What Are the Major Pests Targeted by Apple IPM?

INSECTS AND MITES

Art Agnello
Factors contributing to the complexity of host/pest interactions in tree fruit systems:

• Fruit trees are perennial crops; their long-lived nature encourages the development of host/pest interactions.

• Orchards are highly diverse habitats with numerous ecological niches incorporating a variety of secondary host plants, invertebrate and vertebrate species, and therefore a variety of potential pests and natural enemies.

• Tree fruits represent a relatively rich food resource, able to be exploited by many species.

• Abandoned, wild or volunteer pome fruit or stone fruit trees are usually located in proximity to crop trees, in which naturally occurring pest populations are not controlled.
# MAJOR INSECT AND MITE PESTS IN APPLE

## Direct (fruit) Feeders

- **Lepidoptera (Tortricidae):**
  - codling moth
  - oriental fruit moth
  - lesser appleworm
  - obliquebanded leafroller
- **Diptera (flies):**
  - apple maggot
- **Coleoptera (beetles):**
  - plum curculio
- **Hymenoptera (bees):**
  - European apple sawfly

## Indirect (foliar, etc.) Feeders

- **Lepidoptera (moths):**
  - spotted tentiform leafminer
  - dogwood borer
  - other leafrollers
- **Hemiptera (true bugs):**
  - aphids (green, rosy, woolly)
  - leafhoppers
  - San Jose scale
- **Acari (mites):**
  - European red mite
  - Twospotted spider mite
PLUM CURCULIO, *Conotrachelus nenuphar*
1 generation per year

Adult feeding damage

Oviposition damage

Larva

Adult

Oviposition scars at harvest

Adult feeding damage

Larval feeding
ORIENTAL FRUIT MOTH, *Grapholita molesta*

3 generations per year

- **Adult**
- **Egg**
- **Larva**
- **Larval exit hole in apple**
- **Internal injury to apple**
- **Flagged leaves** or **strikes** (in peaches) from larval tunnelling
CODLING MOTH, *Cydia pomonella*

2 generations per year

- Egg, "red ring stage"
- Larva
- Adult
- Severe tunnelling
- External feeding damage

Egg, "red ring stage" -> Larva -> Adult -> Severe tunnelling -> External feeding damage
EUROPEAN RED MITE, *Panonychus ulmi*

4–5+ generations per year

“Bronzing” damage to foliage caused by ERM feeding

**Adult female**

**Foliar damage**

Cornell Cooperative Extension provides equal program and employment opportunity.
OBLIQUEBANDED LEAFROLLER, *Choristoneura rosaceana* – 2 gens per year

- **Adult**: Mature larva
- **Fruit damage by over-wintered brood**
- **Foliar damage by summer brood**
- **Fruit damage by summer brood**

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APPLE MAGGOT, *Rhagoletis pomonella*

1 generation per year

- **Adult**: Oviposition damage
- **Larva**: Larval feeding trails
  - Severe tunnelling, bacterial decay