Cannabis Pests: What we know and what we don't know

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Questions?

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Many insects and mites are present in hemp

Chewing insects





Piercing-sucking insects



Mites


Root pests




Chewing insects

Grasshoppers



Whitney Cranshaw



Whitney Cranshaw

Generalist; chewing

Grasshoppers

Whitney Cranshaw

Whitney Cranshaw

Generalist; chewing

Cucumber beetles

Spotted cucumber beetle

Striped cucumber beetle

Generalist; chewing

Flea beetles

Generalist; chewing

Scarab Beetles

May beetle

Japanese beetle

June beetle

Generalist; chewing

Defoliation Study

Defoliation Study

25%

Defoliation Study

25%

50%

Defoliation Study

25%

50%

75%

Defoliation Study

Yield?

Cannabinoid concentration?

25%

50%

75%

Corn earworm

Corn earworm

Corn earworm

Corn earworm insecticide efficacy trial

Virginia Tech Southern Piedmont AREC

Blackstone, VA

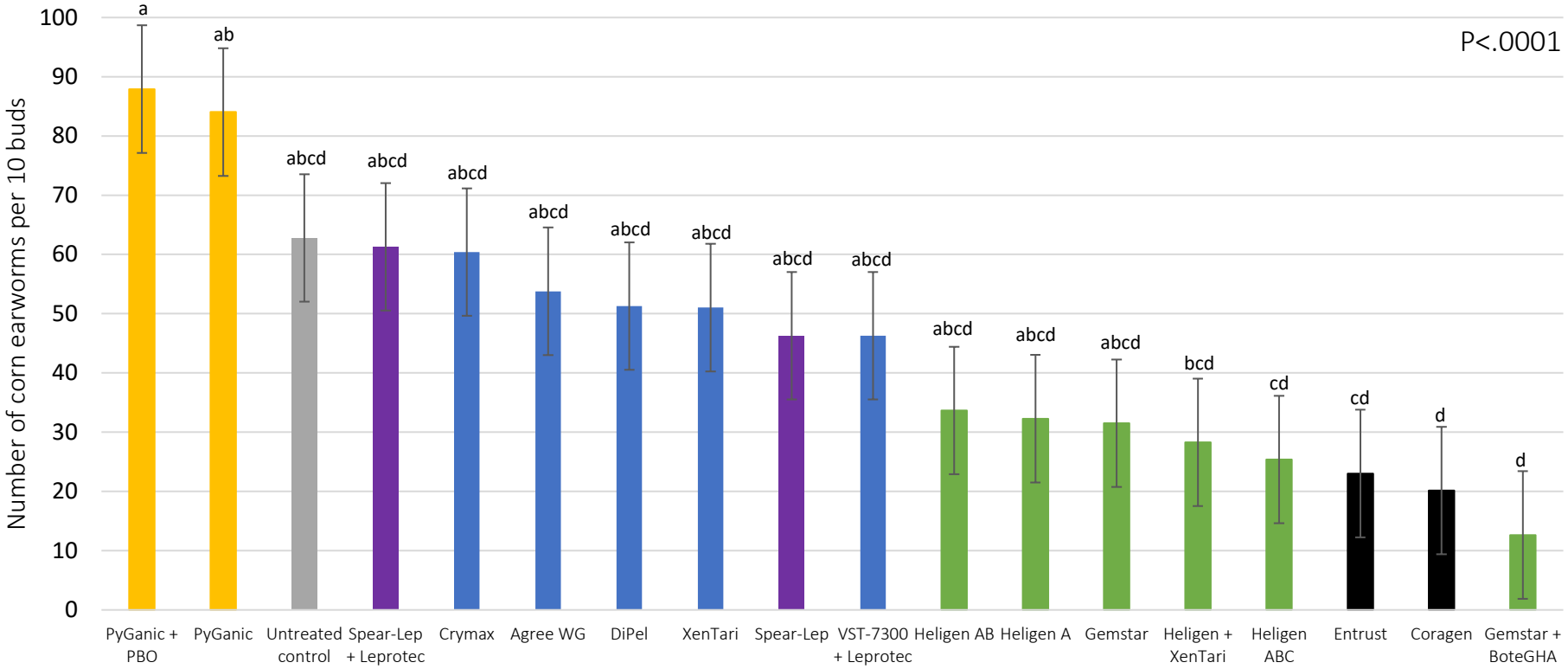
2 July 2020

Sprays initiated at flowering

2, 8, 15 September, 2020

10 buds sampled per plot

Cumulative number of corn earworm per 10 buds (September 2-23, 2020)



