

IOWA STATE UNIVERSITY

Department of Plant Pathology & Microbiology



Reinventing Row Covers to Manage Bacterial Wilt in Organic Muskmelon and Squash

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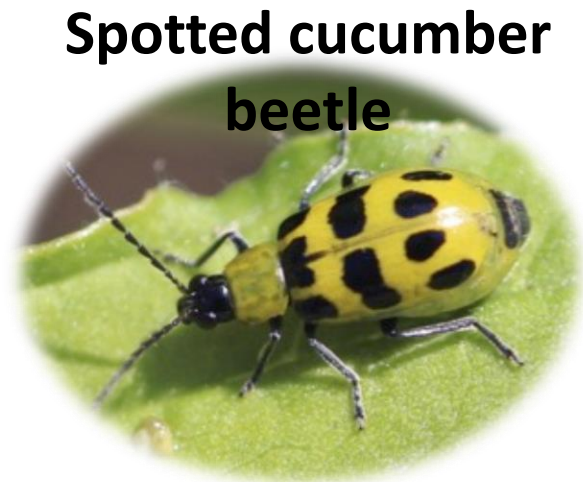
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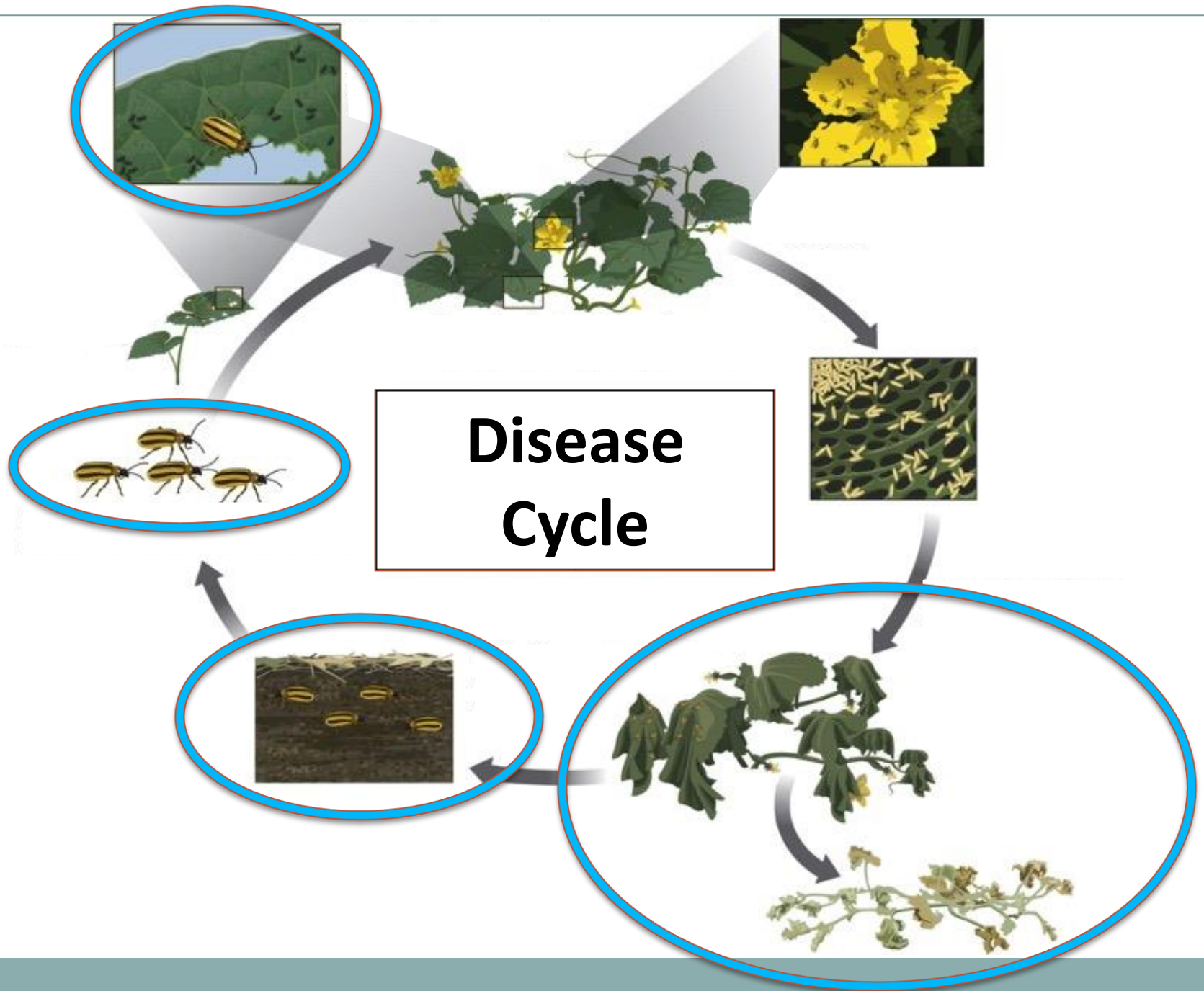
Erwinia tracheiphila



