

Blueberry Insect IPM Update



School of Biology and Cooperative Extension
University of Maine



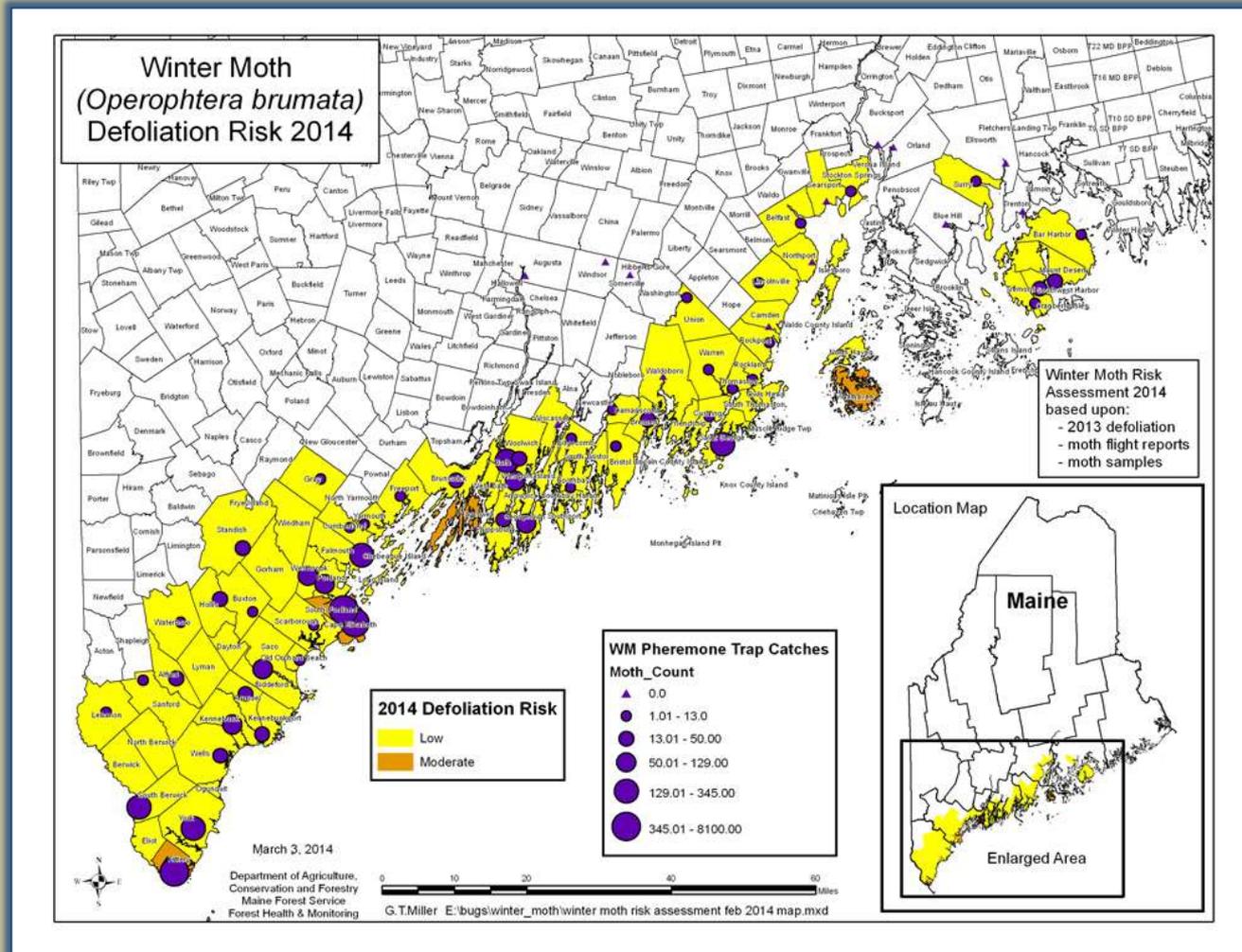
Winter moth (*Operophtera brumata*)
development and survival on seven
different host plants