VIRGINIA TECH

Untreated control

Pyrethrins

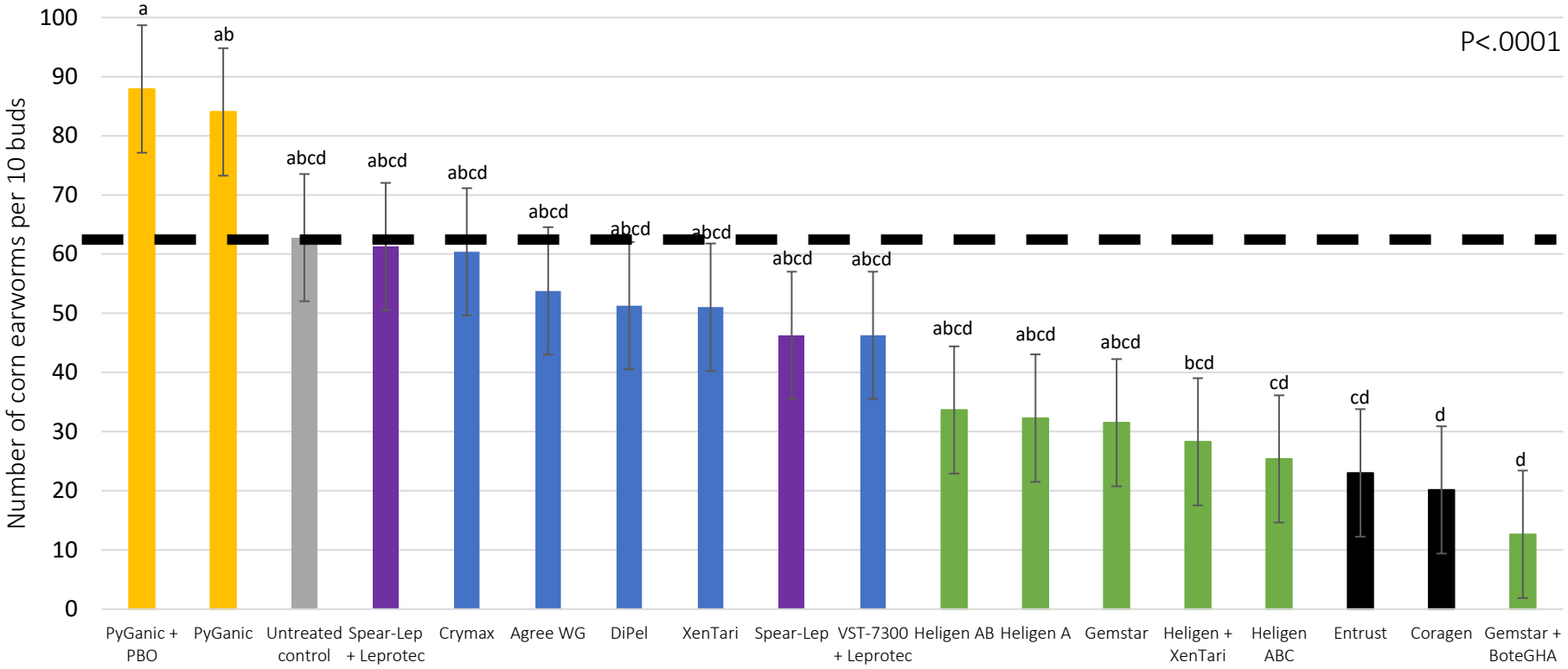
Bacillus thuringiensis

Helicoverpa zea nucleopolyhedrovirus

Biological peptide

Conventional standard

Cumulative number of corn earworm per 10 buds (September 2-23, 2020)



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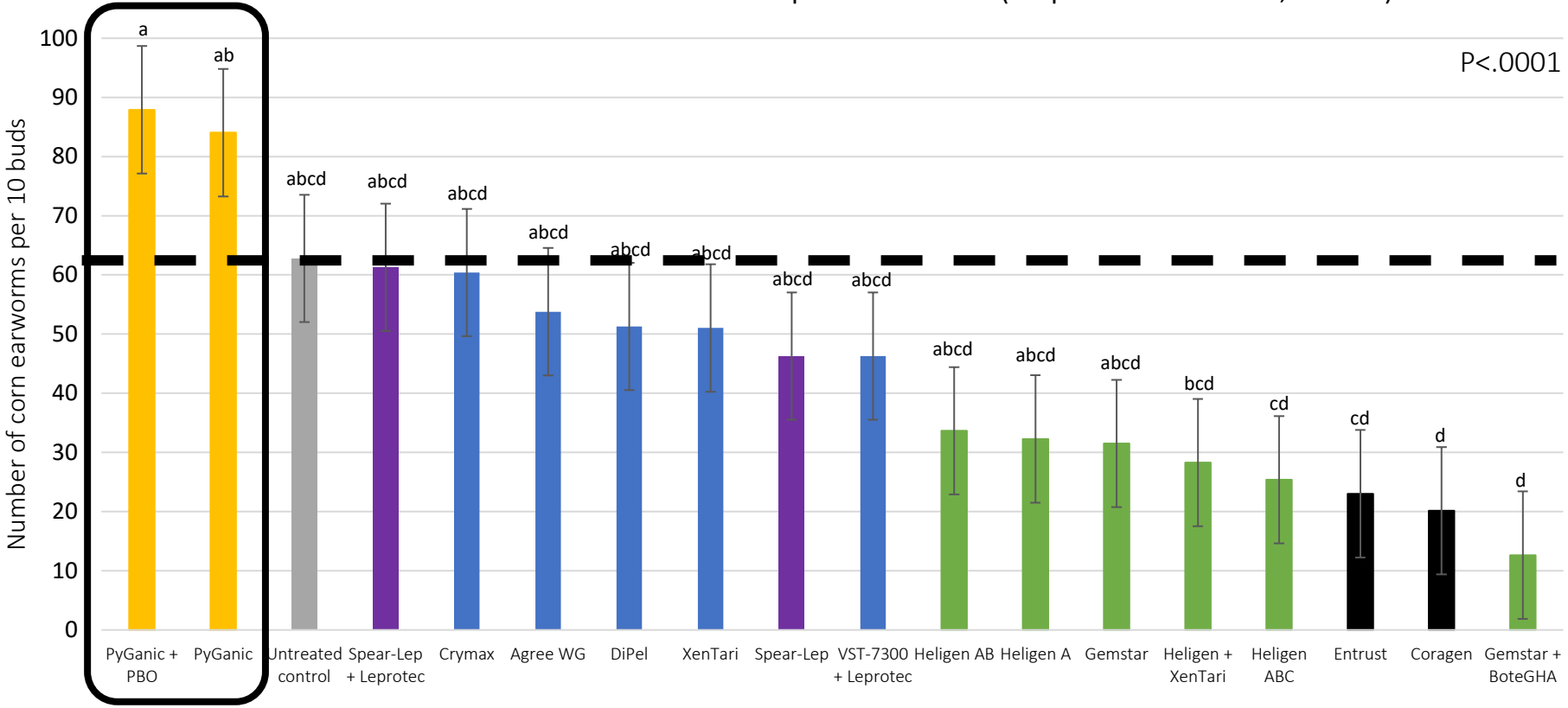