**Striped cucumber
beetle**



**Spotted cucumber
beetle**



Traditional system: Row covers & insecticides



Outline



Traditional system (row covers & insecticides)

Redesigned systems (mesotunnels)

- Materials
- Results (2016-2017)

Moving forward

- Concerns
- Future research

Traditional system: Row covers & insecticides



Traditional system: Row covers & insecticides



Traditional system: Row covers & insecticides



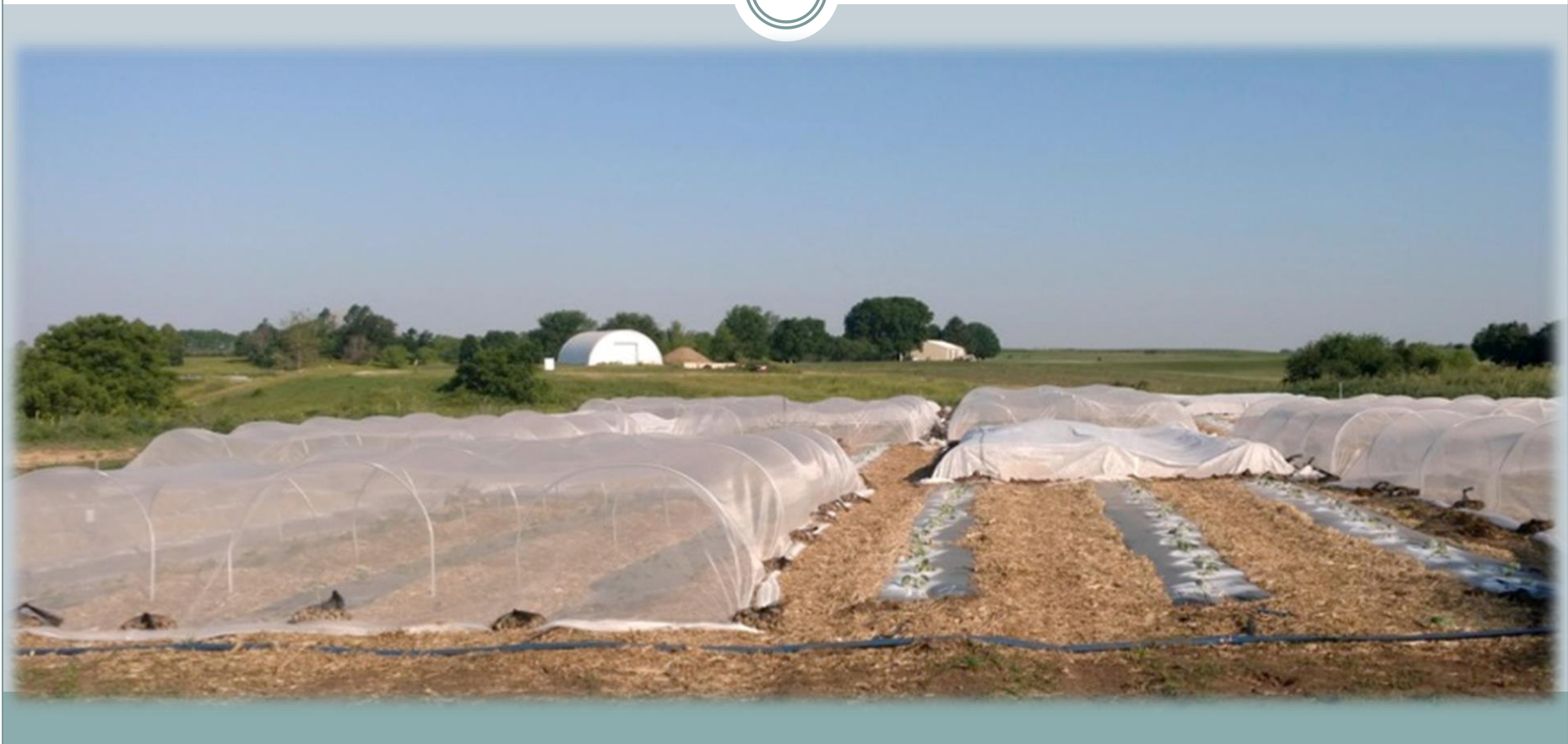
Traditional system: Row covers & insecticides



