

# Challenges to IPM in the Farm Landscape

**B. R. Leonard**



# **Integrated Pest Management For Cotton**

**“INTEGRATE”**

**Nearly Every Production Decision is  
Capable of Influencing Another  
Decision Made Later in the Season  
.....Yesterday vs Today (Costs and  
Available Tools)**

# **Integrated Pest Management For Cotton**

**Making Profitable Pest Management  
Decisions Depend on an Individual  
Producer's Management Style..... And  
the Ag Professional Making a  
Recommendation**

# **Integrated Pest Management For Cotton**

- **The Cotton Industry – Troubled Times**
  - ▶ **Crop Input Costs vs Crop Value**
  - ▶ **Evolving Pest Problems  
(Emerging Issues and Resistance)**
  - ▶ **Limited Tools**
  - ▶ **Regulatory Issues**
  - ▶ **Are You The Real Decision Maker?**

# Integrated Pest Management For Cotton

- The Cotton Industry – Troubled Times
- Evolving Production Systems



# Pre-Plant Vegetation Management Strategies



# Evolution of Commercial Bt Corn & Cotton

1996

**Bollgard**  
Single gene  
**Cry1Ac**  
(endotoxin)



1998

**YieldGard**  
Single gene  
**Cry1Ab**  
(endotoxin)



2003

**Herculex**  
Single gene  
**Cry1F**  
(endotoxin)



2003

**Bollgard II**  
Stack genes  
**Cry1Ac + Cry2Ab**  
(endotoxins)



2005

**WideStrike**  
Stack genes  
**Cry1Ac + Cry1F**  
(endotoxins)



2009

**YieldGard VT Pro**  
Stack genes  
**Cry1A.105 + Cry2Ab**  
(endotoxins)



2010

**SmartStax**  
Stack genes  
**Cry1A.105 + Cry2Ab + Cry1F**  
(endotoxins)



2011

**Viptera**  
(AgriSure 3111)  
Stack genes  
Novel Protein  
**Vip3A + Cry1Ab**  
(exotoxin / endotoxins)



2012

**WideStrike Advanced**  
Stack genes  
Novel Protein  
**Vip3A + Cry1Ac + Cry1F**  
(exotoxin / endotoxins)



2013

**Bollgard III**  
Stack genes  
Novel Protein  
**Vip3A + Cry1Ac + Cry2Ab**  
(exotoxin / endotoxins)



# Integrated Pest Management For Cotton

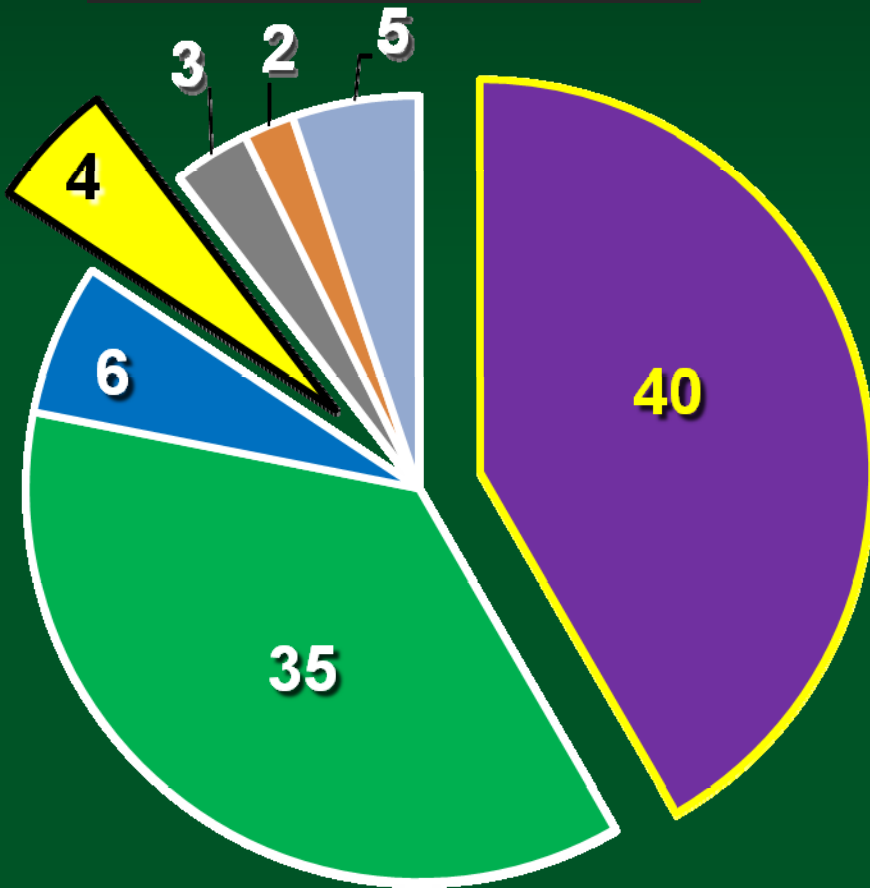
- The Cotton Industry – Troubled Times
- Evolving Production Systems
- **Crop Rotations and the Farmscape**

