Invasive Agricultural Pests Update for Maine

2018
Spotted Wing Drosophila

Small fruit fly ("Vinegar fly")

- Native to northern Asia
- Like cool, moist conditions
- Very hardy
- Overwinters as an adult
- Broad host range (fruit, etc.)
- Introduced to California in 2008
- First found in Maine in 2011
- Range continues to expand
Spotted Wing Drosophila

Attacks most soft fruits

- Lays eggs under skin of *unripe* fruit
- Larvae feed on fruit flesh
- Often not noticed until harvest
  - Soft fruit, premature decay
Spotted Wing Drosophila

Crop Hosts:
- Raspberries, blackberries
- Strawberries
- Blueberries
- Cherries
- Elderberries
- Peaches, nectarines
- Plums
- Grapes
- Tomatoes

Wild Hosts:
- chokecherry
- Honeysuckle
- Brambles
- Buckthorn
- Pokeweed
- Dogwood
- Autumn Olive
- Japanese Yew
- Rose hips
- Nightshade
- Etc.
Spotted Wing Drosophila
Life Cycle of the Spotted Wing Drosophila

*Drosophila suzukii* (Matsumura)

- **Pupation**: 4-15 days
  - Inside or outside of fruit
- **Three Larval Instars**: 5-7 days
- **Eggs**: 12-72 hours
  - 350+ eggs in a lifetime
- **Adults**: 20-30 days
Spotted Wing Drosophila

Bev Gerdeman
Spotted Wing Drosophila
Maine SWD Trapping 2012
Maine SWD Trapping 2012

October Trap Catch ~500 SWD
Parasitoids found in Maine attacking SWD!
Spotted Wing Drosophila

Management:
1. Monitor for flies, larvae
2. Spray regularly & often
3. Harvest regularly & often
4. Sort fruit at harvest
5. Chill all fruit immediately post-harvest
6. Remove all unharvested fruit
7. Prune to open up planting
Brown Marmorated Stink Bug

Attacks wide range of hosts

Fruits:
Apples, pears, peach, plum, cherry

Berries:
Raspberry, strawberry, blueberry, grape

Vegetables:
Tomatoes, peppers, beans, corn
Brown Marmorated Stink Bug

Life Cycle:
• Overwinters as adult
• Egg laying: May-June
• Nymphs June-July
  • Undergo 5 molts (instars)
Brown Marmorated Stink Bug

Life Cycle:

• Adults: August – September
• Feed on developing buds and fruits
• Move indoors to overwinter
  • Domestic pest
  • Odiferous
Brown Marmorated Stink Bug

Feeding Damage

Apple, pear:
Exterior catfacing, dimpling
Interior: corky areas
Brown Marmorated Stink Bug

Feeding Damage

*Tomato, pepper:*

- Yellow “cloud” spots on surface
- Spongy or corky tissue areas inside
Brown Marmorated Stink Bug

Management

• No effective traps
• Scouting difficult
• Insecticides
  • Several effective (pyrethroids)
  • Rotate active ingredients
Winter Moth

- From Europe
- Hardwood pest
- Oak, apple, maple, blueberry
- Repeated defoliation
  - High tree mortality
Winter Moth

Life cycle

- One generation/year
- Overwinters as eggs on tree bark
- Larvae emerge early spring
  - Feed on buds, leaves
- Pupate in soil over summer
  - Mate, lay eggs
  - Females don’t fly
  - Attract males with pheromone
Winter Moth
Winter Moth

Management?

• Appears to be established coastal
• Spring oil spray for bud protection
• Bt spray for young larvae May-June
• Tree bands?
• Parasite releases
Spotted Lantern Fly

- From China
- Now in PA, DE
- Tree hopper
- Threat to fruit, ornamental & woody trees
- Spreads via egg masses on cars, trailers, etc.
- High plant mortality
Spotted Lantern Fly

- Overwinter as eggs
- Nymphs emerge in spring, aggregate on host plants
- Adults lay eggs on smooth surfaces in fall
Spotted Lantern Fly

- Early nymphs black with white spots
- Later nymphs mottled red
- Adults 1’ long, buff with blush & black spots
- Colonized trees “bleed” attracting other insects
CAPS Surveys

- Trapping for potential invasive species of crops
- MDACF & USDA-APHIS
  - Karen Coluzzi
Be ready for 2018