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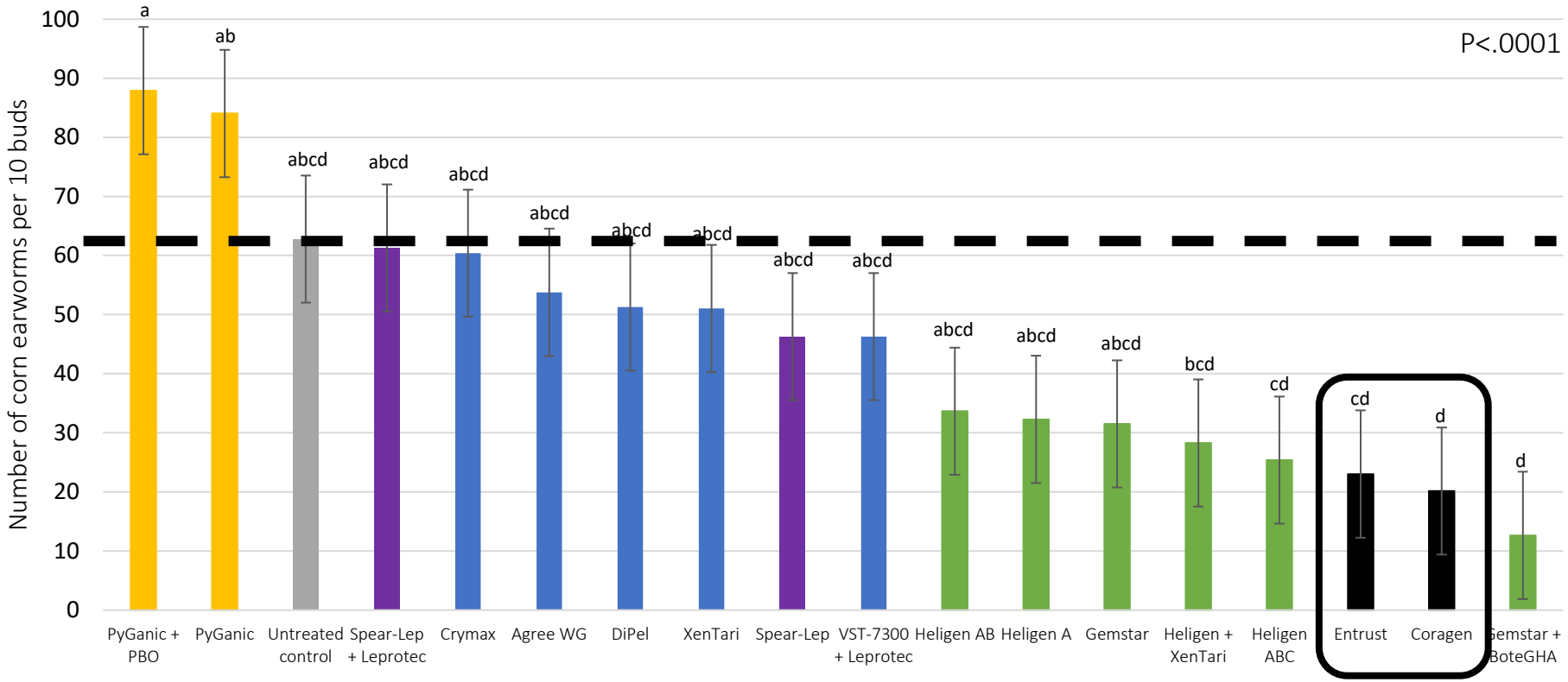

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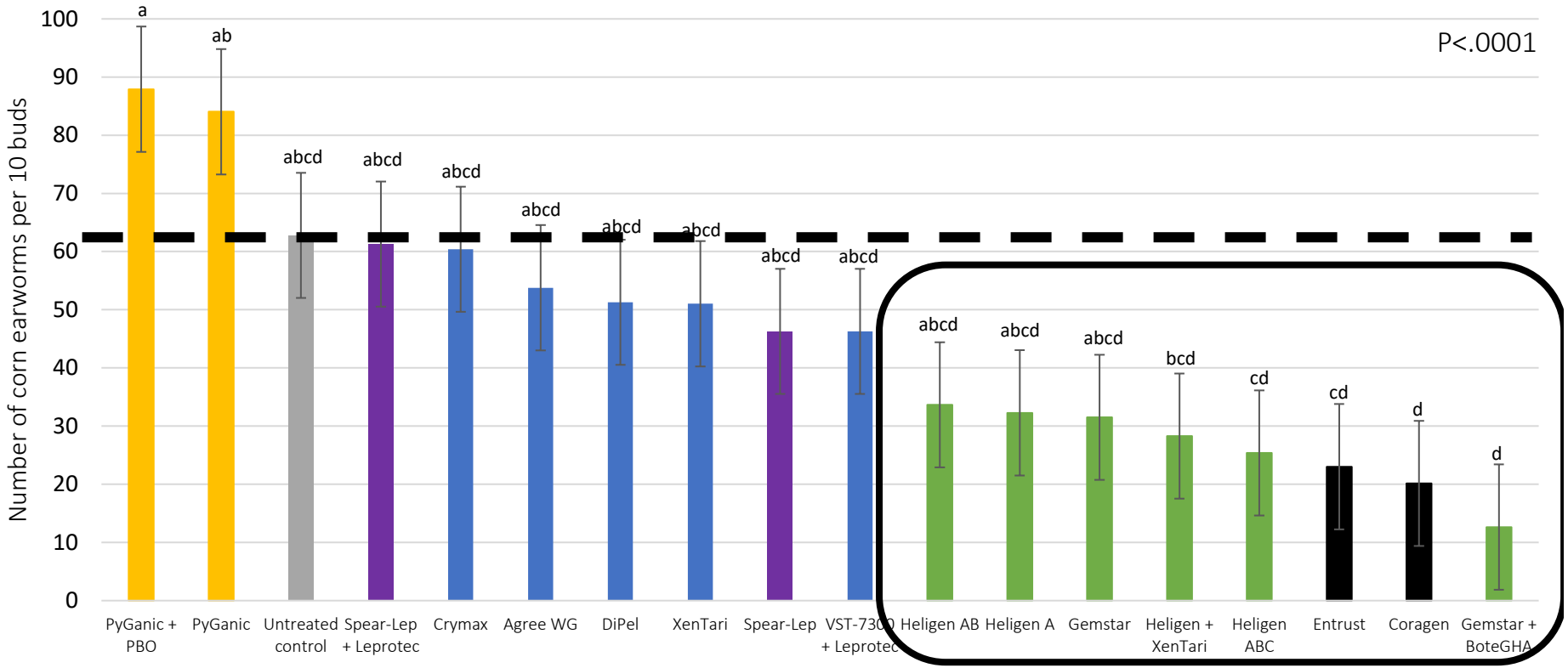

VIRGINIA TECH

- Untreated control
- Pyrethrins
- *Bacillus thuringiensis*
- *Helicoverpa zea* nucleopolyhedrovirus
- Biological peptide
- Conventional standard

