Insect Update

-soybean gall midge
-white mold gall midge

Bryan Jensen
Dept of Entomology
UW-Madison

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What are Midges?

- Order: Diptera
- Several families
- Diverse group of insects
  - Cosmopolitan
    - All habitats (except deserts, frigid zones)
  - Various Ecological Roles
    - Biting (sand flies, black flies)
    - Detritivores, important role in nutrient cycling
    - Prey for many insectivores (lake flies, bay flies)
    - Plant feeding (gall midges)

Crop Pests??

- **Hessian Fly**
  - Pest of cereal crops (wheat, rye, barley)
  - Large geographical range
  - Management: planting after the hessian fly free date
  - Major reason why WI hasn’t been a key wheat producing state since mid 1800’s

Soybean Gall Midge (SGM)

-Soybean pest

-not yet found in WI

White Mold Gall Midge (WMG)

-Found in WI

-NOT a soybean pest

SGM look-a-like

SGM

- Isolated reports of injury
  - 2011, NE
  - 2015, SD
  - 2016, IA

- Significant Injury:
  - 2018
    - significant yield losses reported NE, IA, SD
    - Found in MN
    - 61 total counties
  - 2019 MO added
    - additional 31 counties in NE, IA, SD & MN

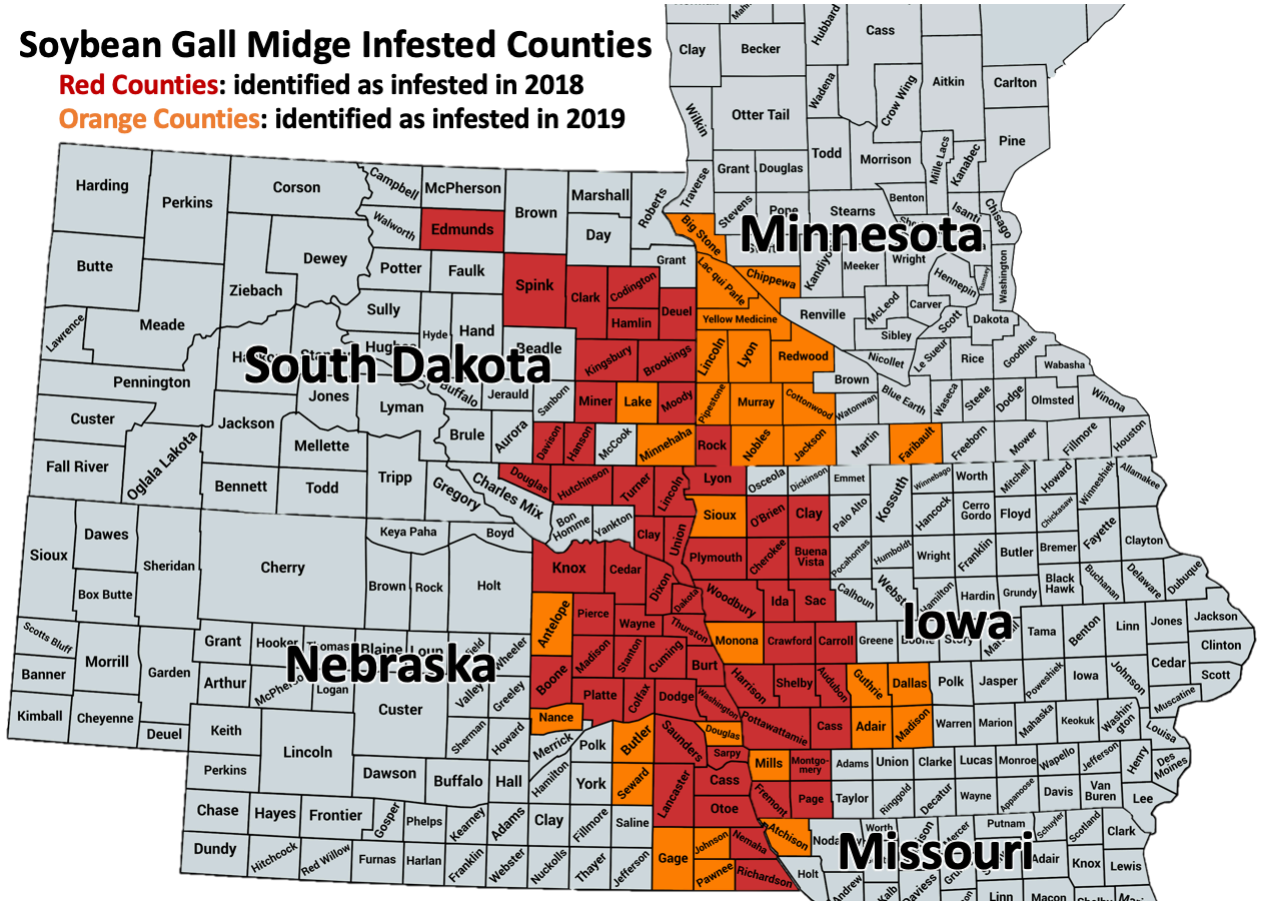
SGM

- More is unknown than known
- Offering best guesses
- Stay tuned
- All SGM images courtesy of Justin Mc McMechan, Univ of Nebraska

SGM

- *Resseliella maxima (Gagne')*
  - Described in 2019
  - Previously undocumented
  - Family: cecidomyiid
  - Origin unknown

Current Known Geographical Distribution



Identification

- Adult
  - Mosquito-like
  - 1/4 inch long
  - Dark/light banding on legs

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Identification

- Immatures (maggot)
  - Life stage that causes crop damage
  - No legs, tapered body, no well-defined head
  - 1/8 inch long
  - Clear >>>>> bright orange

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Life Cycle

- Complete metamorphosis
- OW as pupae in soil
- 2, maybe 3 generations/year
  - Approx. 1-month generation time
  - OW generation
    - Adults emerge early to late June (NE)
    - No geographical trends
    - Duration of adult flight 3-23 days
    - Highest emergence from previous soybean field
- Host range
  - Soybean
  - Others?
- Weak fliers
  - “edge” insect

Damage

- Plant Symptoms