Kaitlyn O'Donnell & Dr. Eleanor Groden
University of Maine

winter moth In Maine



winter moth in North America



experiments in 2013 & 2014

1. Determine larval density on 7 host plants in the field
2. Estimate survival on 7 host plants in lab and field setting

White Oak



Red Maple



White Birch



Wild
Blueberry



Apple



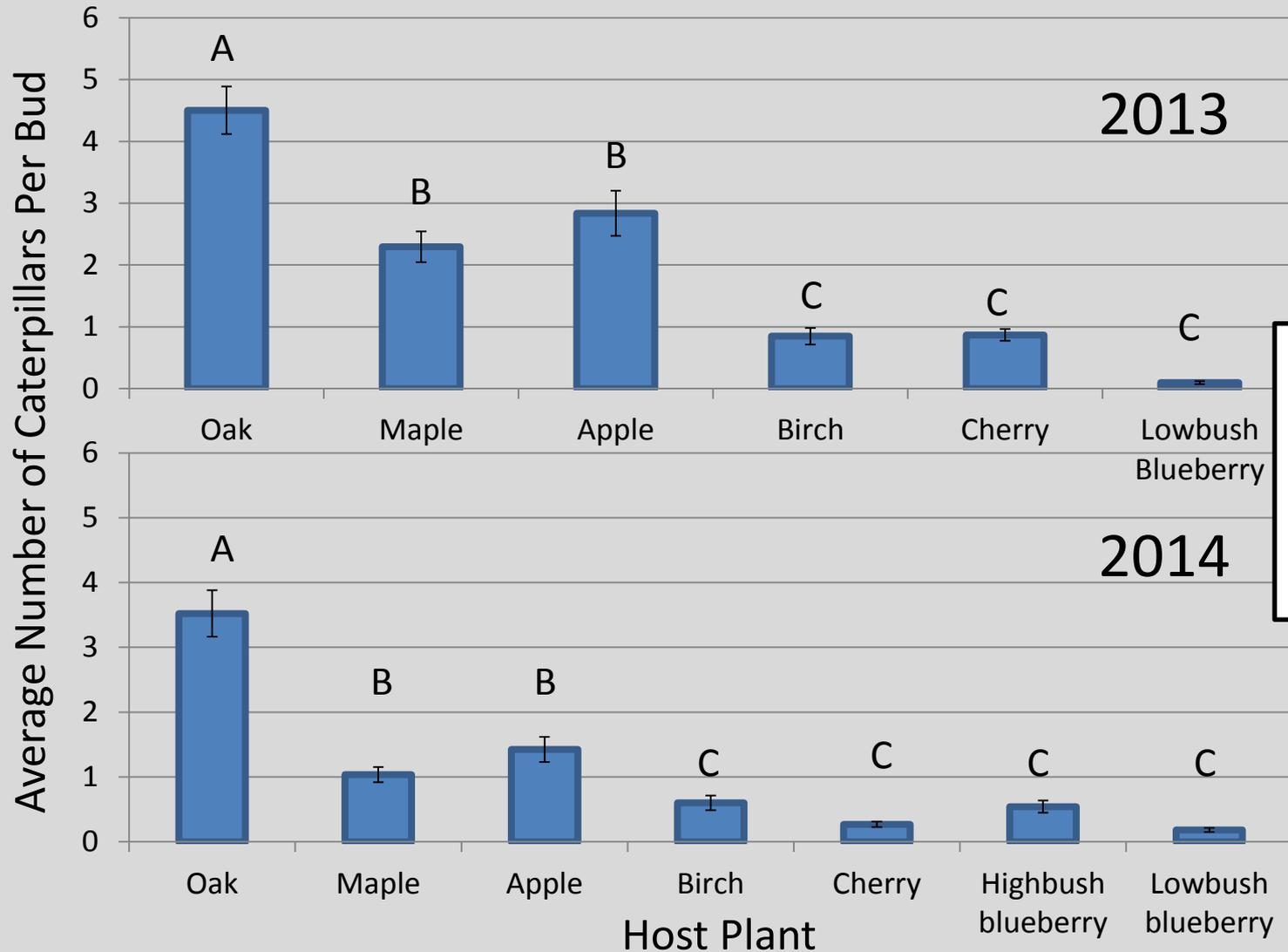
Pin Cherry



Highbush
Blueberry

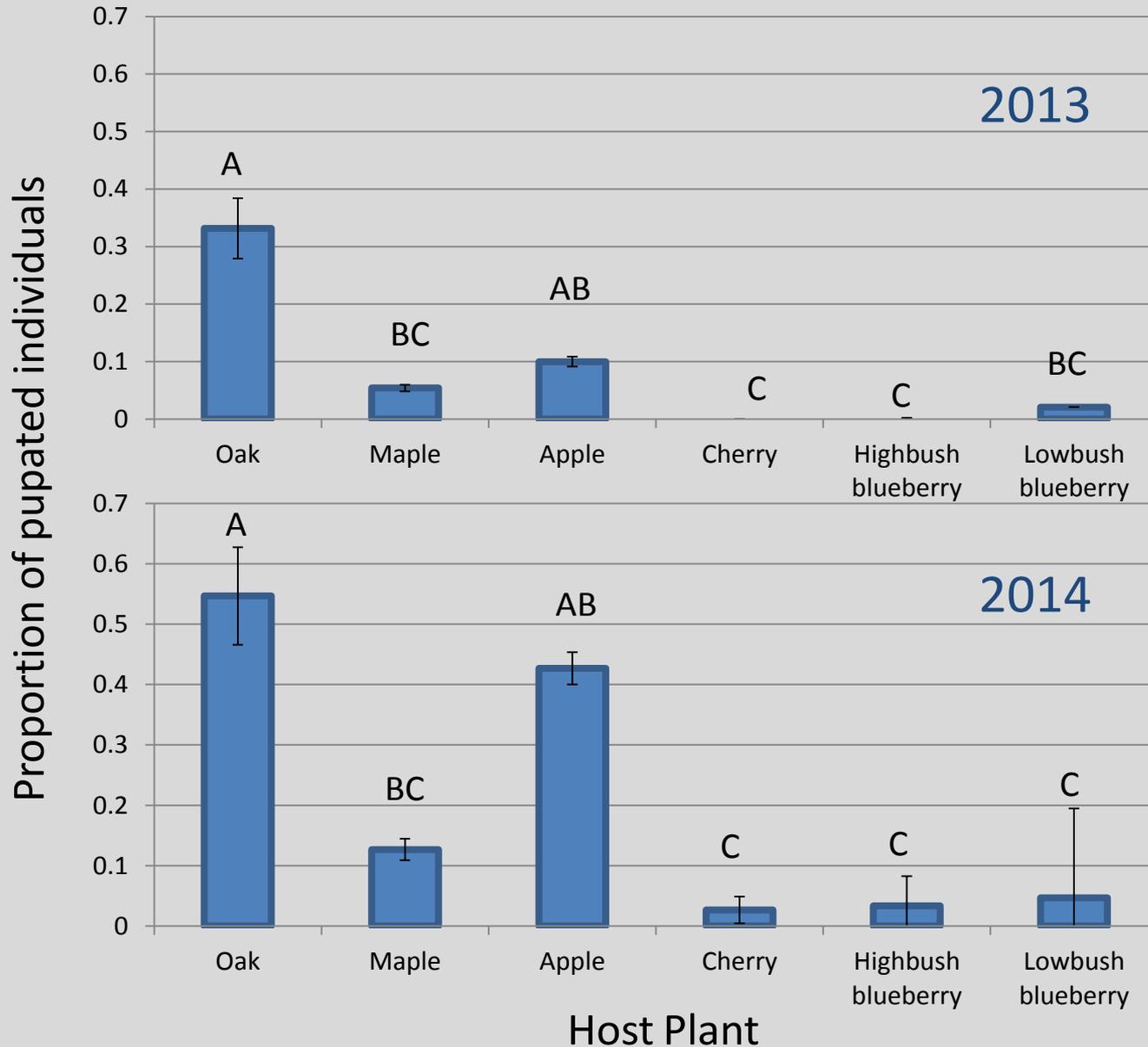


larval densities on different host plants



Plant $p < 0.0001$
Year $p = 0.0010$
No interaction

proportion of pupated individuals on 7 host plants



2013

Host plant effect
 $p < 0.0001$

Set date effect
 $p = 0.0042$

Interaction not
significant

2014

Host plant effect
 $p < 0.0001$

Set date not
significant

conclusions

1. Field densities highest on oak compared to 6 other plant hosts
2. Survival is also highest on oak
3. Wild blueberry does not appear to be a good host plant, but will be attacked



brown marmorated stink bug



Photo: Rutgers University

UNWANTED!



Be on the lookout for the **Brown Marmorated Stink Bug**. While not known to be established in Illinois, it is a potential pest of several shade & fruit trees, vegetables, and legumes - including apple, peach, pear, and soybean.

Look for these key features that help distinguish this fugitive from other insects.



Brown Marmorated Stink Bug

White stripes on the antennae

Speckled body with red eyes

Black and white banding

Don't be fooled by other stink bugs or look-alikes!



Assassin Bug



Brown Stink Bug



Squash Bug

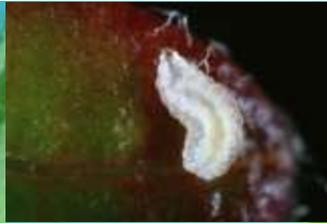
If you think you have this in your field
PLEASE SEND TO UMAINE FOR CONFIRMATION



what is this ?



