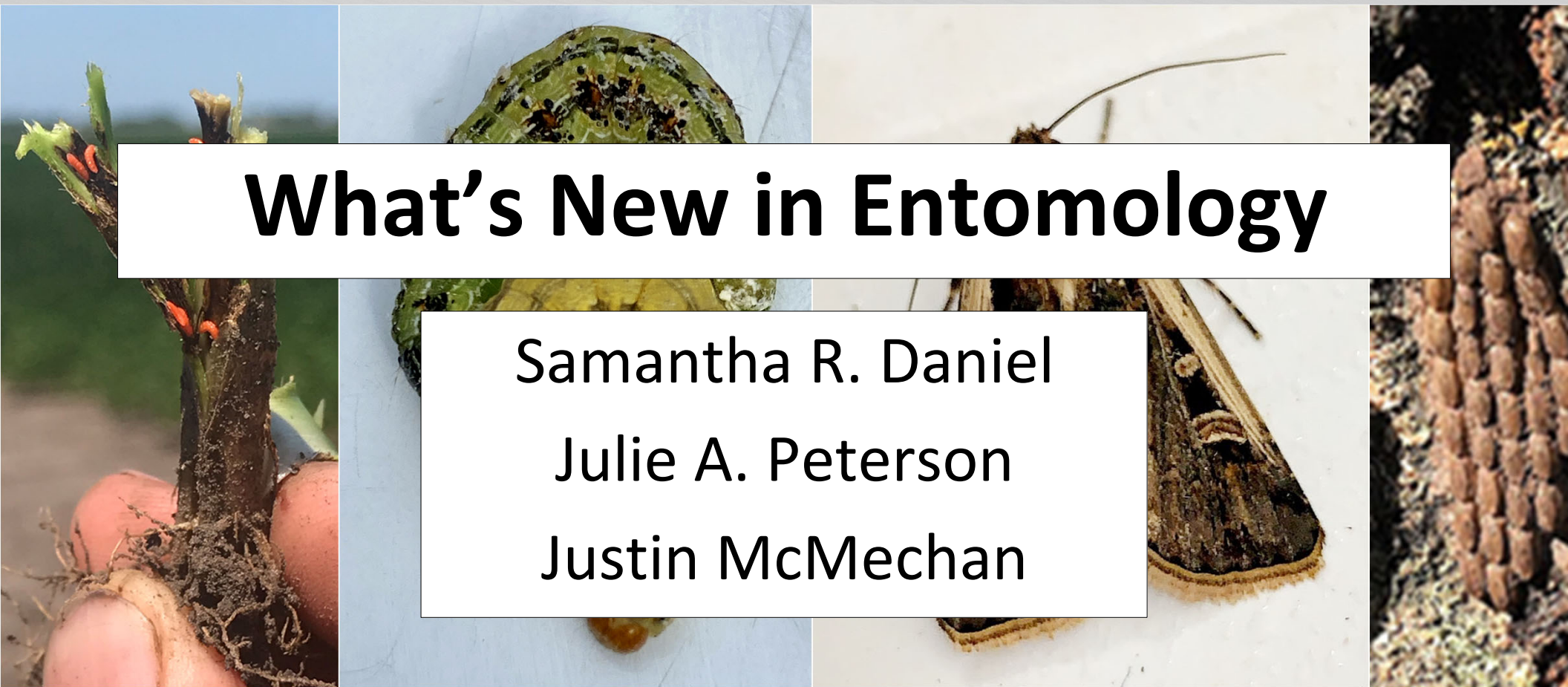


## What's New in Entomology

Samantha R. Daniel

Julie A. Peterson

Justin McMechan



## Session Goals

**At the end of this session, participants will:**

- 1) Be aware of the potential threat of spotted lanternfly and what to do if they think they have seen one in Nebraska
- 2) Recognize the threat of soybean gall midge in Nebraska and be able to identify feeding damage
- 3) Understand the importance of IRM for lepidopteran pests of corn and what the EPA proposed changes are and how they may impact corn production
- 4) Understand the regulatory and production updates regarding chlorpyrifos

## Invasive Pest Alert: Spotted Lanternfly

- The spotted lanternfly (*Lycorma delicatula*) is an invasive planthopper native to China, India and Vietnam
- First detected in the U.S. in Pennsylvania in September of 2014
- Since spread into counties of New York, Connecticut, New Jersey, Delaware, Maryland, Virginia, West Virginia and Ohio
- Host plants include fruit, ornamental and woody trees

