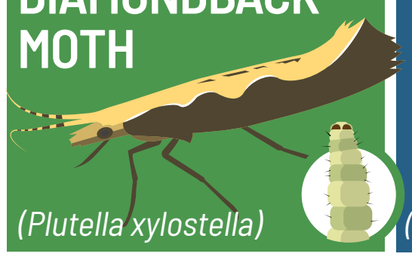
Managing Fruit & Vegetable Insect Pests

A GLIMPSE AT THE RESEARCH ON SELECTED FRUIT & VEGETABLE INSECT PESTS FROM THE ORGANIC SCIENCE CLUSTER (OSC) 2 AND 3

VEGETABLE PESTS

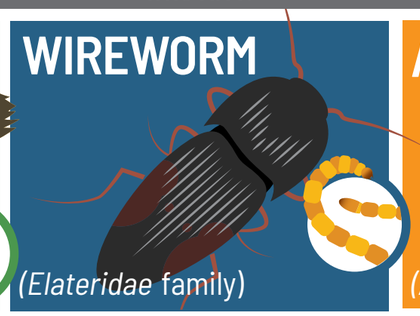
WHO AM I?

DIAMONDBACK MOTH



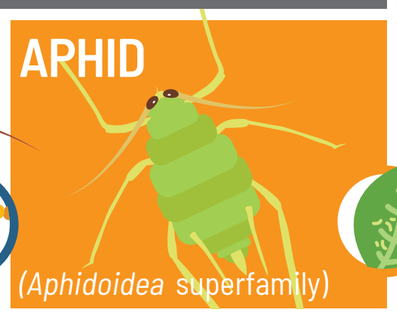
(Plutella xylostella)

WIREWORM



(Elateridae family)

APHID



(Aphidoidea superfamily)

WHAT DO I LOOK LIKE?

Adult: 9 mm long, wings of have wavy cream-coloured margin forming three diamonds when folded.
Larvae: pale green, up to 12 mm long at maturity, cigar-shaped with forked posterior.

Adult: Click beetle species may be black, brown or grey, slender 10-18 mm long.
Larvae: up to 40 mm long, yellow to copper colour, segmented wiry body, 3 pairs of legs.

Adult: Less than 6 mm long with pear-shaped bodies, long antennae and two short tubes projecting from hind end.
Larvae: Often nearly invisible to the naked eye, baby clones are often found surrounding the mother aphid.

WHAT CROPS DO I INVADE?

BRASSICAS (CABBAGE, BROCCOLI)

VARIOUS VEGETABLES

SQUASH, CUCUMBER, PUMPKIN

WHAT DAMAGE CAN I DO?

Larvae feed on crop leaves between the large veins and midribs, creating a "window paning" effect on leaf surface.

Larvae damage and stunt seedlings of many crops in spring by feeding on roots and seeds. In fall, larvae tunnel into root crops, reducing marketability and storability.

Mouth parts that are designed for piercing the plant and sucking sap cause yellowing or browning leaves, stunted growth, curled leaves, low yields and even death in plants.

HOW ARE RESEARCHERS HELPING FARMERS?

Dr. Deborah Henderson (Kwantlen Polytechnic University) has registered a viral biopesticide to control caterpillar pests (like diamondback moth) on organic brassica farms (OSC2, Activity C.30).

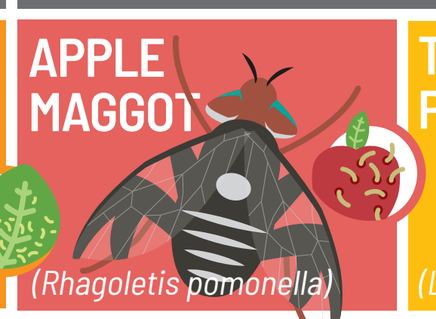
Todd Kabaluk (AAFC Agassiz) is assessing cultural and mechanical practices for managing wireworm populations (OSC3, Activity 21).

Dr. Simon Lachance (University of Guelph) is investigating the use of naturally occurring saponins as a pest management practice in organic greenhouses (OSC3, Activity 19).

FRUIT PESTS

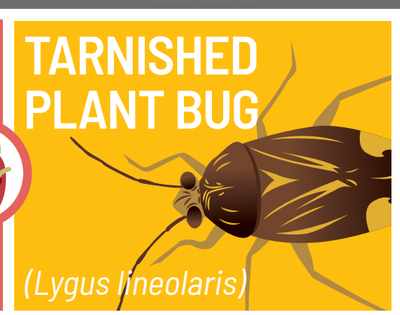
WHO AM I?

APPLE MAGGOT



(Rhagoletis pomonella)

TARNISHED PLANT BUG



(Lygus lineolaris)

SPOTTED WING DROSOPHILA

(Drosophila suzukii)

WHAT DO I LOOK LIKE?

Adult: Slightly smaller than a housefly, 5-7 mm long and have conspicuous black bands running across the transparent wings.
Larvae: White, tapered maggots approximately 5-7 mm in length.

5-7 mm in length, brown mottled with yellow, bronze, or reddish marks. Each wing is black-tipped with a yellow triangle.

Adult: 2-3 mm long may be seen on outside of fruit. Males have a distinctive dot on each wing; females have serrated ovipositor.
Larvae: Up to 6 mm long, legless, headless, white or transparent.

WHAT CROPS DO I INVADE?

APPLES

VARIOUS FRUITS &VEGETABLES

BERRIES & GRAPES

WHAT DAMAGE CAN I DO?

Blemishes on the fruit appear as a result of eggs inserted beneath the skin of the apple. Larvae tunnel through the fruit flesh, leaving brown tunnels behind.

Attacks buds of developing fruit by piercing and sucking the plant tissue, killing buds or scarring fruit. Fruit may have deformed leaves, scarred and discolored stems.

Females use a serrated ovipositor to lay eggs under the skin of the fruit, causing it to be soft and unmarketable. Small larvae may be observed in fruit or crawling.

HOW ARE RESEARCHERS HELPING FARMERS?

Dr. Gérald Chouinard (IRDA) has investigated the use of a row by row exclusion netting system, consisting of nets with an added impermeable rainproof coating (OSC2, Activity B.11).

Dr. Caroline Provost (CRAM) is looking to determine the potential of predatory bugs as biocontrol agents in strawberry crops (OSC3, Activity 18).

Dr. Juli Carrillo (UBC) and Dr. Annabelle Firlej (IRDA) are developing multiple strategies for spotted wing drosophila pest management, focusing on ecological and organic methods of control (OSC3, Activity 20).

For more information and resources on organic research, visit the Organic Science Cluster website (www.dal.ca/oacc/OSC) and follow us on Twitter (@OrganicAgCanada).

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