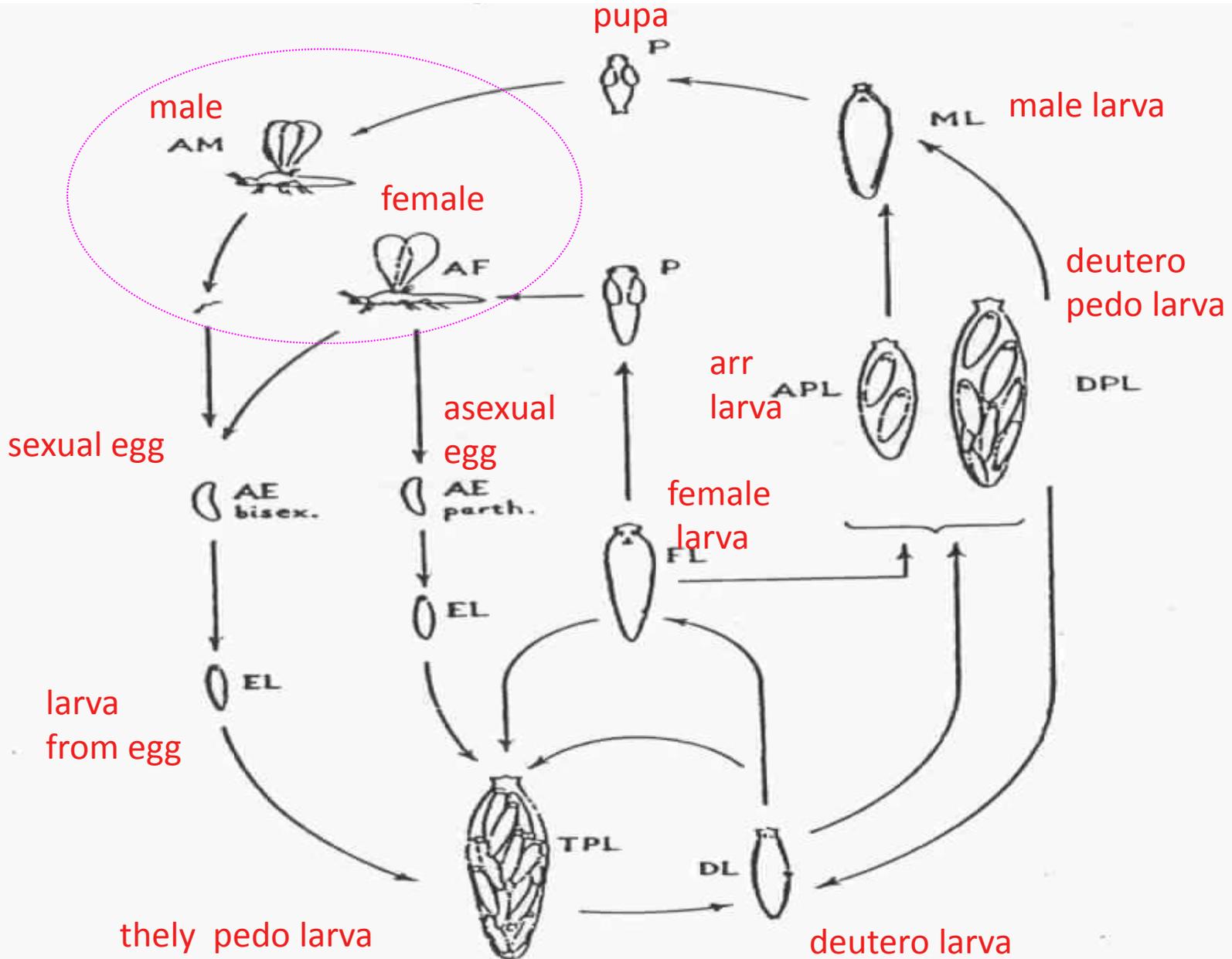
life stages of the BEAST



hypothesized life cycle of blueberry tip midge

- pupae overwinter in **duff layer**
- adult flies emerge mid-May – July (live 4-6 days)
- flies lay eggs singly on top leaves
- eggs hatch in a few days (temperature dependent)
- larvae go through three instars (7- 10 days)
- pupae stay in soil a week before adults emerge
- several generations / yr ... in cranberry, but blueberry?

an example of complex life cycle (Cecidomyiidae)

