Small Fruit Insecticide Update

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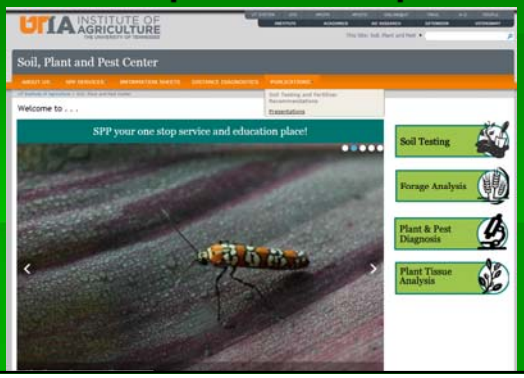


Final cancellation order for sulfoxaflor

- "As part of this recent action, EPA has issued an existing stocks provision allowing growers to use sulfoxaflor-containing products they have in hand consistent with directions on the pre-existing product label."

https://www.dowagro.com/en-us/newsroom/pressreleases/2015/11/sulfox-epa-decision#.VqZN5_krLcs

Closer SC (sulfoxaflor)

- Existing stocks labeled for use on listed sucking insects on pome fruits, strawberry, stone fruit, small fruit vine climbing (except fuzzy kiwifruit) and low growing berry, and tree nuts

Sivanto 200 SL

- Sivanto 200 SL (flupyradifurone) 1.67 lb ai/gallon or 17.09% (Bayer CropScience LP)
- IRAC Mode of Action Group 4D (Nicotinic acetylcholine receptor competitive modulator) – butenolides chemical subgroup

Sivanto 200 SL

- Bushberry – foliar application
- For aphids, blueberry thrips, and blueberry maggot
- PHI – 3 days
- Minimum interval between applications – 7 days

Sivanto 200 SL

- Other crops on label include:
- Leafy vegetables (except Brassica)
- Legume vegetables (succulent or dried)
- **Low growing berry (lowbush blueberry, strawberry and others)**
- Pome fruit
- Root vegetables
- **Small fruit vine (except fuzzy kiwifruit) – grape, gooseberry and others**
- Tuberous and corm vegetables
- Tree nut

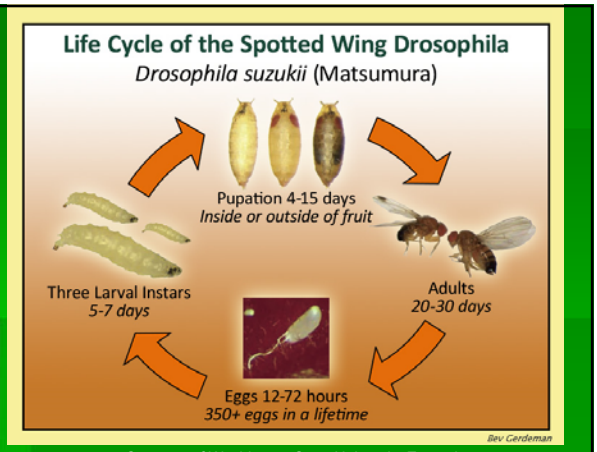
Sivanto Prime

- Sivanto Prime will be replacing Sivanto 200 SL
- It is essentially the same product and the result of a new global marketing initiative by Bayer CropScience

Sivanto Prime Honey Bee-Safe Profile

- Low intrinsic toxicity to adult and immature stages of honey bees
- No adverse effects on foraging honey bees, their foraging activity, brood and colony development, hive vitality and honey bee health or on over-wintering colonies when used according to label instructions

