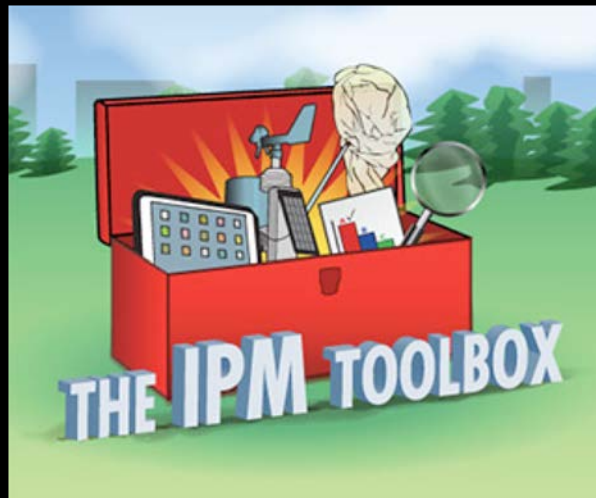


Pest Management in No-till Corn Silage Systems – with an introduction to NE SARE funding programs & resources

John Tooker, Penn State & Deb Heleba, NESARE
Tuesday, September 25, 2018. 2:00 pm – 3:00 pm





Webinar Details

- Welcome
- A recording of this webinar will be available within a week at <http://www.neipmc.org/go/ipmtoolbox>

We Welcome Your Questions

- Please submit a question **at any time** using the Q&A feature to your right at any time
- If you'd like to ask a question anonymously, please indicate that at the beginning of your query.

Some Questions for You



About Northeast SARE

- **Presented by:**
- **Deb Heleba**
- **Northeast SARE**
- **Communications Specialist**
- **debra.heleba@uvm.edu**



United States
Department of
Agriculture

National Institute
of Food and
Agriculture

Northeast SARE offers

Competitive Grants

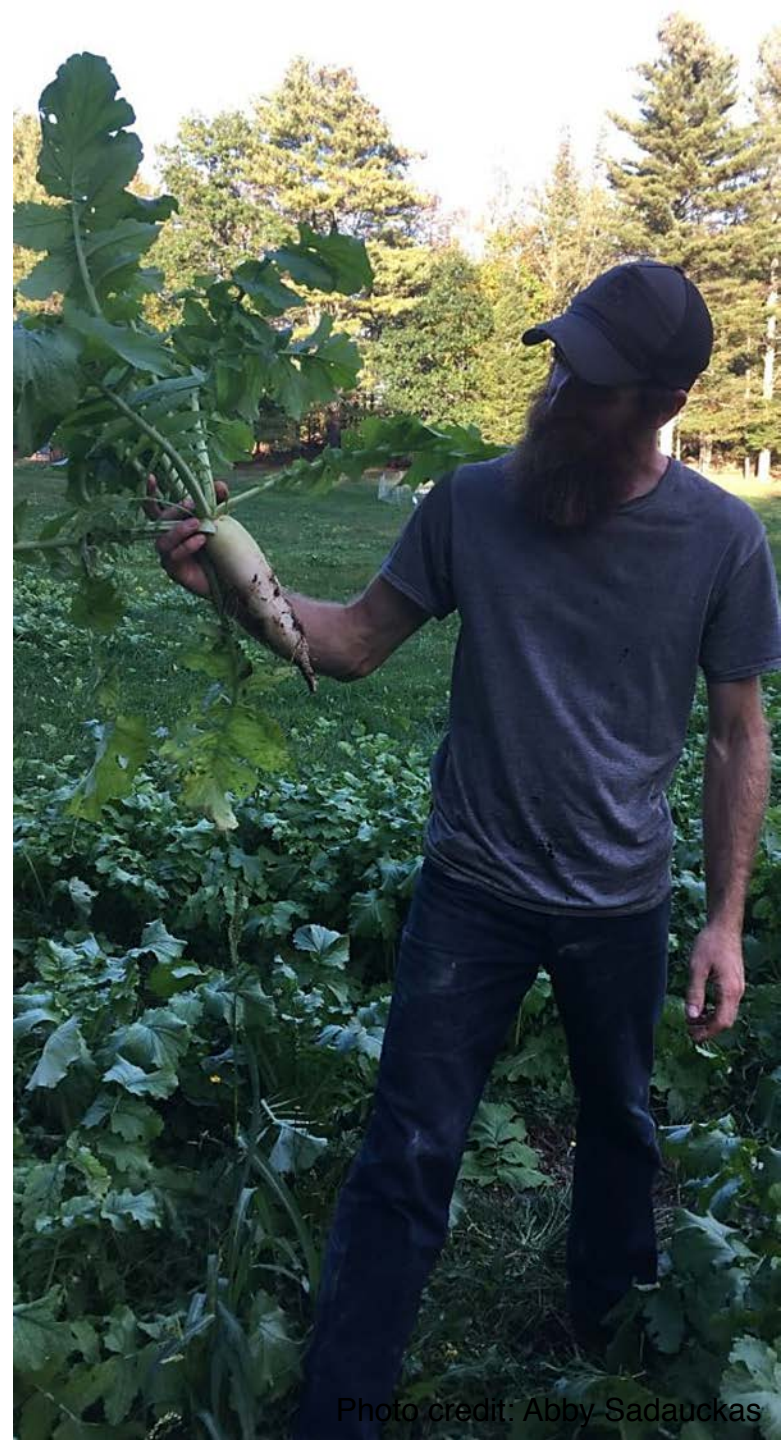
- Farmer
- Partnership
- Graduate Student
- Research and Education
- Research for Novel Approaches
- Professional Development Program



