

Spider Mite Recommendations in Cotton: Opportunities & Pitfalls

2022 Row Crop Short Course

December 6, 2022

Starkville, MS

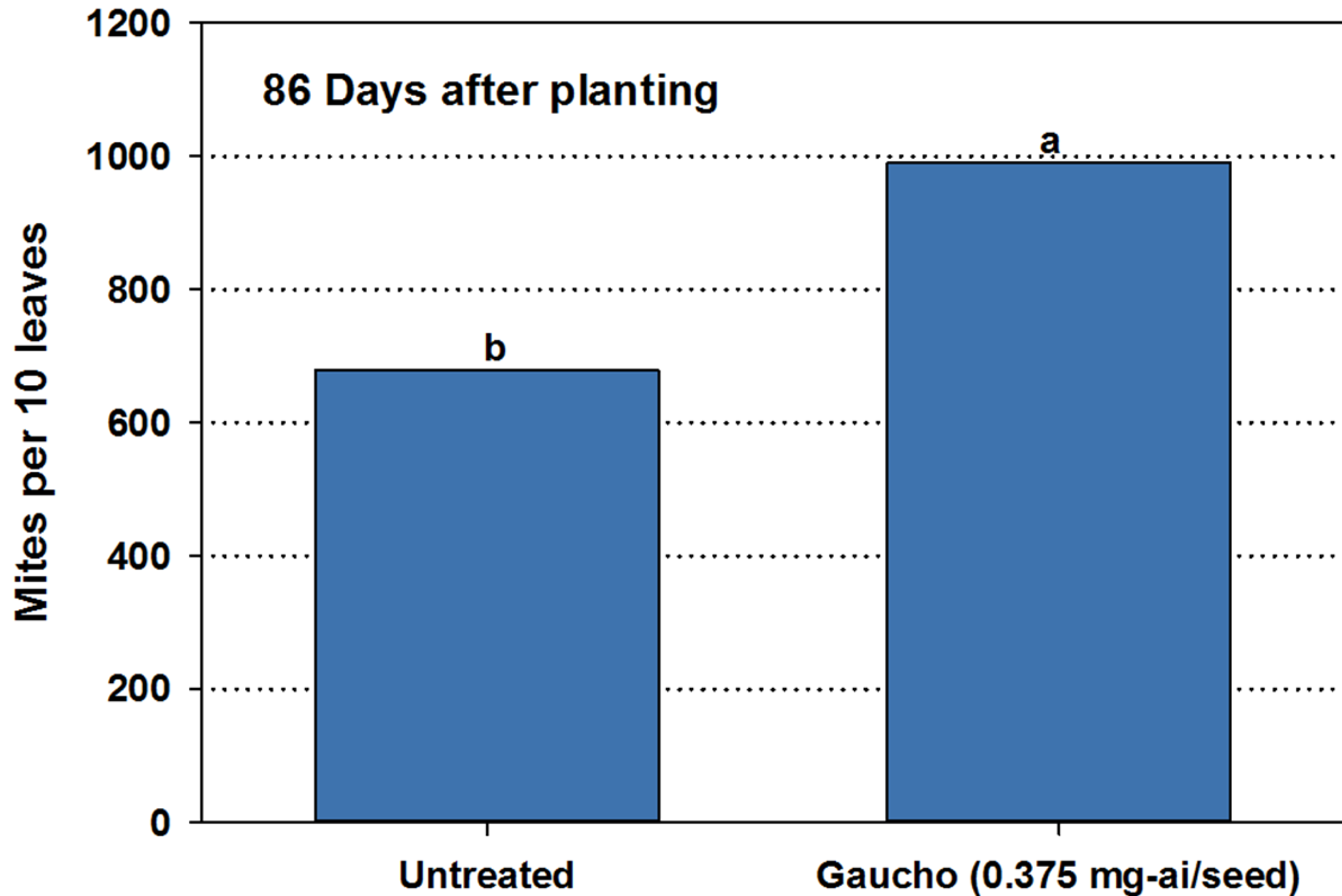
*Sebe Brown, University of Tennessee Extension
Field Crop Entomologist, Department of
Entomology and Plant Pathology*

Factors that Influence Outbreaks

- Poor or late burn down of weeds/cover crops
- Hot/dry weather conditions
- Insecticide applications targeting other pests (acephate and pyrethroids)
- Ability of the plant to defend itself
 - Affected by pest pressure
 - Seed treatments



Neonic Seed Treatments Play a Role



Initial Sources of Mite Infestations

- Overwintering
 - Induced by day length and temperature
 - Adult female (red form)
 - Seek out dark, humid areas such as leaf litter
- Weeds
 - Morning glory
 - Palmer amaranth
 - Many more
- Other crops
 - Soybeans
 - Corn

