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THE STATE UNIVERSITY OF NEW JERSEY

What Worm is Feeding on In My Fruit?

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- How this talk started –
- Conversations about spotted wing drosophila and cherry rejects
- Were there SWD larvae in the cherries?
- Are we sure?,What else can they be?

It's important to know what is in the fruit for control strategies, timing, insecticides.

Worms or larvae are internal or external.

External = leafrollers, green fruitworm, chewing insects on foliage like gypsy moth or spanworms and loopers.

Internal/Internal Worms = Codling moth, oriental fruit moth, plum curculio, maggots etc.

This is only about Internal Worms

Common Internal Worms in Fruit

Cherries

Cherry fruitworm

Cherry fruit fly, Black cherry fruit fly

Peaches

Oriental fruit moth

Plum curculio

Apples

Codling moth

Apple maggot

Lesser apple worm

Blueberries

Blueberry maggot

Cranberry fruitworm

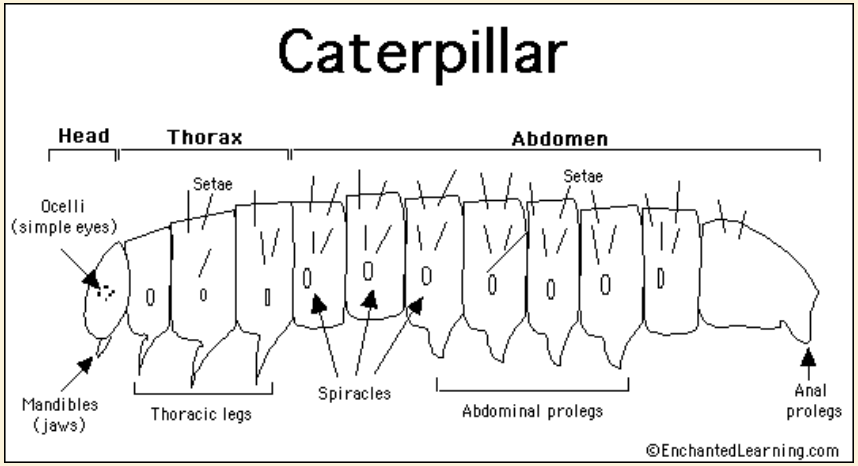
Caneberries

Spotted wing drosophila

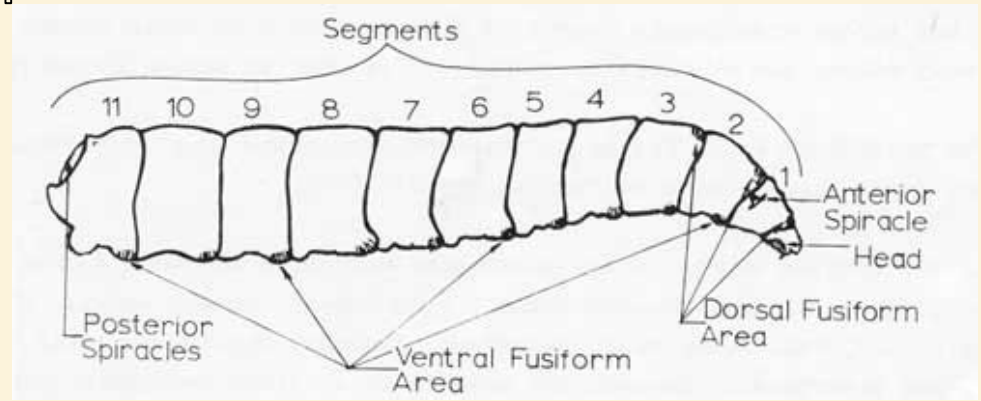
Larvae / Worms / & Maggots – Heads and Tails

- Is there a head (capsule)?
- Is it segmented?
- Are there legs?
- What shape is it – straight or curved?
- What color is it?
- How big is it?
- When did you find it?