http://www.sivanto.com/sivanto-documents.html

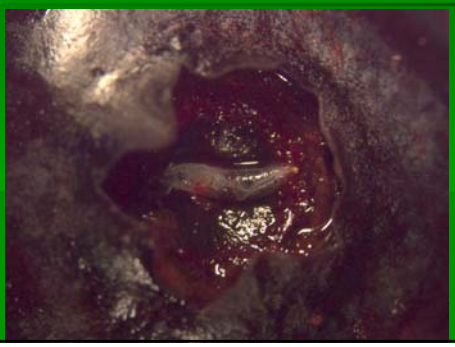


Courtesy of Washington State University Extension

Spotted wing drosophila oviposition on blueberry

Spotted wing drosophila lava and damaged blueberry

Spotted wing drosophila larva in calyx of blueberry



Making a Spotted Wing Drosophila Trap

- Use a 32 oz clear plastic cup with lid
- Punch, drill or use soldering iron to make 12 holes (3/16")
- Knot ends of a nylon cord in two of the holes like a bucket handle
- Make a mixture of 4 tablespoons sugar, 2 tablespoons yeast, and 32 oz water (single trap, use 2/3 Tbsp sugar, 1/3 Tbsp yeast, 5.25 water)
- http://ncsmallfruitipm.blogspot.com/search/label/SWD
- Add 5.25 fl oz to your clear plastic cup, refrigerate the rest
- Mark fluid level with magic marker on outside of cup
- Add 1-2 drops of unscented dish soap to break surface tension of solution
- Add lid and deploy in the field
- http://ncsmallfruitsipm.blogspot.com/2011/06/do-it-yourself-spotted-wing-drosophila.html

Information courtesy of H. Burrack, NCSU

Commercial Lures for SWD

- Trece and Scentry lures are just as effective as sugar, water and yeast but easier to use

Spotted Wing Drosophila (SWD) in Wine Grapes and Bunch Grapes

- SWD is not as serious a pest on grapes with most damage being seen on soft or damaged fruit
- Wine grapes can likely sustain greater injury than fresh market grapes

Spotted Wing Drosophila (SWD) in Wine Grapes and Bunch Grapes

- While risk begins at veraison, risk increases significantly when fruit reach 15 degrees Brix
- In North Carolina, not much spraying is being done for SWD on wine and bunch grapes

SWD and Strawberries

- Even though some SWD can be found in strawberries in May and June, it is not a big enough problem for most growers to do much spraying

Southern Highbush Blueberries and SWD

- In North Carolina, growers are not detecting SWD in southern highbush blueberries
- SWD usually doesn't show up in damaging numbers until later in rabbiteye blueberry season (early July and later)

Spotted Wing Drosophila Control for Commercial Fruit Production

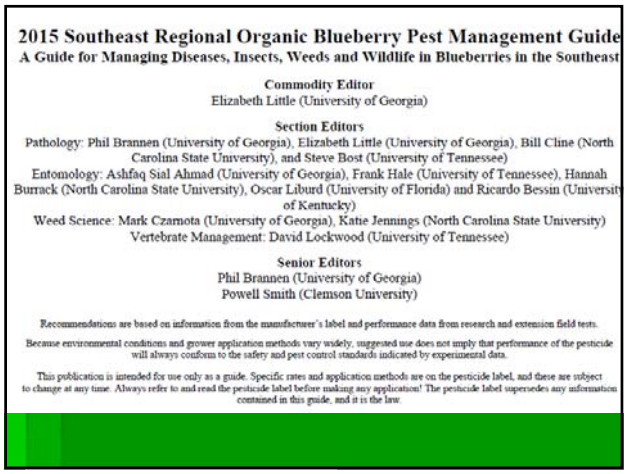
Pyrethroid, spinosyn, organophosphate, & the anthranilic diamide class (Group 28 cyazypyr {DuPont Exeril 0.83 SE} for blueberries only) insecticides effective against SWD with weekly treatments starting at ripening (fruit coloring) to as close to harvest as the label allows

Rotation of insecticides with different Modes of Action

Efficacy reduced in rainy conditions so reapply in the event of rain

Sanitation, harvest and fruit destruction, may reduce infestation

H. Burrack, NCSU



2015 Southeast Regional Organic Blueberry Pest Management Guide

A Guide for Managing Diseases, Insects, Weeds and Wildlife in Blueberries in the Southeast

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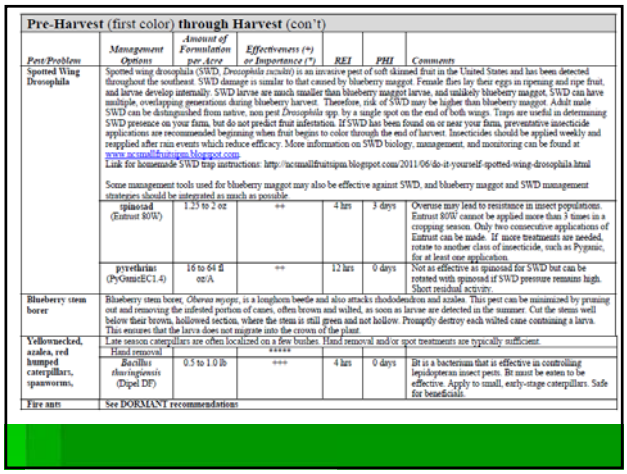
Recommendations are based on information from the manufacturer's label and performance data from research and extension field tests.