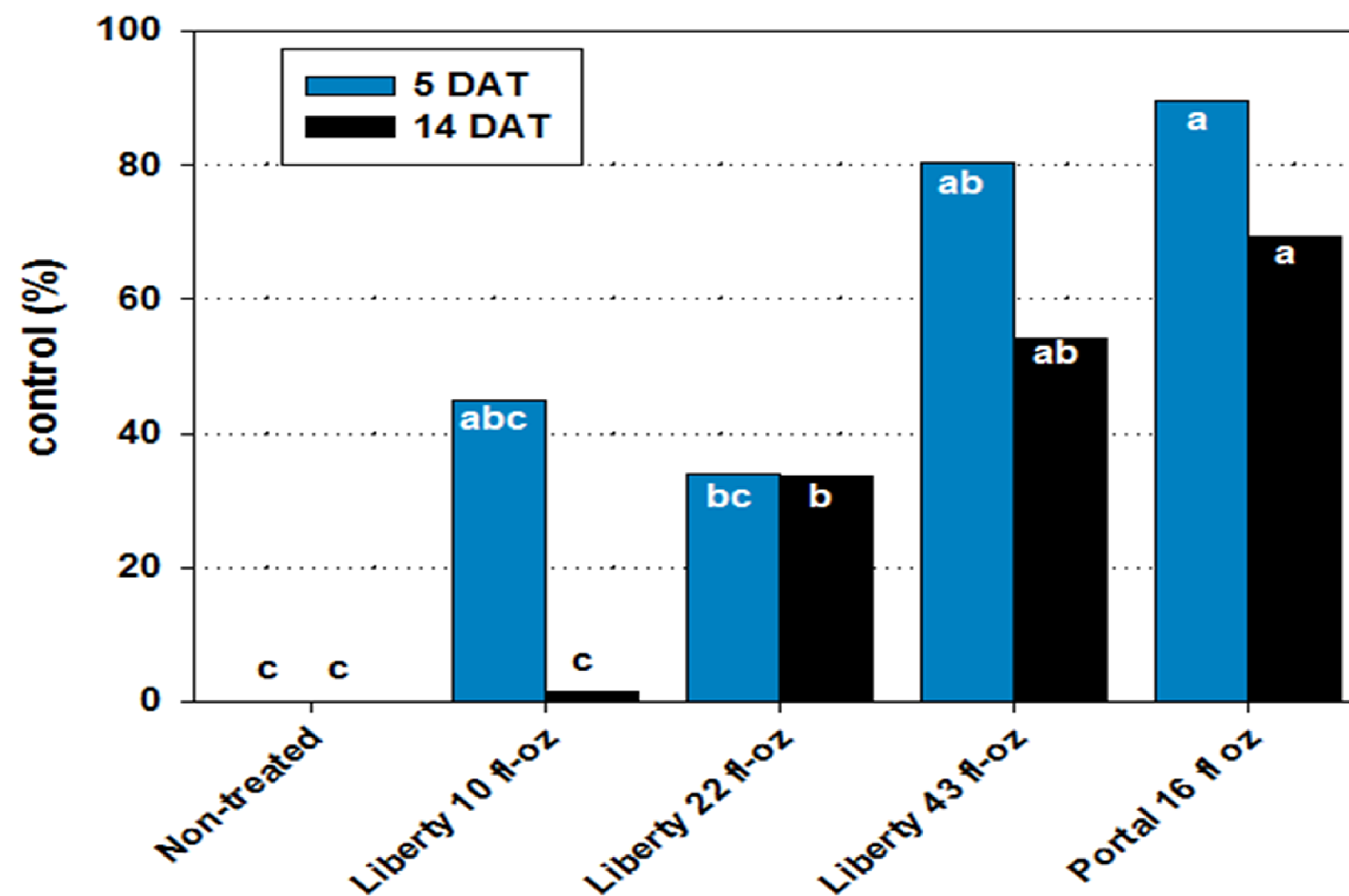
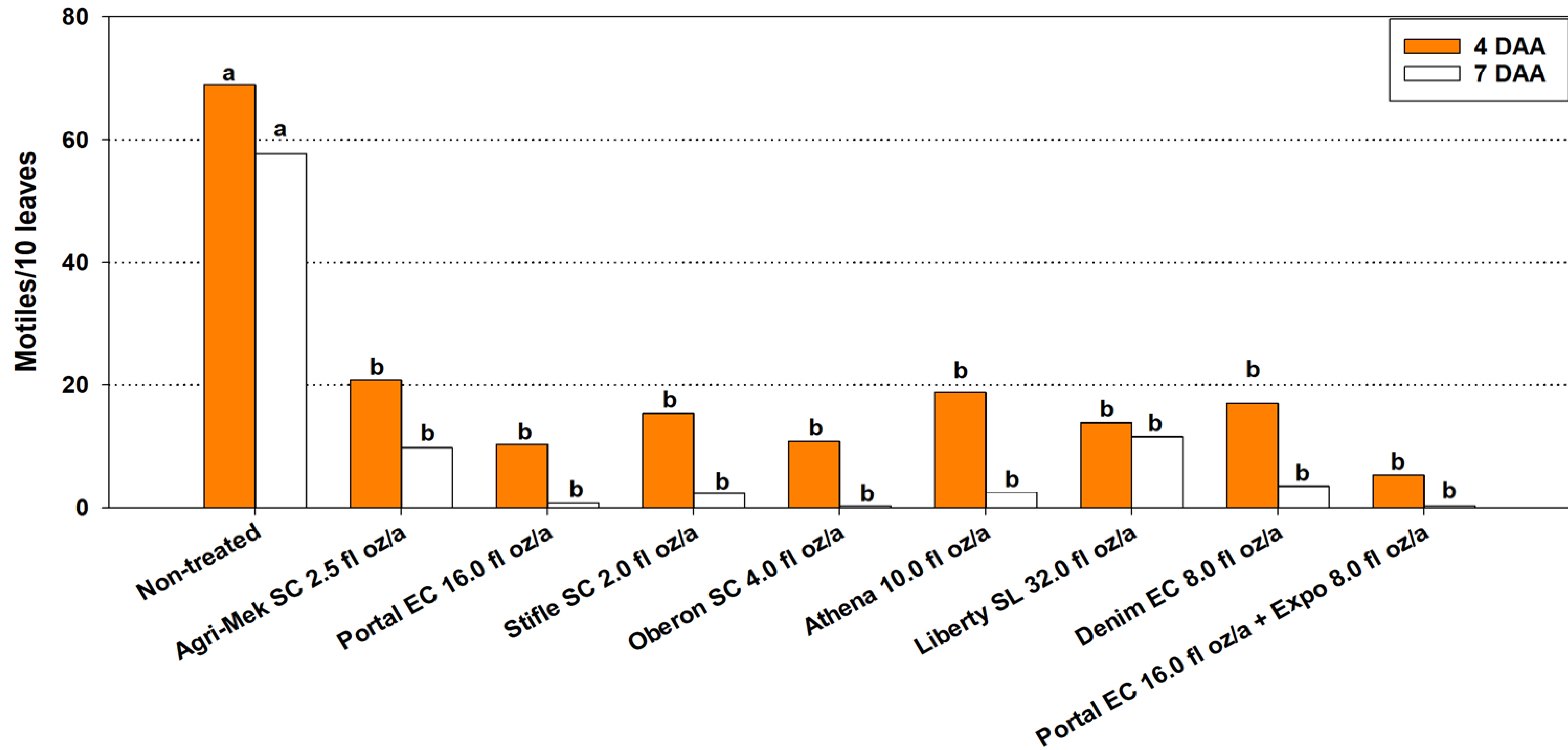


Breaking the “Green Bridge”

- Mites developing on spring weeds will move into adjacent cotton
 - Crowding
 - Host deterioration
 - Disperse by crawling or slight wind
- 4 to 6 weeks weed free
 - Glufosinate



Dual Benefits of Glufosinate



Winter Host Study

- Winters of 2015 & 2016
- Samples randomly collected from henbit, white clover, rye grass, wheat in and around field edges
- Results indicated spider mites prefer henbit and clover
- Individual patches of clover appear to be “mite sinks”



