UMassAmherst

Integrated Pest Management promotes healthy crops and healthy communities

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The 10 ESSENTIAL PUBLIC HEALTH SERVICES

To protect and promote the health of all people in all communities.

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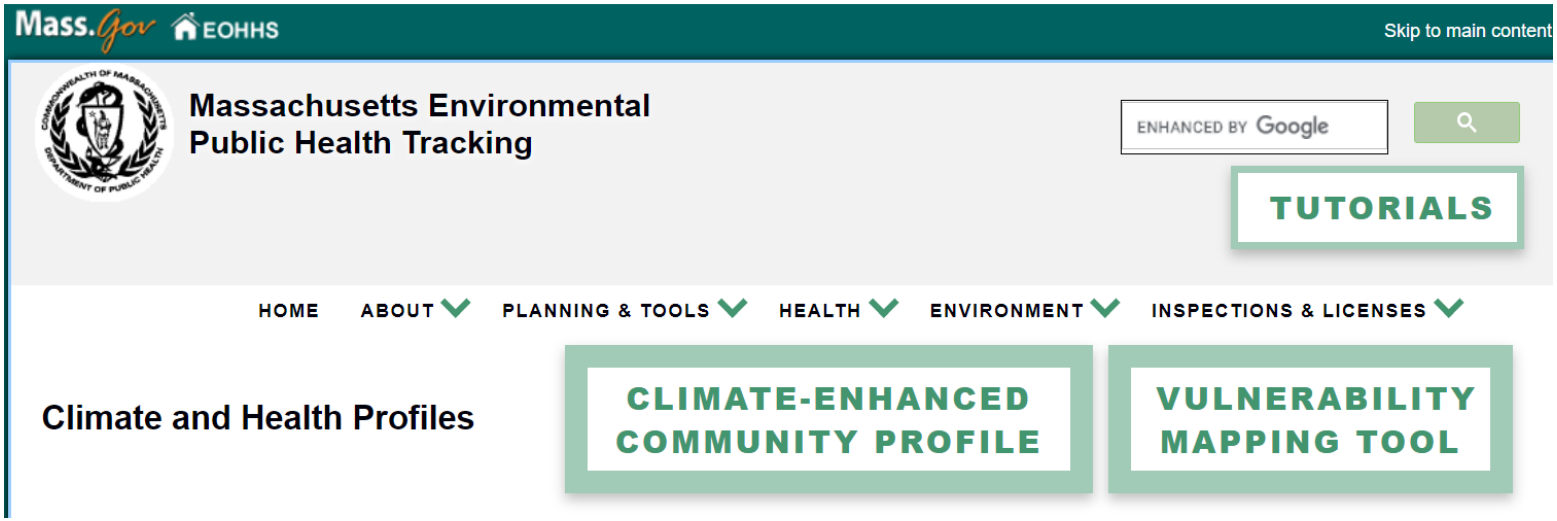
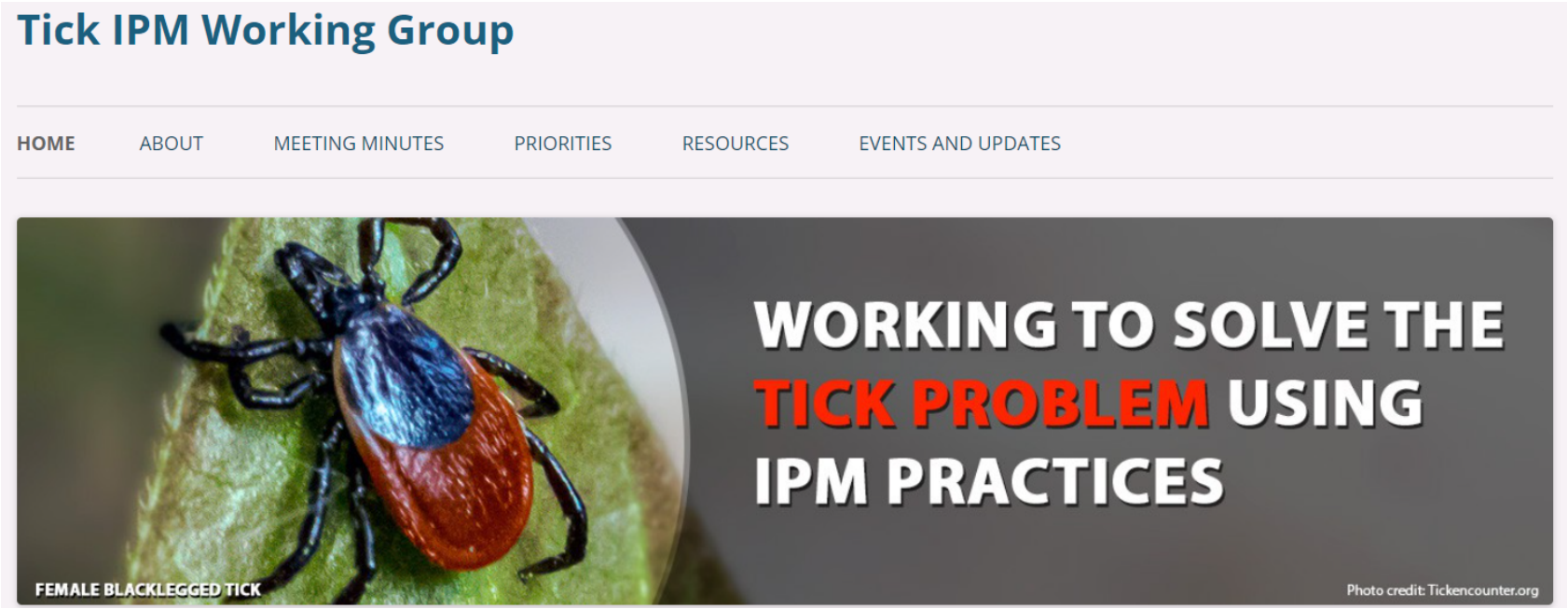
Climate change and pests of human health concern