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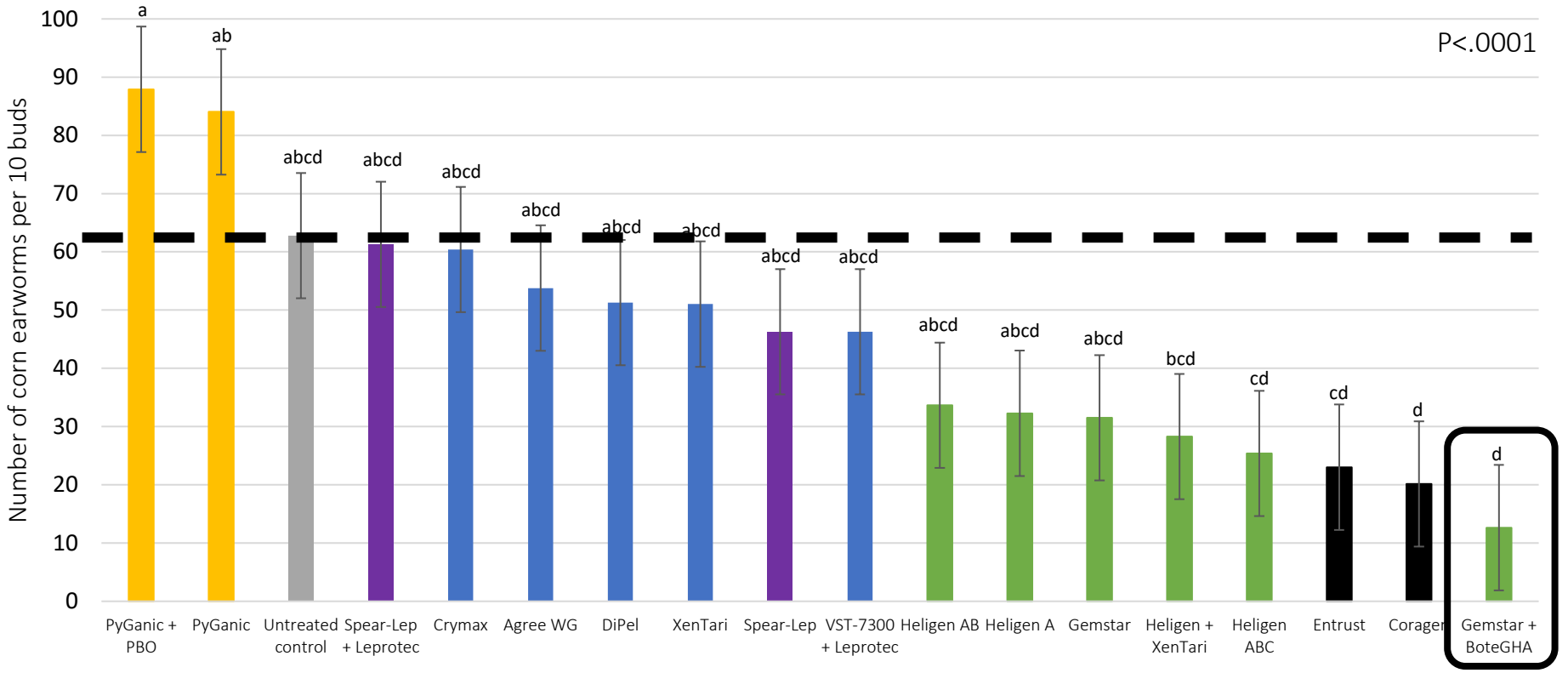

VIRGINIA TECH

Untreated control

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Conventional standard

Corn earworm in hemp

Corn earworm will remain a damaging pest in hemp for the foreseeable future.

The best option for management at this time is to scout and initiate control measures at first appearance of larvae.

NPV insecticides may offer the highest level of corn earworm larval suppression.

Sustainable management strategies will follow as more studies are conducted.



Piercing-sucking insects



Cannabis aphid




Specialist; piercing-sucking

Cannabis aphid

Specialist; piercing-sucking

Cannabis aphid

Specialist; piercing-sucking

Cannabis aphid

Specialist; piercing-sucking

Cannabis aphid

Specialist; piercing-sucking

Cannabis aphid

Specialist; piercing-sucking

Cannabis aphid

Cannabis aphid management

- **SCOUT**; move plants that are infested
- Indoor
  - Inspect plants prior to introduction
  - Employ natural enemies
- Outdoor
  - Get rid of crop debris
  - Let natural enemies do their job
- Insecticidal soaps, horticultural oils, pyrethrins

Other aphids

Generalist; piercing-sucking

Stink bugs

Brown marmorated stink bug

Green stink bug

Rice stink bug

Twice stabbed stink bug

Stink bugs and hemp

Can hemp serve as a suitable host plant for brown marmorated stink bug?

YES

Does brown marmorated stink bug feeding lead to hemp crop injury?