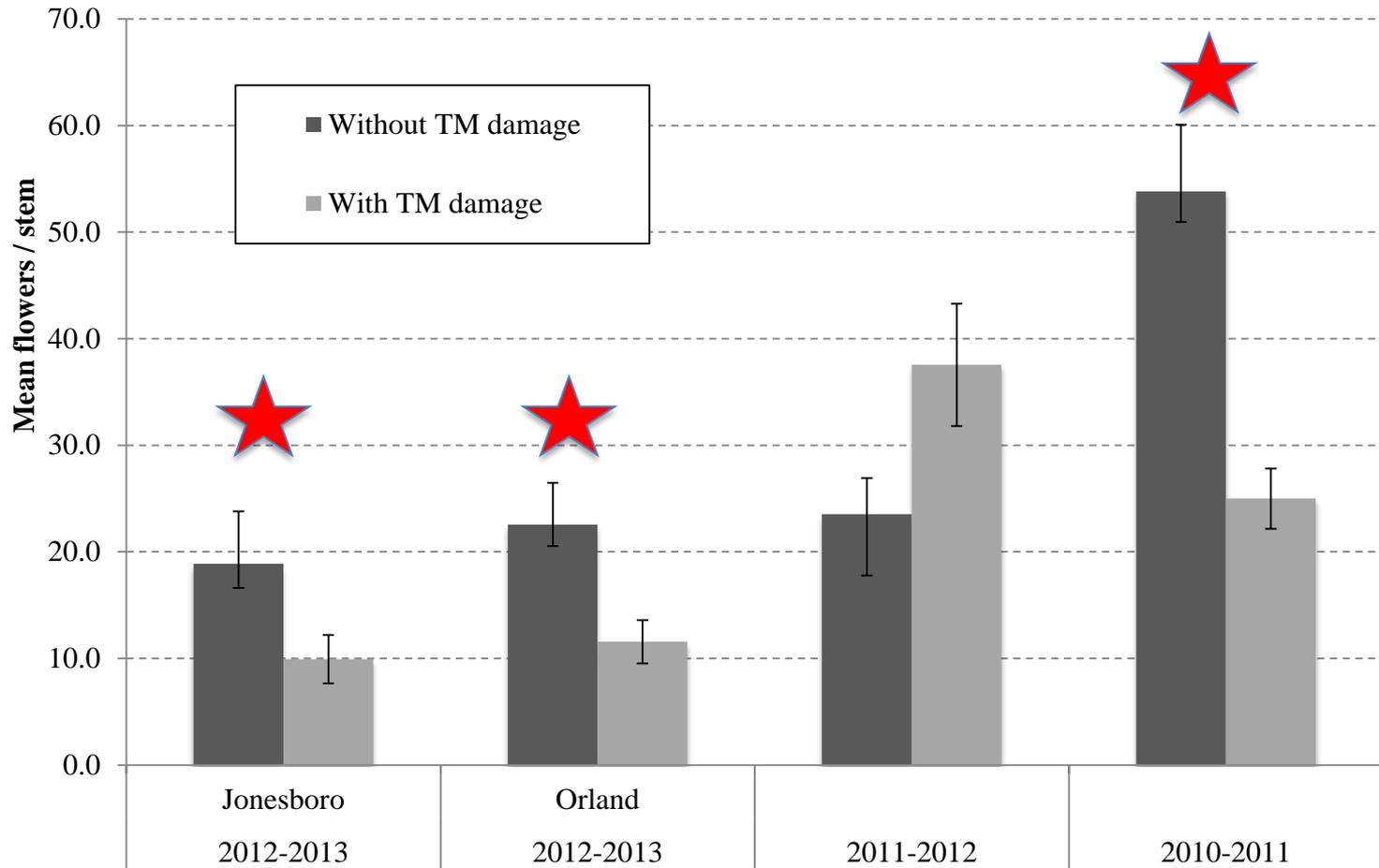


hypothesized life cycle of *Dasineura oxycoccana* blueberry tip midge

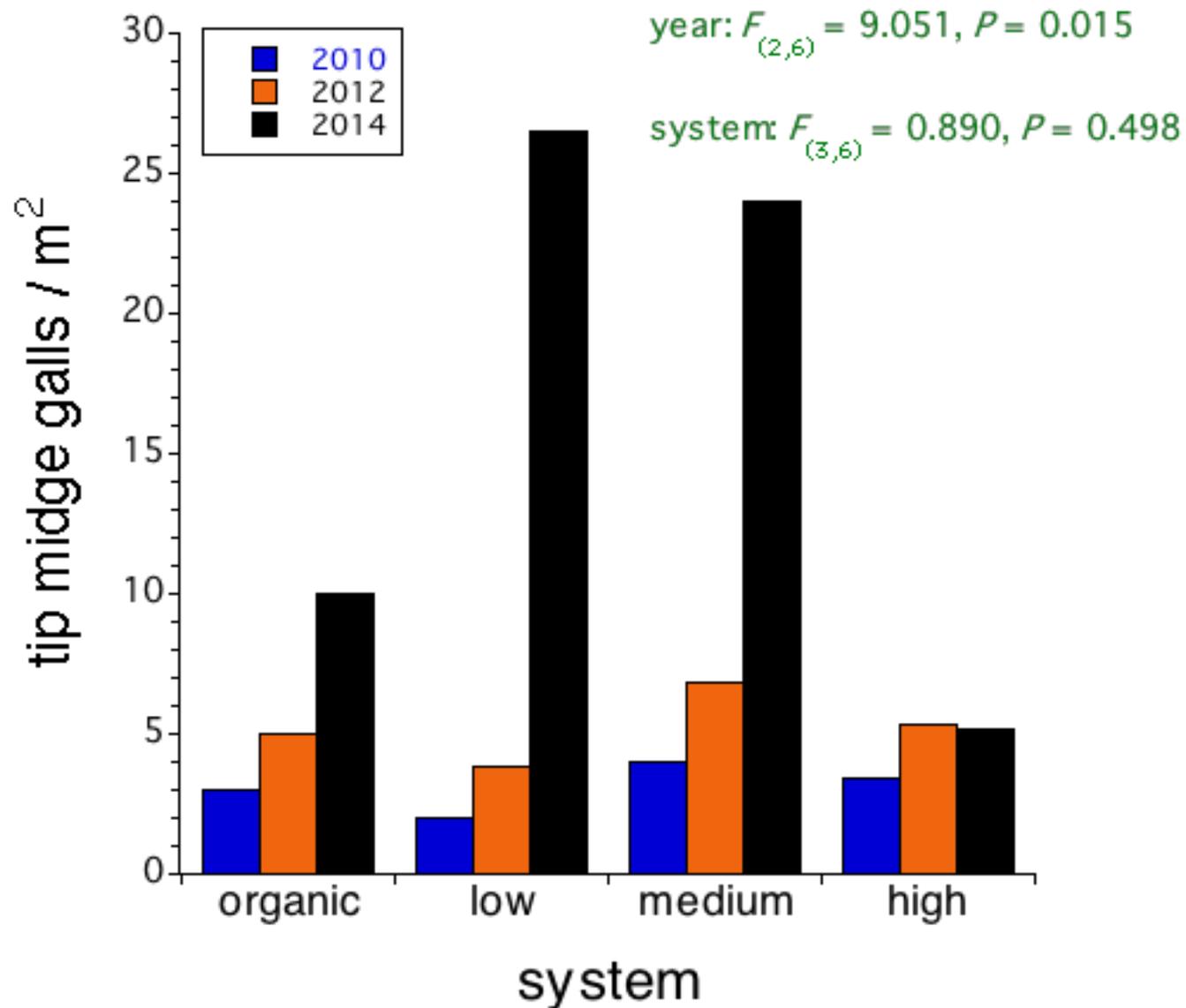
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- pupae stay in soil a week before adults emerge
- several generations / yr ... in cranberry, but one generation in blueberry (?)