"DPH is implementing the steps of the Centers for Disease Control and Prevention (CDC's) Building Resilience Against Climate Effects (BRACE) framework to support local health efforts to prepare for the health implications of climate change."

	Climate Driver	Exposure	Health Outcome	Impact
Vector-Borne Infection (Lyme Disease)	Changes in temperature extremes and seasonal weather patterns	Earlier and geographically expanded tick activity	Lyme disease	Ticks will show earlier seasonal activity and a generally northward range expansion, increasing risk of human exposure to Lyme and disease-causing bacteria.

Tick IPM


Tick IPM Working Group
HOME
ABOUT
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PRIORITIES
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EVENTS AND UPDATES
WORKING TO SOLVE THE
TICK PROBLEM USING
IPM PRACTICES
FEMALE BLACKLEGGED TICK
Photo credit: Tickencounter.org

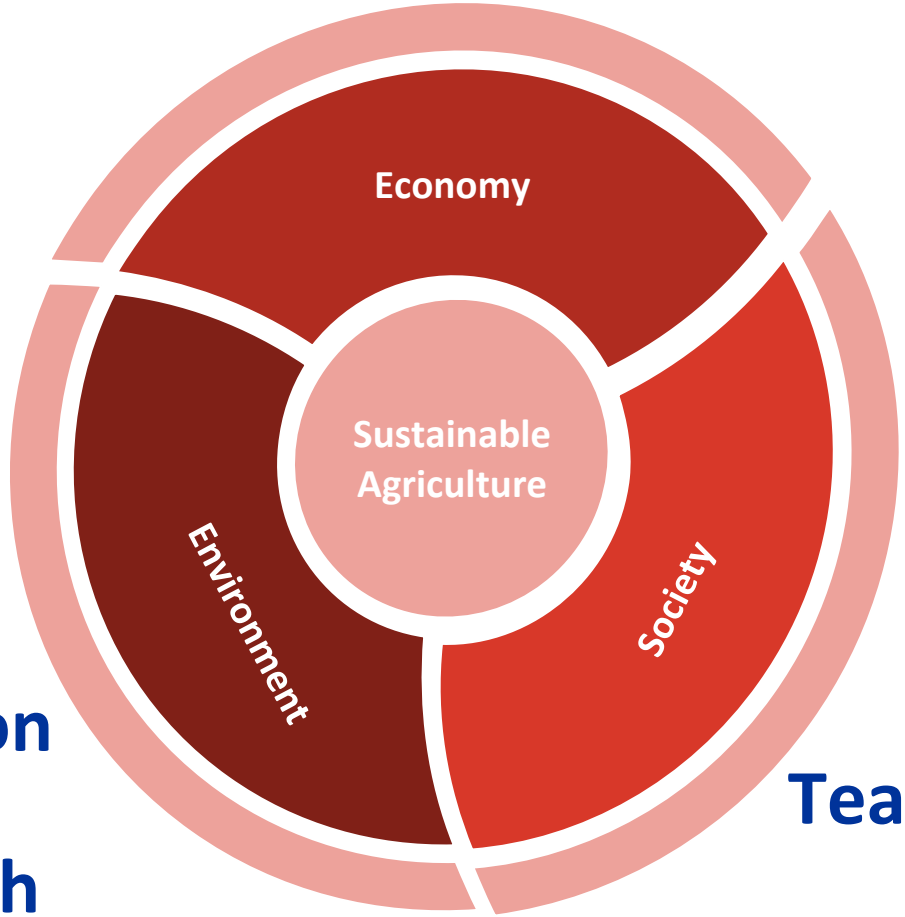
REGISTRATION OPEN
TICK ACADEMY
June 24, 2022
9:00 AM - 3:45 PM CST
University of Minnesota
Saint Paul Campus, Hodson Hall, Entomology: Tick Lab
More info at bit.ly/TickIPMWGEvents
Hosted by:
Tick IPM Working Group: Working to Solve the Tick Problem Using IPM Practices
Sponsored by:
TICK SYSTEM
Mainely Ticks
North Central IPM Center

Integrated Pest Management (IPM):

Optimization of pest control, including invasive species, in an **ecologically** and **economically** sound manner.

Integrated Pest Management promotes healthy crops and healthy communities in support of sustainable agriculture

