Threecornered Alfalfa Hopper Management

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Threecornered alfalfa hopper (TCAH)
*Spissistilus festinus* (Say)
TCAH injury: girdles

Photo: Ishakh Pulakkatu-thodi
Management recommendations for plant in reproductive stages

• **Starting at pod set**
  - Threshold for drop cloth: 3 nymphs / row ft
  - Threshold for sweep net: 1 adult / sweep

• **Comprehensive research at LSU in the 1980s**

• **Thresholds in neighboring states (for soybean in reproductive stages)**
  - Mississippi: 2 adults / sweep (was 1 adult / sweep until 2011)
  - Arkansas: no threshold

Field evaluations, 2013-2014

- Dean Lee and Macon Ridge Research Stations
  - Experimental field of Progeny P4850RY
  - Standard soybean production practices

- 4-6 replications
  - 3 plots / replication

- TCAH adults and nymphs released in field cages as needed
When soybean plants attained the R1, R3, or R5 stage:

• 2 or 3 field cages / plot
  - Each cage: 2.5 ft * 2.5 ft * 4 ft

• TCAH adults, or nymphs, released in 1 cage in each plot
  - 30 TCAH / row ft for 10 days

• 1 non-infested cage / plot
Mature plants were collected from a 1.5-row foot section in each cage

• Injury data
  - Proportion of plants with green stem syndrome
  - Number and location of TCAH girdles / plant

• Yield component data
  - No. plants
  - No. pods / plant
  - No. seeds
  - Seed weight
  - Yield
Soybean yield in lb / A (2013)

Dean Lee Res. Stn.

Macon Ridge Res. Stn.

TCAH Effect $P = 0.935$

TCAH Effect $P = 0.520$

Soybean yield in lb / A (2013)

Dean Lee Res. Stn.

Macon Ridge Res. Stn.

TCAH Effect $P = 0.935$

TCAH Effect $P = 0.520$

Soybean stage

R1

R3

R5

Soybean stage

R1

R3

R5

Non-Infested

Infested

Non-Infested

Infested
Soybean yield in lb / A (Dean Lee Res. Stn.)

TCAH Effect $P = 0.315$

Non-Infested

Adults

Soybean stage

R1

R3

R5
Soybean yield in lb / A (Dean Lee Res. Stn.)

TCAH Effect $P = 0.619$

<table>
<thead>
<tr>
<th>Soybean stage</th>
<th>Non-Infested</th>
<th>Adults</th>
<th>Nymphs</th>
</tr>
</thead>
<tbody>
<tr>
<td>R3</td>
<td>2,000</td>
<td>1,800</td>
<td>1,600</td>
</tr>
<tr>
<td>R5</td>
<td>1,900</td>
<td>1,700</td>
<td>1,500</td>
</tr>
</tbody>
</table>
Soybean yield in lb / A (Macon Ridge Res. Stn.)

560-lb yield loss

TCAH Effect $P = 0.028$

Non-Infested
Adults
Nymphs

Soybean stage

R1
R3
R5
Current recommendation

• It is likely that TCAH adults do not cause yield losses under current production practices

• TCAH nymph feeding may be associated with yield losses

• Starting at pod set
  - 1 adult / sweep

• But…
TCAH Management

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