Threshold By State

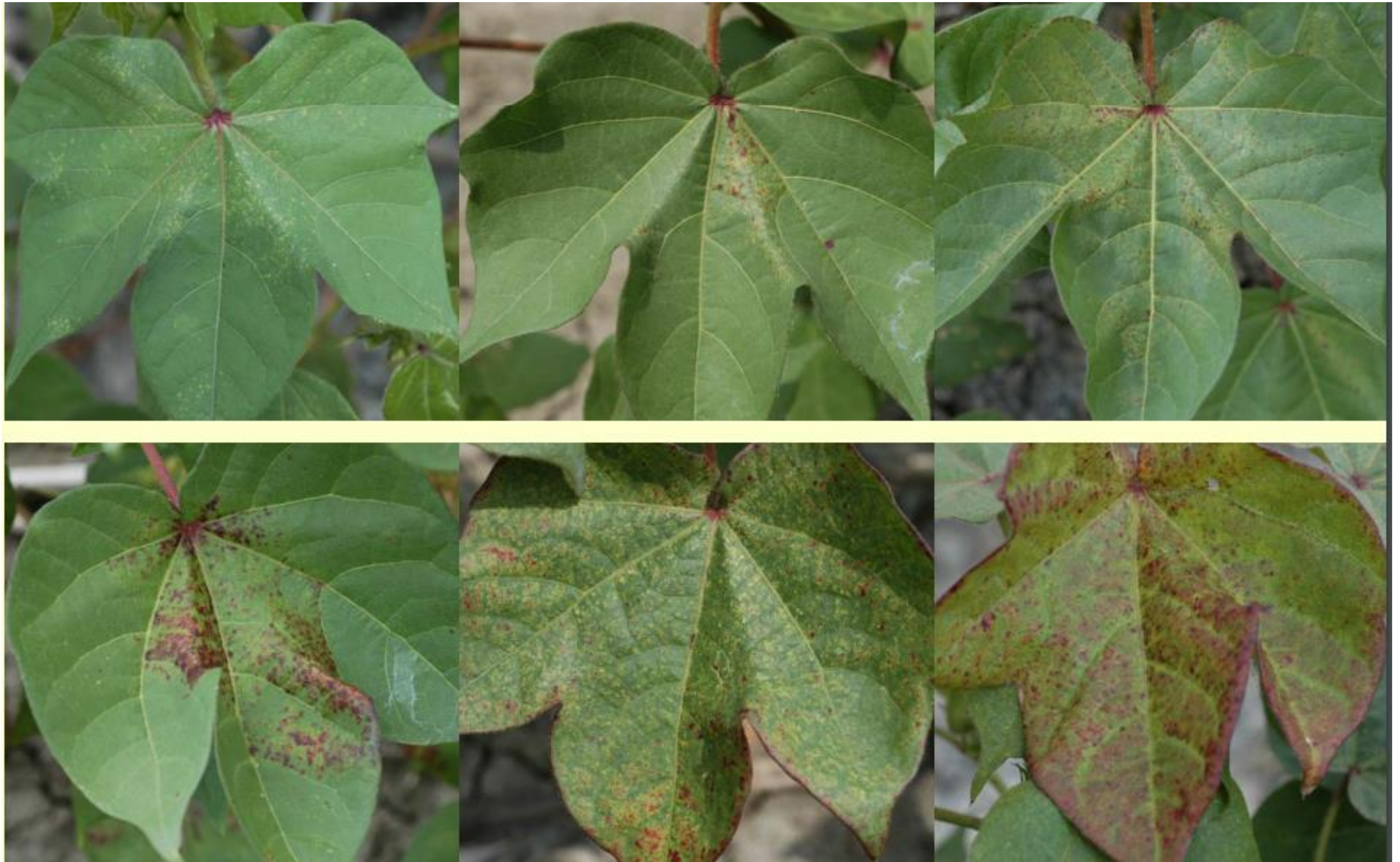
Treatment Thresholds: Treat when 30-50 percent of plants are affected and mites are still present. More than one application on a 4- to 5-day interval may be required depending upon the miticide selected and intensity of infestation.

Louisiana Threshold: Treat when mite infestations cause areas where plants have discolored leaves. Anticipate repeating applications in 5 days.

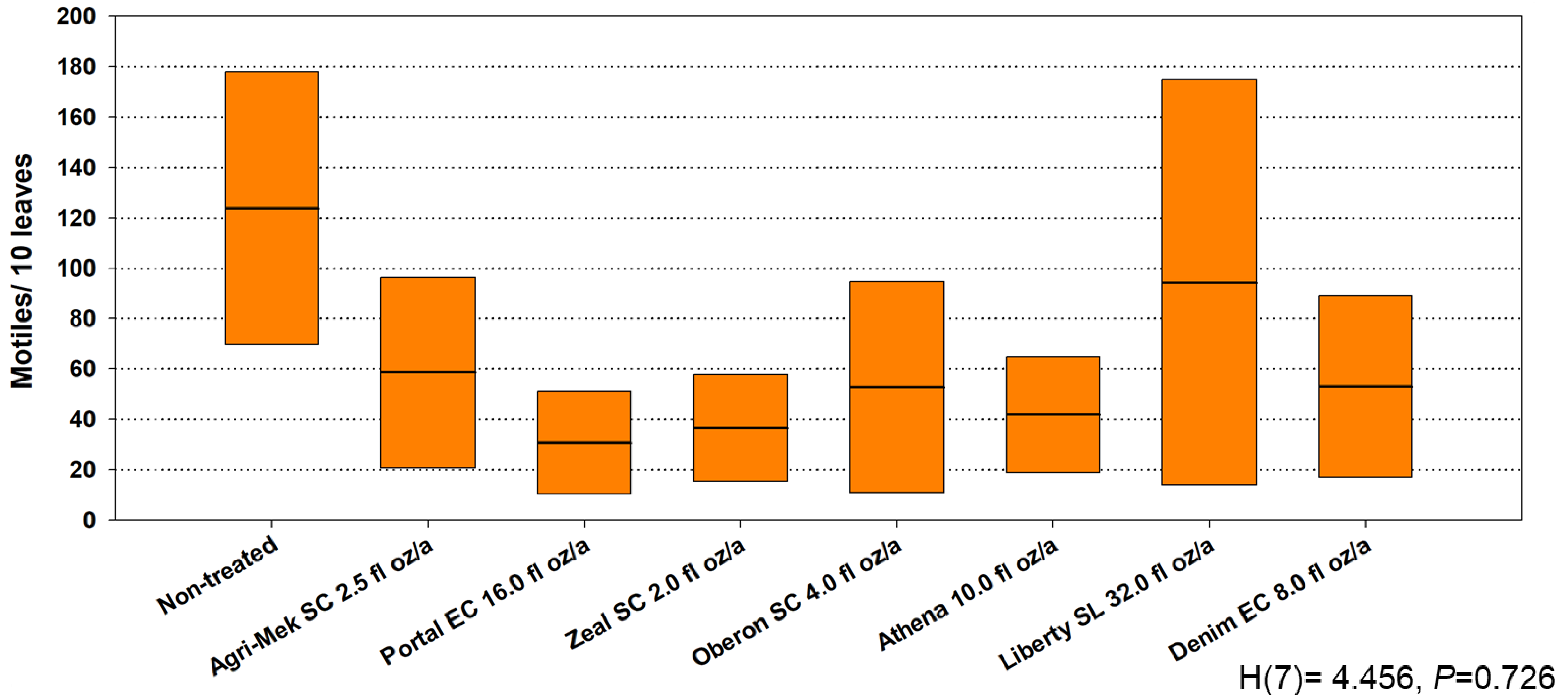
Treat when 50% of plants are infested. Early-season spot treatment may be effective in preventing spread of mites across the field.