Caterpillars vs Maggots
or
moth and butterfly larvae vs. fly larvae

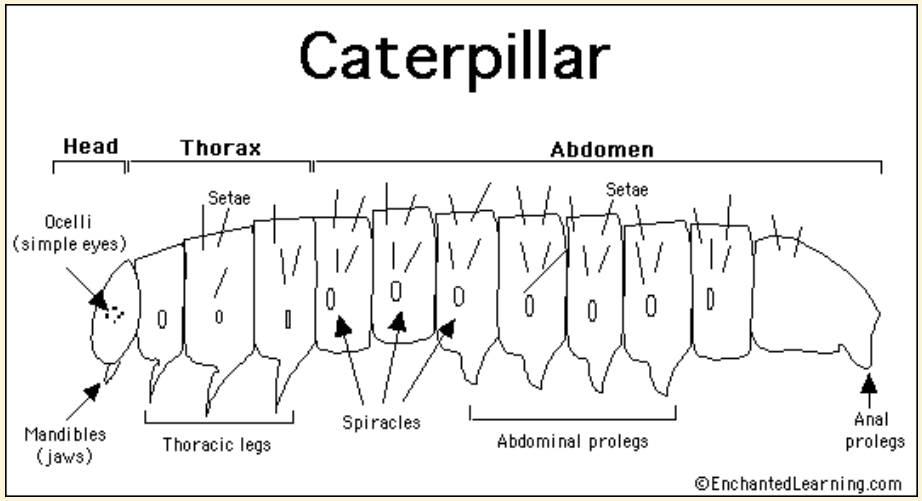


Maggot



Maggots (fly larvae), tapered at one or both ends, legless, spiracles at each end, or only 1 end, segmented but often not clearly, no head capsule.

Caterpillars vs Beetle Larvae



Caterpillar (moth, butterfly) Distinct head capsule, 3 pairs of thoracic legs, usually 4-5 pairs of prolegs on abdomen, segmented. Spiracles on side.

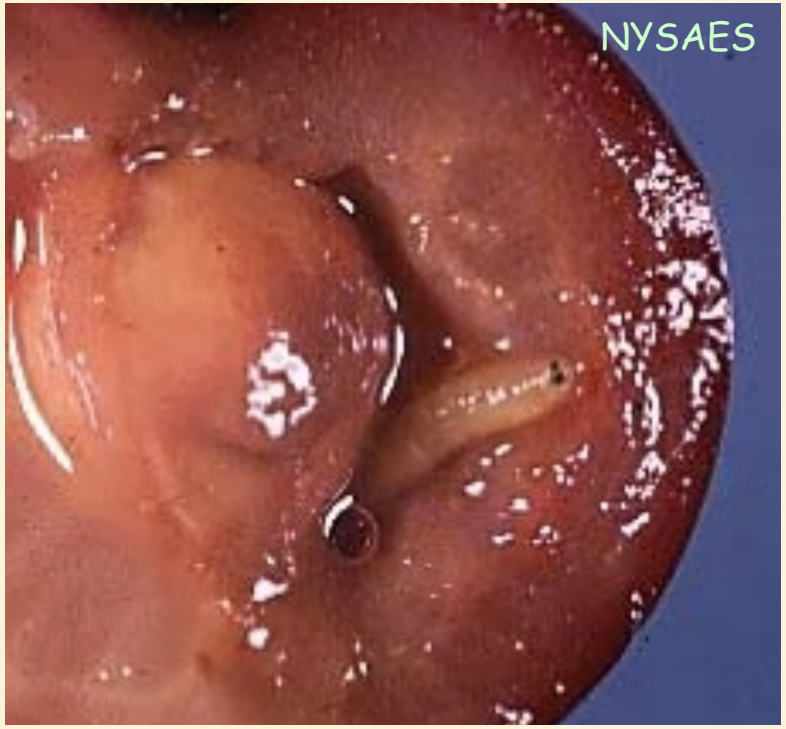
Beetle – Plum Curculio

Beetles - Some have legs, some don't. Weevils like Plum curculio – "C" shaped, Legless, tucked head capsule, "scrunched up"

Cherry fruit fly

Maggot, posterior not tapered, mouthparts visible on anterior end, squared off or broadly round posterior end.