  - Infest vegetative to reproductive stage soybean
  - Feeding site at base of stem
    - Dark/blackened site
    - Don’t confuse with diseases
  - Feeding site maybe some what swollen
  - Above ground symptoms
    - Wilted/dead plants
    - -not diagnostic of only SGM
    - Plants may break off at soil line

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Damage Symptoms

- Greater incidence at field edge
  - ✓ Grass
  - ✓ Dense vegetation
- Plant damage noticeable 9 days after adult emergence
- Higher pressure near previous year's soybean
- Damage potential 20% >100%in infested areas

Detection

- Monitor early planted soybean
- Areas next to dense vegetation
  - Grasses, shrubs
- Greatest likelihood of detection is R3-R5

Control ??

- Tillage
  - Can reduce OW population
- Mowing field edges
  - Can reduce infestations along field edge
  - NSD yield
- Foliar Insecticides
  - Efficacy inconclusive
  - Long adult flight

White Mold Gall Midge

- *Karshomyia caulicol (Gagne')*
- First document in Wisconsin, 2019
  - Pierce County
  - Late August
- Non pest
- Does **not** cause **or** spread White Mold

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White Mold Gall Midge

- Not a “new” insect
- MN, ND, NJ, Manitoba, Europe
- Associated w/ compromised plant tissue
  - White mold
  - Mechanical injury
  - Hail injury
- Why the concern???
  - Visually similar to SGM

Field ID
WMG vs SGM

Characteristic	SGM	WMG
Visual ID	Clear to orange larvae	Clear to orange larvae
Field Distribution	Edge (clumped)	Field wide
Plant area affected	Base	upper portion of stems
Time of Year	Early –> late	Late
Associated w/ white mold, plant injury	No	Yes
Other plant symptoms	Dead/dying plants Brittle stems	Nothing specific to WMG

2019 SGM Survey

- **UW Extension agents, educators & staff**
  - **Informal SGM survey in 2019 (July/August)**
    - **65 Fields**
    - **8 counties**
    - **Not detected**

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2020 SGM Survey

- Anticipate a coordinated/systematic survey
  - DATCP
  - UW Division of Extension

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Summary

- Be aware of SGM and its injury
- Periodically walk field edges
- Know general difference between SGM & WGM
- IF unsure of ID?
  - Contact local county extension agent/educator

Questions??