

Fostering Communication Between Farmers and Beekeepers in Louisiana

Sebe Brown

David Kerns

Kim Pope



Declining Bee Health

- Bee health declined over past 10 years
- Bees are vitally important for sustainable ag
- LSU AgCenter and other state/fed institutions want to equally represent clientele and foster best management practices that benefit all parties

What Happens When You Don't Follow the Label

Pesticide company fined \$10,000 over bee deaths

By The Associated Press

Published: November 10, 2014, 5:38 pm



Penalties Of \$2,800 Issued For Wilsonville Bee Deaths

Dec. 20, 2013 | Northwest Public Radio



Penalties are in for a company implicated in the deaths of bumblebees in Oregon earlier this year. The most notable incident killed 50,000 bumblebees in Wilsonville, Ore. | credit: Rich Hatfield, Xerces Society | rollover image for more

“The bumblebees were literally falling out of the trees. To our knowledge this is one of the largest documented bumblebee deaths in the Western U.S. It was heartbreaking to watch.”
—Rich Hatfield, Conservation Biologist, Xerces Society, Portland



Oregon Bumblebee Deaths Up to 50,000 after Neonicotinoid Safari Sprayed On Trees

FoodDemocracyNow.org #StopMonsanto #LabelGMOs

Louisiana Pollinator Cooperative Conservation Program (LPCCP)

- Formed in May of 2014 to address the needs of Louisiana beekeepers and agricultural stakeholders
- Composed of Entomologists, Beekeepers, LDAF Personnel, Pesticide Applicators, County Agents, Farmers, Agricultural Consultants, LA Farm Bureau, Agrochemical Industry

LPCCP Mission Statement

- The Louisiana Pollinator Cooperative Conservation Program (LPCCP) has been established to foster cooperation among bee keepers, pesticide applicators and agricultural producers for the purpose of preventing honey bees and pollinators from the unreasonable exposure to pesticides through **education and stewardship recommendations** in the state of Louisiana.

Stewardship Recommendations

- **Active and Open Communication Between Farmers, Applicators and Beekeepers**
 - Beekeepers and farmers encouraged to cultivate and maintain open communication. Includes basic contact information, hive locations, ag and non-ag commodities grown and information on pesticides applied and timing

Stewardship Recommendations

- **“Bee Aware” Flag**
 - LPCCP elected to adopt Mississippi Farm Bureau’s “bee aware” flag. Flag creates a unified recognition system that is highly visible to applicators and farmers.





Stewardship Recommendations

- **Hive Locations and Placement**

- Hive location is an important consideration that should be discussed between farmers and beekeepers. Farmers know their property and beekeepers know the best bee yards and areas that are easily accessible for hive maintenance.

Stewardship Recommendations

- **Hive GPS Locations**

– Beekeepers should make every effort to establish GPS coordinates of their hives and provide this information to the farmer and his applicator



Stewardship Recommendations

- **Hive Identification and Bee Flag Placement**
 - Beekeepers are strongly encouraged to place visible placards on at least one hive that provides contact info in case of an emergency or if an issue arises. Placard should be visible from a distance. Farmers should work with beekeepers in selecting the best location for flag placement.

Stewardship Recommendations

- **Applicator Awareness of Hive Locations**
 - Farmers should make every effort to notify his employees of apiary locations and related bee flags on farm property. Farmers should also notify contractual parties and aerial applicators of apiary locations and related bee flags as well.



eXtension.org



LSU AgCenter

Stewardship Recommendations

- **Annual Apiary Location Review**
 - Farmers and beekeepers should annually review hive locations on farm property. This is especially important if an accustomed apiary location is moved to new location on farm. Physical locations on a map or pinned locations on a smart phone may help facilitate this process.

Stewardship Recommendations

- **Pesticide Application Timing**
 - Farmers and applicators should consider applying pesticides to areas immediately adjacent to hives as late in the afternoon as possible. Applications should only be made in favorable wind conditions and label guidelines should always be followed.

New Bee Box Label Language



PROTECTION OF POLLINATORS

APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Look for the bee hazard icon



in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

This product can kill bees and other insect pollinators.

Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications
- Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at:

<http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx>.

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state, go to: www.aapco.org/officials.html. Pesticide incidents should also be reported to the National Pesticide Information Center at:

www.npic.orst.edu or directly to EPA at: beekill@epa.gov

Impact of Neonicotinoids on Pollinators in the Mid-South: New Developments



Pollinator Health



- ❑ Colony collapse disorder and honey bees
 - Varroa mites
 - Diseases
 - Management failures
 - Pesticides and neonicotinoids in particular
 - Seed treatments and planter “dust”



Neonicotinoid Seed Treatments

Widely used due to several key attributes:

- Low vertebrate toxicity
- Systemic and persistent
- Efficacy and ease of adoption

Around 143 of the 442 million acres of cropland in the United States are treated with at least one of the three neonicotinoids (imidacloprid, clothianidin, thiamethoxam)

- Midsouth: 100% of corn, 99% of cotton, >50% of soybean

Neonics vs. Pollinators

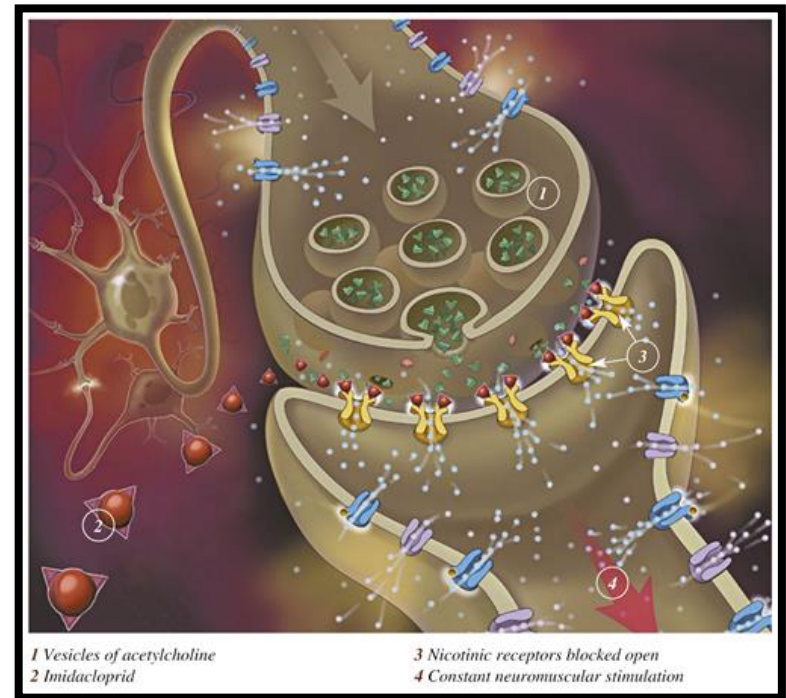
Highly toxic

Systemic activity – potential to translocate to pollen or nectar

The contact toxicity LD50 of clothianidin in adult honey bees ranges from 22-44 ng/bee

- EPA - Acute LOC (Nectar) \approx 5.5 PPB
- EPA - Acute LOC (Pollen) \approx 168 PPB

Sub-lethal effects???



Considerable Debate

- Are bee numbers really in decline?
- Social media and ‘activists’
- Junk and agenda driven science

It's no longer a mystery.
We know what's killing the bees.

