

## Cultural Insect Management

### Are you sure you need to act?

It is critical that we make sure an insect pest is present at damaging levels in a field before taking management action. Managing an insect is expensive in labor, equipment, and products, so make sure you have a problem before taking action.

Scouting and adopting action thresholds to inform management decisions is key to reducing unnecessary or untimely applications of pesticides. Comprehensive guides and information on how to scout and trap insects, and recommended action thresholds for insect pests can be found here:

<https://extension.umaine.edu/blueberries/factsheets/insects>

CULTURAL INSECT MANAGEMENT IN WILD BLUEBERRY		
INSECTS	METHOD	COMMENTS
Blueberry Maggot	Harvesting	Harvesting techniques that reduce fruit loss can minimize the number of infested fruits left on the plants and on the ground.
	Management	Keep isolated fields in the same cycle.
	Winnower cleanup	Compost, burn or dispose of winnower refuse.
Flea Beetle, Sawfly, Spanworm	Fire pruning	Blueberry litter must be ignited.
Thrips	Fire pruning	Burn curled stems as soon as extensive curling occurs in early spring, but not later than July 1 in a nonbearing crop or reduction in next year's fruit buds will occur.
Spotted wing drosophila	Early harvest	Monitor adult and larval populations; Refer to Cooperative Extension Bulletin No. 210, <i>Spotted Wing Drosophila: Pest Biology and IPM Recommendations for Wild Blueberries</i> for additional information.

## Chemical Insect Management

**THIS CHART IS NOT A SUBSTITUTE FOR READING AND FOLLOWING THE LABEL.** It is unlawful to use any pesticide for other than the registered use. Read and follow the label on the product container. The user assumes all responsibility for use inconsistent with the label. Trade names are used for identification. No product endorsement is implied, nor is discrimination intended against similar materials. Cooperative Extension makes no warranty or guarantee of any kind concerning the use of these products. **Check with your processor regarding PHI restrictions or MRL restrictions for export sales. For organic growers, check with your certifier that the product is approved by them and that the product has current OMRI certification.**

Extremely toxic to fish    
 Extremely toxic to bees    
 Extremely toxic to birds    
 Extremely toxic to people  
 Moderately toxic to fish    
 Moderately toxic to bees    
 Moderately toxic to birds    
 Moderately toxic to people  
 Can be aerially applied

Spotted Wing Drosophila Control 0=Not Effective 1=Slightly Effective 2=Moderately Effective 3=Effective 4=Very Effective

