

Insect Pests of Blueberries

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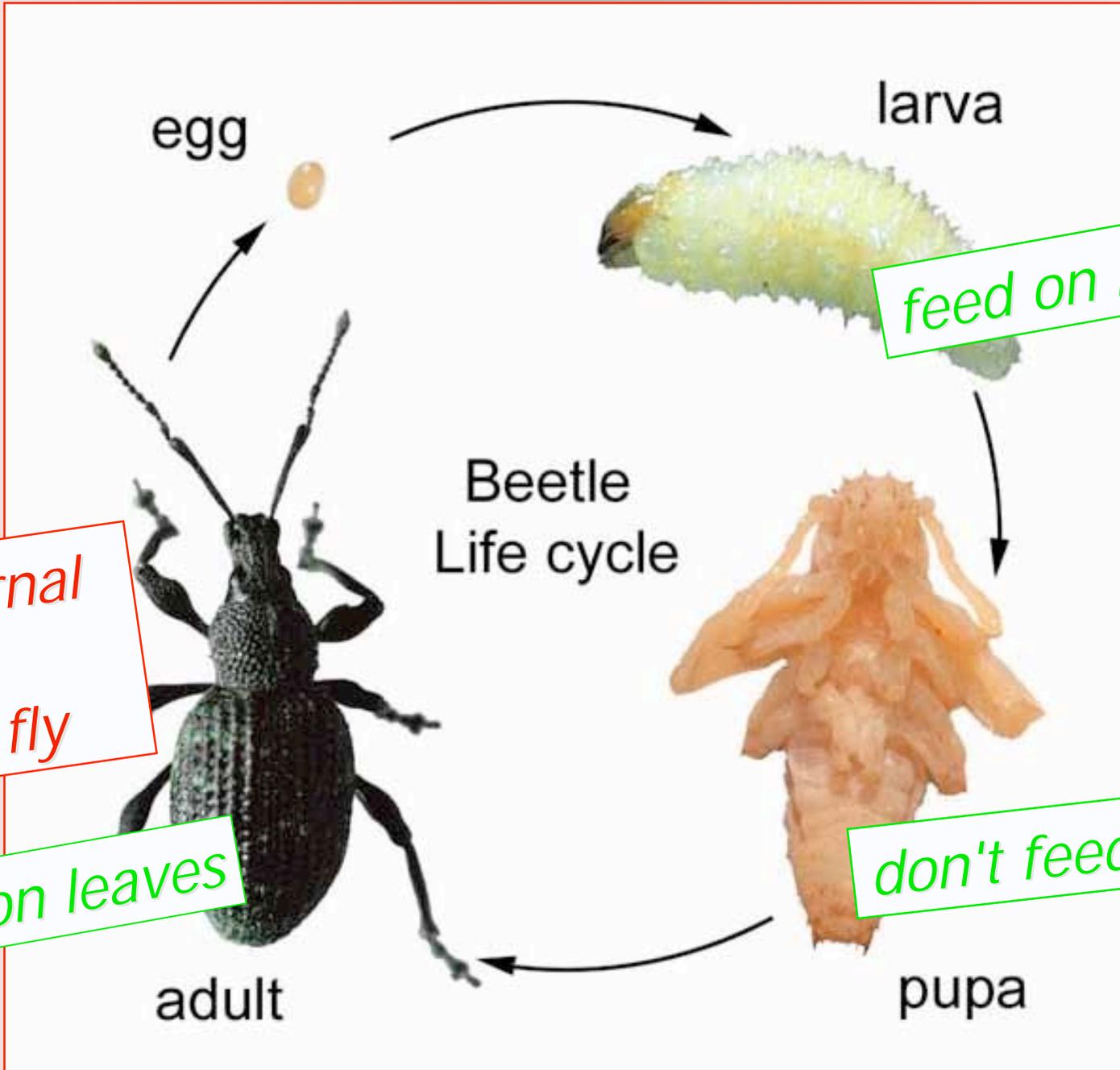
Blueberry Insect Management

- Dormant/Prebloom: Aphids, Root weevils, Leafrollers, Winter moth, Blueberry gall midge.
- Bloom: Aphids, Blueberry gall midge, Leafrollers, Winter moth.
- Postbloom: Aphids, Blueberry gall midge, Leafrollers, Root weevils.

Root Weevils

- Overwinter as adults & larvae.
- 2-8 inches deep in soil.
- 150+ host plants.
- 5 larval instars, .25-.5” long, whitish with tan heads & no legs.
- 4-5 species occur in PNW blueberries.





feed on roots

don't feed

*nocturnal
walk
don't fly*

feed on leaves



Black vine weevil



Strawberry root weevil



Rough strawberry root weevil



Obscure root weevil

Economic Injury



Juniper Root Weevil



Chemical Control

- Malathion
- Asana
- Mustang
- Assail
- Actara



- Platinum: Drench on each side of the row, followed by sufficient irrigation.