They're being
poisoned
by
**neonicotinoid
insecticides**



**Tell the EPA to Ban Neonicotinoid Pesticides
Before They Devastate the U. S. Bee Population**

facebook.com/organicconsumers www.organicconsumers.org

TIME Subscribe

Ecocentric
All things green, from conservation to Capitol Hill

FOOD
Beepocalypse Redux: Honeybees Are Still Dying — and We Still Don't Know Why

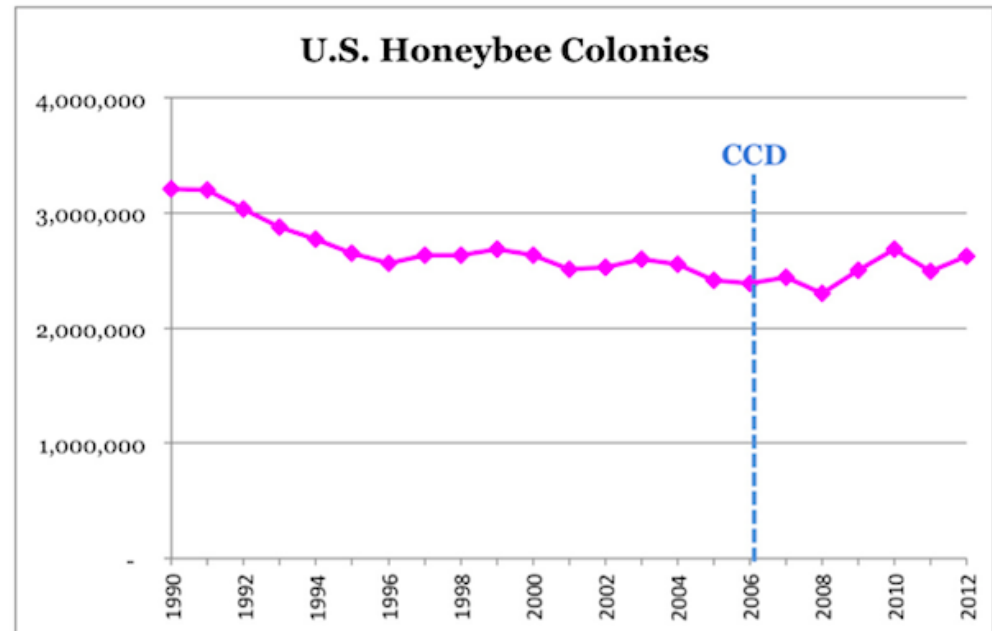
More than five years after it was first reported, colony-collapse disorder is still killing honeybees around the world. If scientists can't pinpoint the cause, the economic and environmental damage could be immense

By Bryan Walsh @bryanwalsh May 07, 2013 | 227 Comments

The honeybees are dying — and we don't really know why. That's the conclusion of a massive Department of Agriculture (USDA) report that came out late last week on colony-collapse disorder (CCD), the catchall term for the large-scale deaths of honeybee groups throughout the U.S. And given how important honeybees are to the food that we eat — bees help pollinate crops that are worth more than \$200 billion a year — the fact that they are dying in large numbers, and we can't say why, is very, very worrying.



Source: USDA NASS Honey Production Report



Source: USDA NASS Honey Production Report

Regardless of what the science says, pollinator health will affect you!



- Label changes
- Loss of products
- Delayed registration
- Increased record keeping
- Prescription applications?

The screenshot shows the EPA website's navigation bar with language options (Español, 中文: 繁體版, 中文: 简体版, Tiếng Việt, 한국어) and a search bar. Below the navigation bar, the 'Pollinator Protection' section is highlighted. The main content area displays the title 'Benefits of Neonicotinoid Seed Treatments to Soybean Production' and a summary paragraph. A red box highlights the following text: 'EPA concludes that these seed treatments provide little or no overall benefits to soybean production in most situations. Published data indicate that in most cases there is no difference in soybean yield when soybean seed was treated with neonicotinoids versus not receiving any insect control treatment.' Below this, it states 'The public comment period on the analysis is open until December 22, 2014.'

The screenshot shows a news article from 'The Scientist' titled 'Europe to Ban Neonicotinoids'. The sub-headline reads: 'In the midst of an ongoing debate over the role of the pesticides in the deaths of bees, the European Union will restrict their use for 2 years.' The article is by Dan Cossins, dated April 30, 2013. It features a photograph of a bee on a purple flower. The text explains that the European Commission (EC) will severely restrict the use of neonicotinoid pesticides due to concerns about bee population collapse. It notes that bees pollinate roughly a third of the world's food crops and that a growing body of research suggests neonicotinoids, used since the 1990s to protect crops from insect pests, might be harming bees exposed to nectar and pollen in flowers that have absorbed the chemicals from the soil. The article also mentions that pesticide manufacturers, farmers, and other scientists argue that most studies have been conducted in the lab and do not reflect field conditions, and that the evidence that neonicotinoids are killing bees is far from conclusive. Finally, it states that in January of that year, the EC proposed a 2-year ban on the pesticides in areas where they might affect bees, but the proposal did not receive enough votes from European member states to be put into practice, and an appeals committee also fell short of achieving the required majority. Nevertheless, under European Union rules, the impasse allowed the EC to go ahead with the plans, as reported by Nature.

The Bee Team

We will try harder for an “A”