One generation per year, larvae present late May – early July.

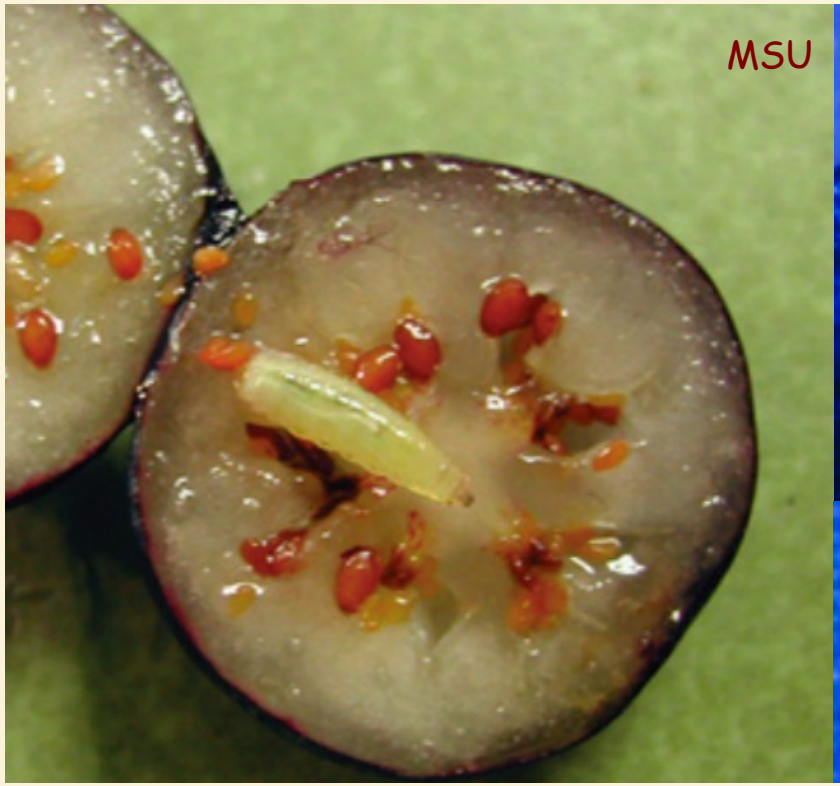


Apple maggot

Single generation, posterior not tapered, mouthparts visible on anterior end, squared off or broadly round posterior end. Maggots present early June – late Aug/Sept.

Blueberry maggot

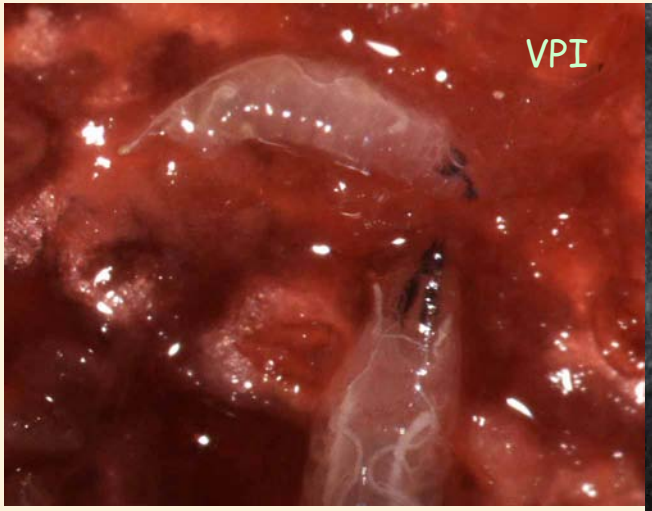
Single generation, posterior not tapered, mouthparts visible on anterior end, squared off or broadly round posterior end. Maggots present early June – late August.



Mouthparts all on right side in these photos.