THRESHOLDS: Treatment is essential when 40 to 50 percent or more of plants are infested and populations are increasing.

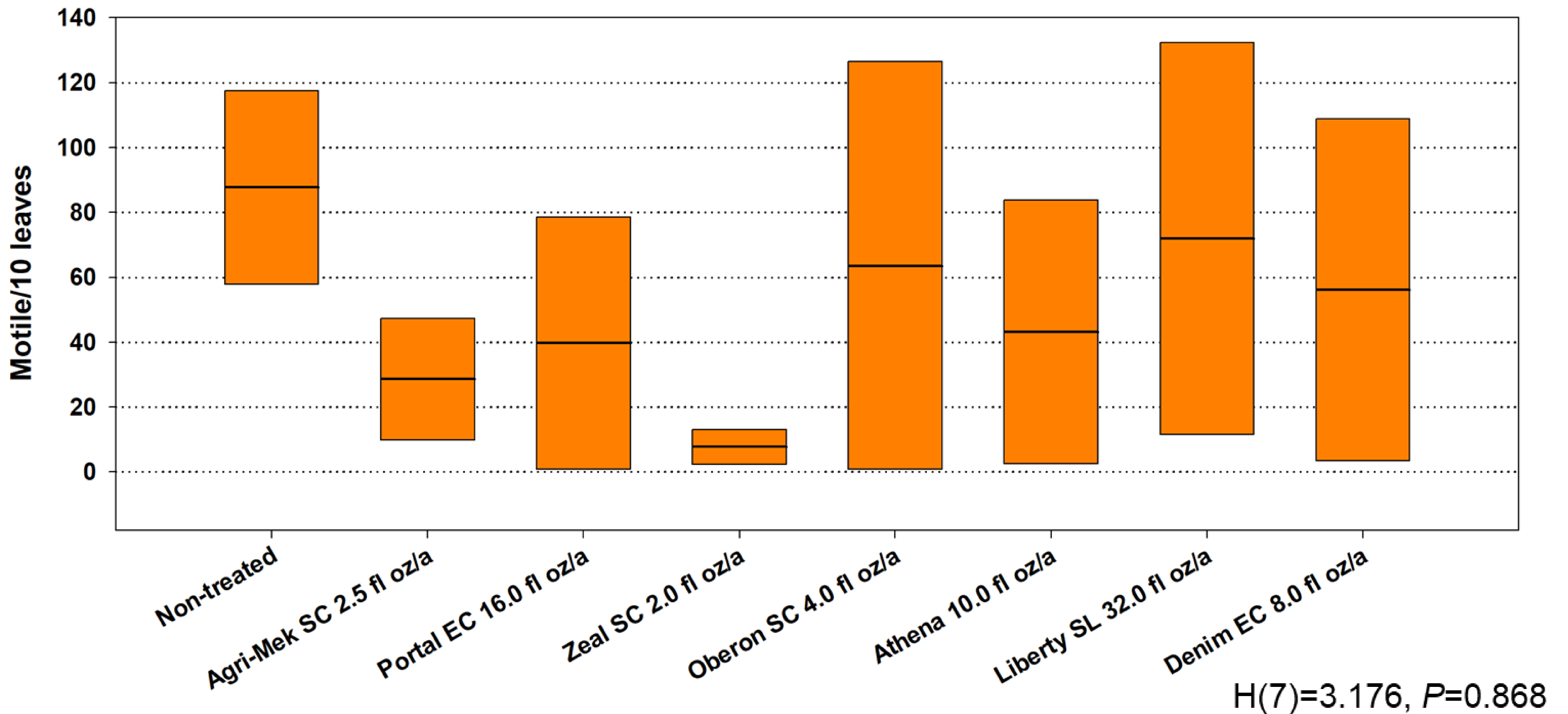
Symptomology



2021 MSEWG: 4 DAA (AR & TN)

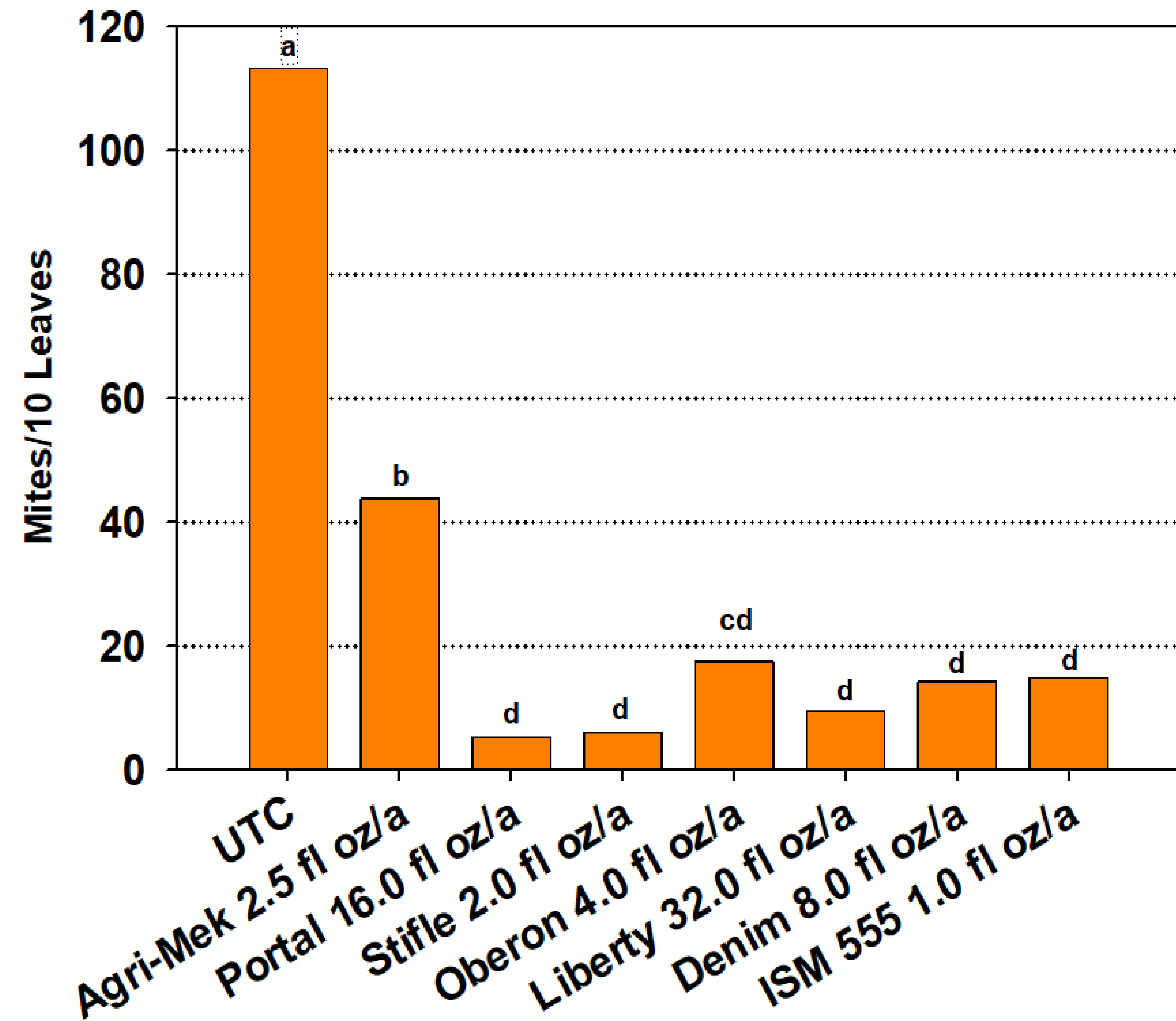