Photo credit: Beth Holtzman

Farmer Grants

- Funds research conducted by farmers in the Northeast.
- Up to \$15,000 available per project.
- Farmer in charge, but a Technical Advisor is required.
- Must share results with other farmers.
- **Webinar: Oct 10**
- **2019 Deadline: Nov 27**



Partnership Grants

- Funds projects conducted by agricultural service providers working directly with farmer(s).
- For research or demonstration projects on farms, or projects addressing social/market issues.
- Up to \$30,000 available per project.
- **Deadline: April 2019**



Northeast SARE offers

Resources

- Research Results & Lessons Learned
 - Searchable Online Database
- Publications
 - Bulletins & Factsheets
 - Guides and On-line Books
- Regional newsletter & grant notifications
- State Programs





For more information, visit:

www.northeastsare.org

Questions?

Insect and Slug Management in Reduced-Tillage Systems



John Tooker
Dept. of Entomology, Penn State

No-till decreases labor, conserves soil, water



No-till decreases labor, conserves soil, water

Does no-till make insect pests more abundant?

No, but the suite of pests
is a little different:

- Black cutworm
- True armyworm
- Stalk borer
- Wireworm
- ...





Case study with slugs.
If you can control slugs,
other pests should be easier



Slugs can damage virtually all crops

Canola



Corn



Soybean



Alfalfa &
Sm. grains



~20% of no-till acreage loses yield (~600,000 acres)



No-till decreases labor, conserves soil, water

No-till does not harbor more abundant pests

But, it does host greater abundances of predators



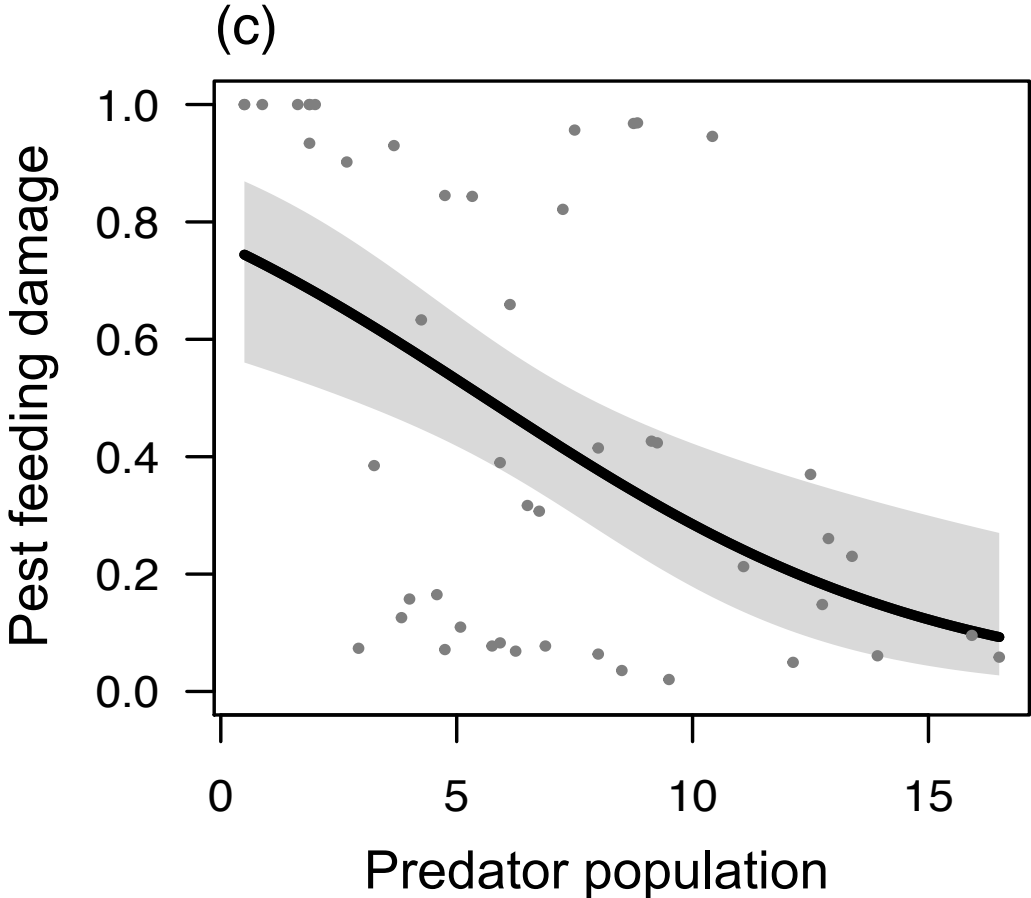
Ground beetles = lions of no till fields



Will eat:

- Black cutworm
- True armyworm
- Stalk borer
- Wireworm
- Slugs

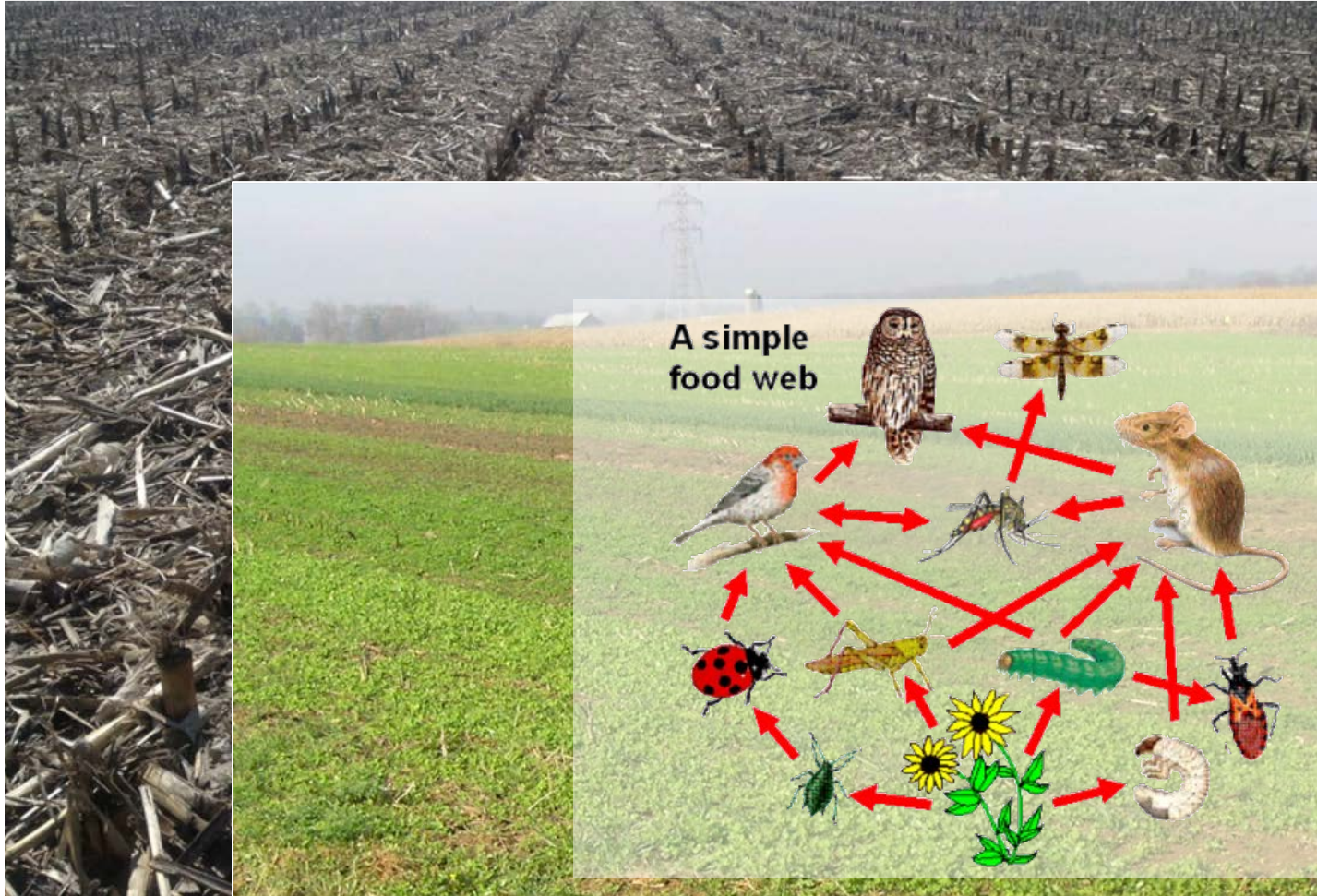
Strong predator populations can protect plants from pests



No-till decreases labor, conserves soil, water

Stability provides a good habitat for natural enemies


Cover crops enhance good populations further



Aaron Lee D

Insecticides are valuable tools

Foliar, soil, seed treatments – tend to be overused

- Use them appropriately
 - Integrated Pest Management
- Unintended consequences  Similar for foliar, soil-applied, or seed treatments
 - Decrease good insects, can make pest problems worse
 - Environmental concerns