Gus Lorenz

Don Johnson

Jon Zawislak

Scott Stewart

Heather Kelly

John Skinner

Mohamed Alburaki

Tom Mueller

Mike Studer

Don Parker

Angus Catchot

Jeff Gore

Don Cook

Jeff Harris

John Adamczyk

William Meikle

Milagra Weiss

Adam Whalen

Geoffrey Duesterbeck

Jonathan Barber

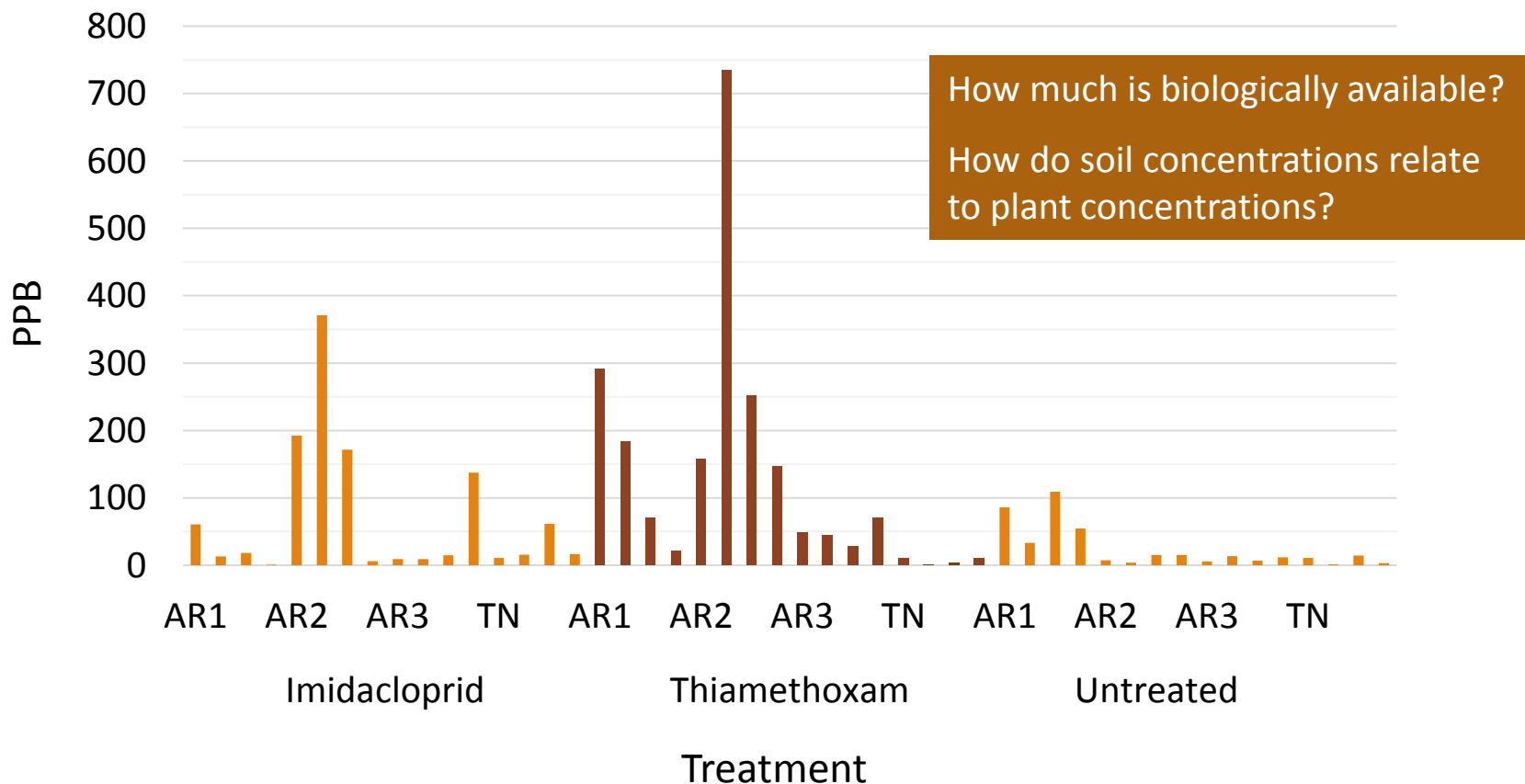


Are neonics really a major factor contributing to CCD?

Reviewing what we've already published



Concentration of neonicotinoids from in-season soil samples (e.g., cotton), 2012



Concentrations stemming from insecticide seed treatments ... and other findings in 2012

No detection of neonicotinoids in nectar of cotton, and average detection in pollen was less than the detection limit (1 PPB)

No detection in soybean flowers

Detection in corn pollen varied from a mean of 0.0 to 5.9 PPB depending upon seed treatment and rate

Average detection in pollen being carried by foraging bees was below 1 PPB (2 detections of < 1 PPB in 24 samples)

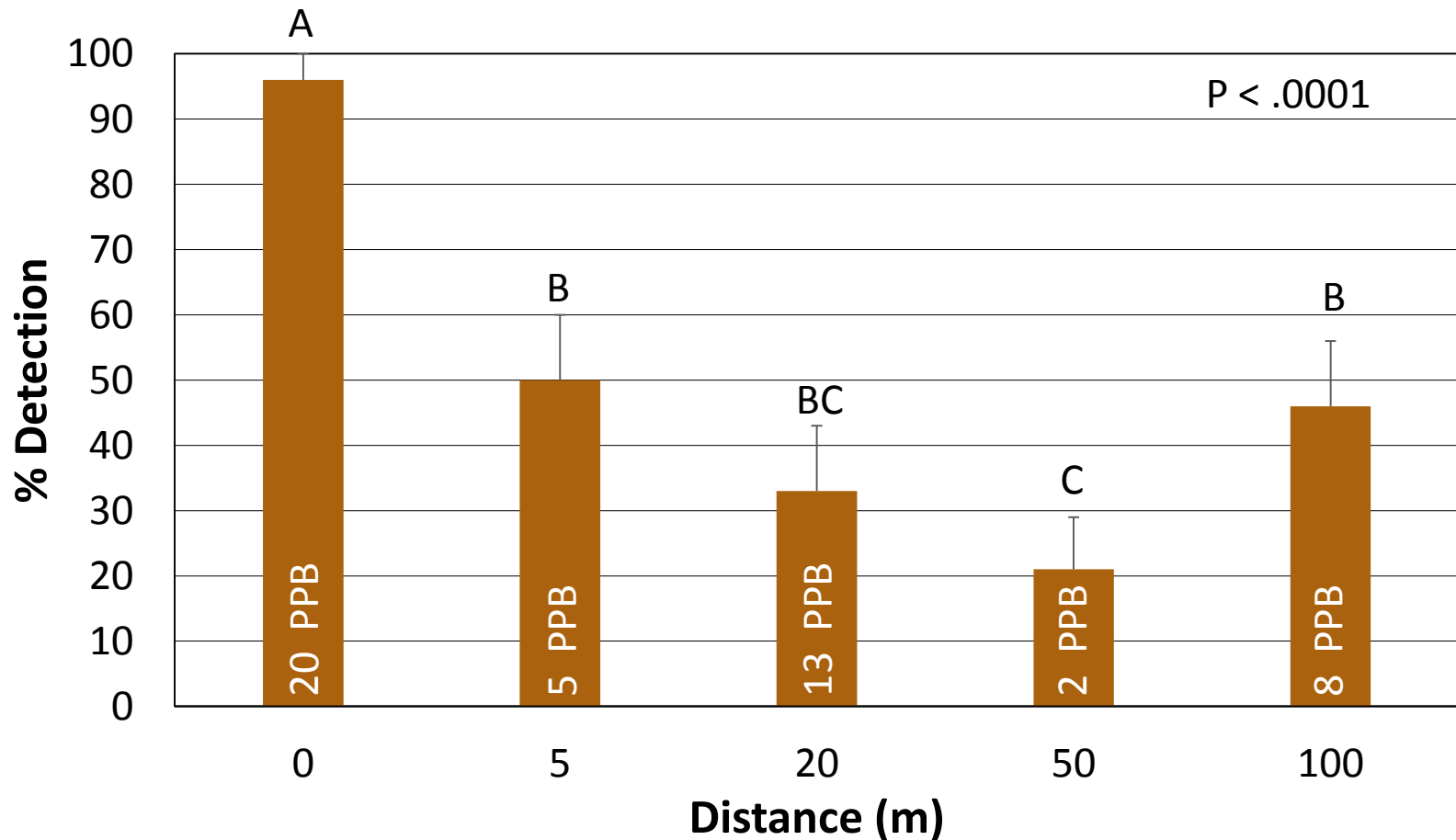
Average levels of detection in honey bees collected from apiaries were less than the level of detection (1 PPB)

- But two findings above this limit (10 and 48 PPB)

What else have we been doing?

