

Apple IPM Intensive Workshop

What Are the Major Pests Targeted by Apple IPM?

INSECTS AND MITES

Art Agnello



TREE FRUIT SYSTEMS ECOLOGY

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



Oviposition damage



Adult feeding damage

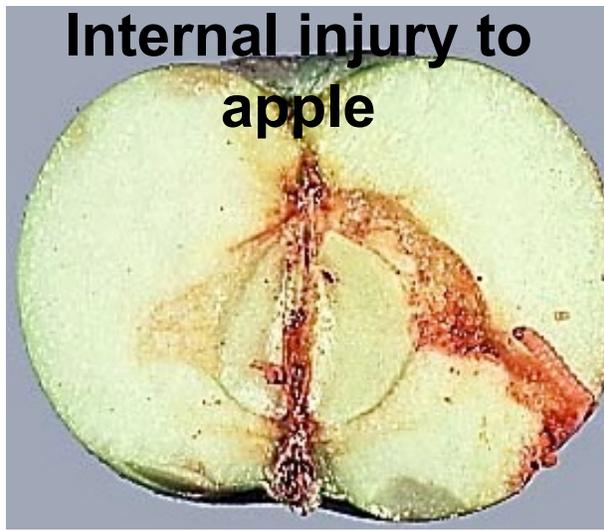
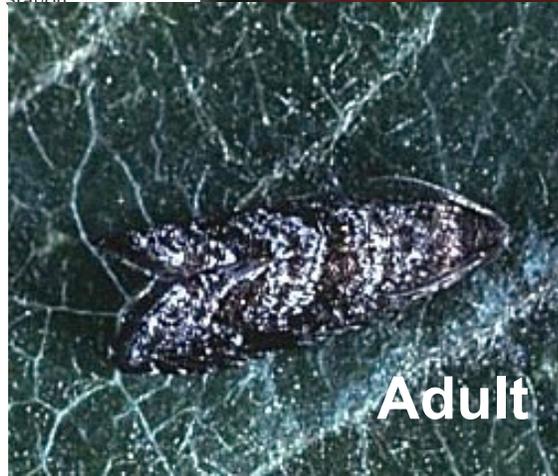


Oviposition
scars at harvest



ORIENTAL FRUIT MOTH, *Grapholita molesta*

3 generations per year



"Flagged leaves" or "strikes" (in peaches) from larval tunnelling

CODLING MOTH, *Cydia pomonella*

2 generations per year



Egg, "red ring stage"

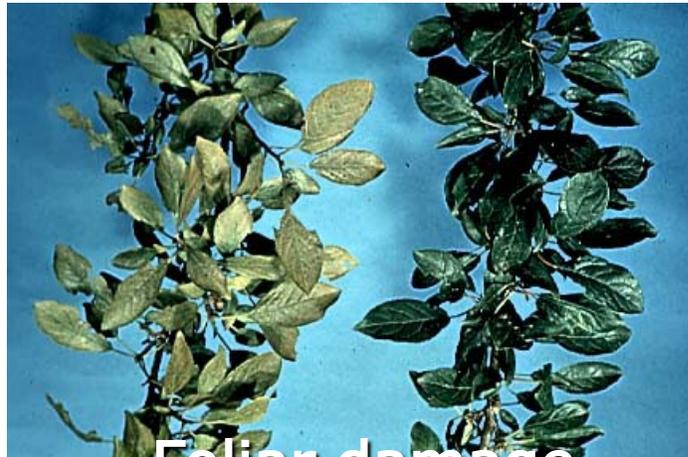


Larva

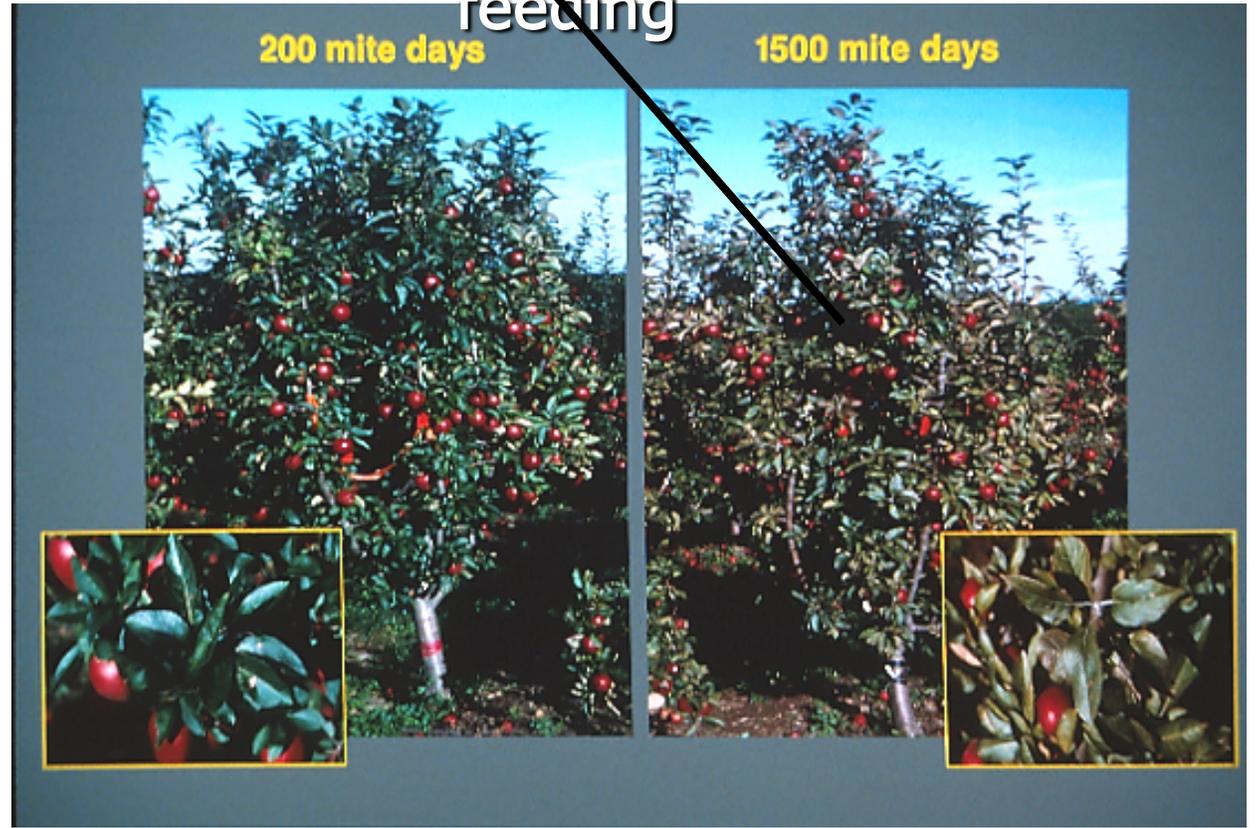


EUROPEAN RED MITE, *Panonychus ulmi*

4–5+ generations per year



“Bronzing” damage to foliage caused by ERM feeding



OBLIQUEBANDED LEAFROLLER, *Choristoneura rosaceana* – 2 gens per year



Adult



Mature
larva



Fruit damage by
over-wintered brood



Fruit
damage
by
summer
brood



Foliar
damage by
summer
brood

APPLE MAGGOT, *Rhagoletis pomonella*

1 generation per year

Adult



Oviposition damage



Larva



Larval feeding
trails



Severe tunnelling, bacterial decay