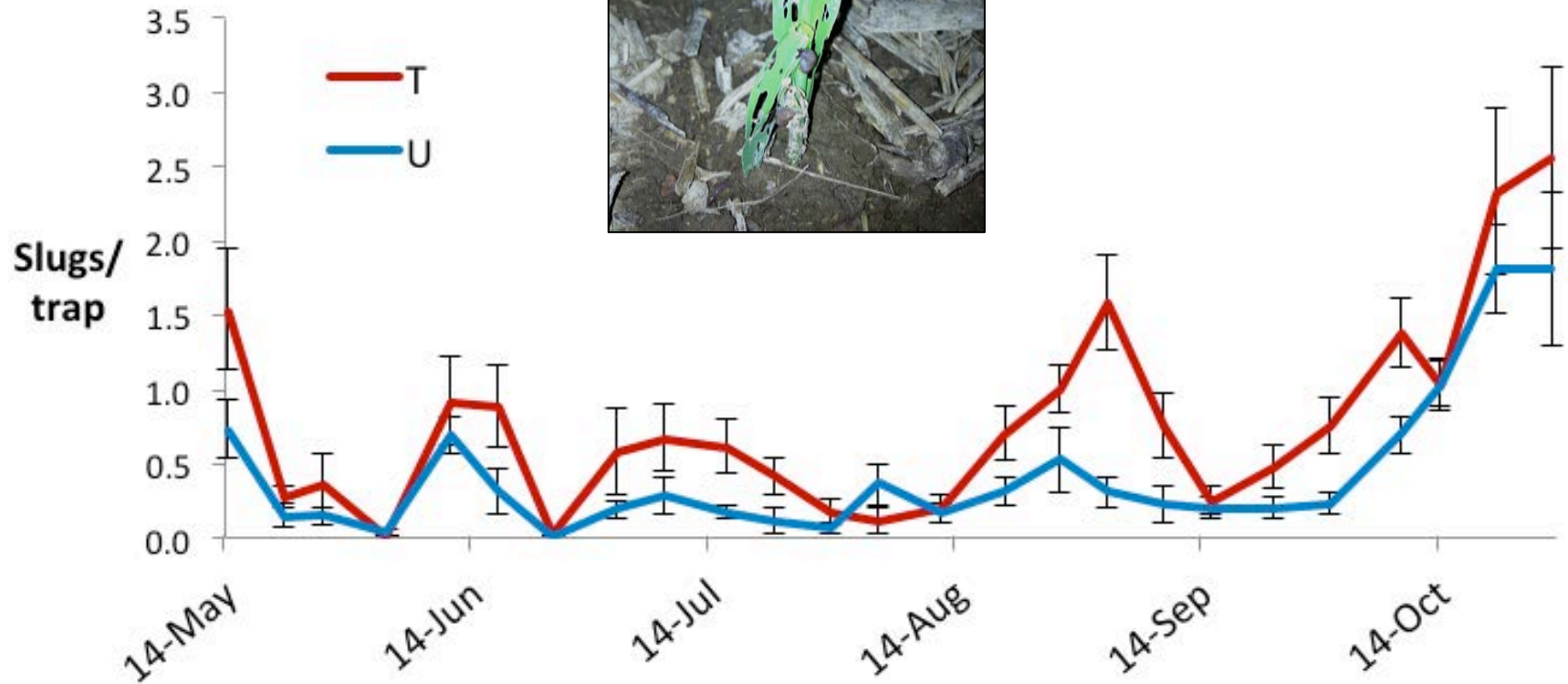


Assassin bug (wheel bug) attacking a Japanese beetle



Thanks for your attention.
Questions??

Neonic seed treatments exacerbate slug problems



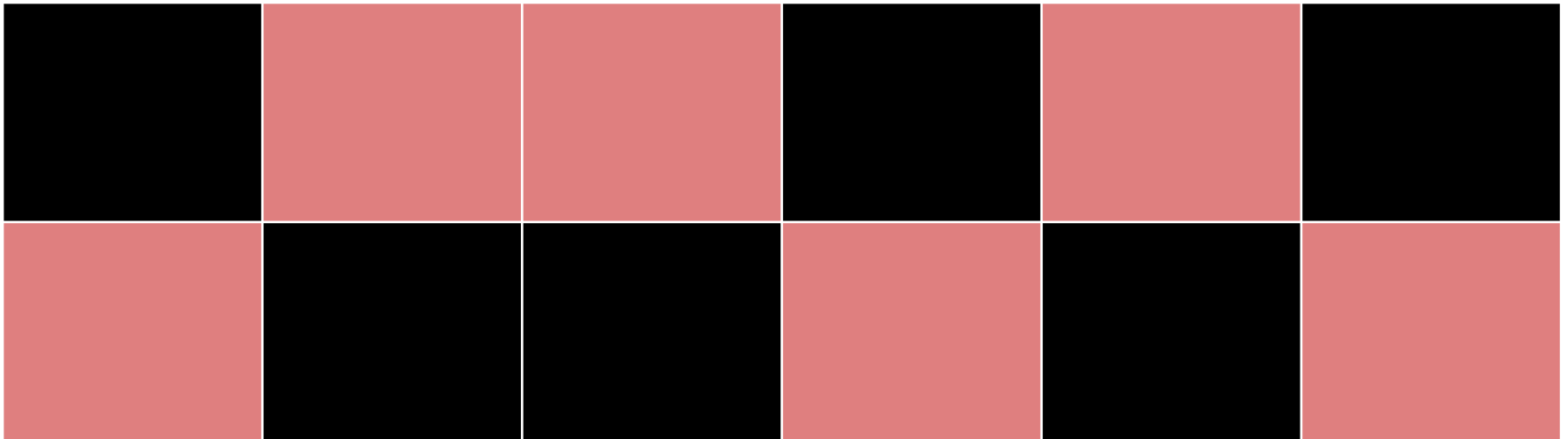
What is the influence of insecticidal seed treatments on slugs?