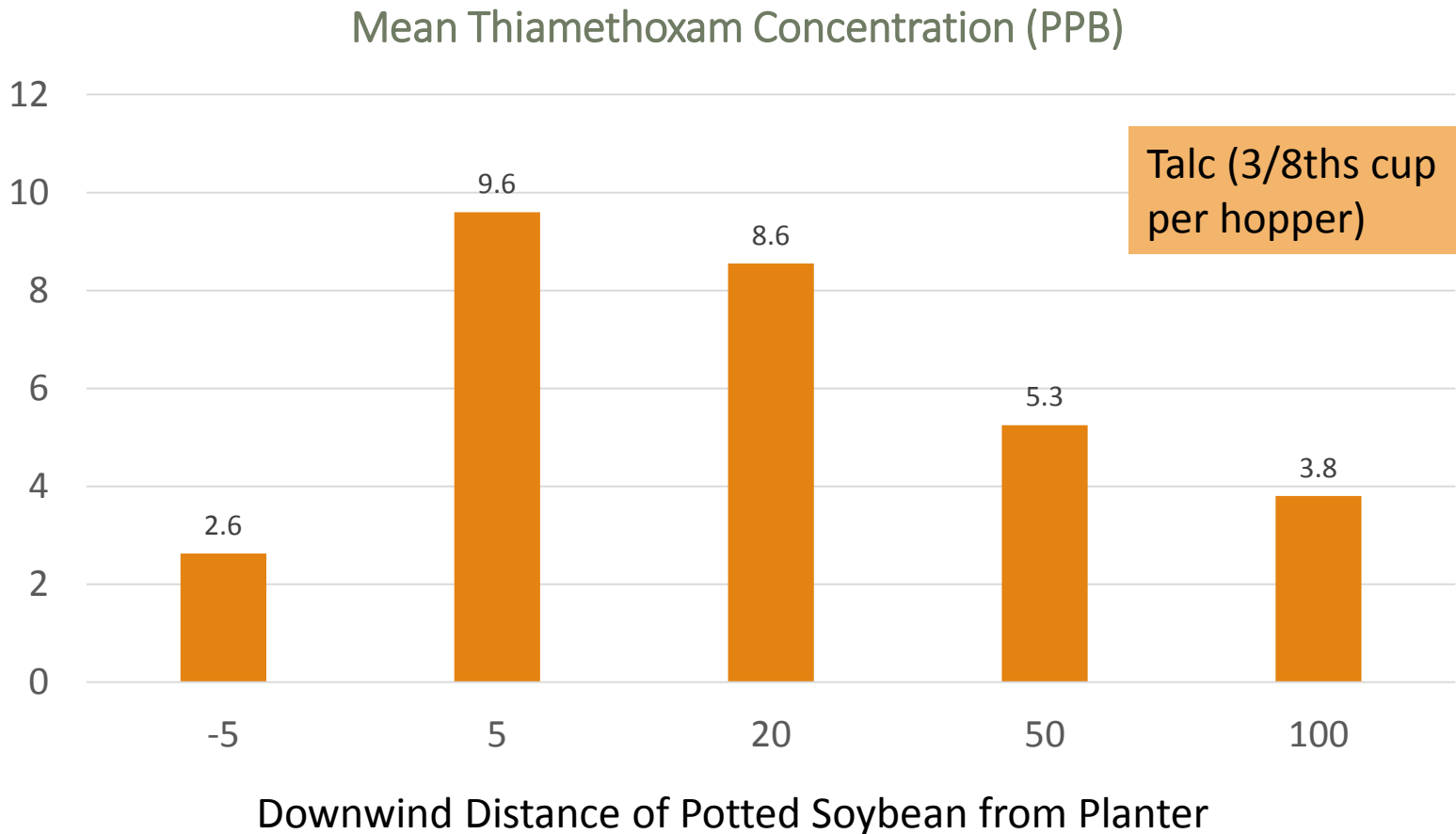


% Detection of Clothianidin on Flowers Placed Downwind of Corn Planted with Poncho IST Mississippi, 2013



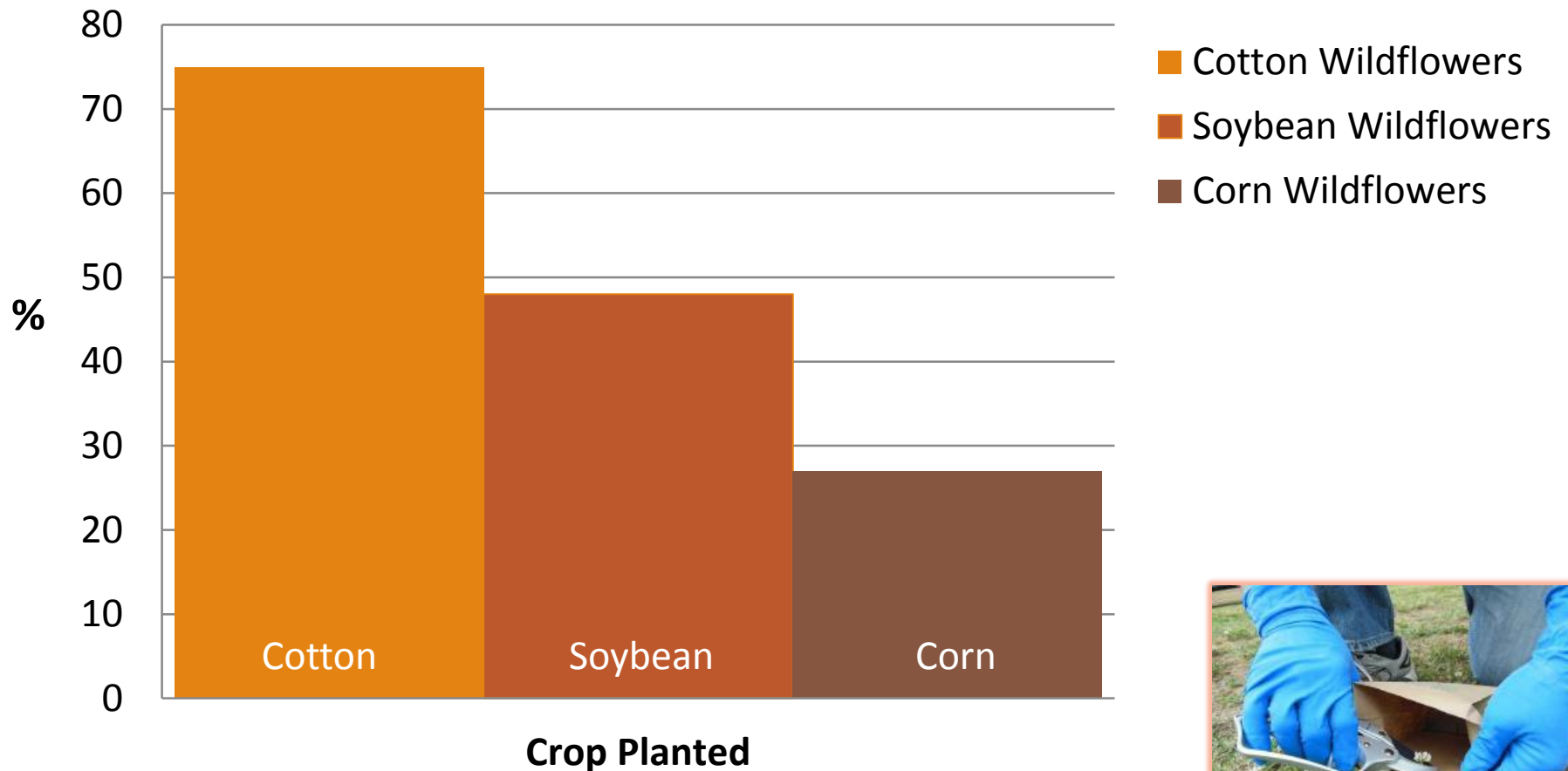
Planter Dust Experiment – Soybean (TN)

