Management of Bollworms in Bt Cotton in LA: Experiences to Date

Sebe Brown: LSU AgCenter Extension Entomologist
The Current Situation

Are Bt technologies providing the control we have come to expect?
## Past and Current Technology

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Monsanto</td>
<td>Bollgard (Cry1Ac)</td>
<td>Bollgard 2 (Cry1Ac+Cry2Ab)</td>
<td></td>
<td>Bollgard 3 (Cry1Ac+Cry2Ab+Vip3A)</td>
</tr>
<tr>
<td>Dow</td>
<td>WideStrike (Cry1Ac+Cry1F)</td>
<td></td>
<td>WideStrike 3 (Cry1Ac+Cry1F+Vip3A)</td>
<td></td>
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<tr>
<td>Bayer</td>
<td>TwinLink (Cry1Ab+Cry2Ae)</td>
<td></td>
<td></td>
<td>TwinLink Plus (Cry1Ab+Cry2Ae+Vip3A)</td>
</tr>
</tbody>
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### Homogeny across crops

<table>
<thead>
<tr>
<th>Crop</th>
<th>Cry1A</th>
<th>Cry1F</th>
<th>Cry2</th>
<th>Vip3A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>Cry1Ac, Cry1Ab</td>
<td>Cry1F</td>
<td>Cry2Ab, Cry2Ae</td>
<td>Vip3A</td>
</tr>
<tr>
<td>Corn</td>
<td>Cry1Ab</td>
<td>Cry1F</td>
<td>Cry2Ab2</td>
<td>Vip3A</td>
</tr>
<tr>
<td></td>
<td>Cry1A.105 (Cry1Ab, Cry1Ac, Cry1F)</td>
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</tbody>
</table>
What is Driving Resistance?

![Bar chart showing total worms in 10 ears for different cotton varieties.

- DKC 67-70 RR2
- DKC 67-72 VT2P
- P1319 R
- P1319 HR
- P1319 YHR
- P1319 VYHR

MRRS: April 15]
Bt Corn Efficacy
Yield

Bar chart showing the yield comparison of different cotton varieties:
- P 1637 VYHR
- P 1637 YHR
- P 1637 R
- DKC 67-70 RR2
- DKC 67-72 VT2P

Legend:
- bc
- a
- c
- ab

Values in bushels per acre.
BG: Avg Weekly Fruit Injury

- Non-Bt: 31%
- BG2: 8%
- BG3: 3%
WS: Avg Weekly Fruit Injury

- Non-Bt: 56%
- WS: 15%
- WS3: 13%
Bt Sentinel Plot Locations

- Red River Station
- Macon Ridge Station
- Northeast Station
- Rapides Parish: Pete DeKeyzer Farm
Rapides Parish BG3: July 24

% Fruit Injury

<table>
<thead>
<tr>
<th></th>
<th>Squares</th>
<th>Blooms</th>
<th>Bolls</th>
<th>Total Fruit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7%</td>
<td>9%</td>
<td>2%</td>
<td>18%</td>
</tr>
</tbody>
</table>
Rapides Parish WS3 Injury: July 23
Red River
Bt Overspray: MRRS

Non-sprayed
Sprayed

lbs lint/acre

Non BT  WRF  W3FE  GLT  GLT+  B2XF  B3XF

e   de  cde  cd  bcd  cd  de  de  bcd  cd  a
Thresholds Moving Forward

- Non-Bt, WS, TL & BG2
  - Before Bloom: 8 larvae/100 plants or 6% fruit injury
  - After Bloom: 20 eggs/100 plants or 6% fruit injury
  - Treat when damaged-boll counts exceed 2 percent and significant numbers of larvae are present and continuing to cause damage

- WS3, TL+, BG3
  - Before Bloom: 8 larvae/100 plants or 6% fruit injury
  - After Bloom: 4 larvae/100 plants or 6% fruit injury
  - Treat when damaged-boll counts exceed 2 percent and significant numbers of larvae are present and continuing to cause damage
Bollworm Overspray: MRRS
Contact Information

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