### INSECTICIDES WITH ENVIRONMENTAL PERSISTENCE

GROUP <sup>a</sup> USE <sup>b</sup> & TOXICITY	AERIAL APPLICATION	INSECTICIDE	ACTIVE INGREDIENT & SIGNAL	RATE: PER/ACRE & MAX/ACRE/YR	PHI DAYS	REI HRS.	NOTES	
1a	Depends on Formulation	Sevin (several formulations registered)	carbaryl	See label Max: 5 applications; 10 qt max/acre/crop year	7	12	Do not apply more than once every 7 days. Do not apply during bloom or just prior to bloom; high toxicity to bees and aquatic invertebrates. Avoid irrigation for 48 hrs post-application. Flea beetle adults only. <b>Human &amp; Environment: NS, 7 day persistence</b>	
		THRIPS	Diazinon (several formulations registered)	diazinon	See label Max: See label (2 lb ai)	7	5 days	Do not mix with any Captan product. See label for dilute vs. concentrated spray. Make first application when sprouts are 0.25-0.5 inch, 2 <sup>nd</sup> application when sprouts are 0.5-1 inch. Avoid applying when bees are present. <b>Human &amp; Environment: NS, 11 day persistence</b>
1B	Depends on Formulation	SWD THRIPS	Malathion (several formulations registered)	malathion	See label Max: 1.25 lb ai./acre; 3 applications/year	1	12	Minimum retreatment interval is 5 days. Apply at 10 day intervals for BMF. High runoff potential after application. Highly toxic to bees if sprayed directly. <b>Human &amp; Environment: NS, 3 day persistence</b>
		THRIPS	THRIPS	THRIPS	THRIPS	THRIPS	THRIPS	7 day minimum retreatment intervals for SWD. Potential for phytotoxicity at reduced rates. See label for dilute vs. concentrated spray. Highly toxic to bees if sprayed directly. <b>Human &amp; Environment: NS, 3 day persistence</b>
	NO	BMF SL, FB SRW SWD	Imidan 70 WP	phosmet	1.3 lb Max: 5 app; 5 1/8 lb (3.63 lb ai) for all	3	3 days	Apply at 7-10 day intervals. Highly toxic to bees if sprayed or come into contact with treated foliage up to 7-10 days after spraying; do not spray 10-14 days PRIOR to bloom. <b>Human &amp; Environment: NS, 10 day persistence</b>
3		BMF SL	Asana XL	esfenvalerate	4.8 to 9.6 oz Max: 38.4 oz (0.2 lb ai)	14	12	Do not apply within 7 days of pollination. <b>Human &amp; Environment: NS, 7 day persistence</b>
3A		SWD	Mustang Maxx	zeta-cypermethrin	4 oz (4 oz SWD) Max: 24 oz (0.15 lb ai)	1	12	Apply at least 7 days apart. See 2ee labels for BMF (suppression only) and SWD. Direct spray and residue is highly toxic to bees, do not use prior to or during bloom. <b>Human &amp; Environment: NS, 21 day persistence</b>
4A		BMF THRIPS	Admire Pro Systemic Protectant	imidacloprid	Foliar 2.1 to 2.8 oz Max: Foliar: 5 app; 14 oz (0.5 lb ai) for all	foliar 3	12	Do not use prior to or during bloom. Highly toxic to bees if used as a foliar spray during bloom. <b>Foliar:</b> For sprout application during emergence of thrips and tip midge. Apply at least 7 days apart. <b>Human &amp; Environment: S, 7 day persistence</b>
		BMF FB SWD	Assail 30 SG	acetamiprid	4.5 to 5.3 oz (SWD – 5.3 oz) Max: 5 app; 26.7 oz (0.5 lb ai)	1	12	Do not apply more than once every 7 days. Add 1 lb/a sugar to spray tank to enhance performance for SWD ONLY. Toxic to bees exposed to direct treatment; do not apply while bees are actively visiting treatment area. <b>Human &amp; Environment: S, 7 day persistence</b>
		BMF SWD THRIPS	Montana 2F	imidacloprid	Foliar 4.8 to 6.4 oz Max: Foliar 5 app; 32 oz (0.5 lb ai) for all	3	12	<b>Foliar:</b> Apply at least 7 days apart. Rotate to another mode of action after 3 applications. Do not apply foliar after applying a soil application of any Group 4A product. Avoid use prior to and during bloom. Highly toxic to bees. Sprout application during emergence for thrips; make 1 <sup>st</sup> application when sprouts are 0.25-0.5 inch, 2 <sup>nd</sup> application when sprouts are 0.5-1 inch. <b>Human &amp; Environment: S, 7 day persistence</b>
4D		BMF THRIPS	Sivanto 200 SL	flupyradifurone	10.5 to 14 oz Max: 28.0 oz (0.365 lb ai)	3	4	Apply at least 7 days apart. See 2ee label for thrips. Human dermal toxicity is moderate. <b>Human &amp; Environment: S</b>