Treated

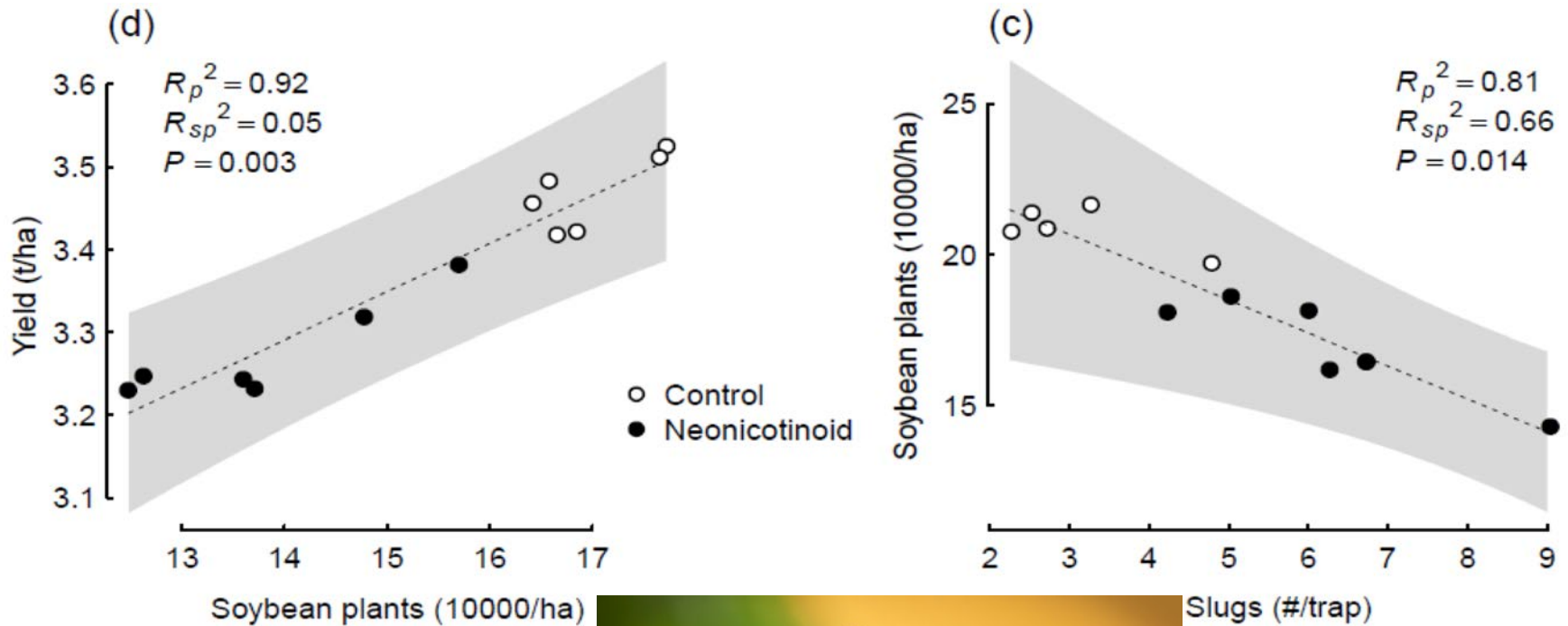
Thiamethoxam (0.152 mg/seed)
+ fungicides (CruiserMaxx)

