

Insect Pests in the Hop Yard

Potato Leafhopper Two-spotted Spider Japanese Beetles
Mites

Hop Vine Borer European Corn
Borer

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General Insect Management

- ✓ Monitor on a regular schedule
- ✓ Always get a positive ID
 - Books/websites
 - County Educators
 - Samples
 - Pictures
- ✓ Keep records (variety, location, #'s, etc)



Potato leafhopper

- Wedge-shaped
- Fluorescent green
- Adults
 - Small, 1/8 in long, winged

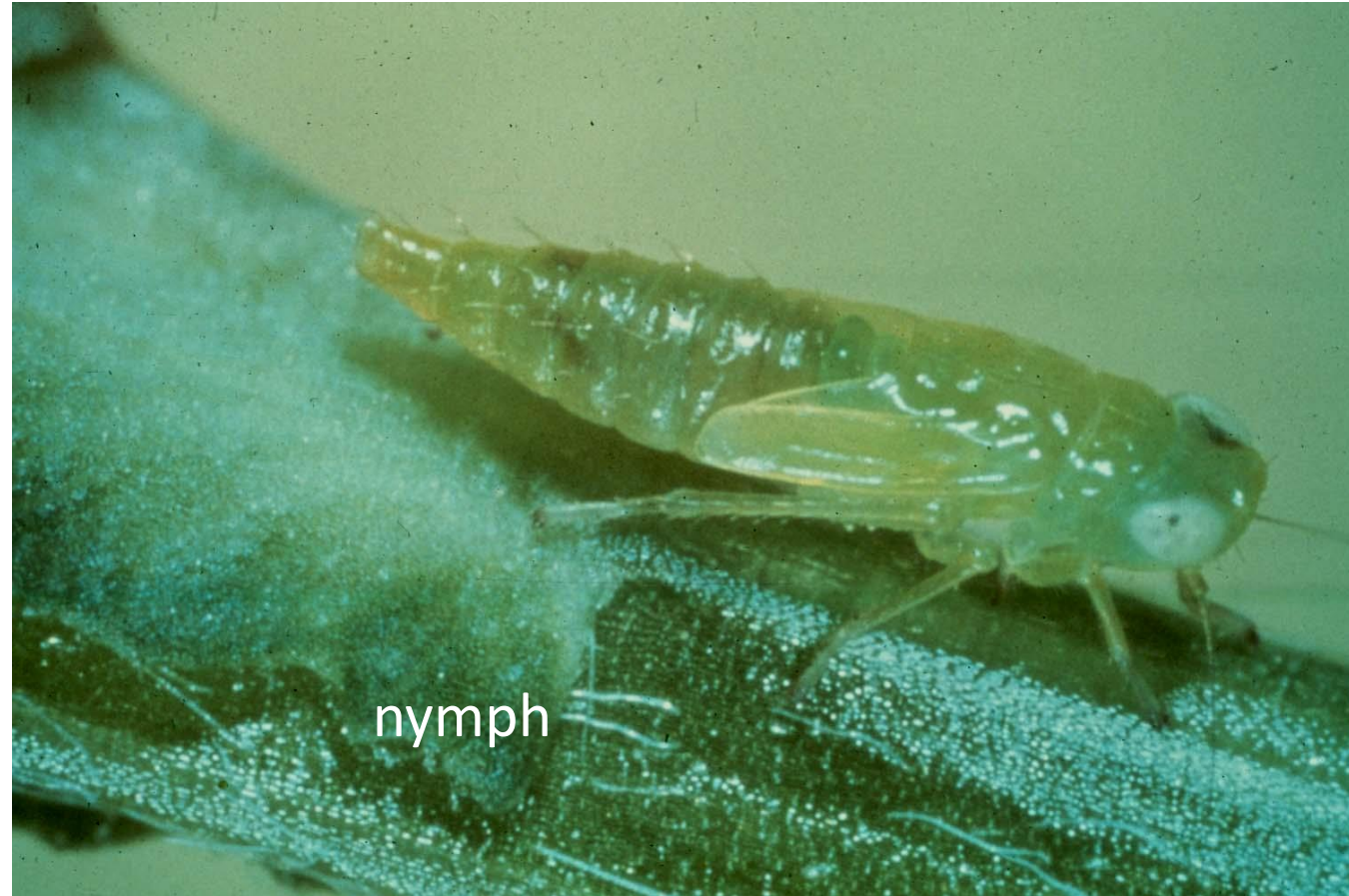


Adult



Potato leafhopper

- Nymphs < 1/8 inch long
Look like adult (smaller)
Very fast moving
Feed on underside of leaves
- Adults and nymphs have
piercing /sucking mouth parts
Extract plant sap
Symptoms call “hopperburn”