(4 Replicates per distance, 176 x 15" rows planted per rep)

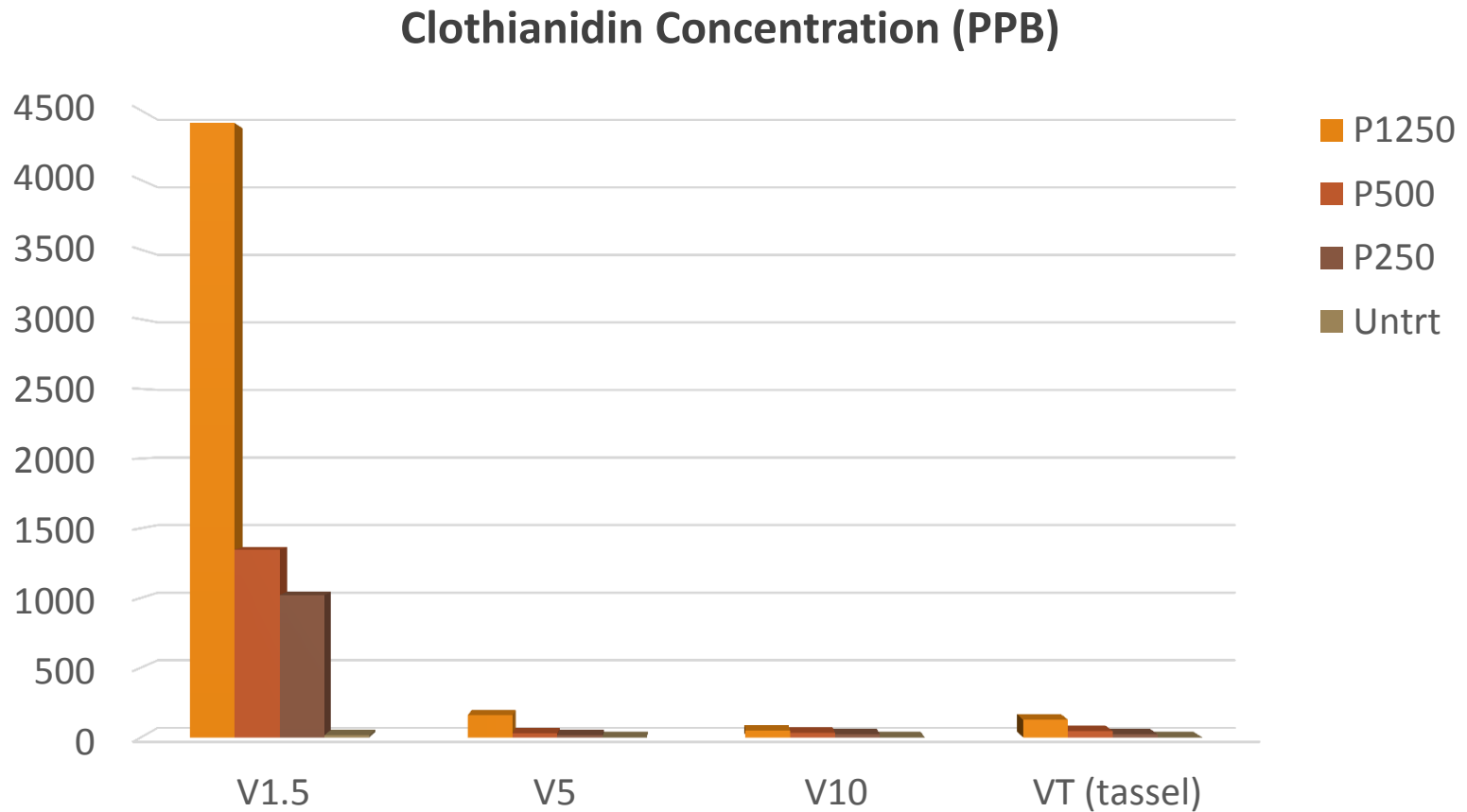


Soybean planted no-till on 5/20/13, Cruiser Maxx Advanced, Average wind speed = 9.5 MPH

Neonicotinoid Detections in Wildflowers Downwind Side of Planted Fields in AR, 2013



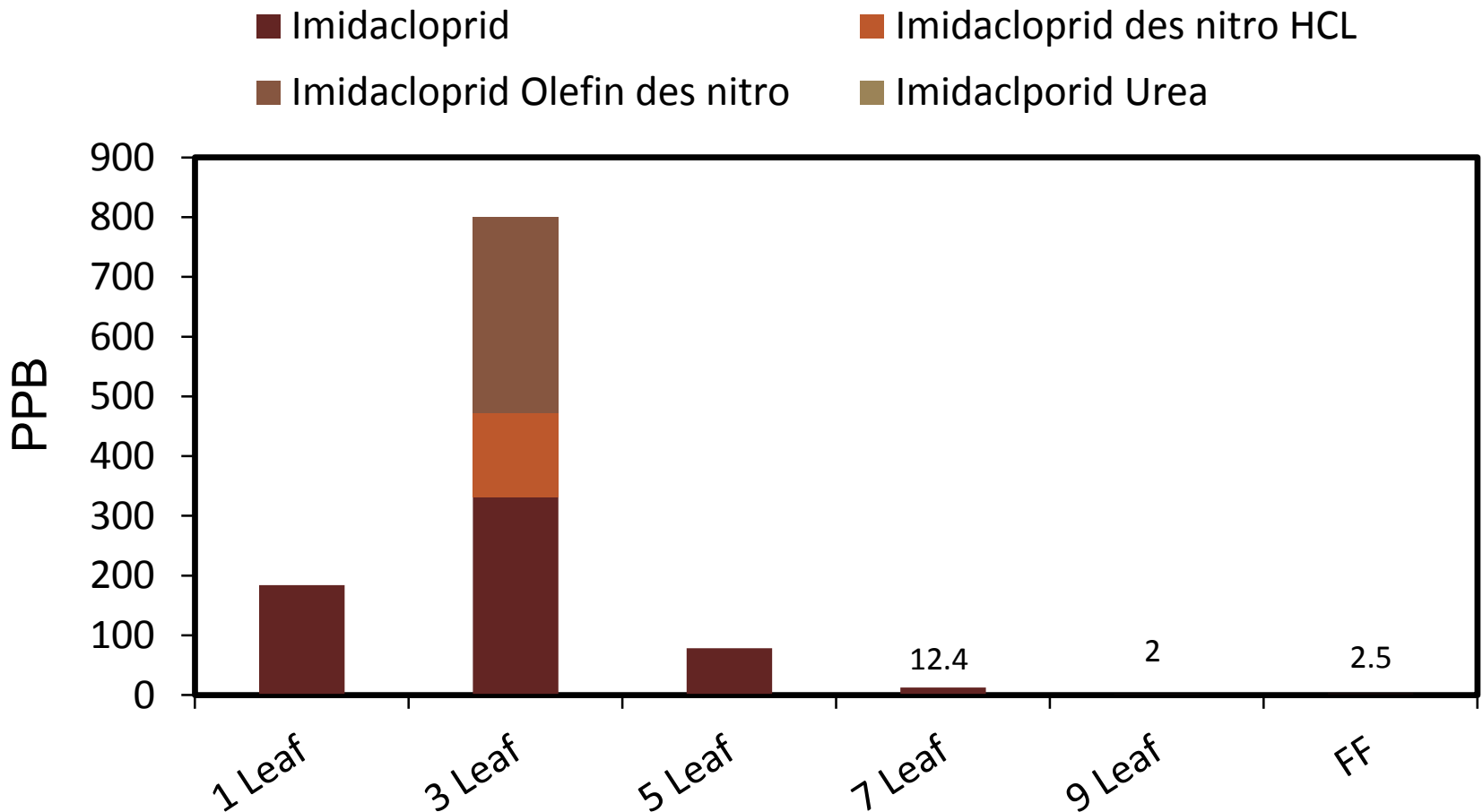
Neonicotinoid Concentration in Corn Leaves from Poncho IST Tennessee, 2013



