



Wild Blueberry

FACT SHEET



2009 Insect Control Guide for Wild Blueberries

Fact Sheet No. 209, UMaine Extension No. 2001

NOTICE: 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.

This fact sheet is to be used only during 2009. Use in subsequent years may lead to improper and illegal use of pesticides. When this guide is outdated, please request an updated version from your Extension office.

WARNING! Pesticides are potentially hazardous. Handle carefully! Read and follow all directions and precautions on labels. Store in original labeled containers out of reach of children, pets and livestock. Dispose of empty containers at once, in a safe manner and place. Do not contaminate forage, streams, ponds or groundwater recharge areas.

Groundwater is a major natural resource. **Pesticides have been detected in the groundwater of all states. A sound application program** including site-specific selection, adherence to label directions, sprayer calibration mixing accuracy, spill and back siphon prevention, proper waste disposal, integrated pest management and judicious pesticide use **can prevent groundwater contamination.**

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.

Blueberry Spanworm

Begin to monitor for spanworm larvae in early spring as the buds break and plants emerge by sweeping with a 12-inch diameter sweep net. Spray with an insecticide when larval counts on fruit-bearing plants average over 10 per 10 sweeps. The action threshold should be lowered to 3 or more larvae per 10 sweeps on vegetative year fields. Repeat treatment if necessary. More information may be found in the Wild Blueberry Fact Sheet No. 197 (UMaine Extension No. 2371), [Blueberry Spanworm](#).

Blueberry Flea Beetle

An action threshold of 50 insects per 10 sweeps has been established for either larvae or adults. Examine fields in early spring for larvae and from mid-June to early July for foliar feeding by adults. Spray with an insecticide as needed. More information can be found in Wild Blueberry Fact Sheet No. 200 (UMaine Extension No. 2372), [Blueberry Flea Beetle](#).

Thrips

When leaf curling occurs in a fruit bearing year, stake out infested area. Consider pruning as a control; see the cultural techniques section. The following spring, apply insecticide to the staked area before curling reoccurs. Make first application when leaves are 1/4 inch to 1/2 inch long. Repeat when 1/2 inch to 1 inch. **These timings are critical.** Blue sticky cards may be used to monitor for blueberry thrips for more efficient timing of applications. Refer to Wild Blueberry Fact Sheet No. 204 (UMaine Extension No. 2275), [Integrated Crop Management Field Scouting: Guide for Lowbush Blueberries](#) and Wild Blueberry Fact Sheet No. 202 (UMaine Extension No. 2373), [Blueberry Thrips](#).

Blueberry Maggot

Monitoring for the presence of the blueberry fruit fly will indicate necessity for control based on trap capture thresholds and if needed to ensure proper timing of insecticide applications. Cooperative Extension Fact Sheet No. 201 (UMaine Extension No. 5030), [Monitoring for the Blueberry Maggot](#), outlines ways to monitor fields for the blueberry fruit fly and discusses perimeter treatments that greatly reduce the portion of the field that needs to be treated. Never apply insecticides when less than three to five percent of berries have ripened and turned blue. This is usually early July in most regions of Maine. Repeat applications, if necessary, depending on trap capture results. All publications may be found on the web at www.wildblueberries.maine.edu

Cultural Techniques to Reduce Insect Infestation More information may be found in Wild Blueberry Fact Sheet No. 253, Cultural Management for Insects and Diseases in Wild Blueberries .		
Insects	Method	Comments
Blueberry Maggot	Harvesting	Harvesting techniques that reduce fruit loss can minimize the number of infected fruit left on the plants and on the ground.
	Management	Keep isolated fields in same cycle.
	Winnower cleanup	Compost, burn or dispose of winnower refuse.
Flea Beetle, Sawfly, Spanworm	Fire pruning	Blueberry litter must be ignited and burned to ash
Thrips	Fire pruning	Burn curled stems as soon as extensive curling occurs in early spring, but not later than June 1 in a nonbearing crop or reduction in next year's fruit buds will occur.

