.	Oberon 2SC	5.7-16 oz (30 days grain, 5 silage/forage)			

*For a mite rating scale for corn, see page 16 in the Texas A&M Agrilife Corn Extension bulletin at <http://agrilife.org/lubbock/files/2016/02/ENTO-049.pdf>

READ THESE TIPS BEFORE SPRAYING

- ✓ **Coverage is important.** Use the highest gpa practical. A ground application is usually better than air.
- ✓ **Read the label for the spectrum of activity.** Most insecticides kill mites, not eggs, so newly-hatched mites can recolonize quickly if there is no residual. In contrast, mite growth regulators kill eggs & nymphs, but not adults - they act slowly to reduce the population.
- ✓ **To delay resistance,** rotate modes of action. Never apply the same or a similar product twice in a season.
- ✓ **Most conventional insecticides are highly toxic to honey bees.** To avoid a bee kill incident / investigation by MDARD:
 - Check labels for specific new warnings and guidelines about application to crops in bloom.
 - Know the neighborhood - Who are the local beekeepers? Are there any bee yards or bee-pollinated crops nearby?
 - Talk to beekeepers in the area; they may be able to cover or move hives if they know about spraying ahead of time.
 - Check the Drift Watch web site for locations of apiaries in the state (<https://mi.driftwatch.org/map>).
 - Spray in the evening instead of during the day to avoid exposing foraging bees.
- ✓ Note that **preharvest intervals** range from 0 – 60 days depending on the crop x insecticide



Central Michigan corn field stripped by armyworm (from Paul Gross, MSUE Isabella Co)



Similar situation in sorghum; below, hungry larvae leaving a field. (from Casey Carr, ABC Consultants)



I believe this exceeds threshold! (pic taken by Casey Carr, ABC Consultants)