NO

Hélène Doughty

Lygus bugs

Pale legume bug

Tarnished plant bug

Western tarnished plant bug

Generalist; piercing-sucking

False chinch bug



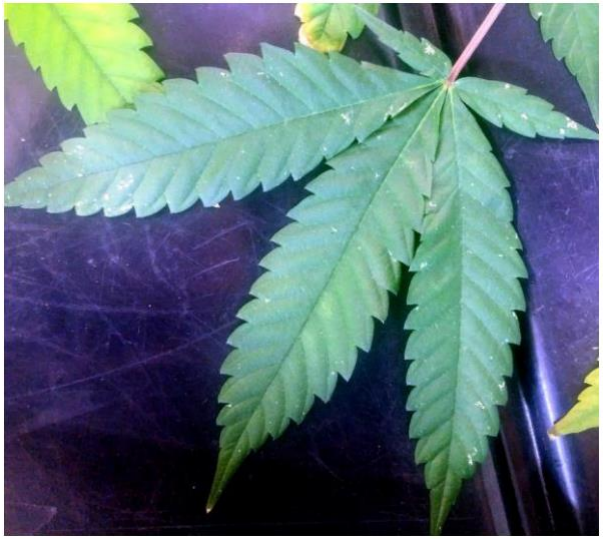

Whitney Cranshaw

Generalist; piercing-sucking

Whiteflies

Generalist; piercing-sucking

Thrips



Whitney Cranshaw

Generalist; rasping-sucking

Leafhoppers

Marguerite Bolt

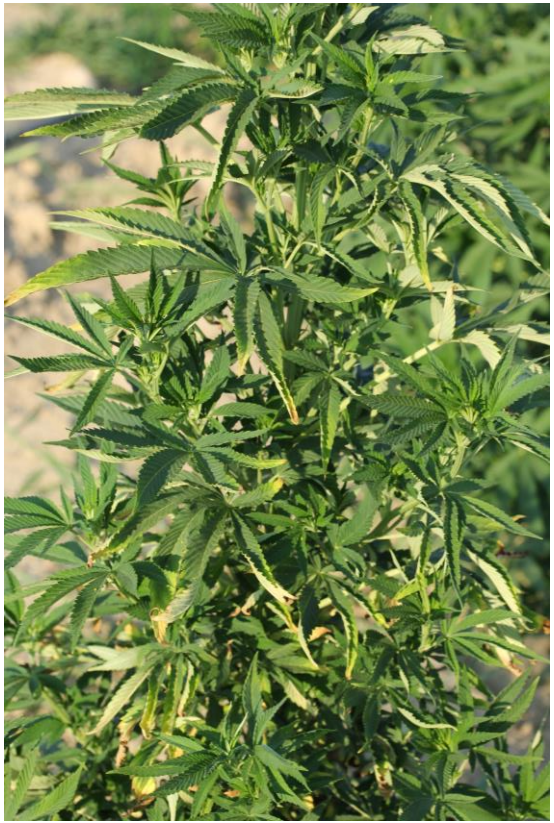
nymph

adult

Generalist; piercing-sucking

Leafhoppers

Marguerite Bolt



Generalist; piercing-sucking

Leafhoppers

Marguerite Bolt

Generalist; piercing-sucking

Mites

Hemp russet mite

Specialist; piercing-sucking

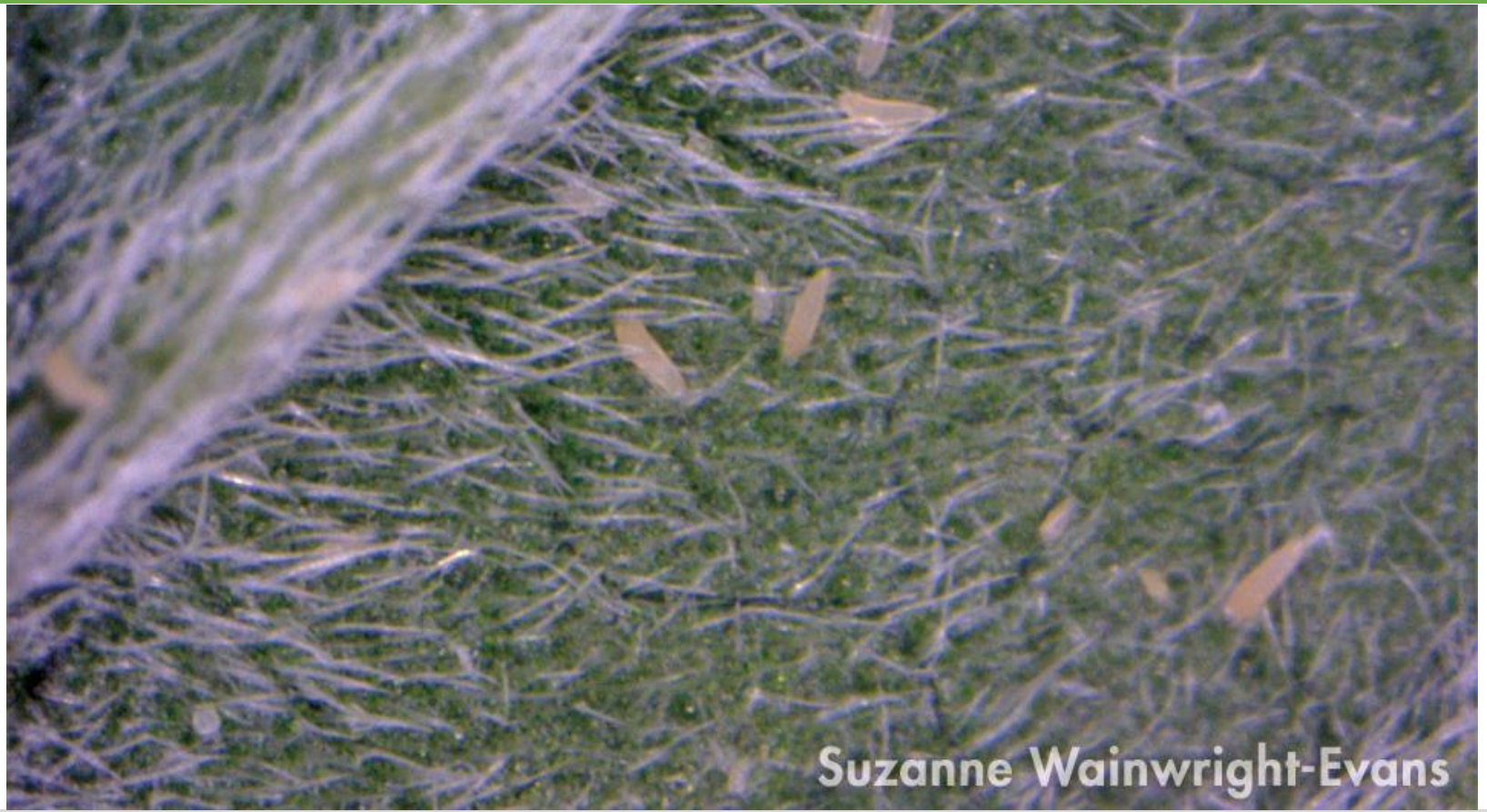
Hemp russet mite

Specialist; piercing-sucking

Outdoors – seems like it does not spread

Specialist; piercing-sucking

Russet mite feeding injury can lead to a drastic decrease in bud density



Specialist; piercing-sucking

Hemp russet mite – super tiny!