Management System	Transplant	Pollinate	Harvest
Traditional	Row Cover	Insecticide	
System 1	Row Cover	Insecticide	Row Cover
System 2	Row Cover		

Objective:

Redesign row cover systems for full-season protection



Redesigned systems: Mesotunnels



Mesh row cover

ProtekNet

(Dubois Agrinovation)



Tall support structures

1" galvanized conduit



Treatments

Part-season

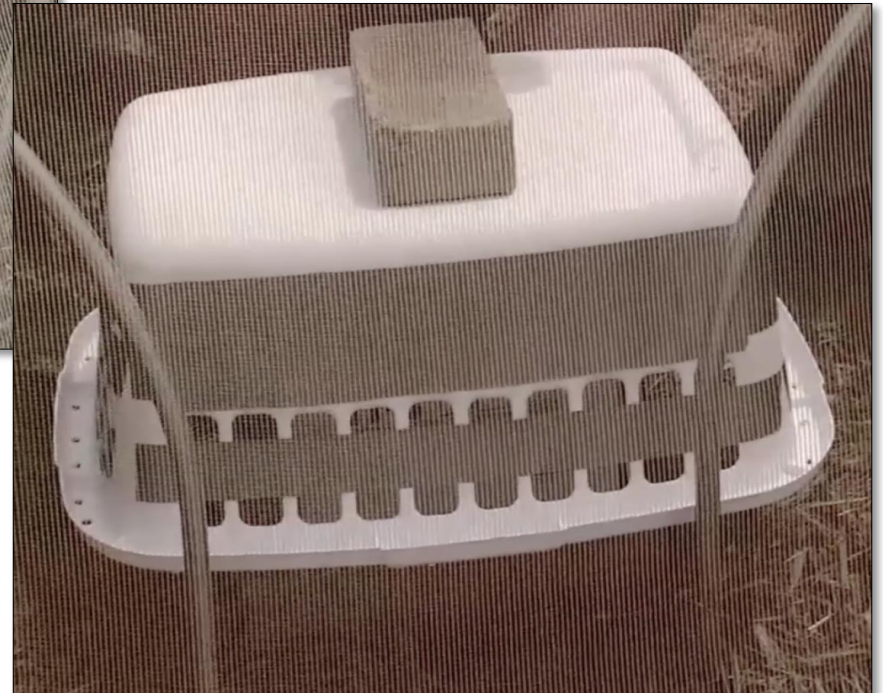


Full-season



Bumblebee Hives

Koppert Biological

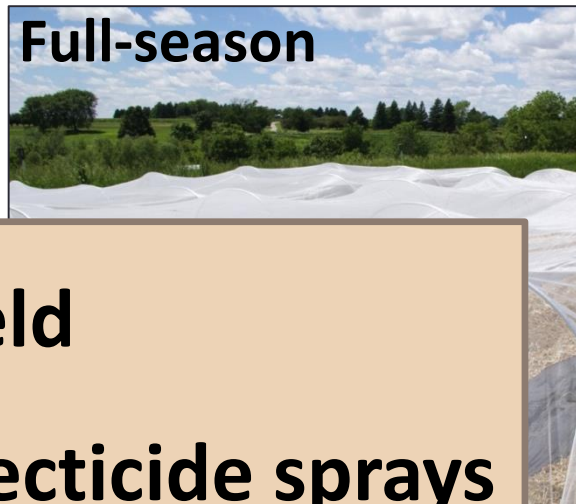


Treatments

Part-season



Full-season



Marketable yield

Number of insecticide sprays

Bacterial wilt incidence

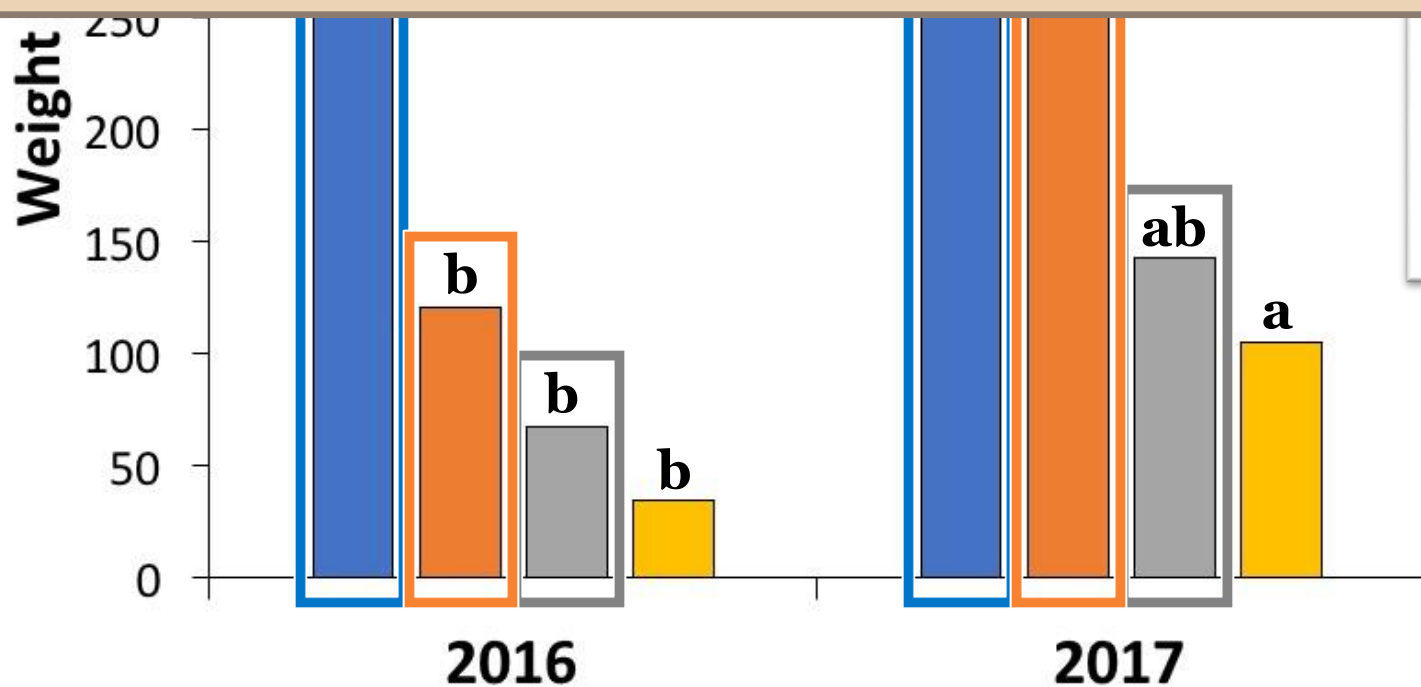
Traditional



Marketable Muskmelon

■ Full-season mesotunnel

Mesotunnels increased yield on muskmelon.