Research

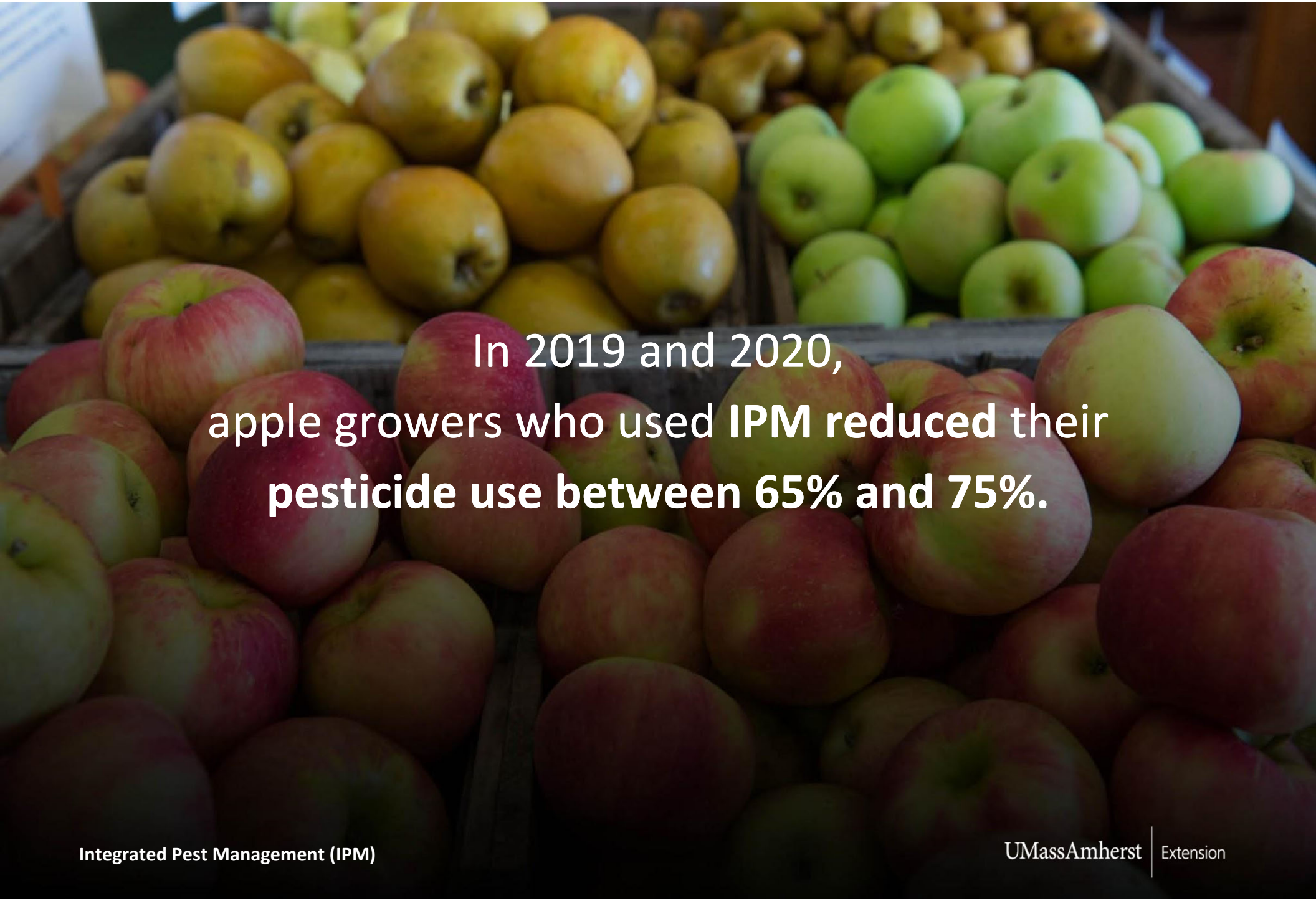


Extension & outreach

Teaching

IPM reduces potential human health risks

IPM growers use pesticides
only as the **last** resort



In 2019 and 2020,
apple growers who used **IPM reduced** their
pesticide use between 65% and 75%.

IPM preserves confidence in the safety of the food system