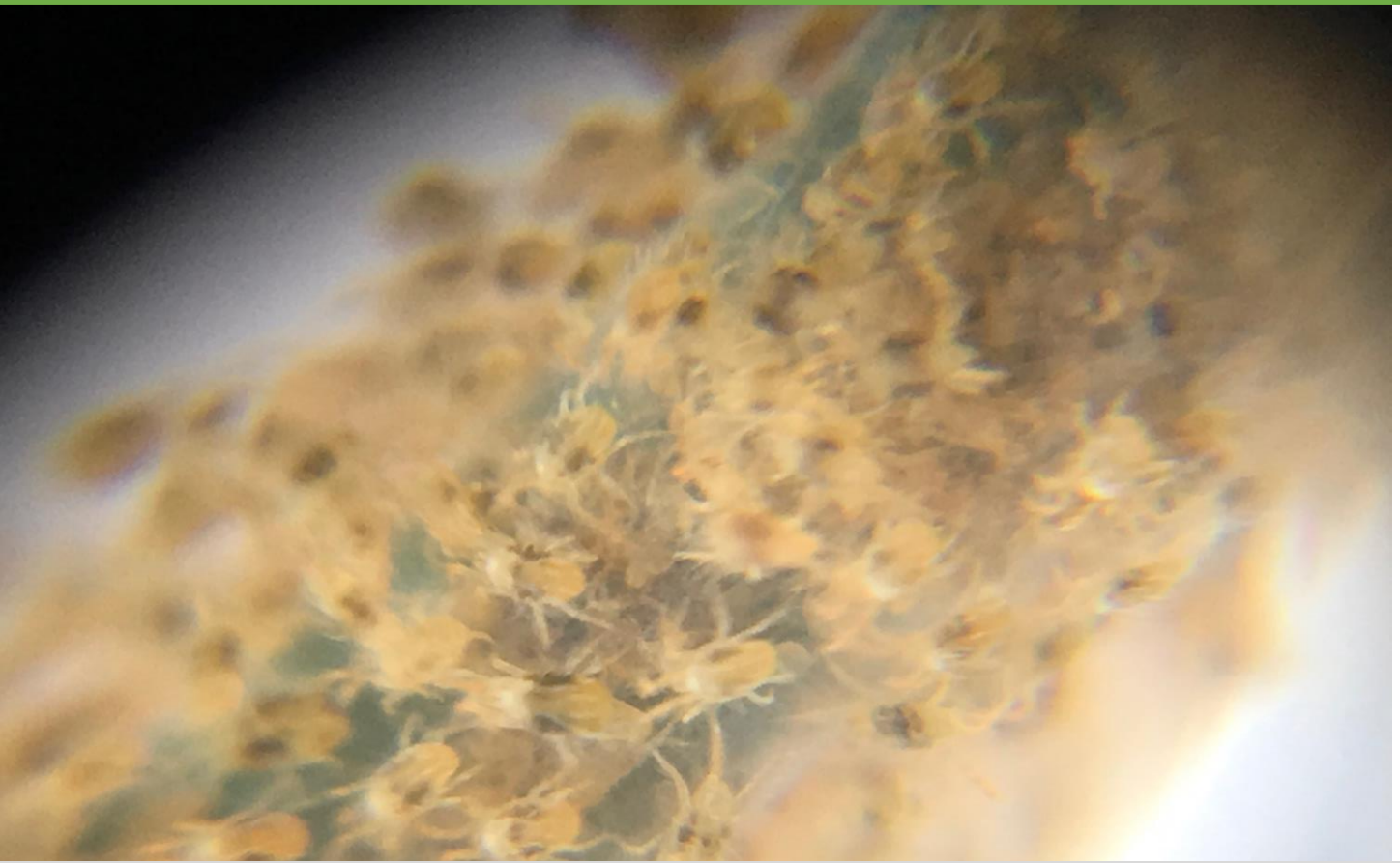
Specialist; piercing-sucking

Hemp russet mite injury?

Hemp russet mite management

- SCOUT
- If you can afford it, invest in a microscope
- SCOUT
- Quarantine/inspect plants prior to introduction
- SCOUT
- Spray: be careful with labels
- SCOUT

Generalist; piercing-sucking



Twospotted spider mite

David Dycus

Generalist; piercing-sucking

Stippling on leaves due to twospotted spider mite

Generalist; piercing-sucking

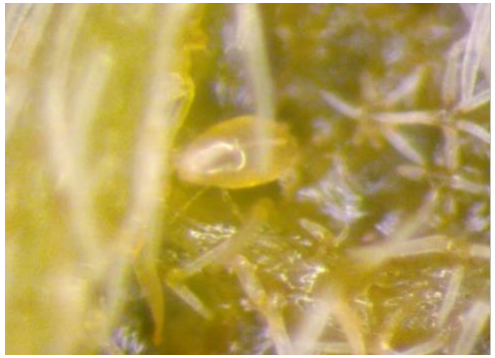
Stippling on leaves due to twospotted spider mite

Generalist; piercing-sucking

Twospotted spider mite management

- **SCOUT**; if possible, move plants that are infested
- Inspect plants (and quarantine if needed) prior to introduction
- Employ natural enemies
  - *Phytoseiulus persimilis*
  - Minute pirate bugs, lacewing larvae
- Oils, insecticidal soaps

