PROPOSED APPLE INSECT AND MITE IPM PROGRAM, CHAMPLAIN VALLEY, 2015

Harvey Reissig, Emertis Professor of Entomology

Cornell University
New York State Agricultural Experiment Station

WHY DO WE WANT TO DO INSECT AND MITE SAMPLING IN THE CHAMPLAIN VALLEY ?

- Compared to other parts of the state, insects and mites are relatively easy to control in the CV
- Spending 20 minutes sampling a 40-100 A block of apples can save you thousands of dollars either by not recommending a spray or reducing fruit damage.
- How much money can you make or save working 20 minutes on pruning or tree training ?
- IPM is not complicated. If you can manage high density plantings or do precision thinning IPM is simple. Anyone can be trained to do our sampling and monitoring techniques.

WHAT IS THE GOAL OF PRACTICAL FRUIT IPM PROGRAM ?

- APPLYING THE MOST EFFECTIVE INSECTICIDE OR MITICIDE AT THE RIGHT TIME AND ONLY WHEN PEST POPULATIONS ARE HIGH ENOUGH TO CAUSE EXCESSIVE DAMAGE

WHAT EARLY SEASON PESTS ARE WE NOT GOING T0 SAMPLE OR MONITOR AND WHY ?

Tarnished plant bug

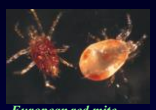
Rosy apple aphid

Spotted tentiform leafminer

Plum curculio

White apple leafhopper

WHAT INSECT AND MITE PESTS ARE WE GOING TO SAMPLE OR MONITOR ?



European red mite

Apple maggot

Obliquebanded leafroller

Apple aphids

EARLY SUMMER FRUIT SAMPLING TO ASSESS CONTROL OF EARLY SEASON PESTS

Tarnished plant bug

Rosy apple aphid

Plum curculio

Codling moth

Oriental fruit moth

Sample 300-500 (25-50 fruit/tree) apples around June 15 to assess effectiveness control of early season pests.

EARLY SEASON FRUIT DAMAGE SAMPLING (MID-JUNE) CAN ALSO BE COMBINED WITH SAMPLING FOR MITES AND APHIDS

European red mite

Apple aphids

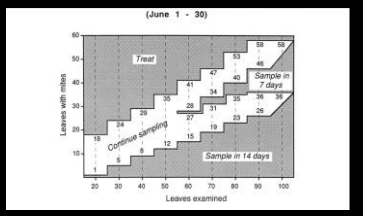
- **Sampling aphids-Inspect 10 rapidly growing terminals on each of 5 trees throughout the orchard.**
- **No formal studies have been done to develop an economic threshold for this pes but treatment is recommended if 30 % of terminals are infested with either apple aphid or spirea aphid.**

EUROPEAN RED MITE

- If you have not used harmful pesticides, particularly prethroids or carbamates, predaceous mites may control ERM and you may never need to treat for mites.
- If not, apply an early season acaricide and sample during the summer to determine population levels.
- We recommend using a simple presence/absence system
- ERM thresholds (Avg motiles/leaf) change during the summer from 2.5 (June 1-30) to 5.0 (July 1-31) and 7.5 (Aug 1-15) later in the season.

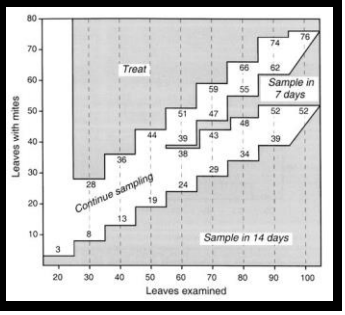
Mite Sampling Chart. Threshold = 2.5 Mites/leaf (June 1-30)

Collect 4 leaves of an intermediate age in a plastic bag from each of 5 trees. Using a magnifier examine the top and bottom of each leaf for motile mites.



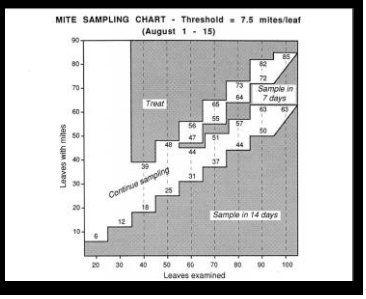
Mite Sampling Chart. Threshold = 5.0 Mites/leaf (July 1-31)

Collect 4 leaves of an intermediate age in a plastic bag from each of 5 trees. Using a magnifier examine the top and bottom of each leaf for motile mites.



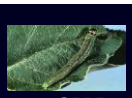
Mite Sampling Chart –Threshold = 7.5 mites/leaf (Aug. 1-15)

Collect 4 leaves of an intermediate age in a plastic bag from each of 5 trees. Using a magnifier examine the top and bottom of each leaf for motile mites.



PROBLEMS RELATING PHEROMONE TRAP CATCHES OF MALE MOTHS TO FRUIT DAMAGE

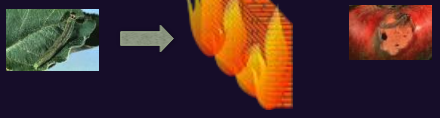
- **Flight Behavior of Males Vs Females**
- **Effects of Landscape Surrounding Orchards on OBLR Populations**
- **Tree Training Systems and Planting Density**
- **Cultivar Variability**
- **Effect of Weather on Phermone Trap Catches**
- **Effects of Insecticides on male populations and behavior**
- **Effectiveness of pheromone traps and lures**



OBLIQUEBANDED LEAFROLLER

- OBLR population levels and fruit damage are highly variable among orchards in the CV
- Usually you can determine general risk from previous fruit damage history.
- Honeycrisp are generally very susceptible to OBLR damage and McIntosh are least susceptible
- Treat susceptible orchards at petal fall to control overwintering larvae
- Usually fruit damage from overwintering larvae is low, but you control them to subsequently reduce in orchard populations of summer generation larvae

PROBLEMS RELATING OBLR LARVAL POPULATIONS AND PERCENTAGES OF INFESTED TERMINALS TO FRUIT DAMAGE



- **Relationship between % infested growing terminals, larval density in tree & fruit injury is relatively poor.**
- **Tree size, varietal susceptibility, growth habit, etc. can affect this relationship**
- **Sampling growing terminals for live larvae is time consuming & difficult and it is hard to find growing terminals during the summer**
- **Fruit damage is really the key variable for making management decisions.**

SUMMER FRUIT DAMAGE SAMPLING FOR OBLR

- Sample for fruit damage when the model predicts peak egg hatch, usually the first week in July.
- Sample 300-500 (25-50 apples/tree) for damage from summer OBLR larvae or int. lep damage.
- Apply a spray if you find one infested apple
- This sampling should take less than 30 minutes

CONTROLLING INTERNAL LEPIDOPTERA

- Traditionally, internal lepidoptera have not been a serious problem in the CV.
- Insecticide resistance for CM or OFM has not been noted yet in the CV.
- Pheromone trap catches of both species, particularly OFM, have been increasing the last several years.
- Assume early generations are controlled by PC sprays and late season generations are controlled by AM sprays
- Fruit sampling early season, OBLR sampling (early July) and harvest sampling will hopefully detect any problems.

AM MONITORING IN THE CHAMPLAIN VALLEY

- **Deploy 3 volatile-baited AM traps along the edge of an orchard nearest most likely source of AM in early-mid July.**
- **Spray when a total of 15 flies are captured.**
- **Wait 10-14 days clean traps and repeat procedure.**
- **Or just wait 10-14 days and apply another spray.**
- **Don't spray after August 15. Use OP's or Assail.**