Integrated Pest Management (IPM)

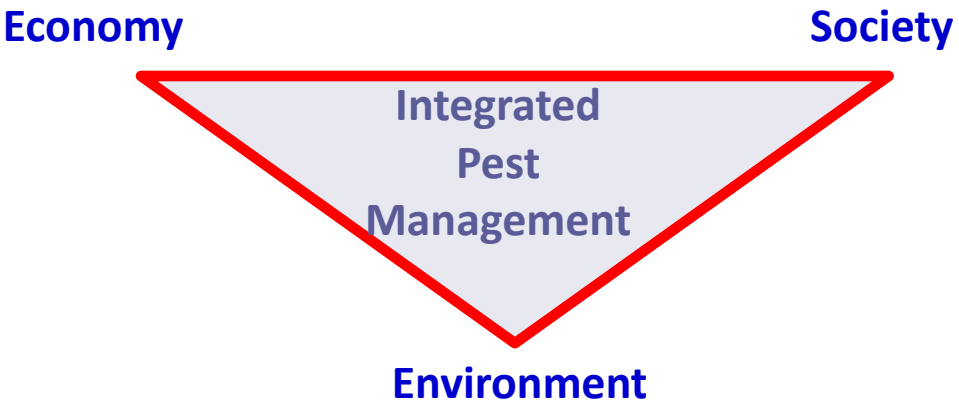
UMassAmherst | Extension

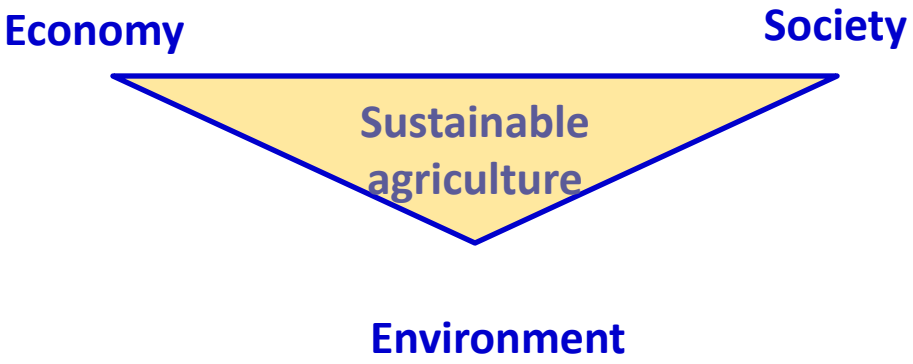
IPM protects pollinators and Monarch butterflies

IPM practices reduce the use of unnecessary pesticides,
a key component of conservation efforts.