Broad mite



Karla Addesso

Generalist; piercing-sucking

Root pests

Rice root aphid

Whitney Cranshaw,
Madison Cartwright

Generalist; piercing-sucking

Fungus gnats

Generalist; piercing-sucking

Fire ants

Katelyn Kesheimer

Generalist; chewing

Fire ants

Katelyn Kesheimer

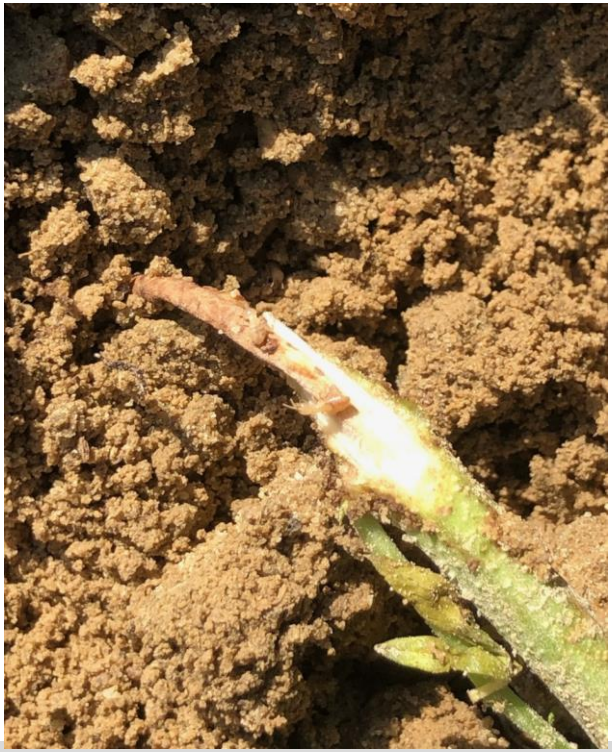
Taylor Clarke

Generalist; chewing

David Dycus

Generalist; chewing

Termites

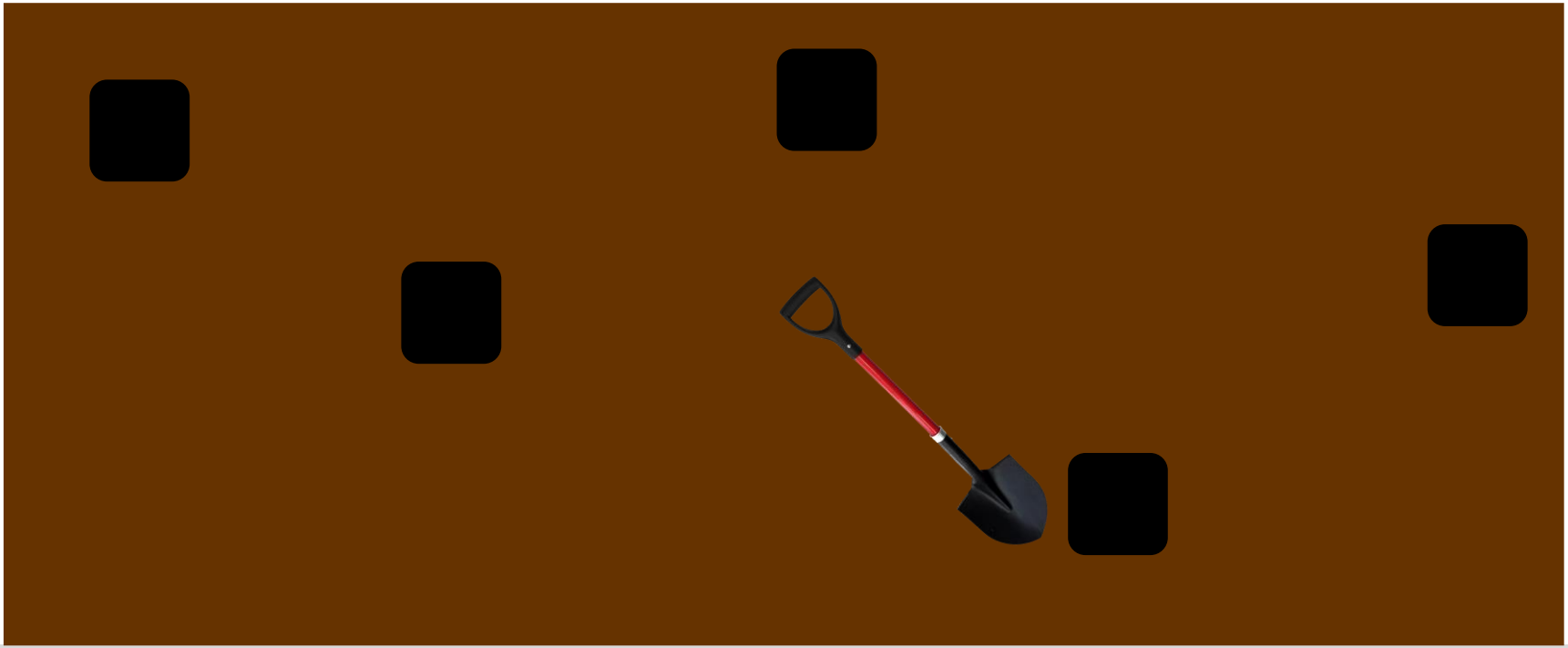


Generalist; chewing

Wireworms

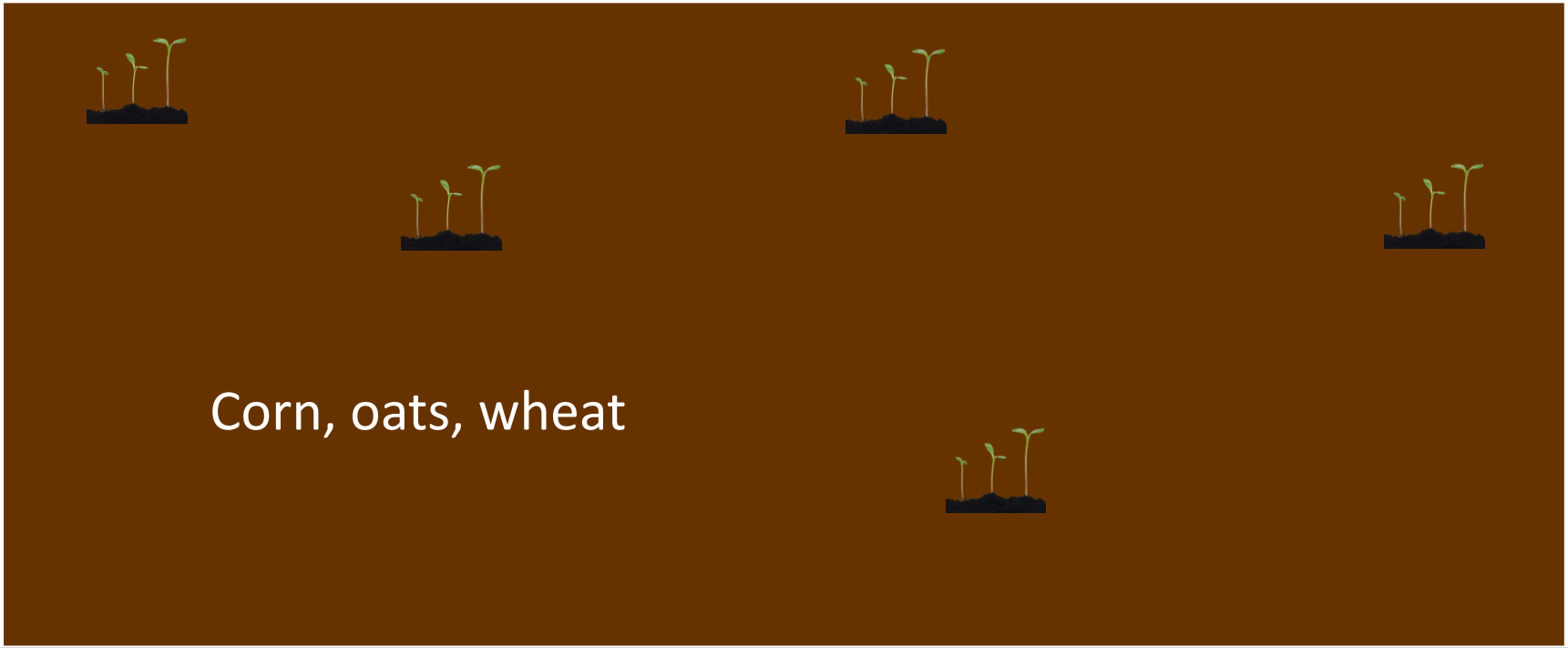
Generalist; chewing

Wireworms – scout prior to planting



Generalist; chewing

Wireworms – scout prior to planting



Generalist; chewing

Beneficial insect predators found in hemp

Lady beetle adults

Lady beetle pupae

Lady beetle larva

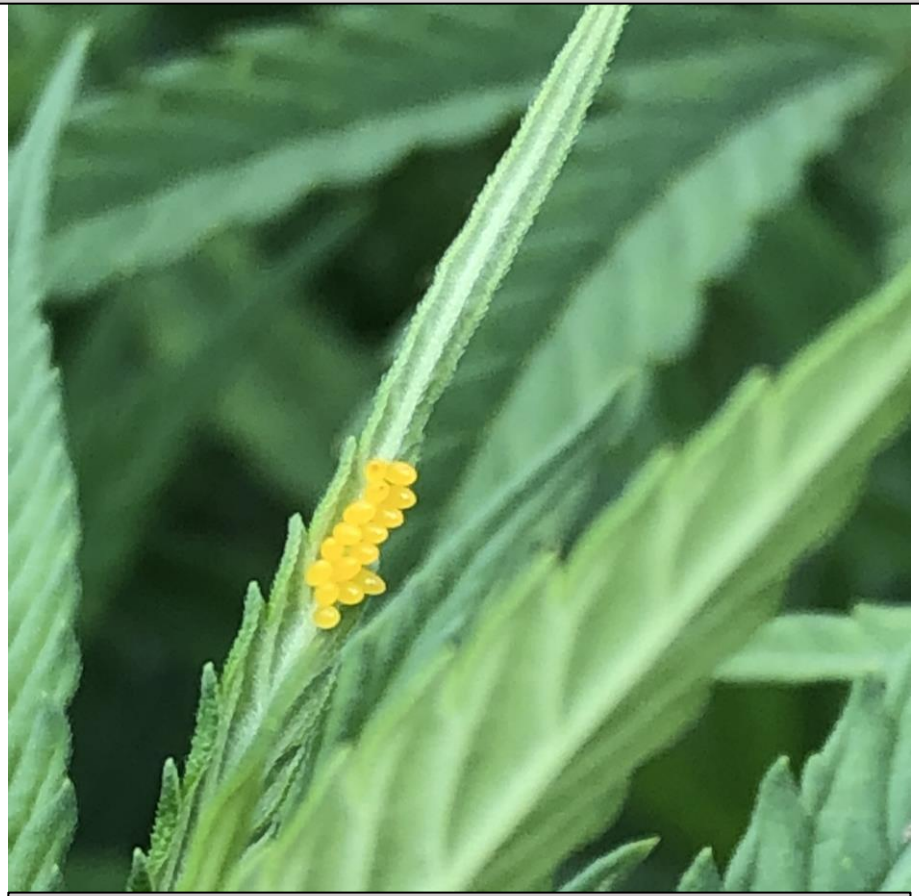
Green lacewing adult

Green lacewing larva

Minute pirate bug adult

Beneficial insect predators found in hemp

Lady beetle adults



Lady beetle eggs

INDOOR

Hemp russet mite

Cannabis aphid

Twospotted spider mite

Rice root aphid

Fungus gnats

Whiteflies

Thrips

OUTDOOR

Hemp russet mite

Cannabis aphid

Grasshoppers

Beetles

Aphids

Leafhoppers

Remember to scout!

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Profile

OXFORD

Developing Insect Pest Management Systems for Hemp in the United States: A Work in Progress

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Subject Editor: Carlos Bogran

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Abstract