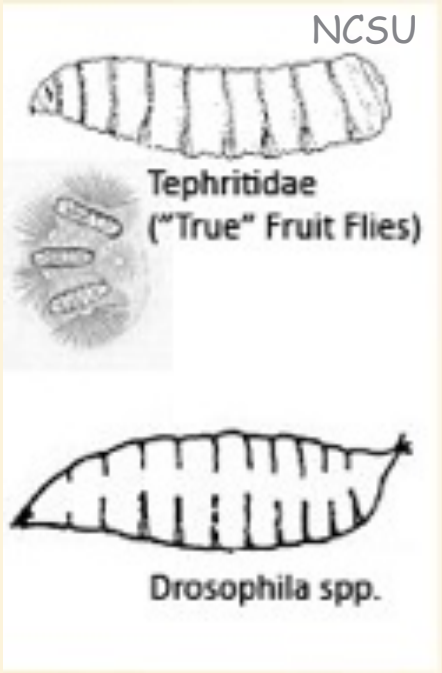
Spotted wing drosophila

Many generations starting in late May through late fall.
Translucent, gut and tracheal tubes visible, tapered on each end, hooked mouthparts, smooth - segments not apparent.
Mature maggots (2-3 mm) much smaller than AM or BBM.

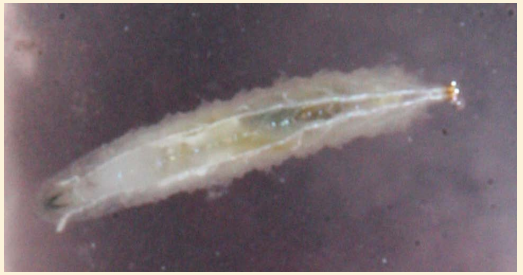


Differences between true fruit flies, or picture-winged flies (Tephritidae) vs vinegar flies (Drosophilidae).

