Utah’s Emergency Insect and Quarantine Pests Program

Erin W. Hodgson
Extension Entomologist
Utah State University

2006 Pesticide Recertification Workshops
Background

• UT has a $1 billion Ag Industry
• UT has a $25 million Nursery Industry
• UDAF and USU monitor for invasive pests
• CAPS Program (Cooperative Ag Pest Survey)
  – Insects
  – Disease
  – Weeds
Utah’s high priority insects

- African honey bee
- Apple maggot/cherry fruit fly
- Cereal leaf beetle
- European corn borer
- Gypsy moth
- Imported fire ant
- Japanese beetle
- Mormon cricket/grasshopper
African honey bee

- Accidentally released in Brazil (1965)
- Moved north to U.S. (1990)
  - AZ, NV, NM, TX, CA
- Northern migration cannot be stopped
- Threatens $2.6 million honey industry
- Public health threat, aggressive
More about honey bees

• All honey bees will sting when their nest is threatened by invaders

• A single African bee sting is no more venomous than a single European bee sting

• African bees produce more offspring

• African bees defend their nests with less provocation, in greater numbers and for longer distances than their cousins
• Indistinguishable

• African honey bee has not been detected in UT...yet

• UDAF uses detection surveys each summer
• Indistinguishable

• African honey bee has not been detected in UT...yet

• UDAF uses detection surveys each summer
Apple maggot/cherry fruit fly

- Major pests of fruit trees in U.S./Canada
- Apple maggot detected in UT (1985)
- Threatens $27 million Fruit Industry
- Quarantined insects, restricts exporting
• Detection surveys in 4 counties (600 traps)
• Most catches are in abandoned orchards
• Apple maggot catches slowly decreasing
Cereal leaf beetle

• Adults and larvae feed on small grains
• Can reduce yield by 75%
• Threatens $185 million Small Grain Industry
• Biological control can reduce beetles
  – Larval parasitic wasp is getting established
• All grain-growing counties are surveyed
• 16 counties infested
• Restricted export to other quarantined states
- All grain-growing counties are surveyed
- 16 counties infested
- Restricted export to other quarantined states
European corn borer

• Leaf feeding, midrib feeding, stalk tunneling, leaf sheath and ear damage

• Damage results in poor ear development, broken stalks, and dropped ears

• Plants are impaired, cannot produce normal amounts of grain
• Detection surveys in corn-producing counties (80 traps)
• Never detected in UT
• Can infest more than 200 species of plants
Gypsy moth

- Detected in U.S. (1869)
- Devastating forest pest
- Found in UT (1988)
- Several eradication programs
• Detection surveys in each county
• >3,500 traps
• 0 catches in 2006
Japanese beetle

- Threatens $25 million Nursery Industry
- Host range of >300 plants
• Double lure (floral and pheromone)

• Detection surveys in 16 counties

• >600 trapped in 2006; >2100 trapped in 2007
- Double lure (floral and pheromone)
- Detection surveys in 16 counties
- >600 trapped in 2006; >2100 trapped in 2007
JB biology

• Adults have a broad host range
  – Rose, apple, stonefruits, Virginia creeper, willow, elm, birch, maples, pin oak, sycamore
  – Strongly attracted to ripening fruit
  – Release a mating/feeding pheromone

• Grubs feed on turfgrass roots
  – Overwintering stage
  – Can weaken turf system
JB adult damage

rose

Virginia creeper

blueberry

linden
JB grub damage

- Small patches of turf destroyed
- Patches coalesce, quickly
- Spongy turf, easily pulled back
JB adult control

• Adult control is difficult
  – Wide host range
  – Continuous feeding/mating movement

• Many insecticides are available
  – Bayer Advanced®, Baythroid®, Concern®, malathion 5, Merit 2.5 G ®, Orthene®, Pounce®, Proaxis®, Sevin 4F®, Warrior®
  – Insecticidal soap, Conserve®
JB grub control

• Grub control is difficult
  – Threshold is 8-10/ft\(^2\) with *obvious damage*
  – Treat if persistent grub damage is visible
  – Pushing product down in the soil

• Insecticides are available
  – Merit 0.5G®, GrubEx® before egg hatch
  – Dylox 6.2G® for late summer grub outbreaks
Mormon cricket/grasshopper

• All counties are surveyed each year
  – >1 million acres infested in 2006
  – 160,000 acres treated by aerial/ground bait
  – Projected 187,000 acres treated in 2007

• Mormon cricket infestation has increased

• Grasshopper infestation has decreased
twostriped grasshopper

red legged grasshopper

2006 counties with >1000 acres infested with grasshoppers
Imported fire ant

• Detected in southern U.S. (1940s)
• Caused >$5 billion damage so far
  – Will feed on anything
  – Aggressively defend colony
  – Fire ant mounds are common
Notice “double bump” before abdomen
Summary

• UDAF and USU work together on insect detection surveys with the CAPS Program

• Prevent establishment in Utah

• Most high priority insects are devastating
  – Often can restrict exports to other states
  – Can potentially reduce ag and hort profits
More Information

- http://utahpests.usu.edu
  - factsheets, powerpoints, photo gallery

- http://www.ag.state.ut.us/


Thank you!
erin@biology.usu.edu
435.797.5689
www.utahbugs.usu.edu