5		SL SRW SWD	Entrust SC	spinosad	4 to 6 oz Max: 6 app, 3 for thrips 29 oz (0.45 lb ai total for all spinosad)	1	4	<b>Allowed for Organic production.</b> Toxic to bees up to 3 hrs following treatment. Once it dries on foliage, toxicity is LOW. Apply at least 6 days apart; after 2 <sup>nd</sup> application rotate to products other than Group 5. May be used with adjuvants. See supplemental label for reduced PHI for SWD suppression. <b>Human &amp; Environment: NS, 1.5 day persistence</b>
		BMF	GF-120 NF Naturalyte Fruit Fly Bait	spinosad	10 to 20 oz 1:1.5 product to water ratio Max: 5 app; 0.45 lb ai total for all spinosad	1	4	<b>Allowed for Organic production.</b> Specialized application equipment is required. Apply every 7-14 days. Do not rotate with other Group 5 products. Toxic to bees if sprayed directly. <b>Human &amp; Environment: NS, 1.5 day persistence</b>
		BMF FB SRW SWD	Delegate WG	spinetoram	3 to 6 oz (3-6 oz SWD) Max: 6 app (3 for thrips); 19.5 oz (0.305 lb ai)	3	4	Do not apply more than once every 6 days, and no more than two consecutive applications of any Group 5 insecticide. Highly toxic to bees if sprayed or come into contact with wet treated foliage. If foliage is dry, toxicity is very low to bees. Do not rotate with spinosad products. <b>Human &amp; Environment: NS, 5 day persistence</b>
11		SL	<i>Bacillus thuringiensis</i> (several formulations registered)	<i>Bacillus thuringiensis</i>	See label Max: ----	check label	4	<b>May use when bees are present.</b> Most effective on small early instar blueberry spanworm larvae. This bio-insecticide is NOT effective against winter moth larvae. Do not apply within 300 ft of any threatened or endangered Lepidoptera. Product(s) may be OMRI listed, e.g. Javelin WG. <b>Human &amp; Environment: NS, 3 day persistence</b>
18		SL	Intrepid 2F	methoxyfenozide	10 to 16 oz Max: 3 app; 48 oz (0.75 lb ai)	7	4	Caterpillar control. Do not apply more than once every 7 days. Spreaders/binders may help maximize coverage. Can use just prior to bloom without detrimental effects on bees. Drift and runoff from applications of this product may be hazardous to sensitive aquatic invertebrates in water bodies adjacent to treatment area. <b>Human &amp; Environment: NS, 15 day persistence</b>
28		BMF SWD	Exirel	cyantraniliprole	13.5 to 20.5 oz Max: 62 oz (0.4 lb ai)	3	12	Rotate with products with different modes of action; minimum interval between treatments is 5 days. Direct contact and exposure to residue is toxic to bees. <b>Human &amp; Environment: S, 14 day persistence</b>
		SWD	Verdepryn	cyclaniliprole	8.2 to 11.0 oz Max: 33 oz (0.22 lb ai)	1	4	This product is highly toxic to bees and other pollinating insects exposed to direct treatment or to residues in/on blooming crops or weeds. Make no more than 3 applications per year. The minimal interval between treatments is 5 days. <b>Human &amp; Environment: S, 14 day persistence</b>
m		FB	BotaniGard ES	<i>Beauveria bassiana</i>	0.5 to 1.0 qt Max: none	0	4	Apply at 5-10 day intervals in the evening as sunlight destroys spores. Clean all fungicide residues from tank as they will destroy the <i>Beauveria</i> spores and inactivate the product. <b>Human &amp; Environment: NS, 2 day persistence</b>
unknown		SWD	AzaGuard, (several formulations registered)	neem, azadirachtin	Foliar 10 to 16 oz (see exceptions) + COC 1% v/v (Azaguard rate only) Max: None; 22.5 oz AzaGuard per app (0.75 lb/20 g ai all azadirachtin per app)	0	4	Effective on SWD under low to moderate pressure; once SWD numbers build, switch to another product. When infestation is heavy or canopy dense, use up to 2x rate, not to exceed 22.5 oz/a/application. Use 1/2 rate when combining with other insecticides. Do not mix with highly alkaline products or exceed mix pH 7. Label recommends 2-3 applications at 7-10 day intervals. <b>Human &amp; Environment: NS, 7 day persistence</b>

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**PLEASE NOTE: THIS REVISED VERSION REPLACES ANY PREVIOUS CHARTS.**

<sup>a</sup>To reduce the likelihood of insecticide resistance developing in target pests, growers should rotate between insecticides with different group numbers in the growing season, ideally using multiple group numbers. Products with the same group number should not be used in consecutive sprays.

<sup>b</sup>BMF = Blueberry Maggot, SL = Spanworm Larvae, FB = Flea Beetle, SRW = Strawberry Root Worm, SWD = Spotted Wing Drosophila. S = systemic, NS = not systemic