- N = 6
- 0.25-acre plots
- No-till planted in 30" rows

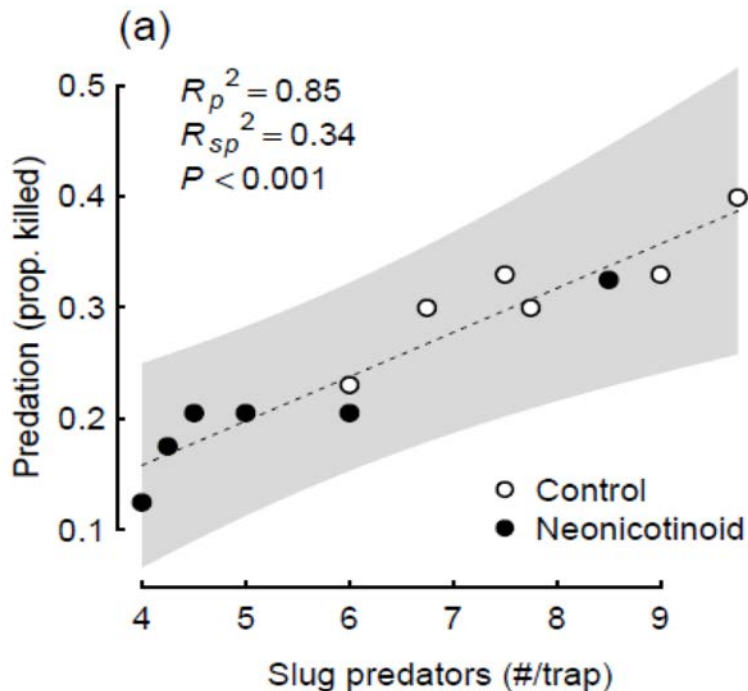
Untreated



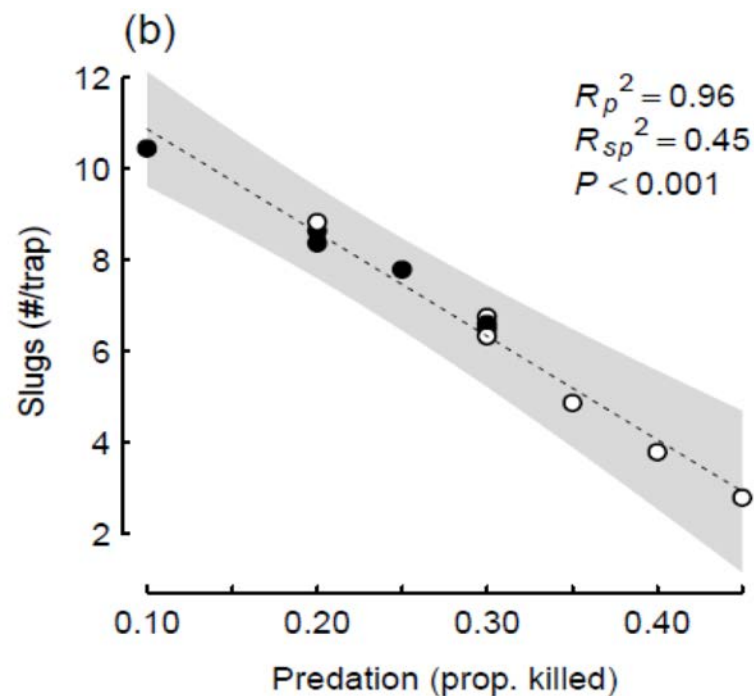
Slugs decrease soybean yield



Predators control slug populations

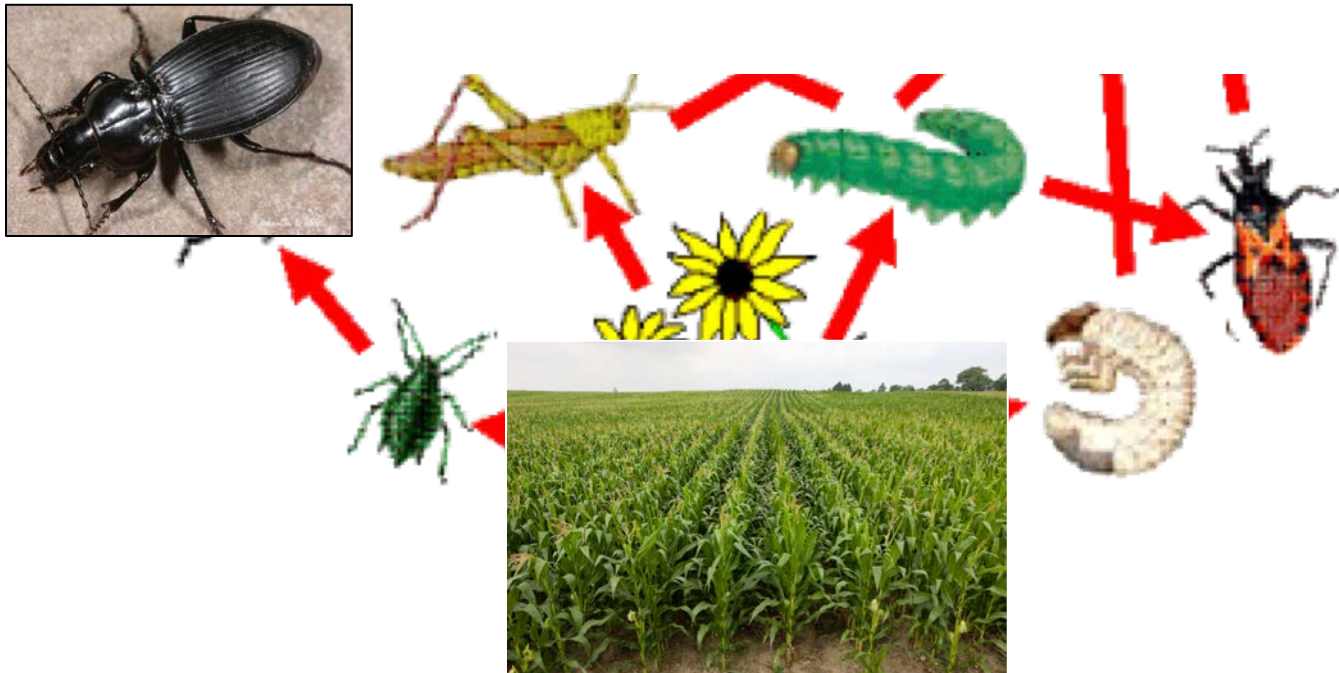


Insecticides disrupt biological control



Bottom line:

- Manage for the pests you have
 - Insecticide use can make pest populations worse



No-till in Pennsylvania Crop Fields

Stability and diversity give predators a chance to be effective



www.no-tillfarmer.com

6-yr study

- Continuous corn (no-till)
 - Preventative insecticides
- Corn/soy
- Corn/wheat/soy
- Corn/soy/wheat with CC
 - IPM

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Assassin bug (wheel bug) attacking a Japanese beetle



Thanks for your attention.
Questions??