Agricultural sustainability is defined by three generally agreed upon goals:

- ✓ Enhance **environmental quality**
- ✓ Sustain the **economic viability** of agriculture
- ✓ Enhance the **quality of life** for farmers, farm workers, and society as a whole





Biodiversity: Key to sustainable agriculture

- Farmers are stewards of the land and the environment
- Biodiversity refers to the variety of plants, animals and microorganisms above and below the soil that interact within an ecosystem
- Generally speaking, a diversified farming system is one that promotes **biodiversity across spatial scales, from plot to field to landscape**.

Methods employed within a diversified farm may include minimal soil tillage, growing multiple crops together, planting cover crops, interspersing trees and shrubs with crops and livestock, and more.

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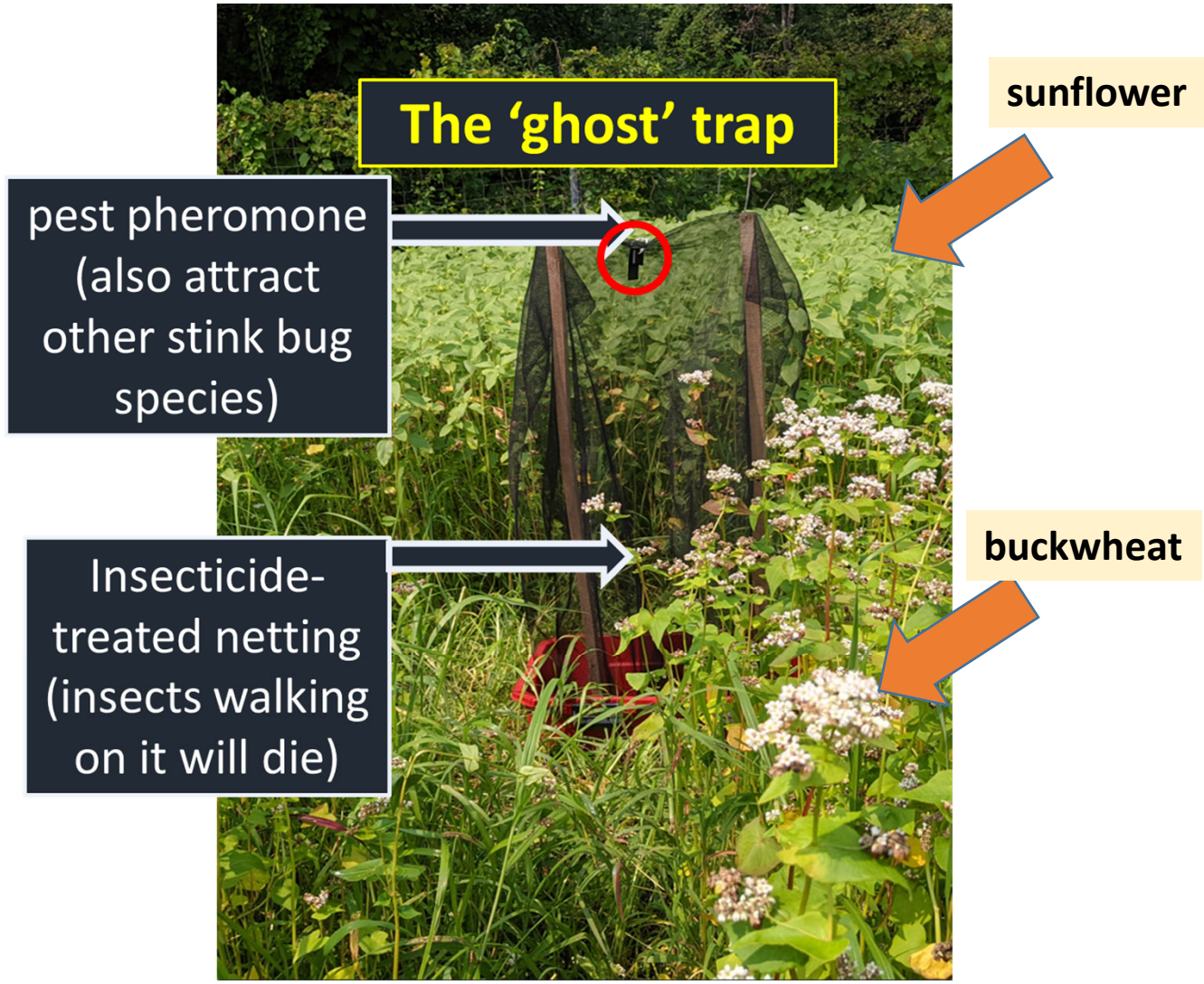
Sunflowers provide multiple benefits to growers