Tephritidae

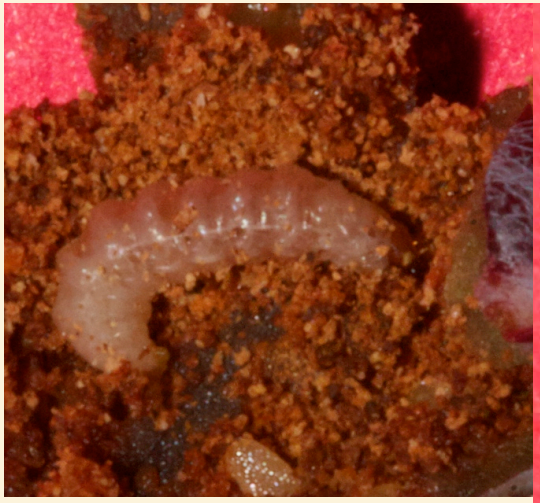


Drosophilidae



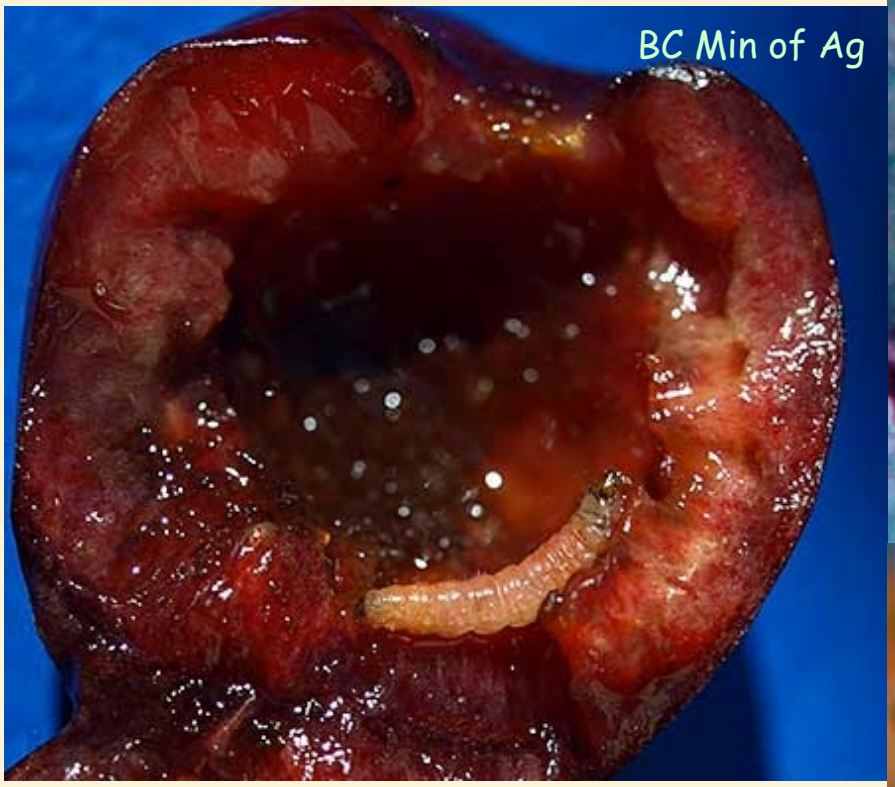
Plum curculio

One generation, eggs laid early May – June. Larva matures in fruit. Leaves egg scar. Grub-like "C" shaped, legless larva, tucked in head capsule.



Cherry Fruitworm

Segmented caterpillar, brown head, 3 pairs of thoracic legs, + abdominal prolegs, up to 9mm, red to rose, anal comb. Feed inside the fruit, no frass. One generation, present late May to mid June.



Cranberry Fruitworm

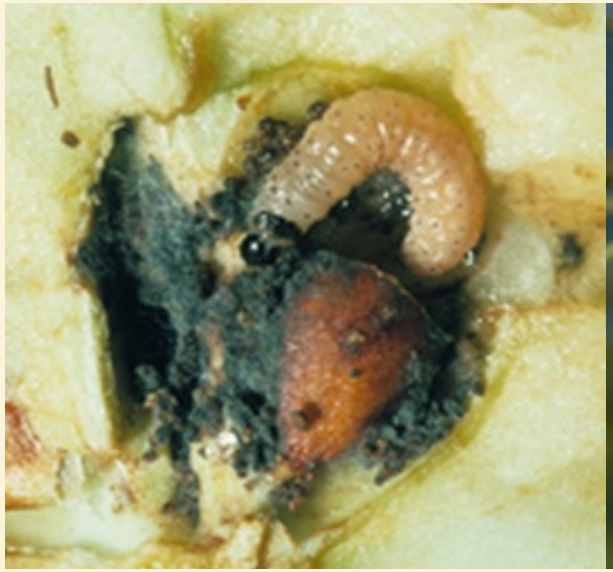
Segmented caterpillar, brown head, 3 pairs of thoracic legs, + abdominal prolegs, up to 15mm, green, no anal comb. Feeds inside the fruit but moves fruit to fruit creating frass in a cluster. One generation, present late May to mid June.

Oriental fruit moth - OFM

Segmented caterpillar, brown head, 3 pairs of thoracic legs + prolegs on abdom. seg 3,4,5,6 and last segment, 10-12 mm, pinkish to white, anal comb. Feeds throughout fruit, 3-4 generations, starting late May to June through harvest. Fruit infestation may be accompanied by flagging.