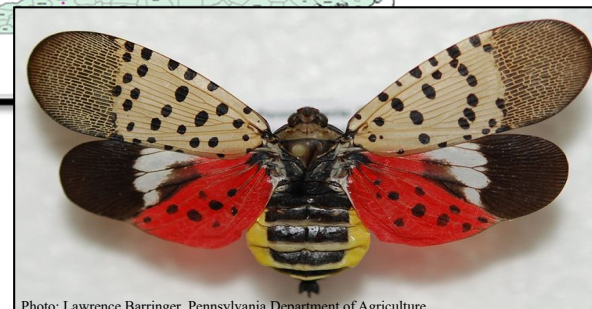
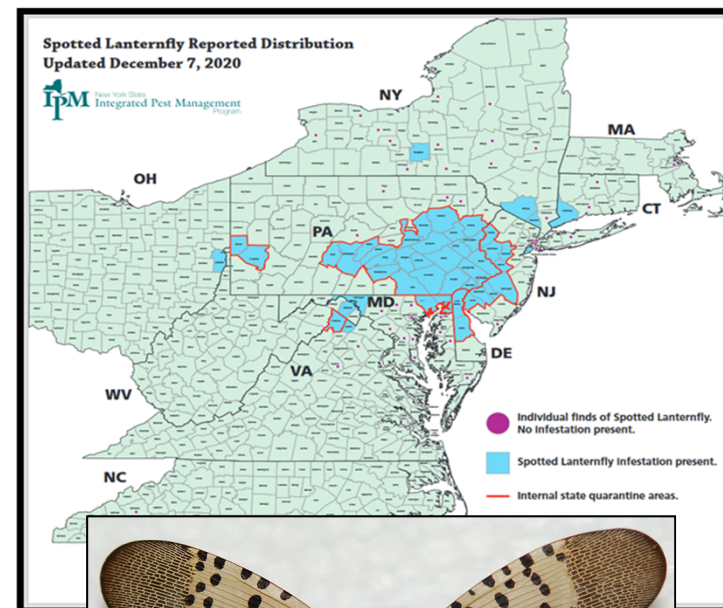


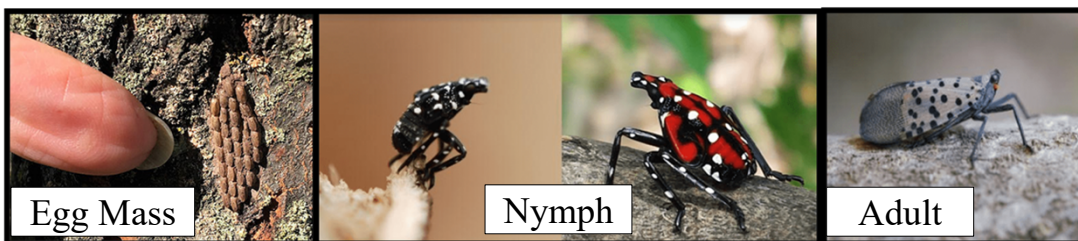
Photo: Lawrence Barringer, Pennsylvania Department of Agriculture



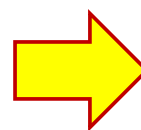
## Invasive Pest Alert: Spotted Lanternfly

- This pest has not been detected in Nebraska
- USDA considers the state to contain suitable habitat for the spotted lanternfly (pine forests; maple, oak and sycamore trees)
- How can you help?

### 1.) Familiarize yourself with the life-stages:



### 2.) If you believe you've spotted this insect!!



- ✓ Contact your local extension office
- ✓ Contact the Nebraska Department of Agriculture: 402-471-6847

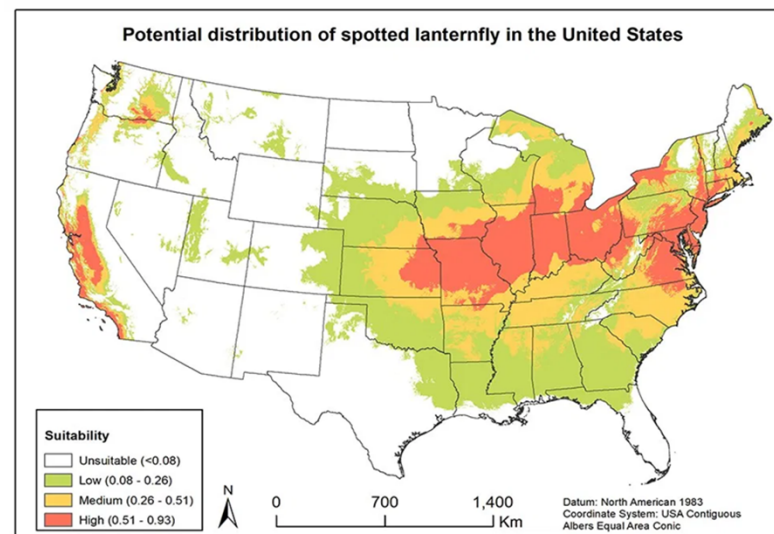


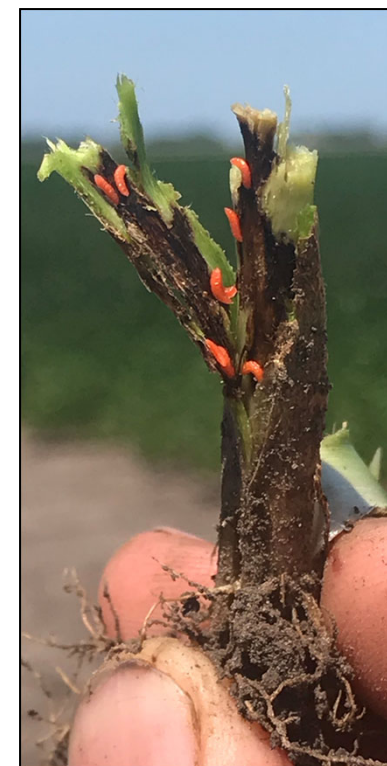
Image originally published in Wakie et al 2019, *Journal of Economic Entomology*