Penn State Diversified Dairy Cropping Systems project

One two-year corn-soy rotation

Bt, seed treatments, broadcast pyrethroid

Pests have
been worse

Two six-year rotations (cover crops, alfalfa, corn, small grains)

IPM (no Bt or seed treatments, insecticides as necessary)



Insecticides can disrupt natural control

Scrutinize, optimize insecticide usage

- Soil insecticide, broadcast, seed treatments, etc.

Use Integrated Pest Management to protect allies

- Scout
- Apply economic thresholds
- Use insecticides only when it makes economic sense
 - Avoid disrupting natural control

Lucas Criswell (Union County, PA): IPM and soil health



Lucas Criswell (Union County, PA)

Observation: clean fields provide one food source – the crop

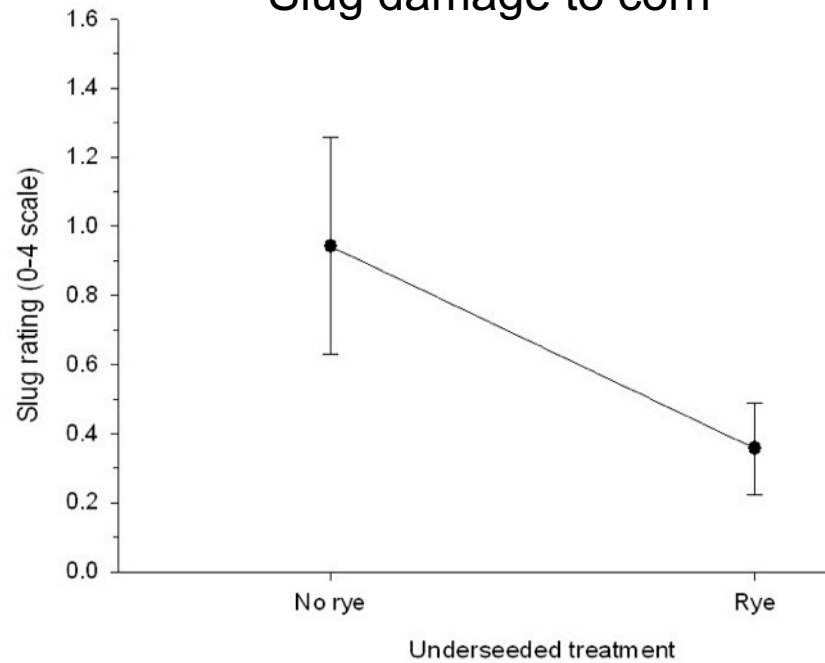


Can intercropping improve slug control?

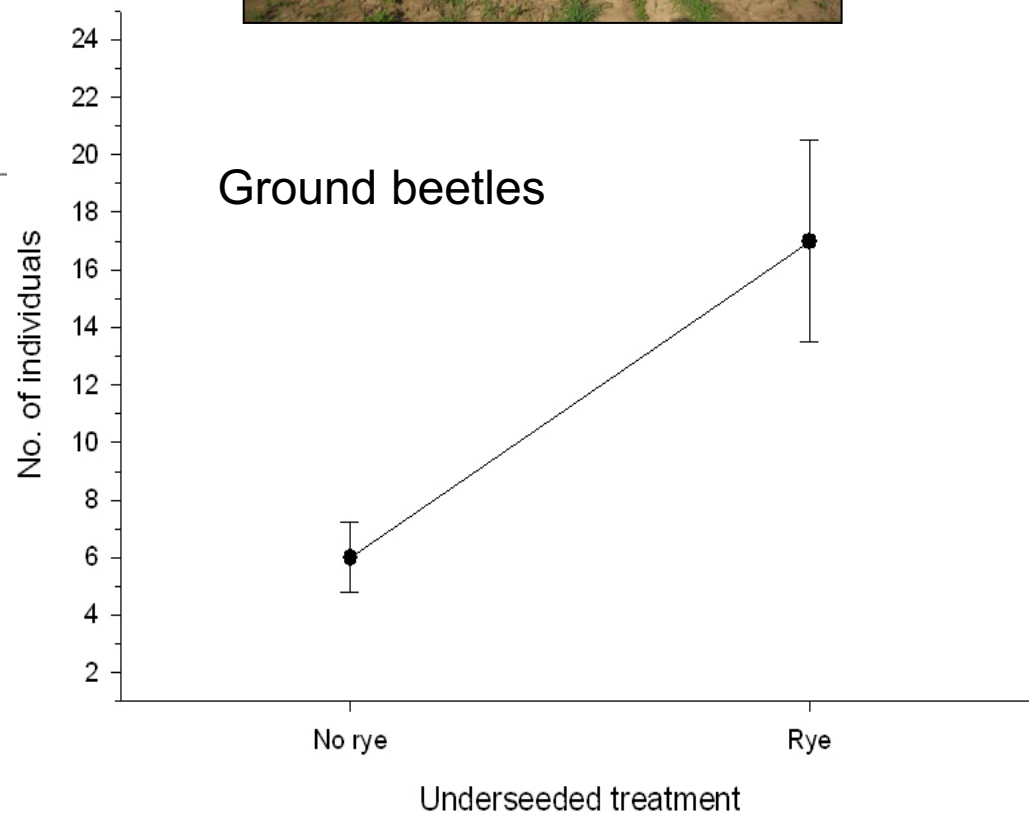


Rye planted between soybean rows

Slug damage to corn



Ground beetles



Planting green to combat slugs, version 1...