Approximately a 97% drop in concentration from V1.5 to VT

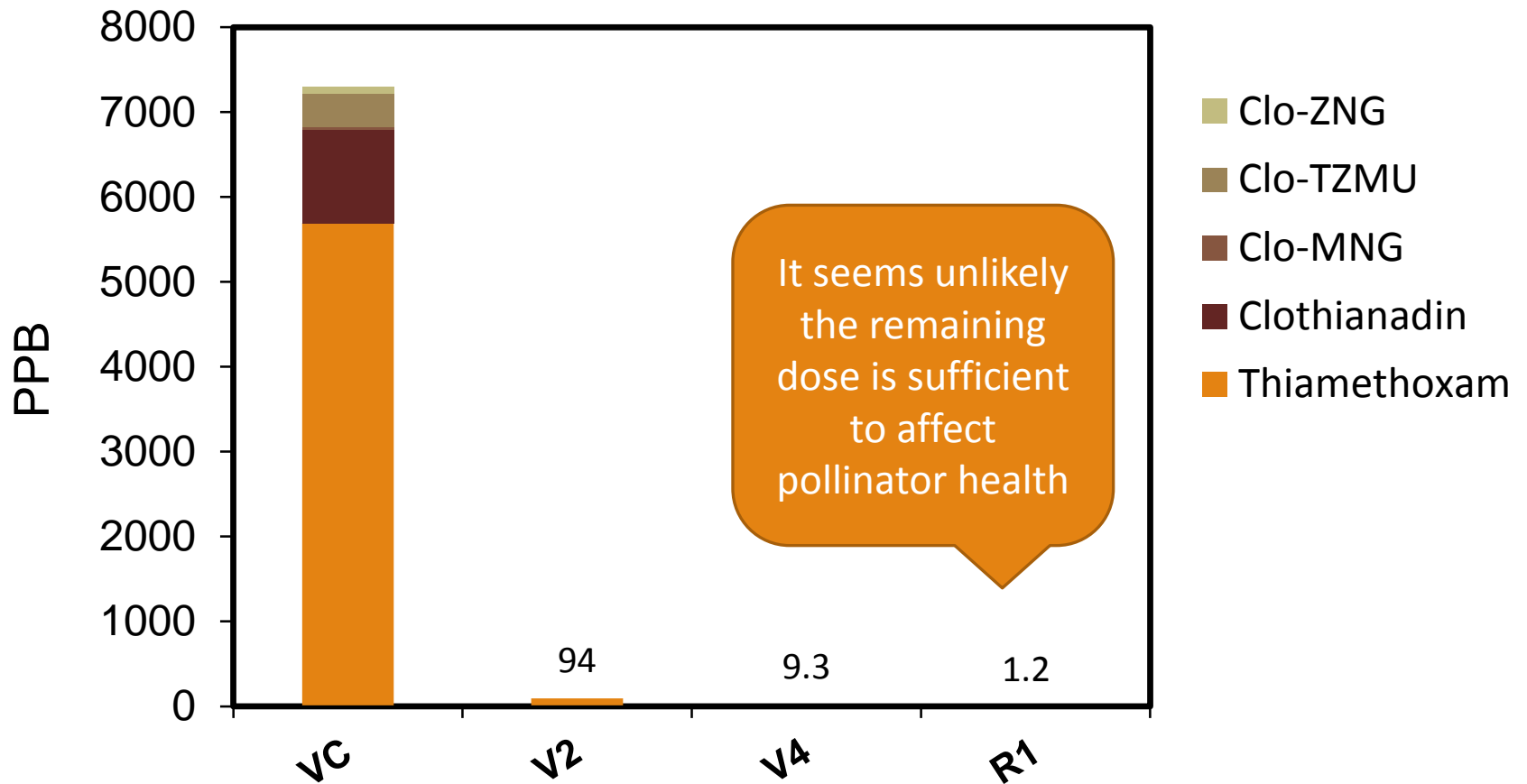
Neonic Concentration in Cotton Leaves Resulting from Aeris IST

Mississippi, 2014



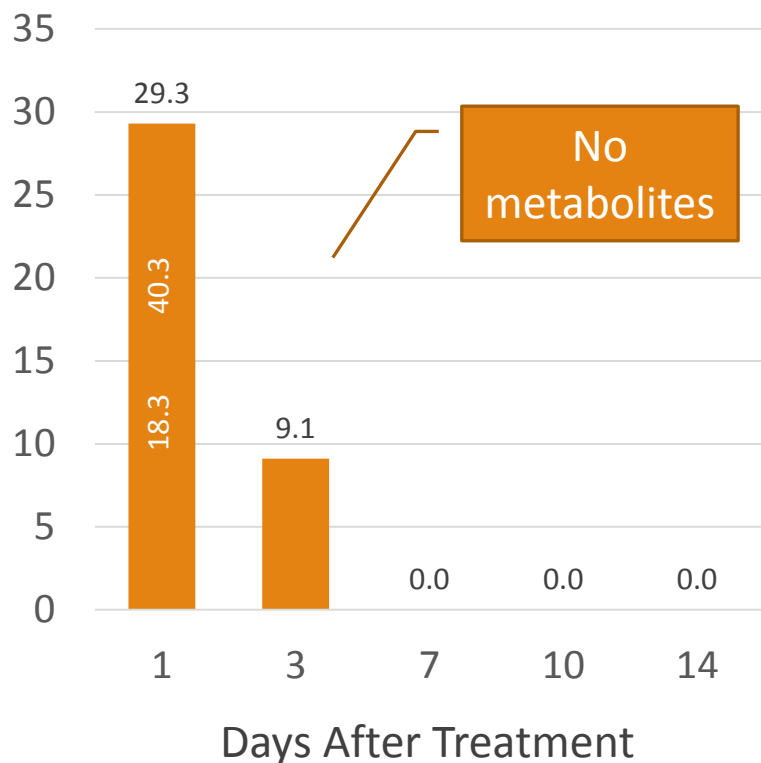
Neonicotinoid Concentration in Soybean Leaves Resulting from Cruiser IST

