RECENT EXPERIENCES WITH PEPPER WEEVIL IN SOUTHERN GEORGIA

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PEPPER CROP IN GEORGIA
HISTORY IN SOUTHERN GEORGIA

• Sporadic outbreaks in individual fields
• Generally attributed to localized introduction on transplants or fruit
• Little or no carry over to the following year
• Reports of more consistent problems started about 5 years ago
• 2017 – severe problems throughout southern Georgia in the fall crop (following 2 mild winters)
INFESTATIONS IN 2017

• Calls from County Agents and Consultants concerning control of pepper weevil in peppers in the fall
• Set up a grower meeting in Echols County (Sept. 25)
• After the meeting visited a pepper field to determine level of infestation
• Encountered the highest population infestation I had ever encountered (as high or higher in Brooks County)
• Collected pepper pods to conduct laboratory bioassay
BIOASSAY METHODOLOGY

• Pods held for adult weevil emergence
• Insecticides at highest labeled rate
• Mixed for 100 GPA
• Dipped organic pepper slices, air dried
• Placed in petri dishes and introduced weevils
• Mortality observed at 48 and 72 hours
PEPPER WEEVIL BIOASSAY, 2017

72 hours

- Check
- Warrior
- VST
- Exirel
- Actara
- Vydate

Legend:
- Red: Dead
- Orange: Moribund
- Yellow: Live
PEPPER WEEVIL BIOASSAY, 2018

72 hours

[Graph showing the bioassay results for different treatments, including Check, Brigade, Brigade+Exponent, Tarac, Tarac+Exponent, Horvanta, Exirel, Assail, Actara, and Vydate. The graph indicates the number of dead, moribund, and live weevils at 72 hours for each treatment.]
PEPPER WEEVIL BIOASSAY, 2018

1 week

Check
Brigade
Brigade+Exponent
Tarac
Tarac+Exponent
Horvanta
Exirel
Assail
Actara
Vydate

Legend:
- Dead
- Moribund
- Live
ADDITIONAL FIELD VISITS, 2017

• Colquitt County and Brooks County
  • High infestation levels (particularly Brooks County)
  • Eggplant fields infested (Colquitt County)
    • Damaged fruit (feeding in the bloom)
    • Lack of blooms
    • Half of blooms with adult weevil
**EGGPLANT AS A HOST**

- Damage to fruit noted several years ago, relatively minor but impacted marketability
- 2017 – visited field in Colquitt County
  - Much of the fruit damaged
  - Noticeable lack of blooms
  - Adult weevil in 50% of blooms
- Laboratory study (Riley)

<table>
<thead>
<tr>
<th>Host</th>
<th>Weevils per fruit</th>
<th>Weevils per bloom</th>
<th>Weevils per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pepper</td>
<td>3.30</td>
<td>0.36</td>
<td>19,481</td>
</tr>
<tr>
<td>Eggplant</td>
<td>0.02</td>
<td>0.06</td>
<td>1,089</td>
</tr>
</tbody>
</table>
OVERWINTERING IN GEORGIA

• Emphasized crop destruction with growers
• Experienced relatively harsh winter in 2017-18
• Collected peppers from the ground in late winter
• Established pheromone traps in late winter-spring
PEPPER CROP DESTRUCTION
EVIDENCE OF OVERWINTERING

• Pod collections from old fields
• Grady County, Feb. 15; Echols County, Feb. 16
• Bell pepper fields - pods nonexistent
• Jalapeno peppers – whole pods on the ground
• Collected pods
• Held for potential adult emergence
EVIDENCE OF OVERWINTERING

- Grady County
  - Estimated 200+ “healthy” pods per acre
  - Collected 170 “healthy” pods
    - Collected 15 adults while re-bagging
  - Dissection of pods
    - 40 “healthy” pods, 50 “less favorable” pods
    - 2 and 3 dead adults, no live adults, no grubs
  - 150 pods held for adult emergence
    - 4 adults at 1 day, 2 at 7 days, none thereafter
EVIDENCE OF OVERWINTERING

- Echols County
  - Collected 150 pods
  - Collected 3 live adults on these pods
  - No adult emergence through 11 days
PEPPER WEEVIL

• No diapause
• Adult longevity
  • 1 to 3 weeks without food
  • 3 months with food
• Jalapeno pods are likely serving as a food source and may allow overwintering in southern Georgia
EVIDENCE OF OVERWINTERING

• Pheromone trap data (Tim Flanders)
• Comparison of trap type and bait
  • Sticky cards vs Bait stick (boll weevil)
  • PWI+II vs Grandlure vs Grandlure+Eugenol
• Comparison of Bait
  • PWI vs PWII vs combined vs none
  • All with pvc pole trap
ADULT CAPTURES

Adults per trap

- Sticky card - PW I+II
- Sticky card - BWw
- Sticky card - Bwo
- Bait stick - PW I+II
- Bait stick - BWw
- Bait stick - BWo

19-Mar  23-Mar
ADULT CAPTURES

Adults per trap

- 29-Mar
- 2-Apr
- 5-Apr
- 10-Apr
- 12-Apr
- 13-Apr
- 16-Apr
- 19-Apr
- 23-Apr

- Blank
- PW I
- PW II
- Combined
- New combined
TRAPPING OF COMMERCIAL FIELDS

- Trapped commercial fields in 4 counties
  - Grady, Brooks, Echols, Colquitt
- Trapped 3+ fields in each county
- PVC pole trap, PWI+II pheromone
- Caught 2 weevils in over one month of trapping
- Pheromone traps do not compete with the crop
PEPPER WEEVIL IN 2018

- Fields treated fairly aggressively throughout 2018
  - Vydate primary product
  - Assail, Actara in the rotation
  - Rimon used in combination
  - Exirel, Harvanta, Torac – questions still exist
  - Riley’s field test - inconclusive
- Spring – very minor problems
- Fall – mostly minor problems but weevils present in many fields, a few fields with more severe problems, questionable spray programs in some of these fields
FUTURE PLANS AND CONCERNS

• Monitor overwintering in southern Georgia
• Role of eggplant in maintaining populations
• Insecticide efficacy/resistance
• Proposed reduction in number of applications of oxamyl
  • EPA proposed reduction from 8 to 4 in pepper
  • EPA proposed elimination in eggplant
• Comment period closed October 9, 2018
• 10 comments received (2 not related, 8 positive)
QUESTIONS

Questions are guaranteed in life; Answers aren't.