damage

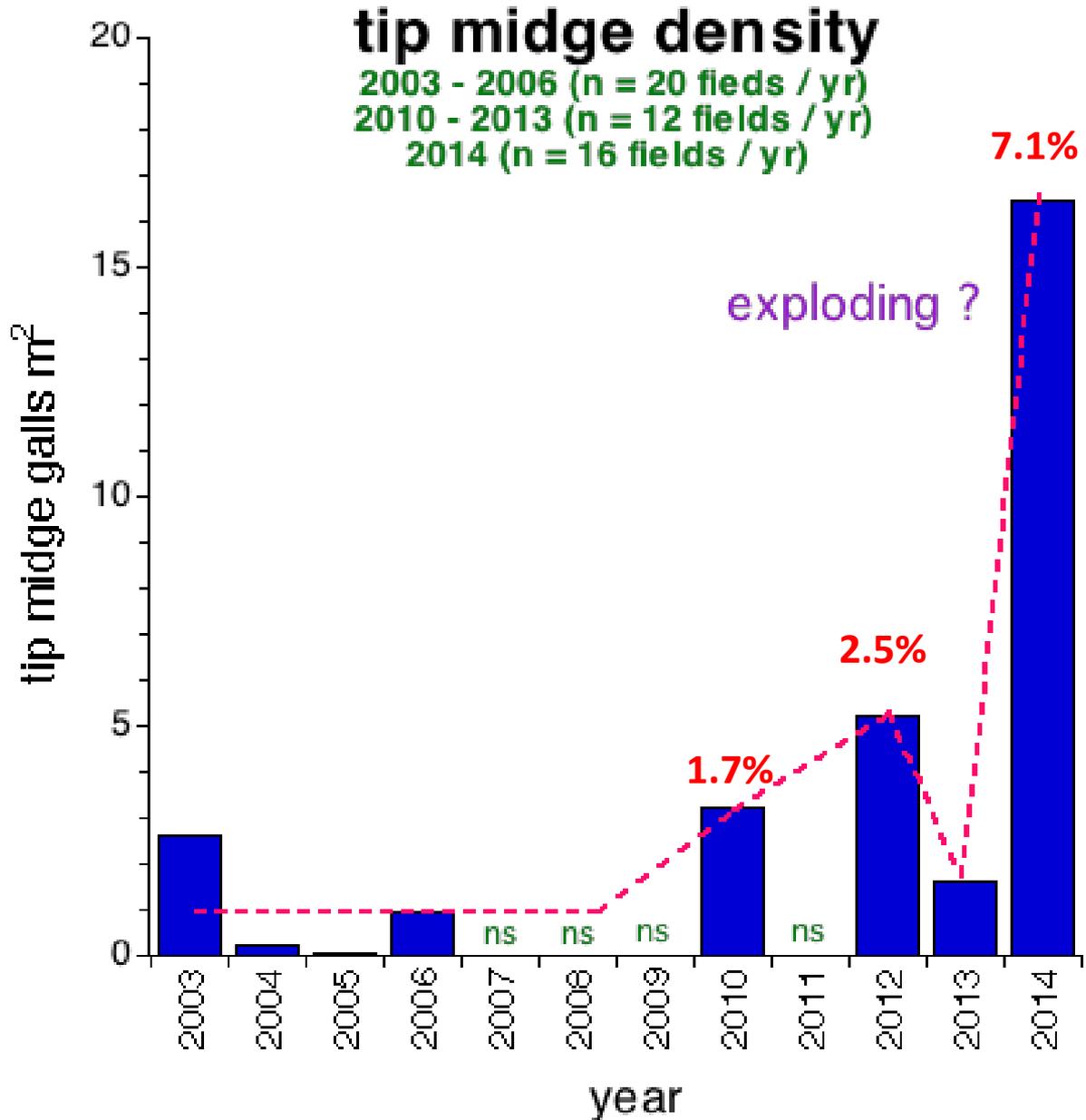
(3 in 4 trials...50% decrease in flowers)



