Discussion Topics

- Evolving “Farmscape”
- Agronomic Practices
- Conventional Pesticide Strategies
- Transgenic Technologies
- Sources of Information
Landscape Factors On/And Around Farms

- Pest distribution and abundance Across Crops
Mid-South Farmscape Components

Field Corn
Soybean
CRP/WRP
Cotton

Shared Whiteflies and Shared Chemistries Among Key Whitefly Hosts
Successful Pest Management depends on integration

Cotton

WF, Virus, Stickiness
Sampling, Detection, & Monitoring

Effective & Selective Chemistry

Alternate Host Management

Inter-Crop Movement

WF X H₂O Interactions

Tolerant / Resistant Varieties

WF X N Interactions

Planting & Termination Date Management

Natural Enemy Conservation

In-field Mortality Dynamics

Pest & Outbreak Prediction

Over-Wintering Ecology

Crop Placement

Crop Management

Area-Wide Impact

Exploitation of Pest Biology

Cross-Commodity Cooperation

Effective Chemical Use

Avoidance

1

2

3

Sampling
Successful Pest Management

...depends on integration

1. Avoidance
   - Exploitation of Pest Biology
   - Crop Management
   - WF X N Interactions

2. Effective Chemical Use
   - Area-Wide Impact
   - Cross-Commodity Cooperation
   - Over-Wintering Ecology

3. Sampling
   - WF, Virus, Stickiness Sampling, Detection, & Monitoring
   - Effective & Selective Chemistry
   - Alternate Host Management
   - Inter-Crop Movement
   - Pest & Outbreak Prediction
   - WF X H2O Interactions
   - Planting & Termination Date Management
   - Tolerant / Resistant Varieties
Integration: Landscapes vs Pests

Transgenic Crops
Bt cotton/corn

Tarnished Plant Bugs in non-crop habitats

T. Plant Bugs in crop habitats

Insecticide Selection and Rotation Across Crops

Ellsworth/UA
Successful IPM Starts With Crop Planting Patterns
Weed Resistance and Herbicide Use Strategies
Insecticides Will Remain An Essential Component Of Cotton IPM For The Foreseeable Future
# Novel Insecticides/Acaricides

<table>
<thead>
<tr>
<th>Common</th>
<th>Trade</th>
<th>Company</th>
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</thead>
<tbody>
<tr>
<td>Chlorantraniliprole</td>
<td>Coragen</td>
<td>DuPont</td>
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<tr>
<td>(Rynaxypyr)</td>
<td></td>
<td></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>Zoro</td>
<td>Cheminova</td>
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<tr>
<td>Fenpyroximate</td>
<td>Portal</td>
<td>Nichino America, Inc</td>
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**Insecticide Combinations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Compounds</th>
<th>Company</th>
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</thead>
<tbody>
<tr>
<td>Leverage</td>
<td>Cyfluthrin + imidacloprid</td>
<td>Bayer CropScience</td>
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<tr>
<td>Endigo</td>
<td>Lambda-cyhalothrin + Thiamethoxam</td>
<td>Syngenta</td>
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<tr>
<td>Bidrin XP</td>
<td>Bifenthrin + dicrotophos</td>
<td>Amvac</td>
</tr>
<tr>
<td>Cobalt</td>
<td>Gamma-cyhalothrin + Chlorpyrifos</td>
<td>Dow AgroSciences</td>
</tr>
<tr>
<td>EXP’s</td>
<td>SP + Alternate Chemistry</td>
<td>Generics</td>
</tr>
</tbody>
</table>
Sampling Protocols and Action Thresholds

Regional Projects

“Dirty Squares” – Evidence of Feeding
Herbicides, Insecticides, and Co-Applications
Are Field Border Effects Important?
Evolution of Commercialized Bt Cotton

1996
Bollgard
Single gene
cry1Ac
( endotoxin )

2003
Bollgard II
Stacked genes
cry1Ac + cry2Ab
( endotoxins )

2005
Widestrike
Stacked genes
cry1Ac + cry1f
( endotoxins )

2009
VipCot
Novel Protein
Vip3A + cry1Ab
(exo/endotoxins)

2012
TwinLink
Stacked Proteins
Information Technology and Acquisition

- **IPM Web Resources**
  - Pest ID, Control recommendations
  - Conferencing, on-line databases, etc.
Summary

- Consideration of Farmscape IPM
- Agronomy and Weed RST - Strong Effects
- Insecticide Development is Continuous
- More Options for Transgenes
- Sources of Production / IPM Information

Only Integrated PM is Sustainable
COTTON INCORPORATED

Building Markets For Cotton And Cotton Products