Hemp (*Cannabis sativa* L.) is now being grown within the United States over a much broader geographic area and for different uses than during its last period of significant production that ended after World War II. Within the past 3 yr, a large number of arthropod species have been documented to feed on hemp in the United States. Among key pest species, corn earworm, *Helicoverpa zea* (Boddie) (Lepidoptera: Noctuidae), has demonstrated greatest potential for crop injury, being particularly damaging to flower buds. Hemp russet mite, *Aculops cannibicola* (Farkas), and cannabis aphid, *Phorodon cannabis* Passerini, are the two species observed most damaging among those that suck plant fluids. Eurasian hemp borer, *Grapholita delineana* Walker, is widely present east of the Rocky Mountains

RESOURCES

COLORADO STATE UNIVERSITY | COLLEGE OF AGRICULTURAL SCIENCES | Hemp Resource Center

Home | Hemp Insect Fact Sheets | Hemp Insect Images | Regulations and Pesticide Use | Got Bugs? | Recommendations and Videos | Future Students | Commencement | Directory | Give

Hemp Insect Fact Sheets

Insects that Chew on Leaves

Beet Webworm

Beet Armyworm

Cotton Square Borer/Gray Hairstreak

Insects/Mites associated with Buds/Flowers/Seeds

Lygus Bugs

Hyaline Grass Bug

Red-shouldered Stink Bug

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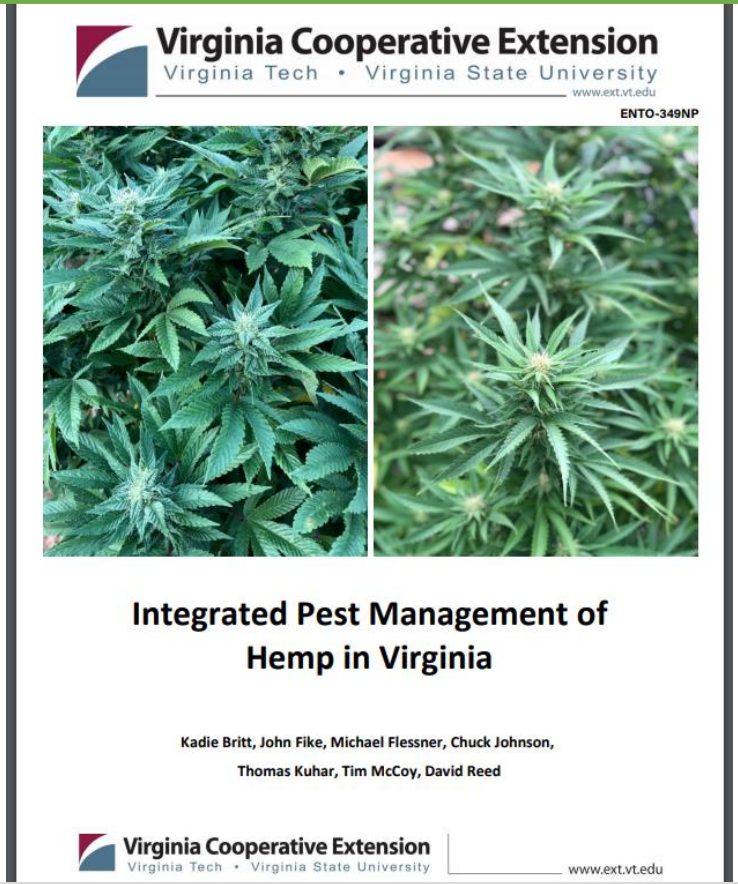
Virginia Hemp IPM Guide

- Can be found and downloaded through Virginia Cooperative Extension publications (ENTO-349)
- https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/ENTO/ento-349/ENTO-349.pdf



Questions about hemp or what's feeding on it? Reach out anytime!

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