2021 MSEWG: 7 DAA (AR & TN)

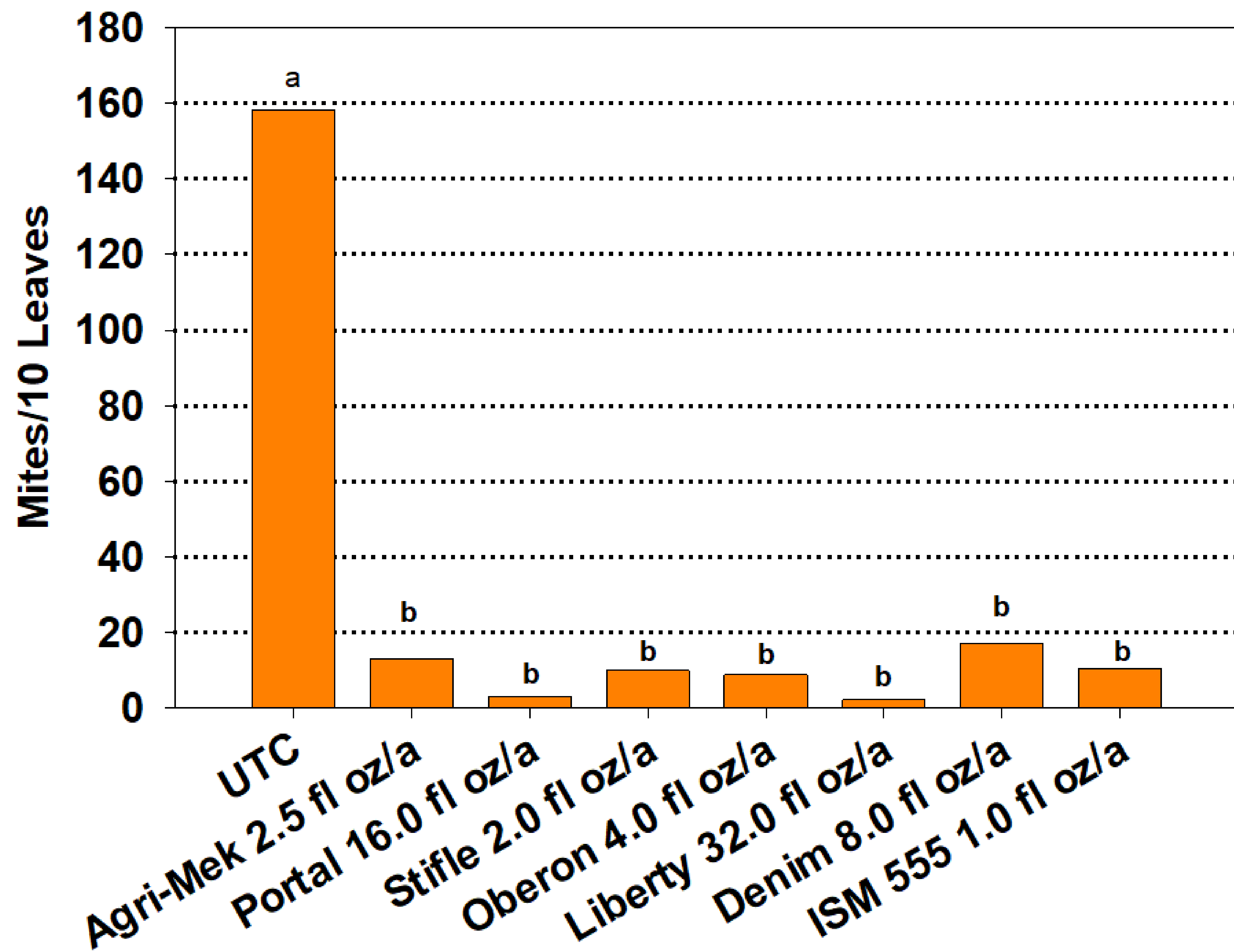


2022 MSEWG Spider Mite Trial

3 DAT

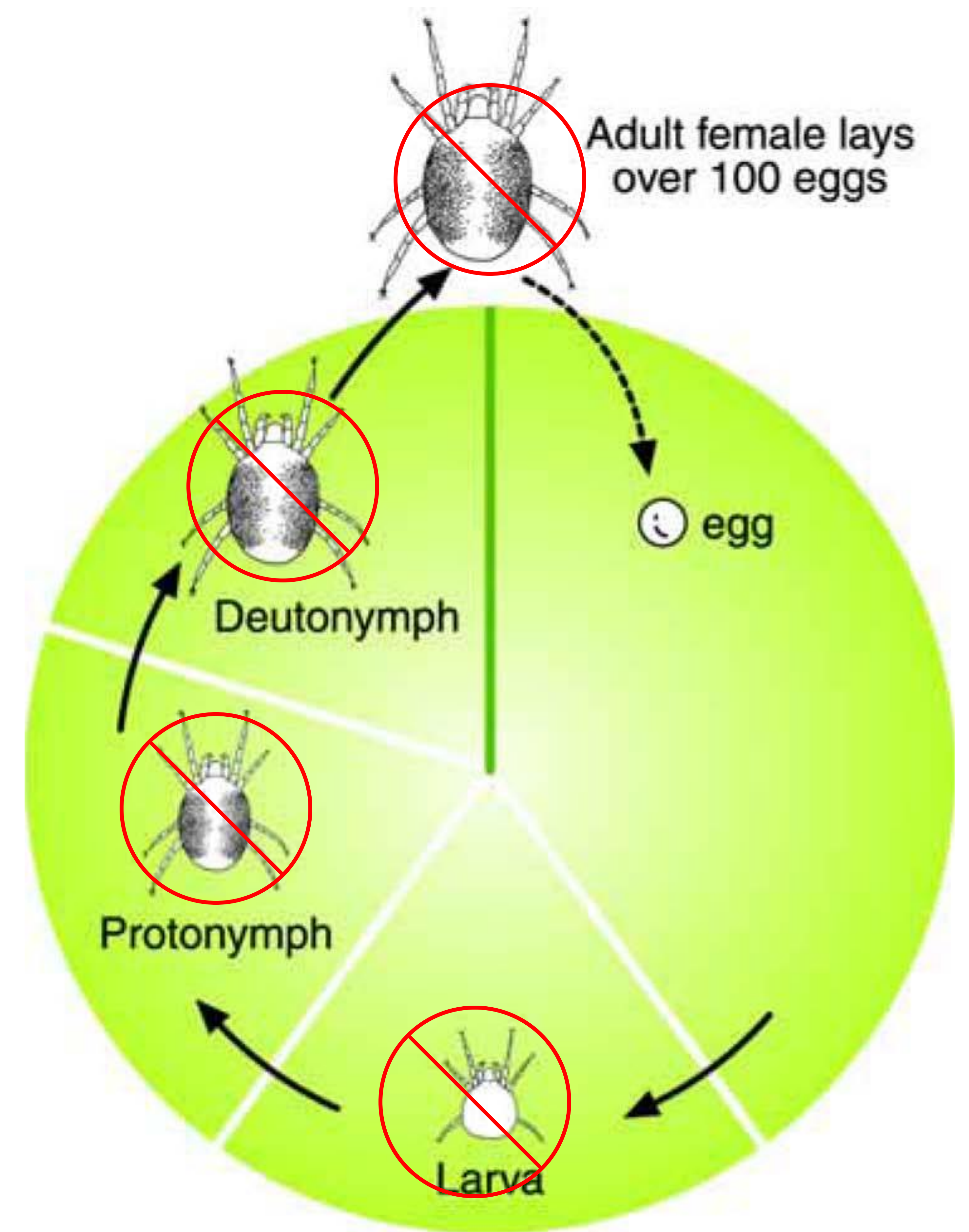


6 DAT



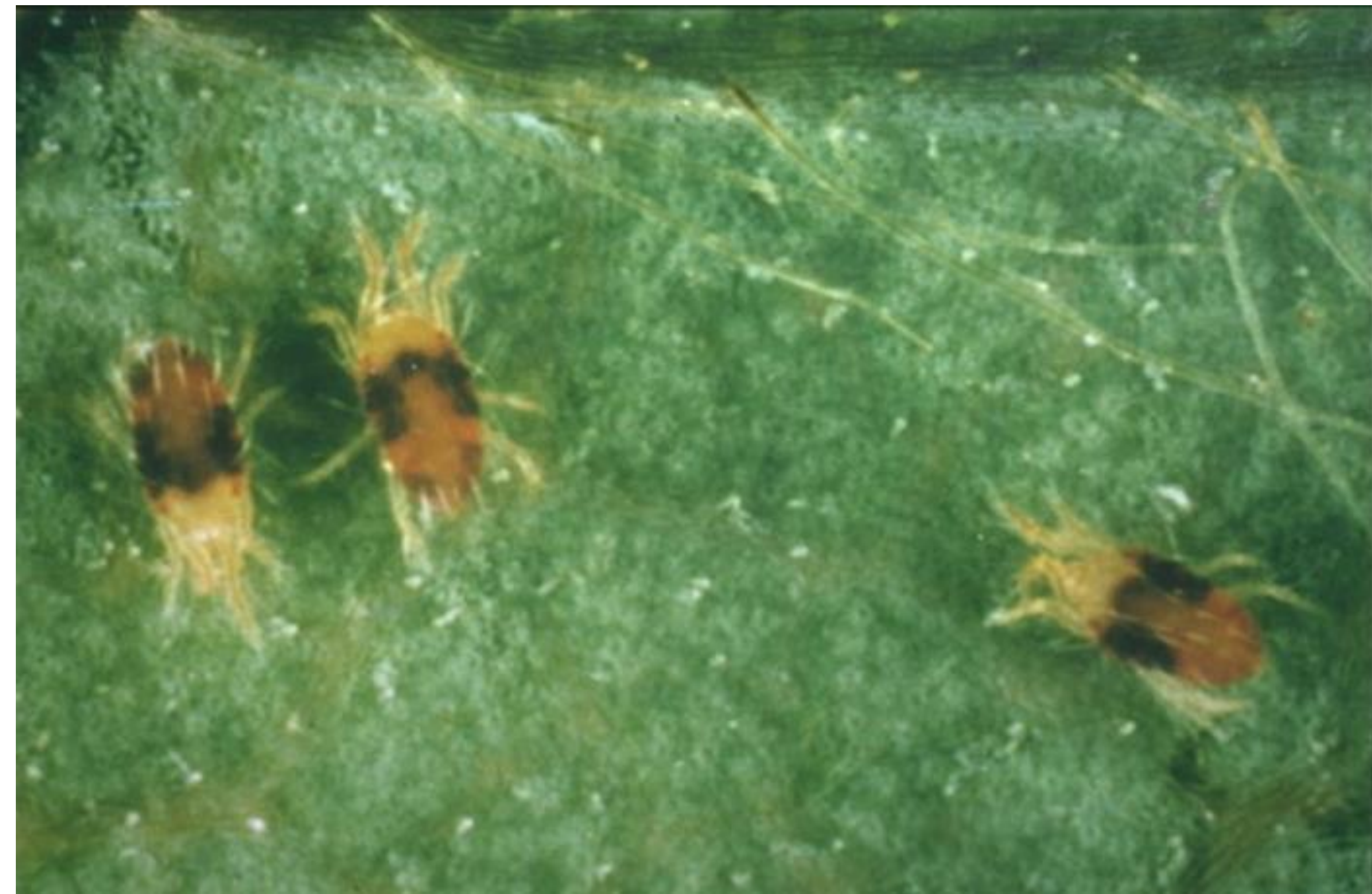
Abamectin Activity

- Abamectin is a presynaptic nerve poison (GABA site)
- Translaminar
 - Has been shown to benefit from addition of crop oil
- Soft on beneficials
- Fast acting
- Short lived
- Active towards all motile stages
- Generics & new formulations