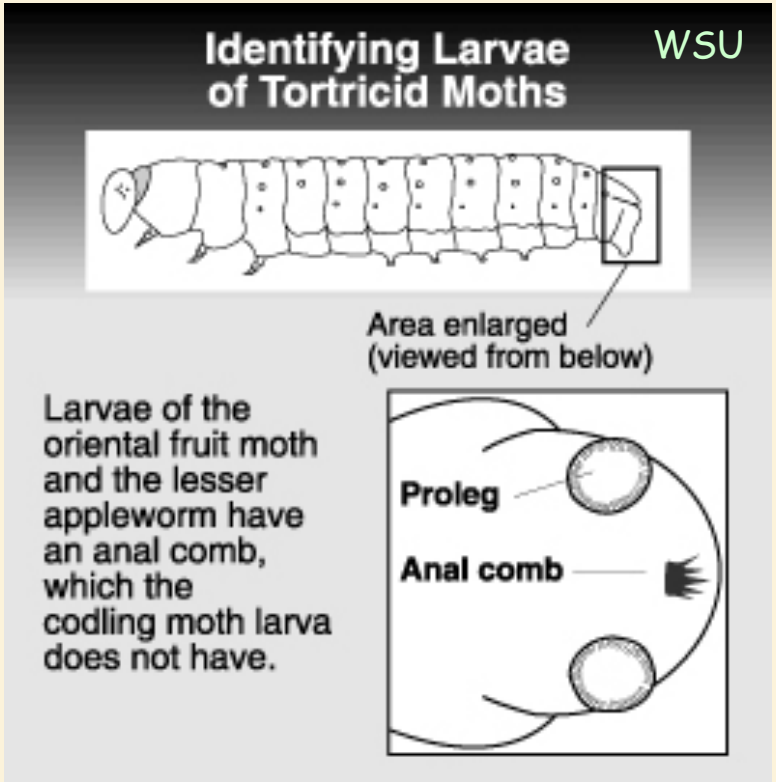
Codling moth - CM

Segmented caterpillar, black head, 3 pairs of thoracic legs + prolegs on abdom. seg 3,4,5,6 and last segment, up to 20 mm, creamy to pink, no anal comb. Feeds in center of fruit and on seeds, 2-3 generations, mature larva more robust than OFM, starting early June through harvest. May be accompanied by exit holes and frass.



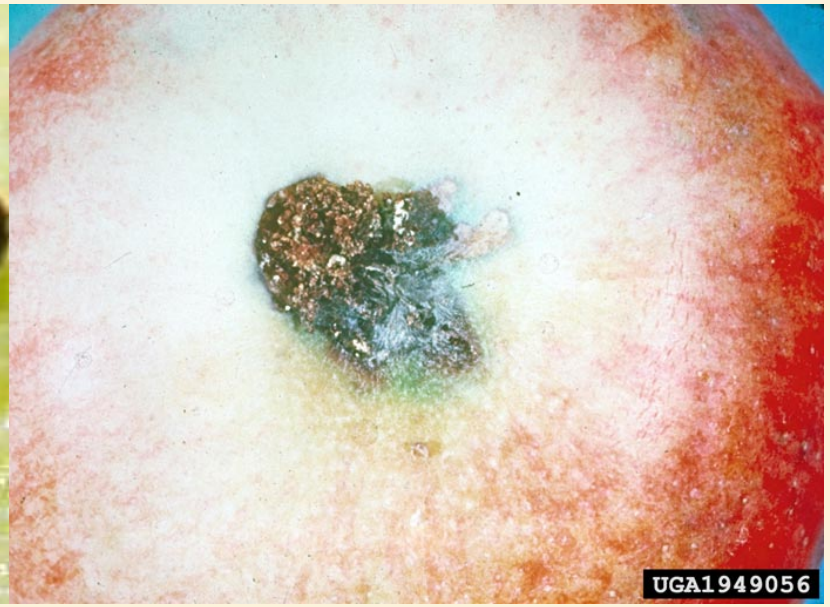
Differences between (OFM) and (CM)

Infested fruit mid June and before likely OFM. Late June and on could could be either. Accompanied by flagging – common in peach, rear in apples – OFM. OFM feeding similar to CM but not in core. OFM and Lesser appleworm have an anal comb. Codling moth does not.



Lesser appleworm

Adult similar in appearance to OFM but smaller. Infests apple, rare in peach. Larva small, creamy white, up to 8-9 mm long. Dark brown to black head capsule. Has an anal comb like OFM but not like CM. Two generations/yr. Will also feed on shoots. Rarely a pest.



Coming back to our original discussion. Why was it important?

Lep. Material
Like Altalcor

Perhaps a neonic
Like Assail

Neither of the
previous 2 choices;
OP, pyrethroids


That's All Folks
Any Questions?