effect of management system



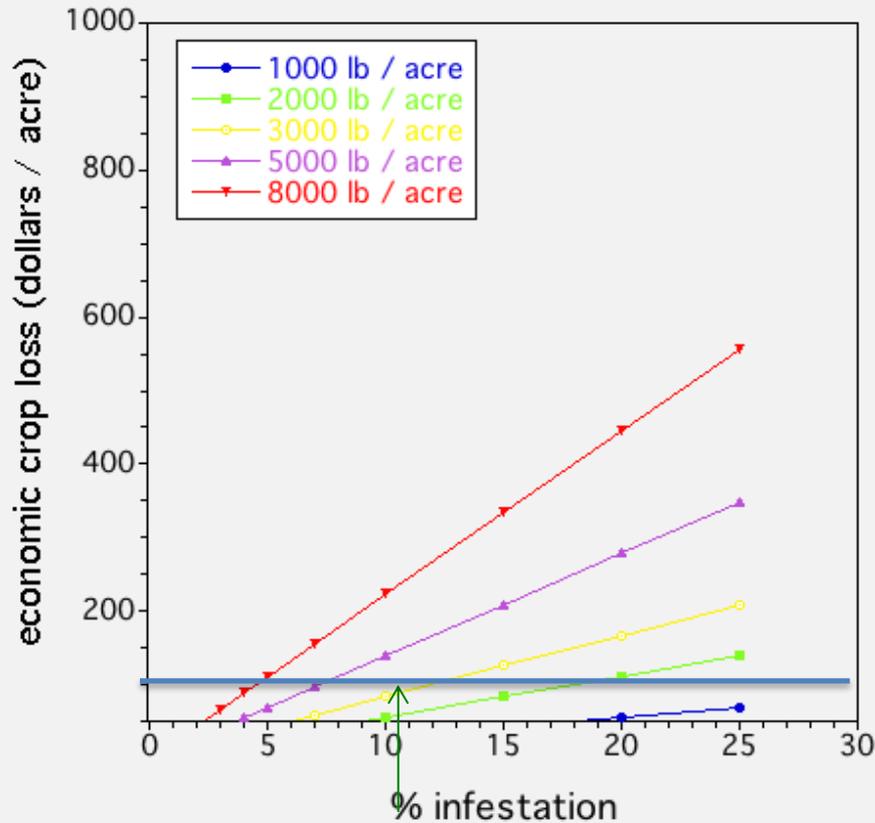
temporal dynamics



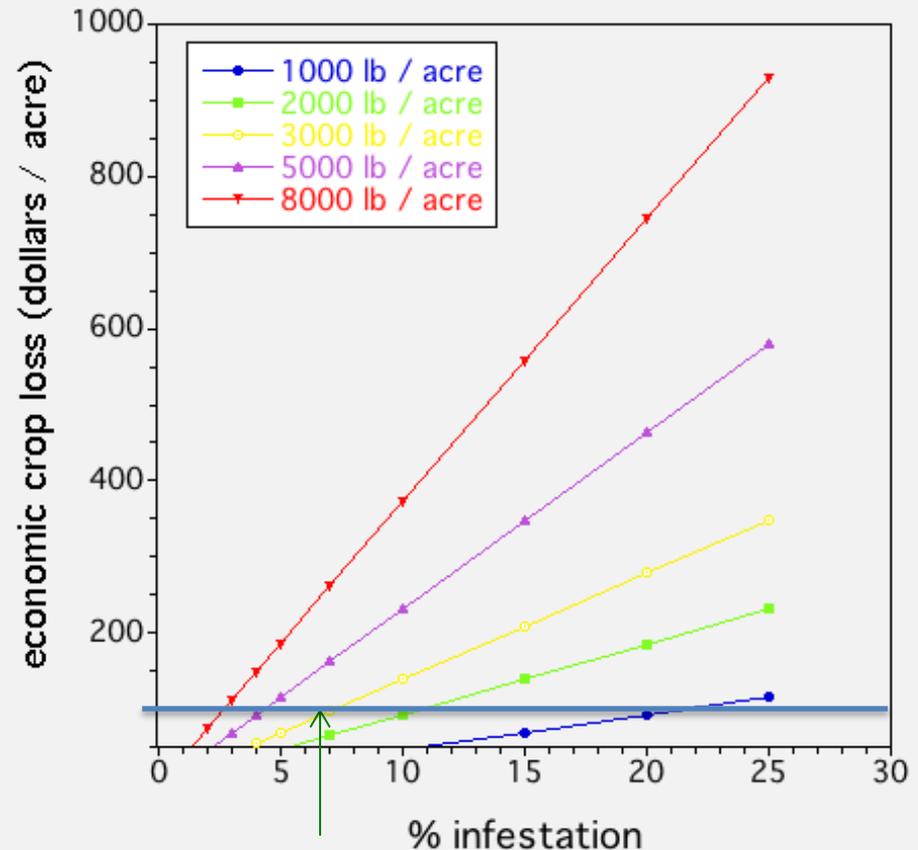
economic thresholds

IF 46.5% damage is typical

\$0.60 / lb
\$50/acre for control



\$1.00 / lb
\$50/acre for control



control tactics

DENSITY OF BLUEBERRY GALL MIDGE
IN PRUNE VS CROP FIELDS
(N=10 FIELDS / TMT)

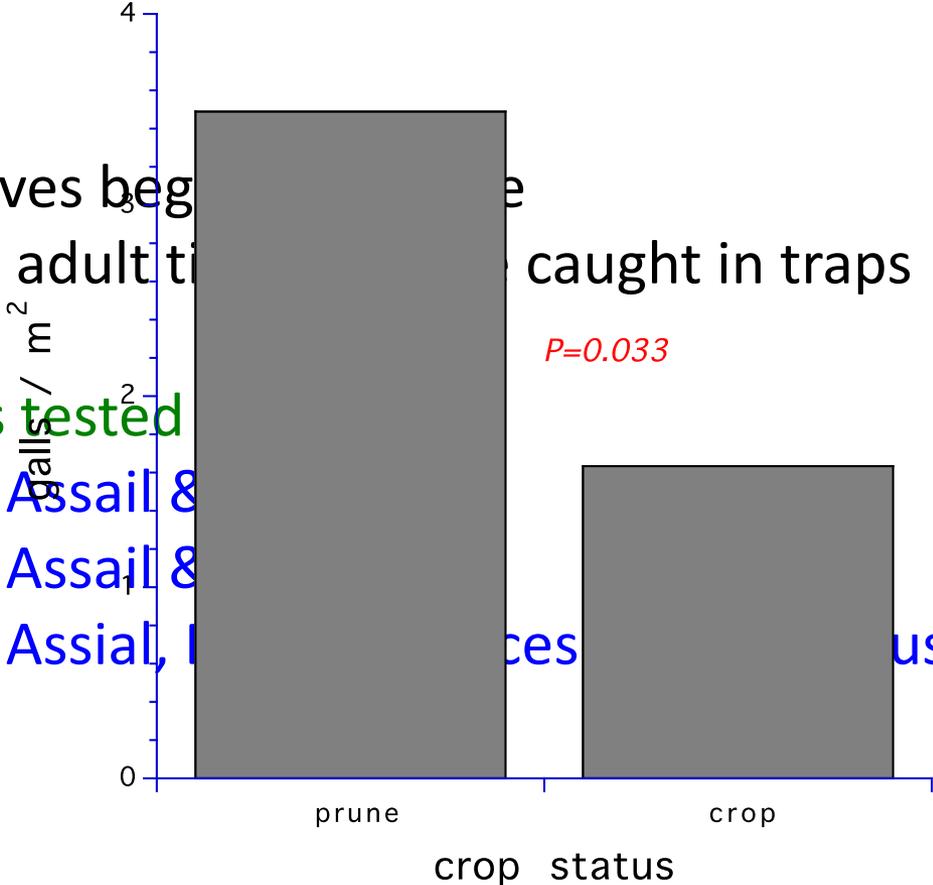
- Target prune cycle – BEFORE damage occurs

