

# Overview of corn and alfalfa pest identification and damage

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# Outline

- Importance of corn and alfalfa
- Review most common pests
- Feeding damage – where to look
- Where to get more information

# How to diagnose pest problems

- Look where damage is happening
  - Roots, stems, leaves, flowers
- Could there be multiple pests?
- More than one pest causes same damage
  - Often collecting specimens is best
  - Adults are most helpful for ID
  - Take pictures of damage
- Become familiar with handbooks/keys

# Why is corn important?

- Most important “coarse grain” for animals
- U.S. produces 257 MMT annually
- Grain (1,956,000 bushels) \$4.6 million in UT
- Silage (924,000 tons) \$26.8 million in UT



# Who doesn't like corn?

- Fresh, canned, frozen
- Snack food (think corn nuts!)
- Breakfast cereal
- Cornstarch, corn flour
- Corn oil
- Popcorn
- Cornmeal grits and cakes
- High-fructose corn sweeteners



# Injury to corn seeds, seedlings

- Cold weather slows germination/emergence and prolongs insect feeding time
- Injured seeds result in hollow seed coats
- Other injury includes, rolled/discolored leaves, wilted plants, poor stands, tillering
- Plant death results in stand gaps
- E.g., wireworms, grubs, chinch bug, billbugs, cutworms, sod webworm, seedcorn maggot

wireworm



white grubs



seedcorn beetles



seedcorn maggot



black cutworm



black cutworm



chinch bug



corn root aphid



# Injury to corn roots

- Injured roots will brown and pruned
- Infested plants will become unstable
- Lodging or “goosenecking” will be obvious
- Moisture and nutrient uptake is difficult
- Yield can be reduced, harvesting impossible
- E.g., corn rootworm, grubs



Western corn rootworm



# Injury to corn leaves, tassels, stalks

- Feeding may occur through maturity
- Holes, lesions, shredding are common
- Injured plants move nutrients less efficiently
- Boring into stalks and tassels reduces vigor
- E.g., billbugs, armyworms, stalk borer, corn earworm, grasshoppers, flea beetles, cereal leaf beetle, spider mites, thrips



billbugs



armyworms



UC Statewide IPM Project  
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thrips

grasshoppers



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flea beetles (and cereal leaf beetle)



spider mites



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# Injury to corn ears

- Eat silks, kernels, shanks
- Silk clipping will hinder pollination
- Secondary pests, disease are common
- Infested ears produce fewer/smaller kernels
- E.g., corn earworm, Japanese beetle, grasshoppers, corn rootworm

corn earworm





Japanese beetle

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sap beetles

variegated cutworm



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Western bean cutworm



# Why is alfalfa important?

- 4<sup>th</sup> biggest crop in U.S. (75.8 million tons)
- Hay (2.2 million tons) \$214 million in UT
- Main use is for hay and silage crop
- Can be dehydrated into feed pellets
- Direct grazing



# Alfalfa isn't just for horses

- Therapeutic tonic (vitamins A, B, C, and K)
- Alfalfa sprouts (\$250 million/year!)
- Easily grown and regenerated in cell culture
- Pulp paper manufacturing
- Biofuel



# Injury to alfalfa roots

- Injured roots will brown and pruned
- Infested plants will easily pull away from soil
- Moisture and nutrient uptake is difficult
- Yield can be reduced, harvesting impossible
- E.g., clover root curculio, grubs

clover root curculio



Crown rot from weevil feeding



billbug



white grub



# Injury to alfalfa stems and leaves

- Feeding may occur spring - fall
- Holes, lesions, shredding are common
- Injured plants move nutrients less efficiently
- Boring stems reduces vigor
- E.g., aphids, caterpillars, blister beetles, chinch bugs, grasshoppers, crickets, leafhoppers, leafminers, plant bugs, spider mites, weevils

pea aphid



blue alfalfa aphid



spotted alfalfa aphid



cowpea aphid



alfalfa looper



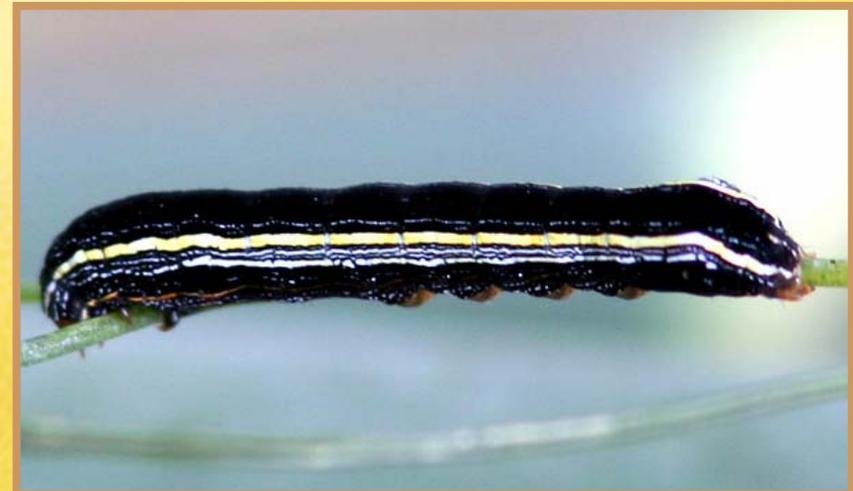
alfalfa caterpillar



beet armyworm



yellowstriped armyworm



grasshoppers



Mormon cricket (katydid)



potato leafhopper



leafminers



chinch bugs



clover stem borer



spittlebugs



meadow plant bug





spidermites



alfalfa weevil



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# Injury to alfalfa flowers

- Serious damage from feeding on buds, bloom or developing seeds
- Heavy feeding causes bud/blossom drop
- Shriveled, nonviable seeds = \$yield loss
- E.g., pea aphid, lygus bug, seed chalcids, stink bugs, blister beetles

Lygus bug (tarnished plant bug)



Chalcid wasp



# Where to get more information

- [www.utahpests.usu.edu](http://www.utahpests.usu.edu)
  - Fact sheets, slideshows, photo gallery and more!
- *Handbook of Corn Insects* (ISBN 0938522760)
- *Handbook of Forage and Rangeland Insects* (ISBN 0977620905)
- *Pacific Northwest Insect Management Handbook* (ISBN 1931979111 )



# Thank you!

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