Sunflower attracts some pests, which can be killed <u>without</u> insecticides

Killing pest stink bugs in trap crop plants <u>without</u> impacting beneficials (pollinators, predatory, and parasitic insects)



PEST MANAGEMENT

Sunflower as a Potential Trap Crop of *Halyomorpha halys* (Hemiptera: Pentatomidae) in Pepper Fields

D. C. SOERGEL,[1] N. OSTIGUY, S. J. FLEISCHER, R. R. TROYER, E. G. RAJOTTE, AND G. KRAWCZYK

Department of Entomology, Fruit Research and Extension Center, The Pennsylvania State University, P.O. Box 330, Biglerville, PA 17307-0330.

Environ. Entomol. 44(6): 1581–1589 (2015); DOI: 10.1093/ee/nvv136

- Sunflowers used as a trap crop to protect bell pepper.
- Significantly more BMSB were observed in sunflowers than in peppers.

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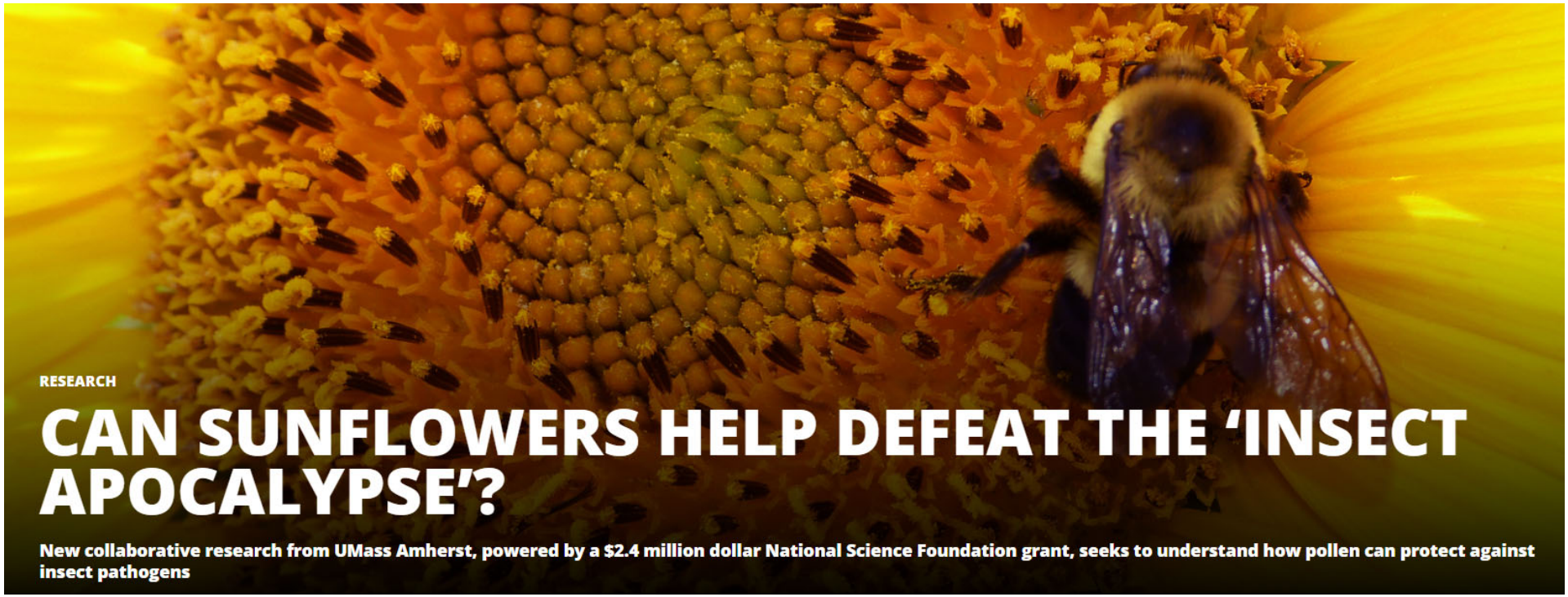
Sunflower pollen has medicinal, protective effects on bees



- Sunflower pollen can help bumblebees fight off two common pathogens.
- Defense chemicals in **pollen** can be 10 to 10,000 times more concentrated than they are in **nectar**.