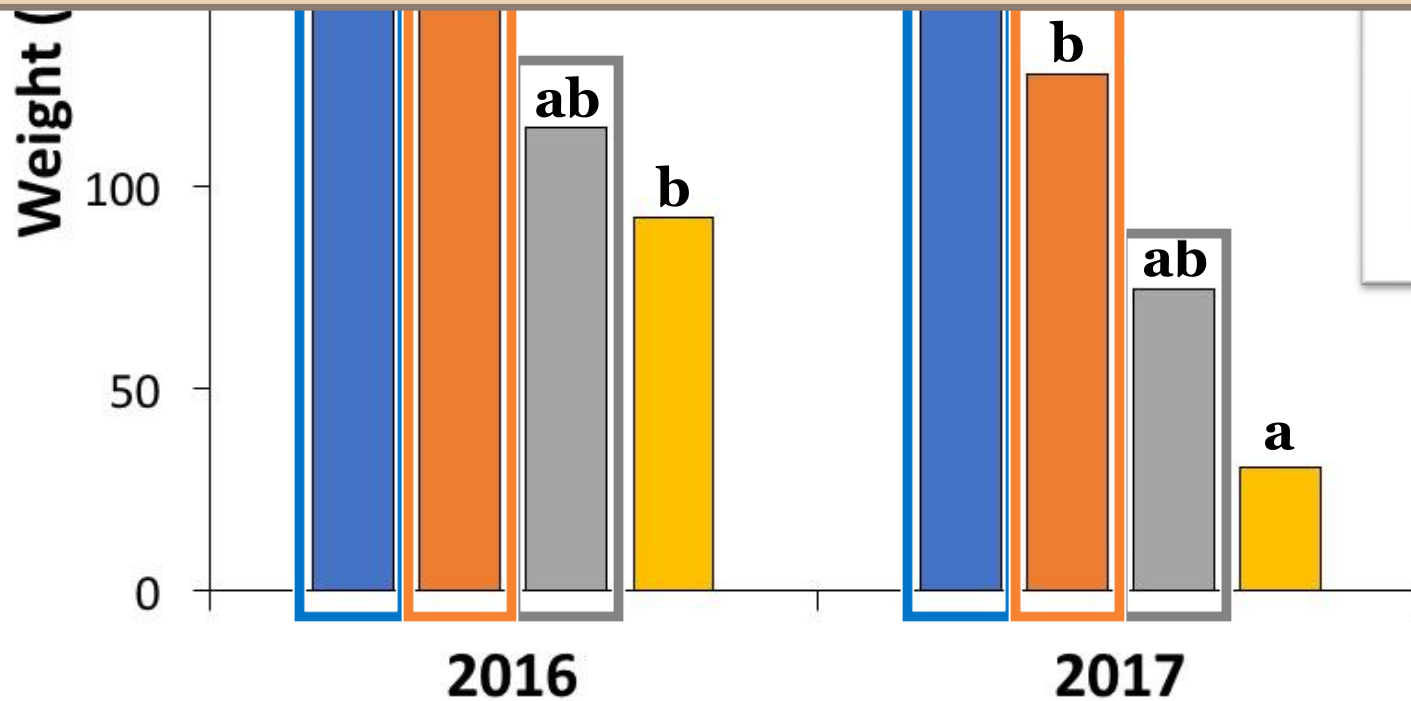


* Per 90 row-feet

Marketable Squash

■ Full-season mesotunnel

Mesotunnels increased yield on acorn squash.