Mississippi, 2013

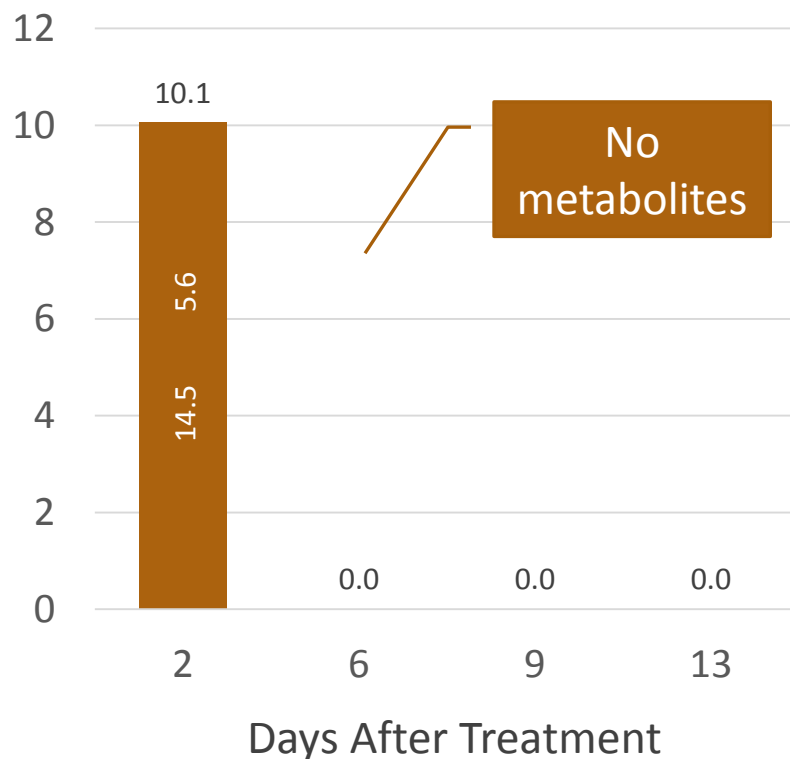


Average Neonic Detection Levels in Cotton Pollen Following Foliar Application Tennessee, 2014

PPB IMIDACLOPRID (ADMIRE PRO)



PPB THIAMETHOXAM (CENTRIC)