- Apply

- As leaves begin to emerge
- When adult t... caught in traps

- Pesticides tested

- 2012: Assail & Mustang Max
- 2013: Assail & Mustang Max
- 2014: Assail, Mustang Max



results of con



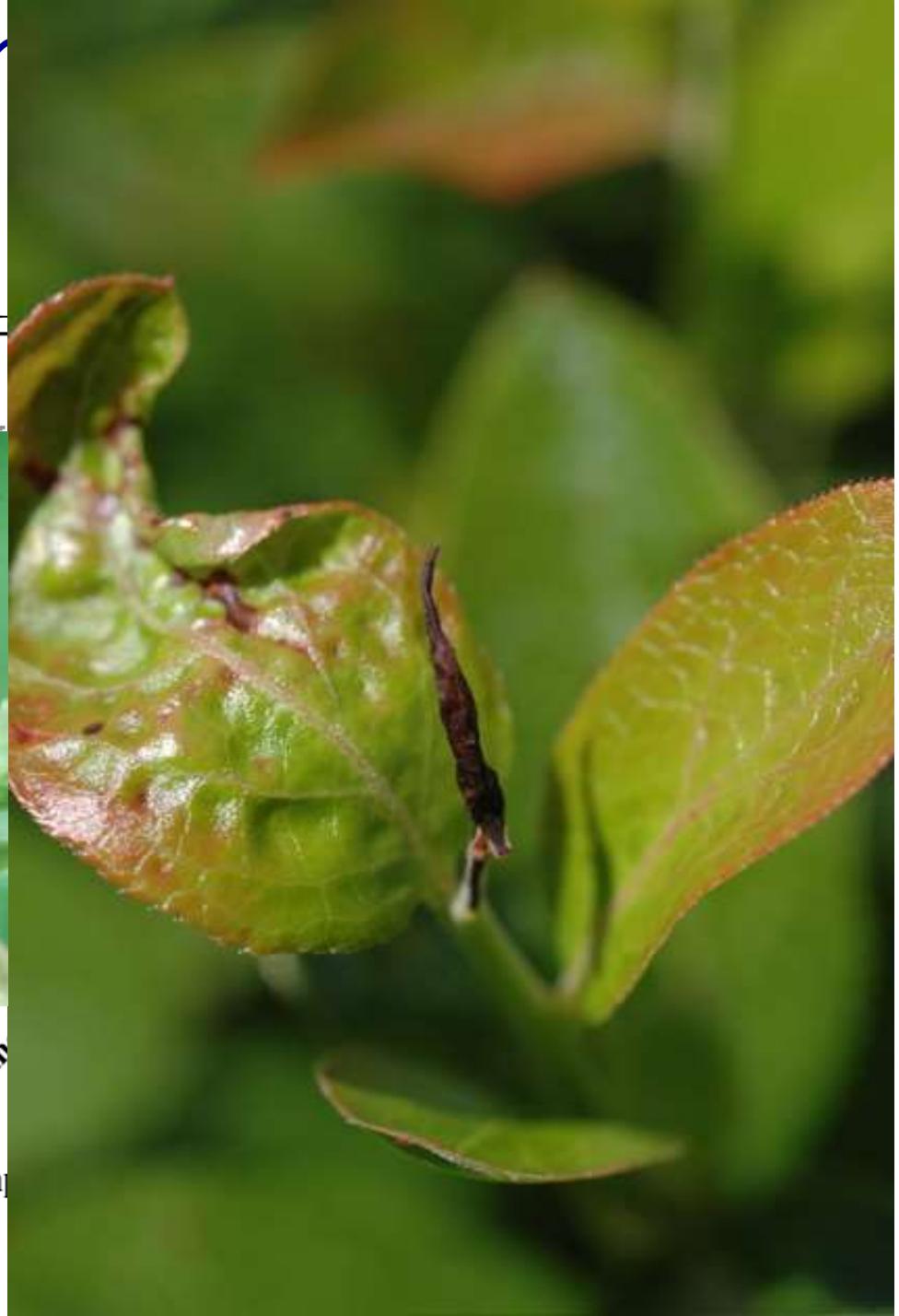
Assa

Entr

Mustang Max

Rim

Sam



conclusions

- Assail or imidacloprid at time of gall formation 2012, 2013 **not effective**
- All insecticides did provide some control in 2014 when monitored adults, **but NOT great!**
- Monitored adults in spring and then treat with Rimon with first trap capture – 2014
 - **Currently evaluating**

Rimon – novaluron, an insect growth regulator
why? – maybe under natural control

