# Insects in the Hop Yard: What is Available for the WI Grower

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### TOPICS

- Discussion of potential insect pests
- WI registrations
- Basics of insecticide selection and use





# General Insect Mgmt.

- Positive ID
  - Insect
  - damage
- Monitor on a regular schedule





# General Insect Mgmt. Advice

- Keep Records
  - Insect
  - Populations (#/plant)
  - Location
- Develop an IPM Philosophy
  - Not every insect is bad
  - Not every pest insect needs to be killed
  - Use prevention





# Potato leafhopper

- Adults, Small, 1/8 in long
- Nymphs < 1/8 inch long
- Wedge-shaped
- Fluorescent green
- Piercing /sucking mouth parts
  - Extract plant sap
  - Do not transmit disease











# Life History

- Does not overwinter in WI
  - Migration intensity dependent on weather patterns
  - Arrives in April/May





# Life History

- 4-5 generations/year
  - Approx 28 days for eggs to mature into adults
  - Adults are long lived
- Important Alfalfa Insect Pest
  - Very attracted to alfalfa
  - Monitor alfalfa cutting in your area





#### Damage

- Hot/dry weather increases damage potential
- Expect damaging populations from mid June (??) through labor day





#### **Damage Symptoms**

- Early symptoms
  - Yellow around leaf edges
- Severe symptoms
  - Dead tissue around leaf edges







THE UNIVERSITY WISCONSIN MADISON Dr. Heather Darby Associate Professor of Agronomy University of Vermont



# Monitoring

- Scout once/week
- count nymphs on underside of leaves
  - 2-3 leaves/plant
  - 25 30 leaves/yard
  - Divide number nymphs/number of leaves counted (ave # PLH/leaf)
- Threshold: ave. 2/leaf
- Watch for surrounding alfalfa that is being cut
- Use a net to monitor for adults





# Two spotted spider mites (TSSM)

- Very small: 1/64 inch
- Closely related to spiders (8 legs)
- Overwinter in grasses
- Hot/Dry weather dramatically increases populations
- Feed on hop leaves and cones







# Monitoring

- Use handlense
- Look for signs of webbing
- Count mites (adults and immatures) on several leaves on 25-30 plants
- Look for eggs
  - Sign of a stable or increasing population
- Idaho threshold;
  - 1-2 mites/leaf June July
  - 5-10/leaf Mid July and later
- WI is a different climate





# **TSSM Management**

- Look for signs of damage
  - Early signs: stippling
  - Severe damage: bronzing of leaf
- Carefully select miticide
  - Some insecticides not labeled for TSSM
  - Will kill beneficial insect and mites
  - "Flare" TSSM populations
- Rotate modes of action
- Look at weather forecast















# **Hop Aphids**

- Small (1/8 inch) soft bodied
- Greenish to black in color
- Pear shaped
- Winged and unwinged
- Piercing/ sucking mouthparts
- Several predatory insects











#### Damage

- Secrete honeydew
- Can transmit viruses
- stunting, malformed leaves





#### Threshold

• Pacific NW: average 5-10 aphids/leaf during flowering





#### **Hop Vine Borer**

- Adult: moth (non damaging)
- Larvae: caterpillar







# Life History

- Overwinter as eggs
- Hatch in spring
- Initially feed on perennial grasses
- Migrate to other host crops.
  - Mid to Late May





#### Damage

- Burrow into vines
- Keep field histories
  - Amount of damage
  - Dates of first damage
- Control at first signs of damage
- Can't be controlled once in vine





#### **Stalk Borer**??







#### **Japanese Beetles**

- Adult: beetle
  - <sup>1</sup>/<sub>2</sub> inch long
  - Bronzed
  - Metallic green
  - White patches of hairs
- Grubs: non pest in hops







#### Damage

- Defoliator
- Lacing effect on leaves
- Damage is usually "clumped" w/in a yard
- Adults are migratory
- Monitor grapes/roses for first signs of damage







### **Other insect Pests**

- Grasshoppers-2013
  - Problem year after drought
  - Feeds on .....everything
  - Overwinter as eggs
  - Nymphs are easiest to control vs adults





#### **Other insect pests**

- Loopers/cutworms
- Odd balls
  - Variegated cutworms-2012





# Keys to management?? Routine Scouting!





# **Natural Control**

- Insects/mite predators
- Parasitoids
- Fungal/viral/bacterial pathogens
- Weather

#### But the problem is.....





# **Pesticide Registrations**

- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
  - Administered by EPA
  - Registers product & <u>its uses</u>
- Pesticides must be licensed in WI (DATCP)
  - Special Local Needs registrations
    - Add sites, pest or control practices to labels
  - Emergency Exemptions (section 18)





# **Pesticide Registrations**

- COMPLICATED!!!
- Section 3 pesticide labels
  - Approved (usually) for national use
  - May have regional restrictions
    - Lack of residue data from regions
    - Adding regions to a label is a possibility (?)
    - Manufacturer may provide residue research if there are incentives
      - \$
      - Patent extension
- Regional Labels
  - Are registered for use ONLY in those regions because of:
    - lack of residue data
    - Regions will not be added w/o future reside work
  - Herbicide labels tend to be more regionally restricted





#### Insecticide Use

#### • Get Proper Training!

- Even for "General Use" Pesticides
- Restricted Use Pesticides
  - Those pesticides which EPA claims benefits > risk
    <u>ONLY</u> if a trained person applies it.
  - You are required by law to be trained and pass a certification test
    - Rules and regulations
    - Application safety
    - Environmental safety





# **Insecticide Selection**

- Handout
- Probably out of date!!
- Always read and follow label directions
  - It is the Law!

For most current label information go to the Crop Data Management System (CDMS) website.

http://www.cdms.net/LabelsMsds/LMDefault.aspx?t





# **Insecticide Selection**

- Active Ingredient
- Trade Names
- Restricted Use (Yes/No)
- Chemical Family
- Application type (foliar vs broadcast)
- Target pests
- Pre-harvest restriction (PHI)





# **General Insecticide Use**

- The label is the law.
  - No exceptions
    - Allowed deviations
      - Lower rate
      - Target pest not on label
  - Read and Understand