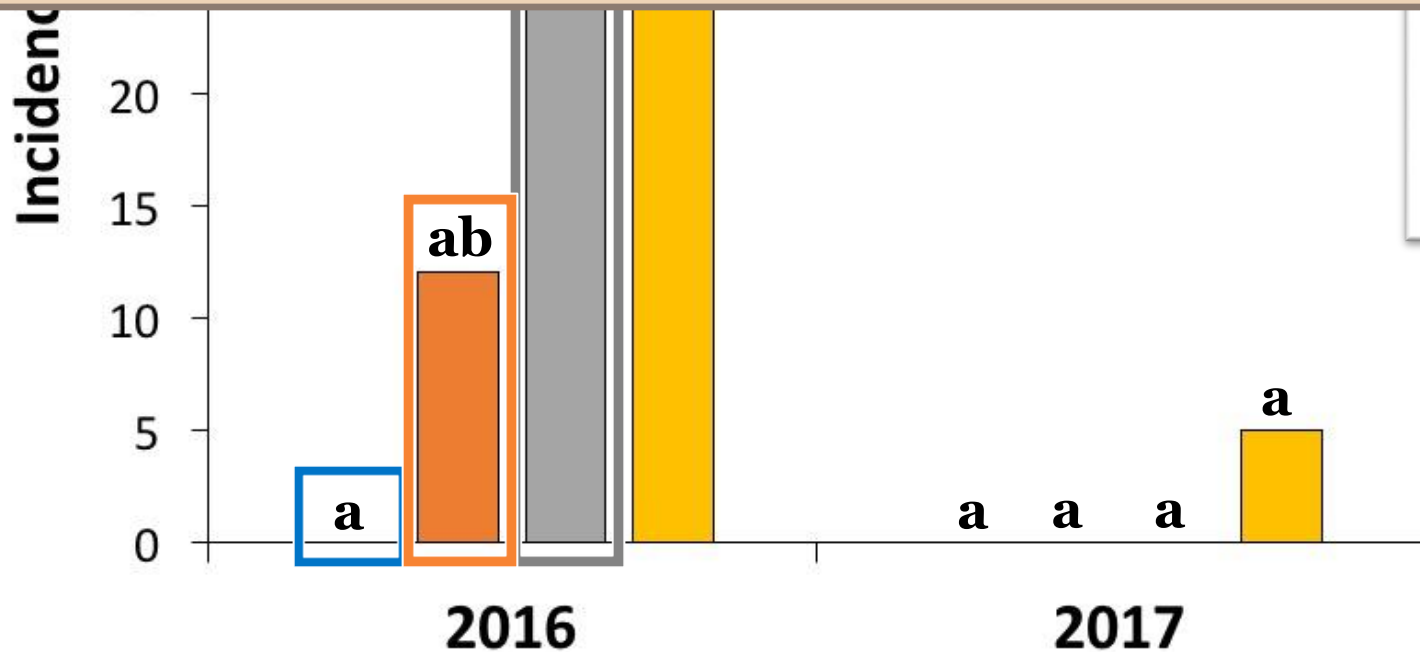


* Per 90 row-feet

Bacterial Wilt in Muskmelon

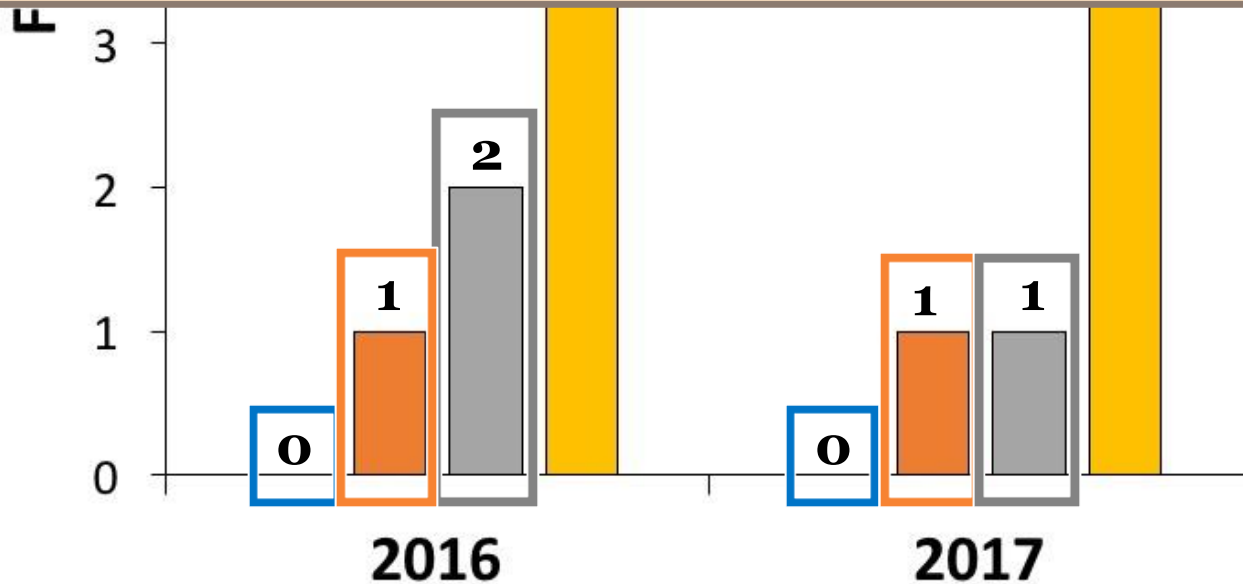


Mesotunnels reduced bacterial wilt on muskmelon.



Insecticide Sprays on Muskmelon

Full-season mesotunnels required no insecticides on muskmelon.



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Free



Consistent yield bump

Less insecticides

Long-lasting materials

Moving forward

Things to consider:

Rodents

Weeds

Future studies:

Partial budget analysis

Hives & tunnel length



Acknowledgments

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Thanks!