More committed to planting green, version 2...



Soil is covered always, increasing organic content, biodiversity
Need to commit to IPM (Scouting)

Planting green, all in, version 3...



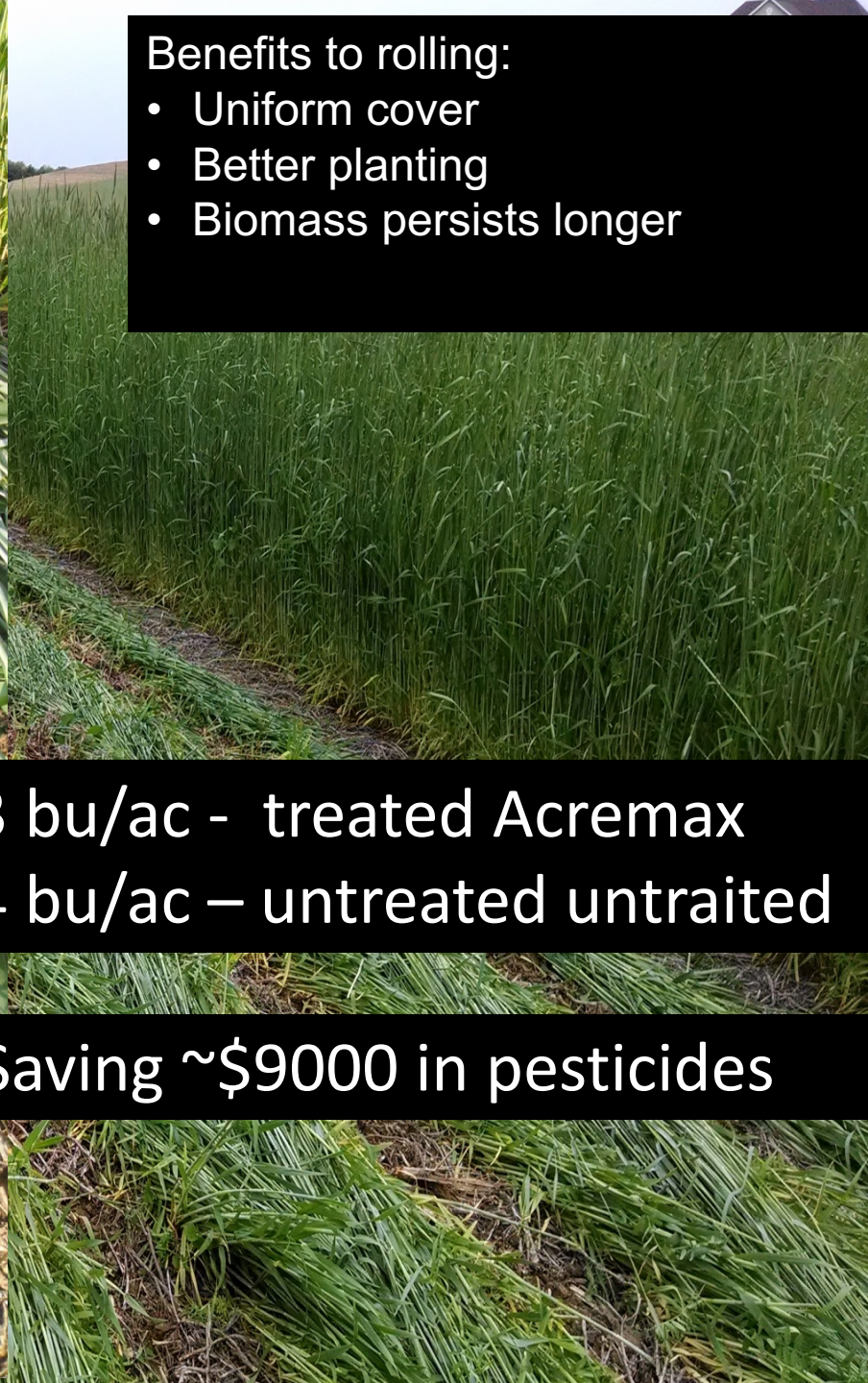


Benefits to rolling:

- Uniform cover
- Better planting
- Biomass persists longer

203 bu/ac - treated Acremax
204 bu/ac – untreated untraited

Saving ~\$9000 in pesticides



Benefits to keeping soil covered:

- Less soil erosion, weed suppression, natural enemy habitat



More diverse rotations have fewer pest problems, incl. slugs

No-till, diverse rotations, cover crops, valuing soil health

- Build natural enemy populations
- Soil insecticide, broadcast, seed treatments, etc.
 - Use only when pest populations require control

Use Integrated Pest Management

- Scout
- Apply economic thresholds
- Use insecticides only when it makes economic sense

Assassin bug (wheel bug) attacking a Japanese beetle



Thanks for your attention.
Questions??

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on demand

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2019 RFA now available

<http://neipmc.org/go/PaGs>

Acknowledgement

This presentation was funded by the Northeastern IPM Center through Grant #2014-70006-22484 from the National Institute of Food and Agriculture, Crop Protection and Pest Management, Regional Coordination Program.



United States Department of Agriculture
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