Toxicity Rating of Blueberry Insecticides L-Low VL-Very Low M-Medium H-High VH- Very High N-None-Slight							
Insecticide	Oral	Dermal	Mammal	Fish	Bird	Bee	Environmental Persistence
Sevin (carbaryl)	L	VL	L	VL	VL	H	L
Diazinon	M	L	M	L	VH	H	M
Cythion (malathion)	VL	VL	L	L	VL	H	VL
Imidan (phosmet)	M	VL	M	H	M	H*	L
Asana (esfenvalerate)	M	L	M	H	M	H	M
Confirm (tebufenozide)	L	L	L	L	L	VL	L
Entrust, GF-120 NF (spinosad)	VL	L	L	H	N	H	L
BT (<i>Bacillus thuringiensis</i>)	VL	VL	VL	VL	VL	VL	VL
Botanigard (<i>Beauveria bassiana</i>)	N	N	N	N	N	V	VL
Admire/Provado* (imidacloprid)	M	L	M	M	H	VH	M
Delegate (spinetoram)	VL	VL	VL	M	L	H*	L

Toxicity Rating of Blueberry Insecticides

L-Low **VL**-Very Low **M**-Medium **H**-High **VH**- Very High **N**-None-Slight

Insecticide	Oral	Dermal	Mammal	Fish	Bird	Bee	Environmental Persistence
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Most Information on toxicity ratings for older insecticides is adapted from *Introduction to Pest Management*, 1982, by Metcalf and Luckmann.

* Highly toxic to bees if they are directly sprayed or come in contact before chemical is dried on the foliage, once dry toxicity is very low. Use Admire for blueberry thrips control prior to stem emergence in the pruned year only. Do not use Provado prior to or during bloom in fruit-bearing fields. Imidacloprid is highly toxic to bees if used as a foliar treatment during flowering and is toxic to birds feeding on treated seeds.

Chemical Insect Control Methods for Wild Blueberries

Apply insecticides when monitoring indicates insect populations have reached threshold levels. See Wild Blueberry Fact Sheet No. 204 [Integrated Crop Management Field Scouting Guide for Wild Blueberries](#) for details.

Insect	Material	Rate (Amount of product/acre)	Comments
Blueberry Maggot	Malathion 5E (<i>malathion</i>)	1 pt.	Apply at 10 day intervals. Reentry 12 hours, apply up to 1 day to harvest. Potential for phytotoxicity at lower gallons/acre.
	Malathion 8F	1.5 to 2.5 pts.	
	Imidan 70 WP	1.3 lb.	Apply at 7-10 day intervals. Aerial ULV 2 gal/acre water. Reentry 3 days, 7 days to harvest. Limit 4 lb/season.
	Imidan 2.5 EC (<i>phosmet</i>)	1.5 to 3 pt.	
	Provado 1.6 F (<i>imidacloprid</i>)		Provado is NOT currently being recommended for blueberry maggot control until the effect on honey bees can be ascertained.
	GF-120 NF Naturalyte Fruit Fly Bait (<i>spinosad</i>)	See label for specific rate information	Organic. Specialized application equipment is required.
	Asana XL (<i>esfenvalerate</i>)	9.6 fl/oz.	14 days to harvest
	Sevin 4 XLR Plus (<i>carbaryl</i>)	2 qts.	Repeat as necessary up to 5 times but do not apply more than once every 7 days. 7 days to harvest. OBSERVE BEE CAUTION.
	Delegate WG (<i>spinetoram</i>)	3 to 6 oz	Can be used for aerial application with 10 gpa water. No more than 6 application/yr, not less than 6 days apart. PHI - 3 days REI - 4 hours OBSERVE BEE CAUTION.

