CROP FOCUS

DUPONT PIONEER

Soybean Aphid

Pest Facts and Impact on Crop

- Latin name is *Aphis glycines* Matsumura
- Importance
  - Origin in Asia
  - First detected in US near Lake Michigan in 2000
  - Major outbreaks in 2001, 2003, 2005
  - Untreated economic infestations frequently reduce yields by more than 10 bu/acre
- Development
  - Overwinter on buckthorn, move to soybeans in July and back to buckthorn in the fall
  - Host plants include a wide range of legumes (soybean, alfalfa, clovers)

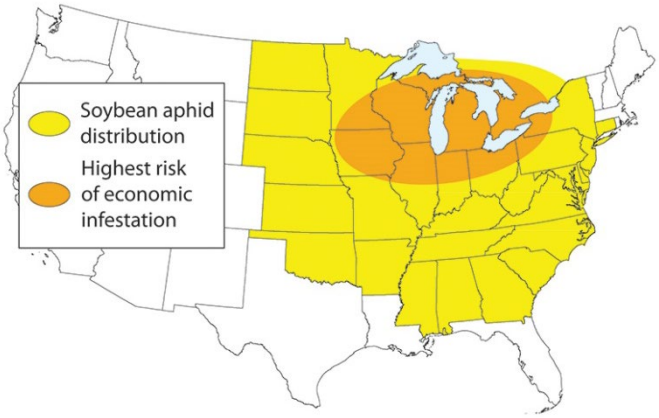
Pest Symptoms/Injury ID

- Shortened plant height
- Curled leaves, often yellow on outside (similar to potassium deficiency)
- Excessive honeydew on leaves, which promotes sooty mold growth
- Presence of ants, which also feed on the honeydew

Plants infested by soybean aphid are shorter (left)

Aphid-infested soybean leaves

Distribution



Soybean aphid distribution and area of increased probability of economic infestation

Causes of Yield Reduction

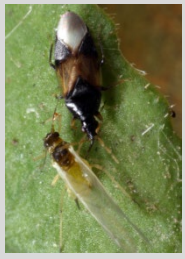
- Removal of moisture, nutrients needed for grain production
- Honeydew on leaves where sooty mold grows, which reduces photosynthesis
- Transmission of viruses

Soybean leaves blackened due to sooty mold

Natural Enemies

- Asian lady beetle – adult or larvae
- Chrysopa/Lacewing – adult or larvae
- Syrphid fly – larvae
- Predatory bugs – Minute pirate bug, Big-eyed bug, Damsel bug, etc.
- Bio-control agent = Parasitic wasp – *Binodoxys communis*
- Various fungal diseases

Lady beetle feeding on aphids



Aphid parasitized by wasp

Pest ID

- Soybean aphids are small
  - Less than 1 mm in length
  - Oval or pear-shaped
- Color is typically light green
- Adults may or may not have wings
  - Winged adults have black head/thorax
- Cornicles are distinguishing characteristic
  - Black "tail pipes" projecting from the rear of the abdomen
- Aphids develop by gradual metamorphosis in three stages:
  - Egg (fall and winter only)
  - Nymph (resemble small adults)
  - Adult (may or may not have wings)

Soybean aphid nymphs and adults

Management Practices

- Population factors
  - Consider using seed treated with a nicotinoid insecticide to delay soybean aphid population establishment, especially in late plantings
  - Temperatures in the low to mid 70s promote longevity and reproduction (doubling time is less than two days)
- Allow lady beetles, insidious flower bugs, and other beneficial insects to suppress populations

Management Practices

- Scout fields in July
  - Use economic threshold of 250 aphids per plant to justify insecticides
- Insecticide control
  - Spray fields before aphids reach 1,000 per plant and plant stage R5.5

Right side = unsprayed

Left side = sprayed

- Plant resistance
  - Natural antibiosis – Monitor varieties with least antibiosis first
  - Natural antixenosis
  - Future Pioneer® brand varieties with array of *Rag* genes may reduce need to spray

Life Cycle of the Soybean Aphid (*Aphis glycines* Matsumora)