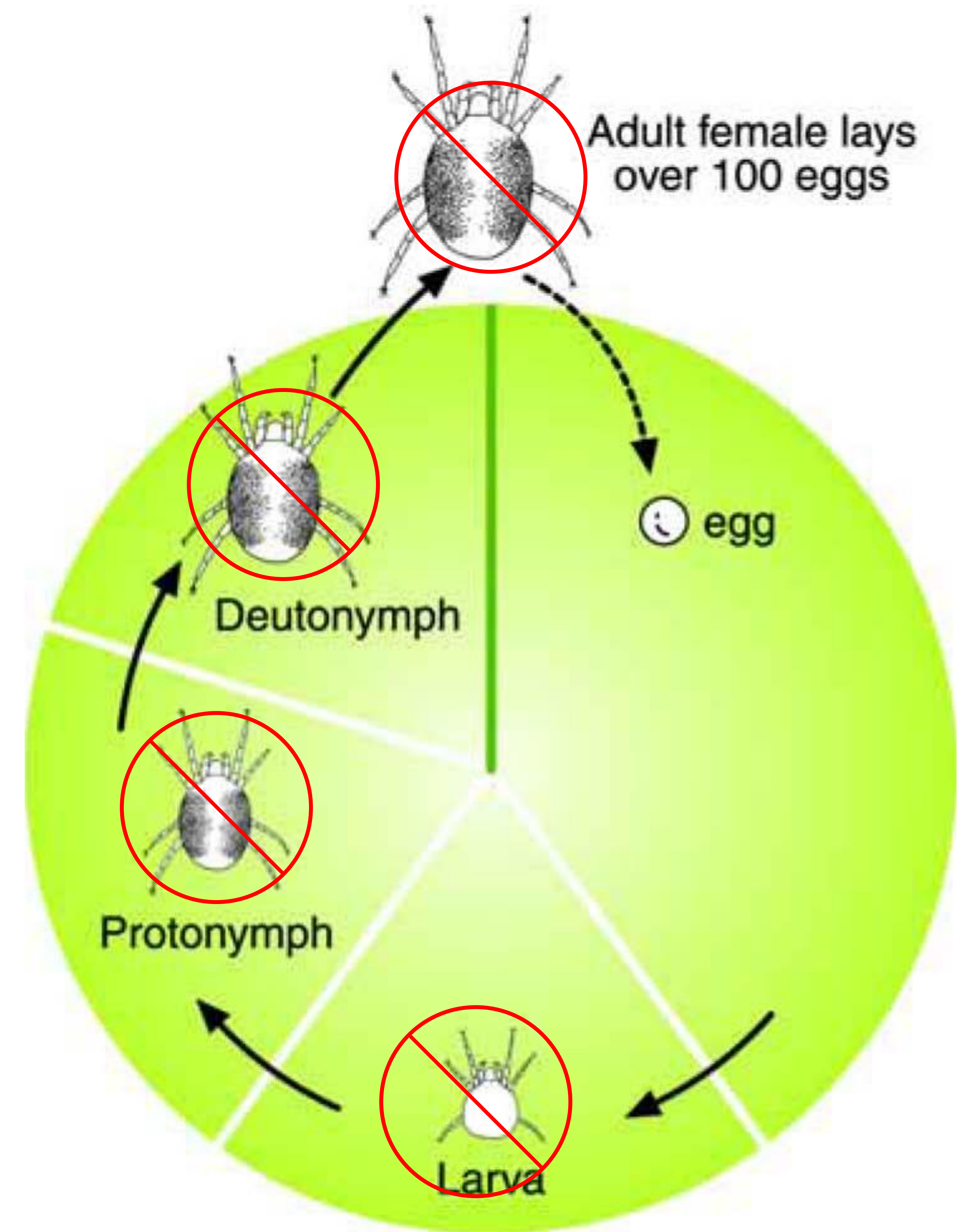
Abamectin Use in Areas of Resistance

- Avoid acephate and pyrethroid use in cotton at least until full bloom
- Do not treat mite populations with repeated low rates
- Do not use less than 8.0 fl oz of abamectin
- Use only one shot of abamectin per season per field