Because environmental conditions and grower application methods vary widely, suggested use does not imply that performance of the pesticide will always conform to the safety and pest control standards indicated by experimental data.

This publication is intended for use only as a guide. Specific rates and application methods are on the pesticide label, and these are subject to change at any time. Always refer to and read the pesticide label before making any application! The pesticide label supersedes any information contained in this guide, and it is the law.



Pre-Harvest (first color) **through Harvest** (con't)

Pest/Problem	Management Options	Amount of Formulation per Acre	Effectiveness (+) or Importance (*)	REI	PHI	Comments
Spotted Wing Drosophila	Spotted wing drosophila (SWD, *Drosophila suzukii*) is an invasive pest of soft skinned fruit in the United States and has been detected throughout the southeast. SWD damage is similar to that caused by blueberry maggot. Female flies lay their eggs in ripening and ripe fruit, and larvae develop internally. SWD larvae are much smaller than blueberry maggot larvae, and unlikely blueberry maggot, SWD can have multiple, overlapping generations during blueberry harvest. Therefore, risk of SWD may be higher than blueberry maggot. Adult male SWD can be distinguished from native, non pest *Drosophila* spp. by a single spot on the end of both wings. Traps are useful in determining SWD presence on your farm, but do not predict fruit infestation. If SWD has been found on or near your farm, preventative insecticide applications are recommended beginning when fruit begins to color through the end of harvest. Insecticides should be applied weekly and reapplied after rain events which reduce efficacy. More information on SWD biology, management, and monitoring can be found at www.ncsmallfruitspm.blogspot.com. Link for homemade SWD trap instructions: http://ncsmallfruitspm.blogspot.com/2011/06/do-it-yourself-spotted-wing-drosophila.html Some management tools used for blueberry maggot may also be effective against SWD, and blueberry maggot and SWD management strategies should be integrated as much as possible.					
	spinosad (Entrust 80W)	1.25 to 2 oz	++	4 hrs	3 days	Overuse may lead to resistance in insect populations. Entrust 80W cannot be applied more than 5 times in a cropping season. Only two consecutive applications of Entrust can be made. If more treatments are needed, rotate to another class of insecticide, such as Pygenic, for at least one application.
	pyrethrins (PyGenicEC1.4)	16 to 64 fl oz/A	++	12 hrs	0 days	Not as effective as spinosad for SWD but can be rotated with spinosad if SWD pressure remains high. Short residual activity.
Blueberry stem borer	Blueberry stem borer, *Oberea myops*, is a longhorn beetle and also attacks rhododendron and azalea. This pest can be minimized by pruning out and removing the infested portion of canes, often brown and wilted, as soon as larvae are detected in the summer. Cut the stems well below their brown, hollowed section, where the stem is still green and not hollow. Promptly destroy each wilted cane containing a larva. This ensures that the larva does not migrate into the crown of the plant.					
Yellownecked, azalea, red humped caterpillars, spanworms,	Late season caterpillars are often localized on a few bushes. Hand removal and/or spot treatments are typically sufficient.					
	Hand removal		*****			
	Bacillus thuringiensis (Dipel DF)	0.5 to 1.0 lb	+++	4 hrs	0 days	Bt is a bacterium that is effective in controlling lepidopteran insect pests. Bt must be eaten to be effective. Apply to small, early-stage caterpillars. Safe for beneficials.
Fire ants	See DORMANT recommendations					

African Fig Fly (AFF)

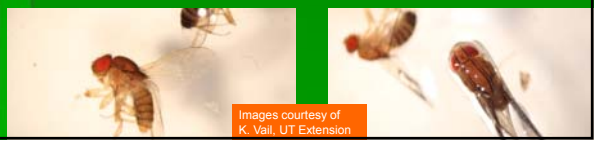
- Originally from Africa, this invasive drosophilid was found in Brazil in 1999 and Florida in 2005 and since then it has been found in 11 additional states (Pfeiffer 2013) plus **Tennessee** (Knox, Davidson, & Dickson Counties) in **2013** (found in grapes & raspberries in Knox Co.)

Image courtesy of K. Vail, UT Extension

Pfeiffer, D. G. 2013. Progress Report submitted Feb. 10. Second Quarterly Report.

African Fig Fly (AFF)

- Not sure how much damage it causes since its ovipositor is not nearly as large and serrated as with the spotted wing drosophila
- They may attack fruit wounded by SWD or damaged by other means
- Dr. D. G. Pfeiffer has found more AFF larvae emerging from grapes so its importance as a grape pest is undetermined



Images courtesy of K. Vail, UT Extension

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