## New Pest Updates: Soybean Gall Midge

- Soybean gall midge (*Resseliella maxima*) are native flies that have recently become pests of concern
- History in Nebraska
  - **2011**: Found in isolated fields in northeast Nebraska on previously injured/diseased plants
  - **2016**: Documented in East Central Nebraska



2-3 mm long







## New Pest Updates: Soybean Gall Midge

Due to their small size, you are likely to notice damage before the insect itself



More Questions?

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Twitter: @justinmcmechan

## Regulatory Update: Lepidopteran *Bt* Resistance

### Who?

- EPA-led effort
- Science advisory panel recommendations
- Feedback from stakeholders

### What?

- Proposal to improve current IRM strategies
- Lepidopteran pests of *Bt* corn and cotton

### Why?

- Growing concern regarding *Bt* resistance
- EPA has reported noncompliance

**Western Bean Cutworm**  
*Striacosta albicosta*



**Corn Earworm**  
*Helicoverpa zea*



**Fall Armyworm**  
*Spodoptera frugiperda*





# Crop Production Clinics



## Regulatory Update: Lepidopteran *Bt* Resistance

| Update  | Details   |
|---|---|
| Resistance reports                              | Reports for Lepidoptera pests ( <i>H. zea</i> , <i>S. frugiperda</i> , <i>S. albicosta</i> )  |
| Updated definition of resistance                | All non-high dose pests considered heightened risk; Practical resistance: unexpected injury exceeds established levels in <i>Bt</i>     |
| Resistance monitoring                           | Sentinel plots established in high-risk regions   |
| Enhanced resistance mitigation                  | Tools for: confirmed resistance and remaining effective traits  |
| Annual reporting                                | Unexpected injury notifications; production records (refuge seed amounts; total acres of insecticide sprayed targeting <i>Bt</i> pests) |
| *Single-trait/Non-functional pyramid phase down | Short-term phase down: single trait corn products; Long-term phase-down: compromised pyramid corn and cotton products                   |
| *Increase % refuge in seed blends               | Increase amount of refuge seed from 5% to 10% in seed blends  |
| *Refuge compliance monitoring                   | Mandatory compliance visits; measures for non-compliance  |

## Regulatory Update: Chlorpyrifos

- What is chlorpyrifos?
  - Broad-spectrum organophosphate insecticide
- What are the risks?
  - Evidence of negative impacts to brain development in children
  - Highly toxic to fish, birds and honeybees
- Regulatory history
  - **2000**: Most homeowner uses eliminated
  - **2015**: Proposed ban, later reversed
  - **2017-2019**: Petitions to ban denied

## Regulatory Update: Chlorpyrifos

### What you need to know:

- 1) Corteva ending chlorpyrifos production in 2021
- 2) Generic chlorpyrifos products still available
- 3) The EPA is currently accepting public comments on new risk mitigation proposals through February 5, 2021



### What are the proposed measures?

#### Label Amendments

Limit applications in relation to drinking-water contamination risk

#### Increased Worker Safety

Additional PPE requirements and application restrictions to limit exposure

#### Spray Drift Mitigation

Measures to limit spray drift in order to reduce non-target organism exposure



## Take Home Points

- Spotted lanternfly is an invasive pest of trees that could potentially establish in Nebraska
- Soybean gall midge is a new pest of soybean in east/east central Nebraska
- *Bt* resistance in lepidopteran pests of corn is a growing concern
- EPA proposed IRM measures could impact the way corn is produced
- Chlorpyrifos products Cobalt and Lorsban discontinued in 2021
- EPA proposed risk mitigation measures for chlorpyrifos can be reviewed and comments submitted through February 5, 2021

# Crop Production Clinics



## Frequently Asked Questions

**Q:** Where can I go to find out more about soybean gall midge?

**A:** [soybeangallmidge.org](http://soybeangallmidge.org)

**Q:** What *Bt* proteins are lepidopteran pests of corn currently resistant to?

**A:** Corn earworm (Cry1Ab, Cry1A.105, Cry2Ab2); Fall armyworm (Cry1F); Western bean cutworm (Cry1F)

**Q:** Where can I find the most recent updates on EPA proposed changes?

### EPA IRM Site

<https://www.epa.gov/regulation-biotechnology-under-tsca-and-fifra>



### EPA Chlorpyrifos Site

<https://www.epa.gov/ingredients-used-pesticide-products/chlorpyrifos>