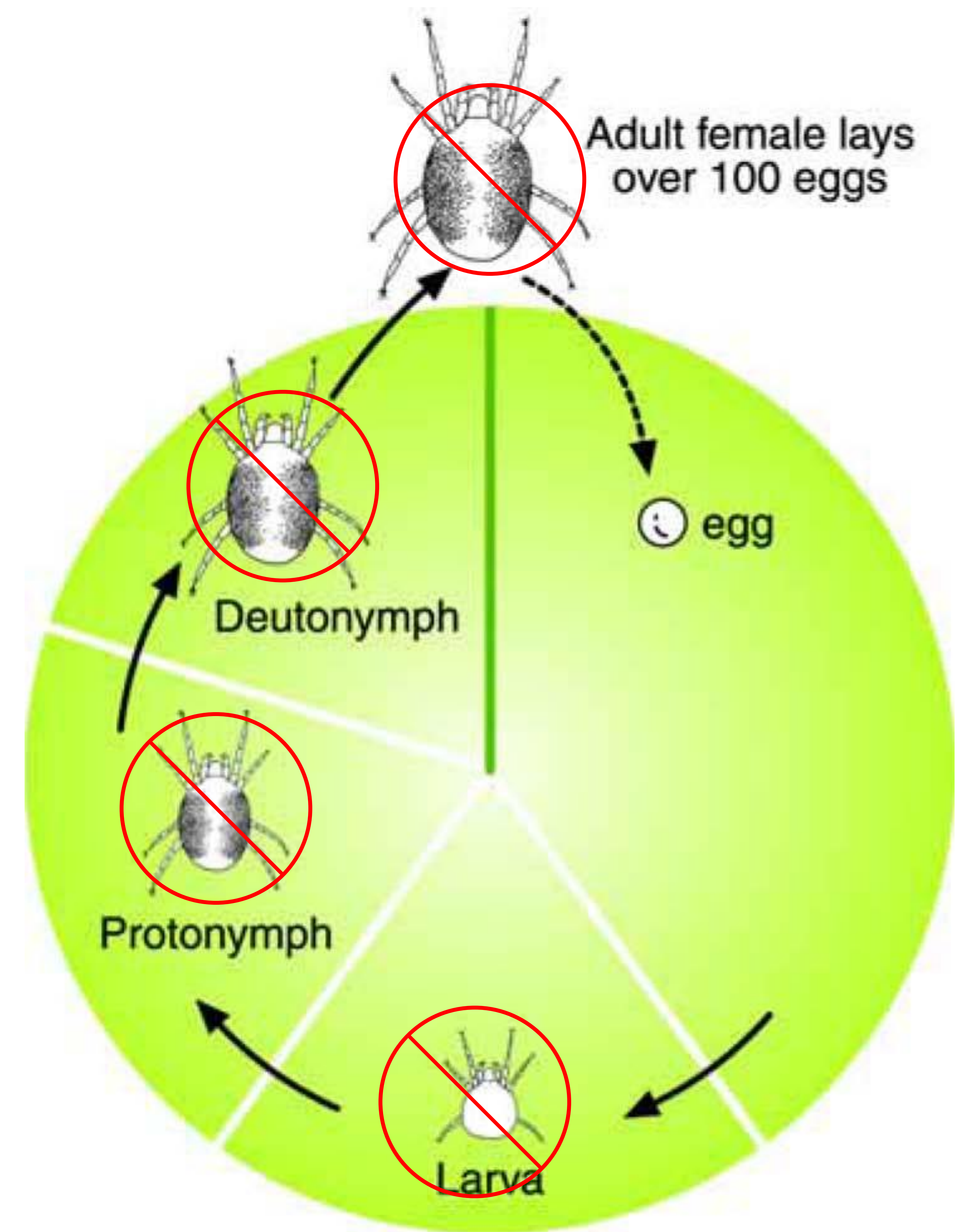
Bifenthrin Activity

- Bifenthrin is a pyrethroid (nerve poison)
- Non-translaminar
 - Contact activity
- Harsh on beneficials
- Fast acting
- Short lived
- Active towards all motile stages
- Resistance issues
- Coverage issues



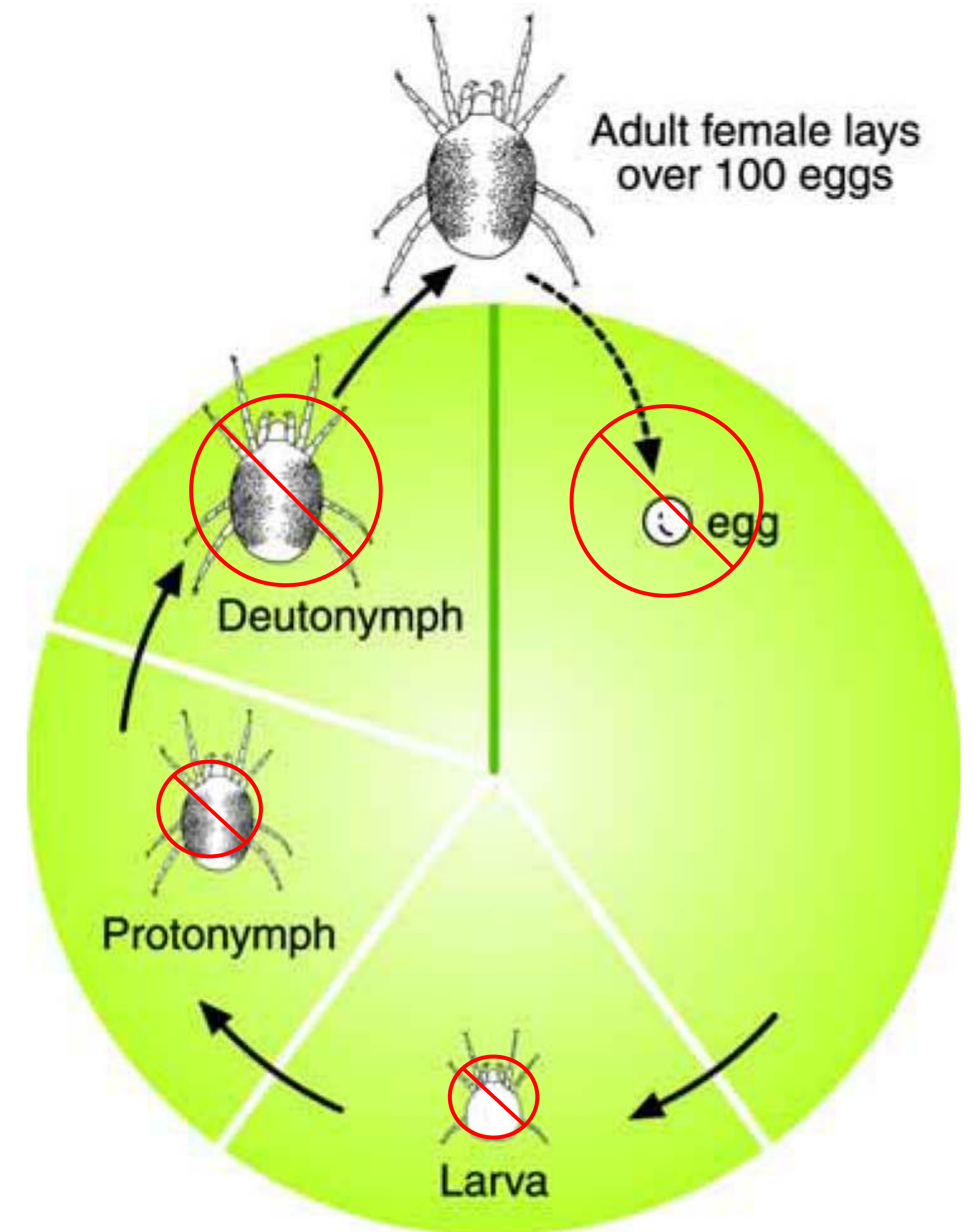
Portal Activity

- Portal is a mitochondrial poison
- Non-translaminar
 - Contact activity
- Soft on beneficials
- Fairly fast acting
 - Temperature dependent
- Good residual activity
- Active towards all motile stages
 - Intoxicated adults cease feeding and laying eggs
 - Essentially the intoxicated mites are like non-feeding zombies



Zeal Activity

- Zeal is a mite growth regulator
- Translaminar
- Soft on beneficials
- Can work surprisingly fast for a MGR
 - Temperature dependent
- Good residual activity
- Most activity occurs on late-immature stages (inhibits molting)
- Sterilizes adults
 - Lay inviable eggs
 - This is where long residual control comes from



Take Home Message

- Stop spraying cotton at NAWF 5 + 350 DD60s
- Avoid broad-spectrum insecticides if you can
- Be mindful of formulation changes/generics
- Impacts of mites on ThryvOn?
- Incorporate glufosinate where you can

Thank You

- Sebe Brown
- 318-498-1283
- sbrow175@utk.edu