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Insect	Material	Rate (Amount of product/acre)	Comments
Spanworm Larvae	Imidan 70 WP	1.3 lb.	Should be used on larger instar larvae. 7 days to harvest. Limit 6 pt/season.
	Imidan 2.5 EC (<i>phosmet</i>)	2.3 pt.	
	Confirm 2F (<i>tebufenozide</i>)	16 oz.	Apply up to 14 days before harvest. Limit 64 fl oz/season. Use with spreader-sticker to optimize control (see label for recommended products.)
	Asana XL (<i>esfenvalerate</i>)	4.8 to 9.6 fl/oz.	14 days to harvest. Do not apply within 7 days to pollination.
Spanworm Larvae Biocontrol	Biobit, Dipel, Lepinox, Javelin (<i>Bacillus thuringiensis</i>)	Several formulations registered	Apply to small early instar larvae for best control. Larval death not immediate, but feeding quickly inhibited. May use when bees are present.
	Entrust 80 W (<i>spinosad</i>)	2 oz.	TOXIC TO BEES UP TO 3 HOURS FOLLOWING TREATMENT.
	Imidan 70 WP	1.3 lb.	Apply at 7-10 day intervals. Aerial ULV 2 gal/acre water. Reentry 3 days, 7 days to harvest. Limit 4 lb/season. OBSERVE BEE CAUTION.
	Imidan 2.5 EC (<i>phosmet</i>)	1.5 to 3 pt.	
	Sevin 4XLR Plus (<i>carbaryl</i>)	2 qts.	7 days to harvest. OBSERVE BEE CAUTION. Flea beetle adults only.
Flea Beetles Biocontrol	Botanigard ES** (<i>Beauveria bassiana</i>)	1 qt.	Apply at 7-10 day intervals in evening. Flea beetle larvae only. Be sure no fungicide residues are in spray tank. Do not apply within 1 day to harvest. May use when bees are present
	Entrust 80 W (<i>spinosad</i>)	2 oz.	TOXIC TO BEES UP TO 3 HOURS FOLLOWING TREATMENT.
	Delegate WG (<i>spinetoram</i>)	3 to 6 oz.	See Delegate comments under Blueberry maggot.
Strawberry Rootworm Adults	Imidan 70 WP	1.3 lb.	Apply at 7-10 day intervals. Aerial ULV 2 gal/acre water. Reentry 3 days, 7 days to harvest. Limit 4 lb/season. OBSERVE BEE CAUTION.
	Imidan 2.5 EC (<i>phosmet</i>)	1.5 to 3 pt.	
	Delegate WG (<i>Spinetoram</i>)	3 to 6 oz.	See Delegate comments under Blueberry Maggot.

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Insect	Material	Rate (Amount of product/acre)	Comments
Strawberry Rootworm Adults Biocontrol	Entrust 80 W (<i>spinosad</i>)	2 oz.	TOXIC TO BEES UP TO 3 HOURS FOLLOWING TREATMENT.
Thrips	Diazinon (<i>diazinon</i>)	2 formulations registered	Make 1st application when new emergent sprouts are 0.25 to 0.5 inch high, second application when sprouts are 0.5 to 1 inch high.
	Malathion (<i>malathion</i>)	Several formulations registered.	
	Admire Prosystem Protectant (<i>imidacloprid</i>)		Admire is NOT currently being recommended for thrips control until the effect on honey bees can be ascertained.

**Best results occur when applications are made in the evening since sunlight kills the *Beauveria* spores over time.

Follow **ALL** label directions.

- Accurate identification of pests and monitoring to determine the best times to spray are critical for achieving effective, economical control.
- Apply pesticides only when economic thresholds are exceeded, based on monitoring.
- Use caution while loading spraying equipment with pesticides. Follow all safety precautions.
- Use common sense when applying pesticides. **DO NOT** contaminate nearby lands, buildings, water bodies and roadsides. Keep domestic animals and children away from fields.
- For detailed information on safe spray use, please refer to *Wild Blueberry Growers Guide*.
- Avoid aerial application of pesticides near buildings, public roads or water supplies or on windy days.
- Reentry restrictions: never enter a sprayed area without protective clothing or until stated on label.
- Be sure your sprayer is well cleaned and does not have any fungicide residue when using *Botanigard* since fungicide will kill the living spores.

Protecting Honey Bees from Insecticides

- All pesticides are not equally hazardous to bees. Select the one that is least hazardous. Commonly used insecticides are listed in the chart according to their relative hazards.
- Do not apply insecticides near honey bee hives.
- Treat plants before or after bloom, at night with specially formulated insecticides, or when bees are not actively foraging in crop and pruned fields.

Prepared by David E. Yarborough, Extension Blueberry Specialist, and Frank Drummond, Professor of Insect Ecology/Entomology, The University of Maine, Orono, ME 04469. Revised October 2009.

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