Aphids

- Major species - *Ericaphis fimbriata*
(= *E. scammelli*)
- 95 - 100% of population
- Occasionally green
peach aphid, *Myzus*
persicae



Blueberry aphid, *Ericaphis scammelli*



Overwinters in egg stage.
Secretes honeydew, sooty mold.
Feeding deforms leaves.

Aphids Vector Blueberry Scorch Virus



- Flower clusters blight just as petals are opening.
- Young shoots blight and turn grayish black.
- Plants never recover, yields decline and symptoms appear year after year.

Pest Management

- Chemical control: diazinon, malathion, methomyl, Provado, Actara/Platinum, Assail, and insecticidal soaps.
- Biological control: Braconidae, *Praon unicum* and *Aphidius* n. sp.
Comprised 75% of the parasitoids in blueberry from 14 species found attacking aphids (Raworth et al. 2008).

Winter moth/Bruce spanworm

- Larvae hatch in early spring.
- Larvae feed on newly opening flowers and leaf buds.
- Larvae can balloon into fields.
- Adults mottled brown about one inch long.
- Females are wingless.
- Adults active during winter months, laying eggs in cracks and crevices of canes.



Chemical Control

- Malathion
- Imidan
- Danitol
- Asana
- Mustang
- Assail
- Confirm
- Esteem
- Success/Delegate
- *Bacillus thuringiensis*



Orange tortrix & Obliquebanded leafroller

- Most common leafrollers.
- Larvae of both species feed on developing buds, leaves, reduced yields.
- 2-3 generations a year.
- Later generation feed directly on berries and can be harvest contaminant.
- Larvae overwinter on canes, mild winters can feed on cane buds.



Chemical, Cultural, Biological Control:

- Confirm
- Esteem
- Malathion
- Imidan
- Asana
- Danitol
- Mustang
- Assail
- Delegate
- Success
- *Bacillus thuringiensis*
- Parasitoids



Treatment threshold: 70+ moths/week, red raspberry



OBLR

Gerdeman



Blueberry gall midge

- Larvae legless, 1 mm long, white-orange in color.
- Eggs laid in floral or vegetative buds after bud swell.
- Buds abort and blackened young shoot tips, distorted leaves.
- Late season 'witches broom' symptoms.
- 4-5 generations/year.





Monitoring Methods



Chemical, Cultural, Biological Control:

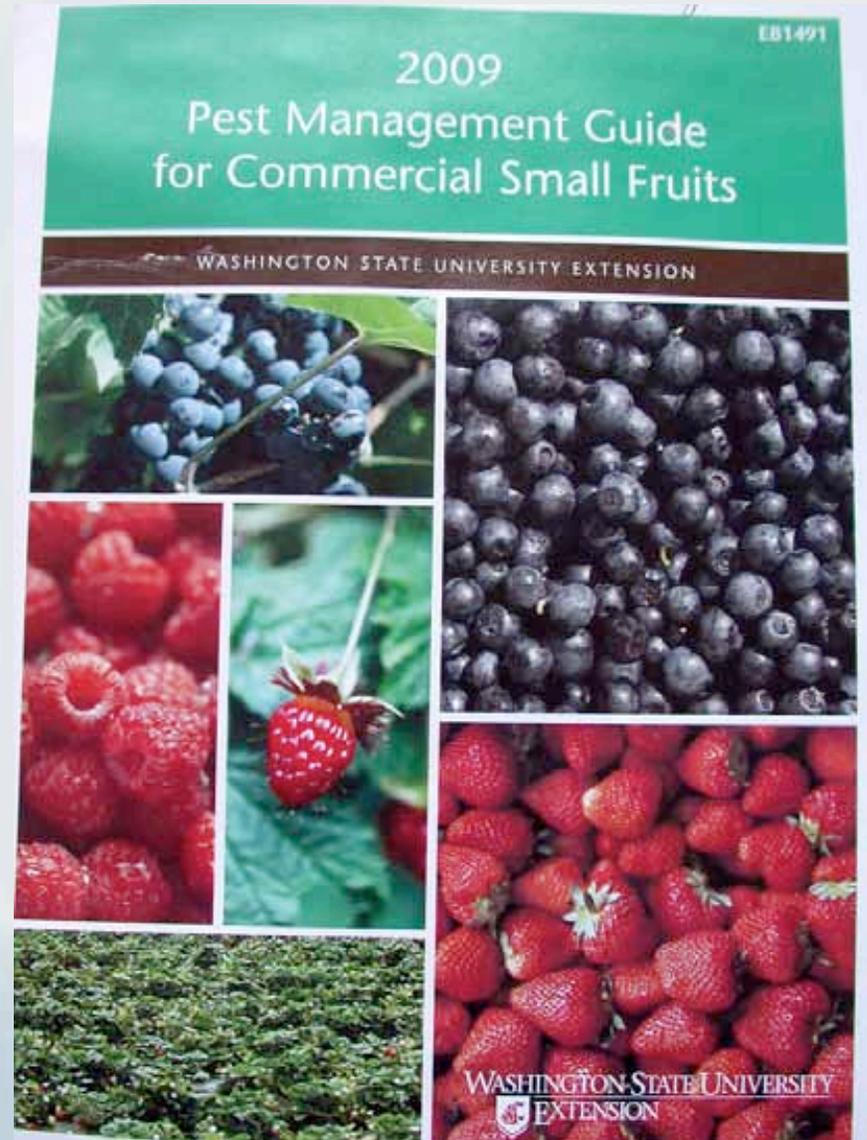
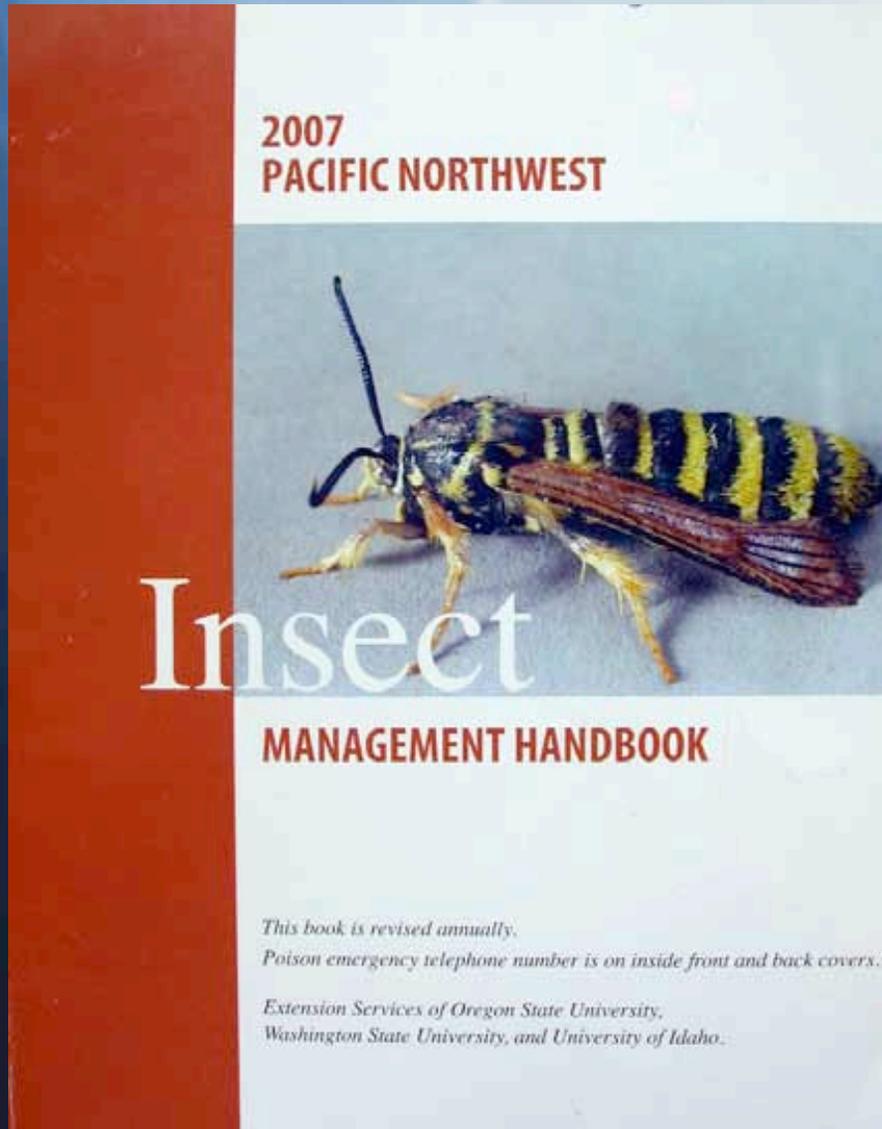
- BGM not listed on any pesticide label.
- Legal uses of: diazinon, malathion, lannate & spinosad.
- Prebloom malathion resulted in 94% mortality in 24 hrs, SE US, Sampson/USDA.
- Cultural control, none known.
- Biological control, none known.

Research Needs

- Identify methyl bromide alternatives.
- Expedite registration of bifenthrin.
- Continue efficacy studies of soil-applied thiamethoxam/imidacloprid for root weevil larvae control (drench and chemigation).
- Develop thresholds and economic impacts.

nwpest.org/pnw/insects

pubs.wsu.edu/



New Chemistries in the Pipeline

- BAS 320 I (metaflumizone), Root weevils, Na⁺ channel blocker, “relaxed paralysis”
- Rynaxypyr (chlorantraniliprole), activates ryanodine receptors, Ca⁺⁺ release, weevils, leafrollers
- Movento (spirotetramat), LBI, two way systemicity, sucking insects (aphids)
- Voliam flexi (thiamethoxam + chlorantraniliprole), Lepidoptera, sucking and chewing insects

Please note that BAS 320 I, Rynaxypyr, Movento and Voliam flexi are not EPA registered for their use on blueberry. As with any crop protection product, always read and follow label instructions.

QUESTIONS