Sunflowers attract beneficial insects

- **Florida**: Predatory insects and spiders, parasitic wasps, and important pollinators insects observed on sunflowers than on crop vegetation.

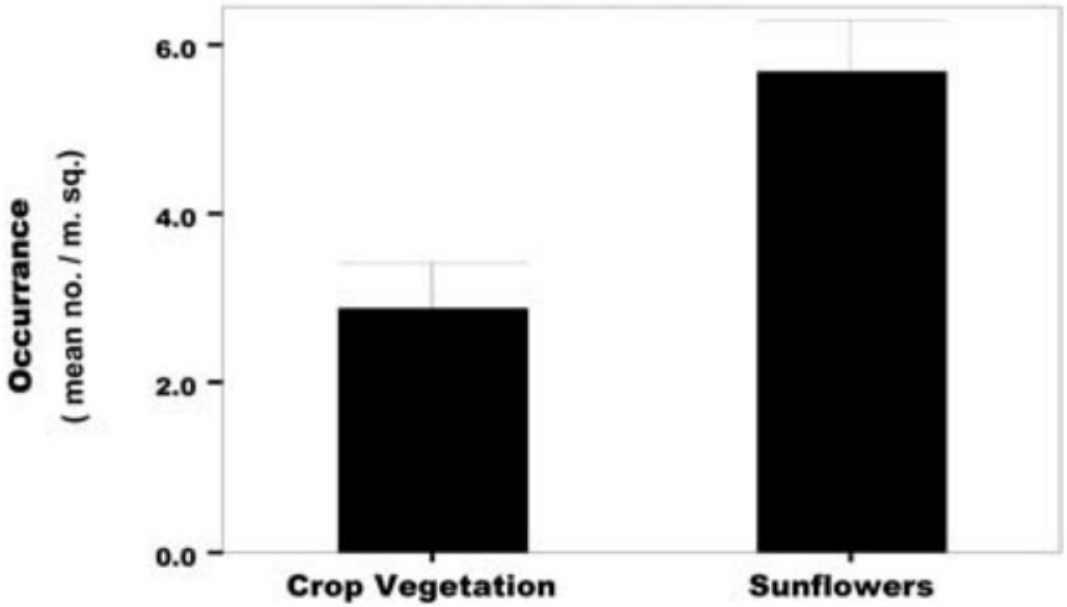


Fig. 2. Occurrence of beneficial insects was greater on sunflower vegetation than on crop vegetation during the 2002 growing season ($F_{1,16} = 11.78$, $P = 0.003$). Error

Sunflower and buckwheat may play another role in BMSB IPM

What type of parasitic wasps are attacking BMSB, present in Massachusetts?

We are deploying frozen BMSB eggs at farms.

Parasitic wasp female laying eggs inside BMSB eggs at Tougas Family Farm.

MDAR MASSACHUSETTS DEPARTMENT OF AGRICULTURAL RESOURCES

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Sunflowers can provide supplemental income

Wed 9/14/2022 9:50 AM

USDA Natural Resources Conservation Service <usdafarmers@public.govdelivery.com>

Biden-Harris Administration Announces Historic Investment in Partnerships for 70 Climate-Smart Commodities and Rural Projects

Biden-Harris Administration Announces Historic Investment in Partnerships for 70 Climate-Smart Commodities and Rural Projects

USDA is investing up to $2.8 billion in 70 selected projects under the first Partnerships for Climate-Smart Commodities funding pool, which includes proposals seeking funds ranging from $5 million to $100 million

. Access the full list of selected projects.

“We can’t solve problems by using the same kind of thinking we used when we created them”

-Albert Einstein