Arthropod Pest Management: What’s in the Pipeline for Cotton Producers?

B. R. Leonard
Discussion Topics

- Conventional Pesticides
- Transgenic Products
- Sampling Tools
- Application Systems
Insecticides Will Remain An Essential Component Of Cotton IPM For The Foreseeable Future
Choosing the Correct Insecticide is Challenging!!!

- Cost
- Efficacy on Target Pest
- Non-Target Pest Spectrum
- Residual Properties
- Coincidental Impact on Beneficials
Diamond 0.83EC
(Benzolphenyl Urea)

- Novaluron
- Chemtura
- MOA; IGR
- Moderate Rate Range
- Targets; Bugs, Armyworms
- Labeled 2004

Key Notes: Active on Nymphs, Long residual, Ovicidal
Carbine 50WP
(Pyridine Carboxamide)

- Flonicamid; F-1785
- FMC; ISK
- MOA; Nervous System (Ca+)
- Low Rate Range
- Targets; Bugs, Aphids, Whiteflies
- Labeled 2006

Key Notes: Proposed new MOA
Feeding inhibition > damage reduction
Alverde SC/EC (Vegetables)  
(Metaflumizone)

- Semicarbazone
- BASF
- MOA; Nervous System (Na+)
- Targets; Lepidoptera, “Bugs”, Beetles
- Low Rate Range
- Label in Cotton 2008 (Anticipated)
# Novel Lepidopteran Insecticides

<table>
<thead>
<tr>
<th>Common</th>
<th>Trade</th>
<th>Company</th>
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</thead>
<tbody>
<tr>
<td>Chlorantraniliprole (Rynaxypyr)</td>
<td>Altacor</td>
<td>DuPont</td>
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<tr>
<td>Flubendiamide</td>
<td>Belt</td>
<td>Bayer CropScience</td>
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<tr>
<td>Abamectin</td>
<td>Abba</td>
<td>Makhteshim Agan</td>
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<tr>
<td>Abamectin</td>
<td>Zephr</td>
<td>Syngenta</td>
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<tr>
<td>Bifenazate</td>
<td>Acramite</td>
<td>Chemtura</td>
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<tr>
<td>Etoxazole</td>
<td>Zeal</td>
<td>Valent</td>
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<tr>
<td>Fenpyroximate</td>
<td>FujiMite</td>
<td>Nichino America, Inc</td>
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<tr>
<td>Spiromesifen</td>
<td>Oberon</td>
<td>Bayer CropScience</td>
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# Insecticide Combinations

<table>
<thead>
<tr>
<th>Name</th>
<th>Compounds</th>
<th>Company</th>
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<tbody>
<tr>
<td>Aeris</td>
<td>Imidacloprid + Thiodicarb</td>
<td>Bayer CropScience</td>
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<tr>
<td>Endigo</td>
<td>Lambda-cyhalothrin + Thiamethoxam</td>
<td>Syngenta</td>
</tr>
</tbody>
</table>
Data Adapted from Agricultural Marketing Service Cotton Program, USDA-2006
Evolution of Commercialized Bt Cotton

1996
Bollgard
Single gene
\textit{cry1Ac}
(endotoxin)

2003
Bollgard II
Stacked genes
\textit{cry1Ac} + \textit{cry2Ab}
(endotoxins)

2005
Widestrike
Stacked genes
\textit{cry1Ac} + \textit{cry1f}
(endotoxins)

2008
VipCot
Novel Protein
\textit{Vip3A} + \textit{cry1Ac}
(exo/endotoxins)

2009
Bayer BTX
Stacked genes
\textit{Cry Proteins}
Drop Cloth Samples
Drop Cloth Samples
Square and Boll Injury Ratings

- Feeding puncture
- Light damage
- Medium damage
- Heavy damage
- Normal
- Damaged
- Damaged anthers
Variable Rate Pesticide/Fertilizer Applications
Herbicide - Insecticide Co-Applications
Air Speed and Actual Applied Rate

1.7 gal/A @ 150m/h
2.3 gal/A @ 110m/h
2 gal/A @ 130m/h
Liquid Flow Controller

Stabilizes Flow (GPA) Rate With Changes in Speed
Air Speed and Actual Applied Rate

- 2 gal/A @ 150m/h
- 2 gal/A @ 110m/h
- 2 gal/A @ 130m/h
Summary

- Continued Pesticide Development
- More Options for Transgenes
- Improved Sampling and Thresholds
- Application Methods are Evolving
Louisiana Cotton Producers Association

COTTON INCORPORATED

Building Markets For Cotton And Cotton Products