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Life History

Do not overwinter in WI

- Arrives in April/May
- Migration intensity depends on weather patterns
- 4-5 generations/year
- Adults may live for 30 days
- generation time: 28 days

Important Alfalfa Insect Pest

- 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





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Monitoring

- ✓ Scout once/week
- ✓ Watch for surrounding alfalfa that is being cut
- ✓ Scout varieties separately
- ✓ count nymphs on underside of leaves
- ✓ Use a net to monitor for adults
- ✓ Threshold: none
- ✓ Look for damage
- ✓ Easy to kill w/ insecticides



Potato Leafhoppers

Questions????



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
- Found on underside of leaves
- Feed on leaves and cones
- Pierce cells and extract contents







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David Gent
USDA Ag Research Service
Bugwood

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Monitoring

- Use white sheet of paper & handlense
- Look for signs of webbing
- Count mites (adults and immatures) on several leaves on 25-30 plants
Late July/August sample upper leaves
- Threshold; (Idaho)
1-2 mites/leaf June – July
 - WI is a different climate5-10/leaf Mid July and later
 - Monitor cones

TSSM Management

Look for signs of damage

- Early signs: stippling
- Severe damage: bronzing of leaf
- DO NOT want to play “catch-up” with spider mite damage

Keep plants healthy (avoid stress)

irrigation

adequate (not over) fertilization

disease control

Carefully select miticide

- Some insecticides not labeled for TSSM
- Will/may kill beneficial insect and mites
- “Flare” TSSM populations



TSSM Management

Rotate modes of action

Look at weather forecast before spraying

Re-scout after application

- After REI expired
- Up to 7 days residual after application
- Insecticides/miticides DO NOT kill eggs



TSSM Management

Natural Enemies include:

- Lady beetles (adult & larvae)
- Lacewing larvae
- Predatory mites

Routine use of miticides/insecticides

- Costs money
- Can kill beneficial insects/mites
 - ✓ Cause TSSM populations to explode
 - ✓ If environmental conditions are favorable
- Can create resistance
 - ✓ Cause TSSM populations to explode
 - ✓ If environmental conditions are favorable

Natural Enemies friendly

- Movento
- Zeal



Two-Spotted Spider Mites

Questions????



Japanese Beetles

- Adult: beetle
 - 1/2 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/raspberries for first signs of damage



Life History

One generation/year

OW as grubs deep in soil profile

Adults emerge mid/late June

- Peak flight: mid-July
- Feed until late summer
- Eggs laid Mid-July in grasses



Management

- Thorough scouting needed
 - Clumped distribution
- Traps ??????
- Threshold
 - Healthy plants
 - Newly established



Management

Insecticides labeled for JB control

- Azatin.....probably a few others
- Alternative insecticides
 - Find an insecticide labeled for hops
 - Look at another crop for JB control (soybean)
 - Likely that insecticide will control JB in hops
 - It is Legal
 - ✓ Must follow rates, timing, PHI, etc under the hops label
- Many will be Restricted Use Pesticides (RUP)



Japanese Beetle

Questions ?????



Hop Vine Borer

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



Life History

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

Damage

Burrow into bines

Keep field histories

- Amount of damage
- Dates of first damage

Control at first signs of damage

Can't be controlled once in bine



Stalk Borer??



European corn borer

Lowest population in 70+ history of Department of Ag's survey

Wide host range

Eggs laid on underside of leaves

- First generation: Mid – late June
- Early August

Larvae up to an inch long

cream to grayish/brown body

Black head

Feed w/in bine



Thank you for your time !



Questions??





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Hop Aphids

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





Photo credits
David Gent
USDA Ag Research Service
Bugwood



Damage

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

Threshold

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