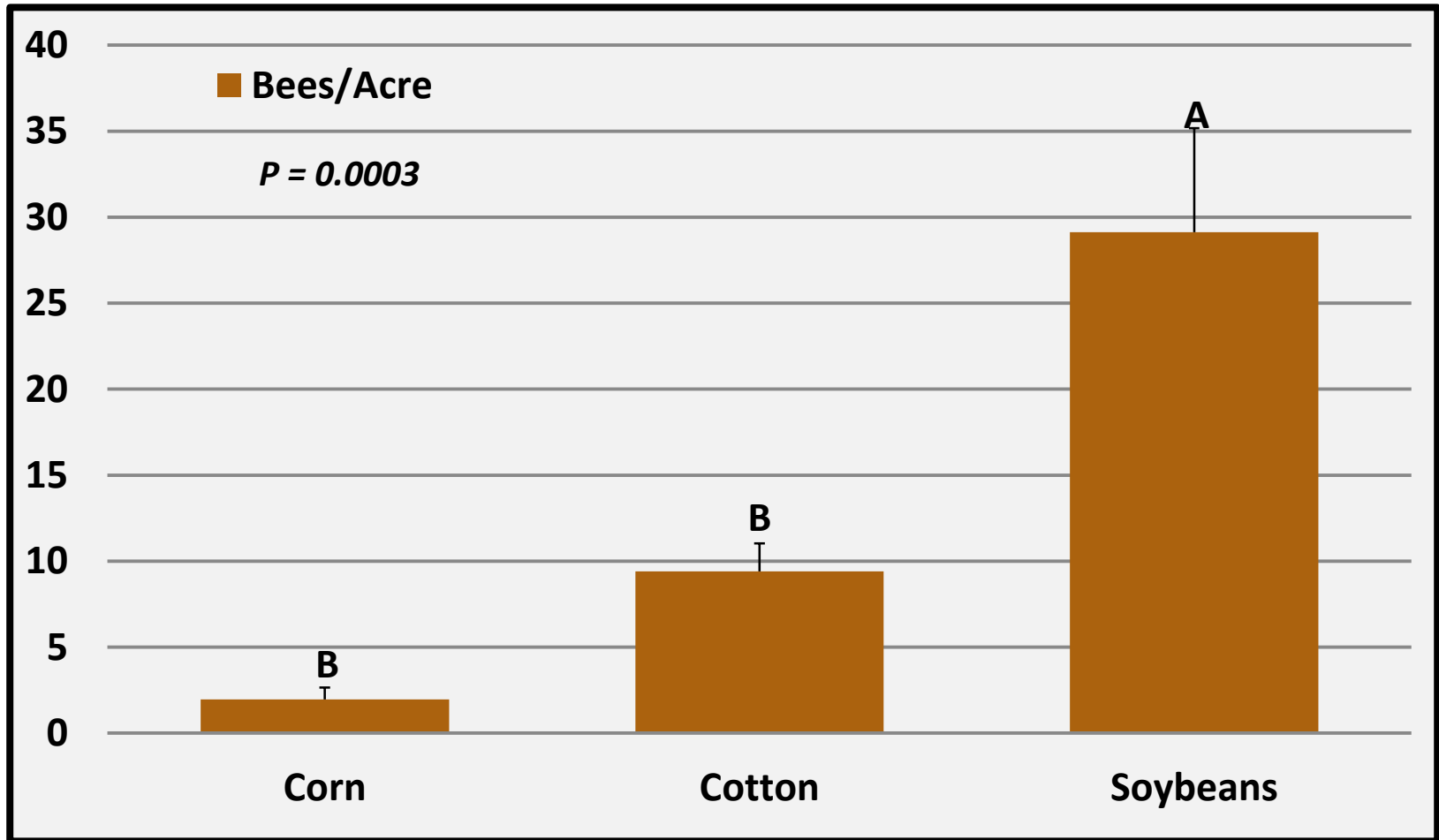


Working More With Bees



Bees/Acre by Crop

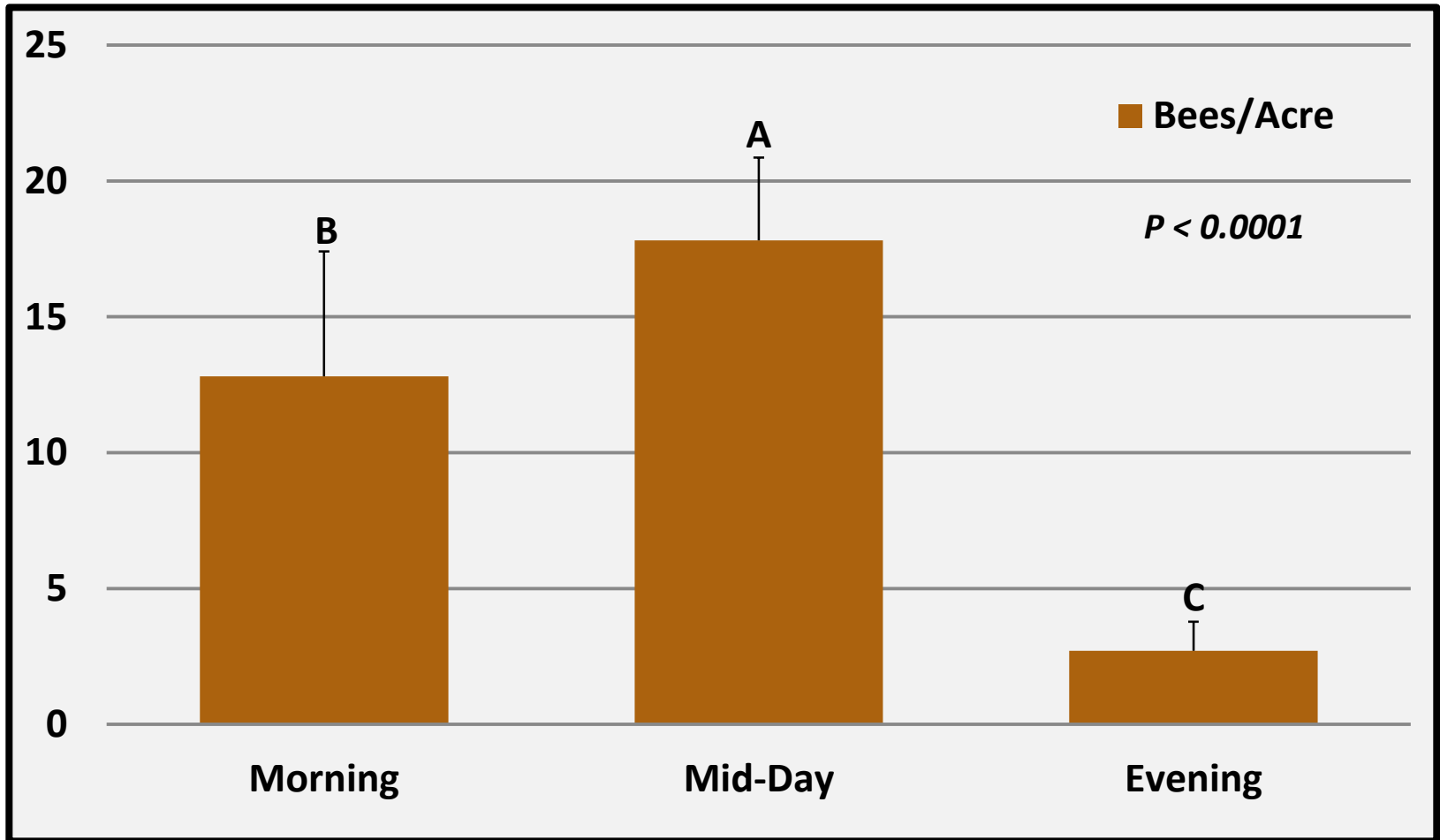
Whalen, et al. (Mississippi State University)



**Data subjected to log transformation*

Bees/Acre by Time of Day

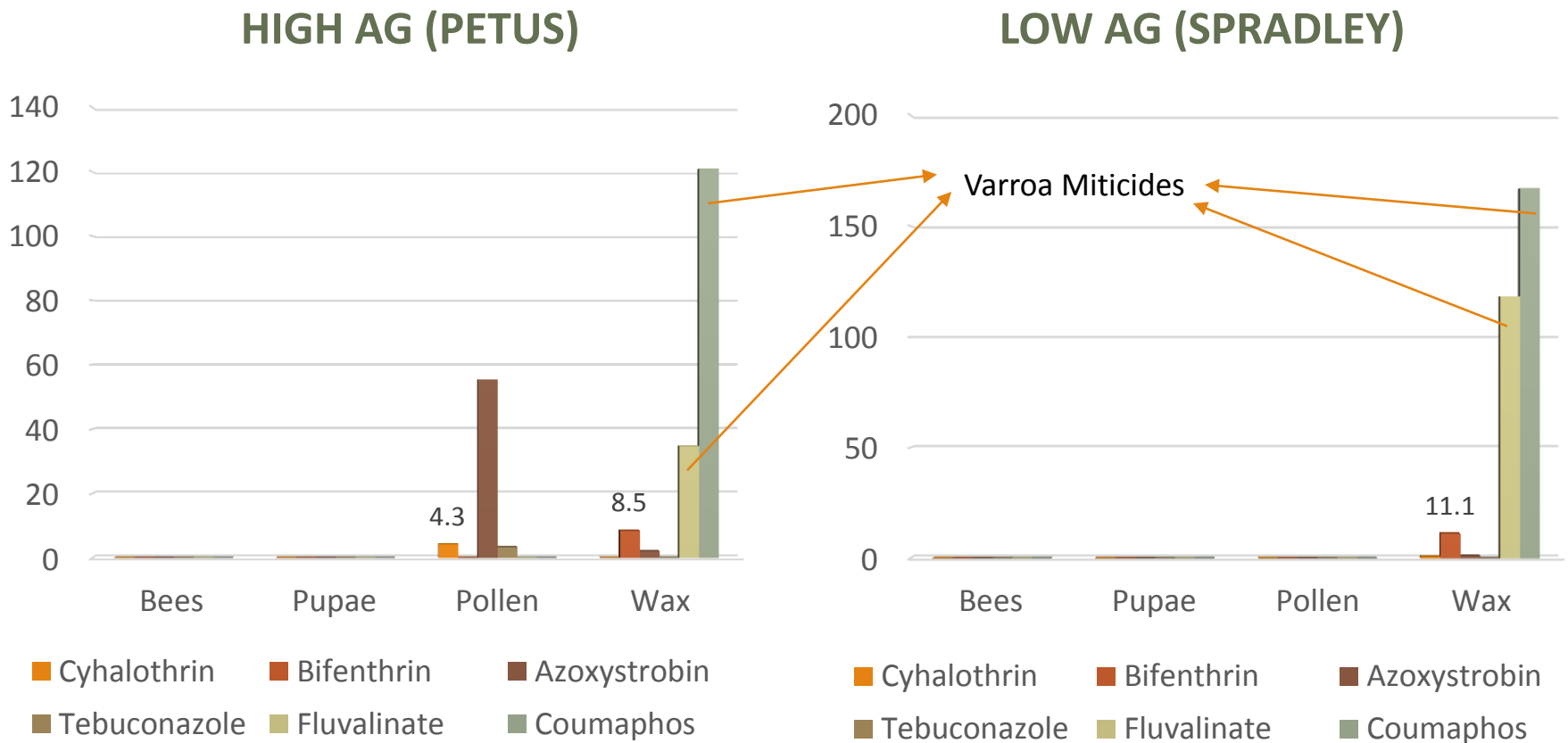
Whalen, et al. (Mississippi State University)



*Data subjected to log transformation

Average Pesticide Concentrations from Honey Bee Hives (PPB)

Arkansas, 2014, 4 Hives per Location



No other pesticides were detected, including neonicotinoids

PROTECTION OF POLLINATORS



APPLICATION RESTRICTIONS EXIST FOR THIS

PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Do not apply this product while bees are foraging.
Do not apply this product until flowering is complete and all petals have fallen unless one of the following conditions is met:

The application is made to the target site **after sunset**

The application is made to the target site when temperatures are below 55°F

The application is made in accordance with a government-initiated public health response

The application is made due to an **imminent threat of significant crop loss, and** a documented determination consistent with an IPM plan or predetermined economic threshold is met. Every effort should be made to **notify beekeepers no less than 48-hours prior to** the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.

“Bee Awareness” Programs

Mississippi, Louisiana, Arkansas,
Tennessee, etc.

Voluntary agreement between
stakeholder groups

- Beekeepers
- Growers
- Applicators
- Crop consultants
- Regulatory authorities

Communication, cooperation, and
common sense

- Less additional regulation



Acknowledgements

- LPCCP committee members
- Louisiana Farm Bureau Federation
- LSU AgCenter