Annual Decisions – Profit Potential – Input Costs

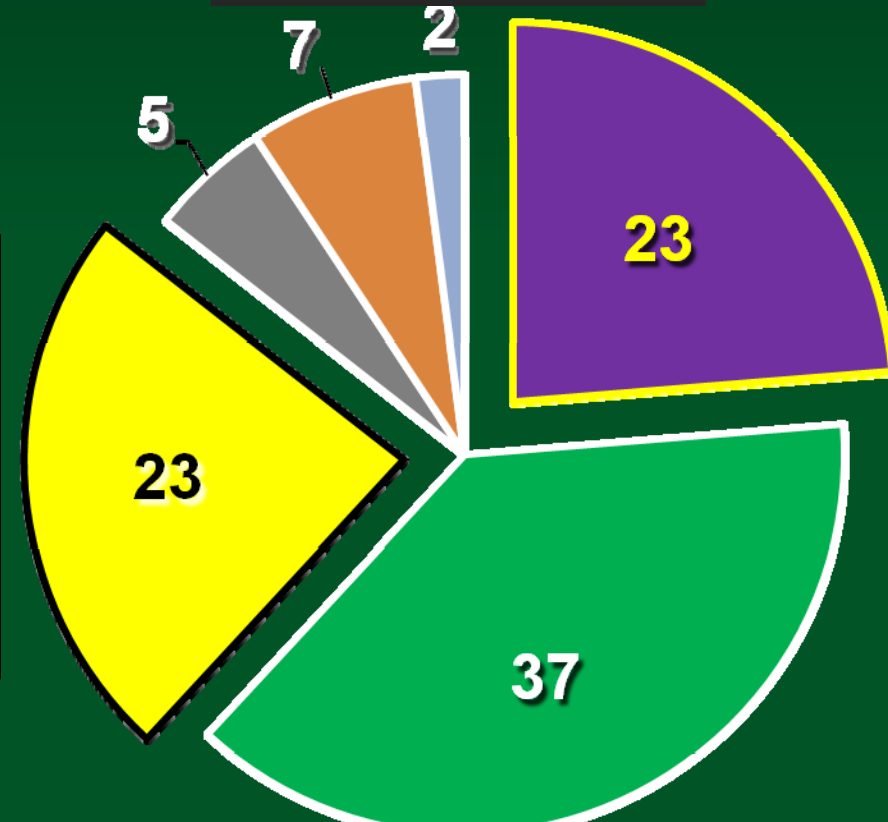


# Crop Acreage – 2010

U.S. Planted Acres (%)



Southern U.S. Planted Acres (%)



- Corn
- Soybeans
- Wheat
- Cotton
- Sorghum
- Rice
- Others

USDA-NASS 2010

AL, AR, FL, GA, LA, MS, MO, OK, NC, SC, TN, TX



# Field Borders and Source Fields

# Mid-South Farmscape Components

Field Corn



Soybean



CRP/WRP



Cotton



# Importance of Field Border Effects



# Post-Harvest Fall Vegetation Issues



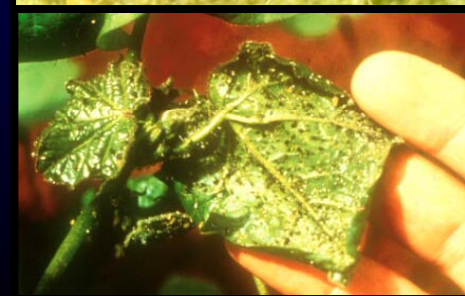
# Integrated Pest Management For Cotton

- The Cotton Industry – Troubled times
- Evolving Production Systems Fast
- Crop Rotations and the Farmscape
- **Best Management Practices (BMP's)**
  - ▶ Protection of the Environment
  - ▶ Soil Productivity
  - ▶ Sustainable Cropping Systems
  - ▶ Requirements in Some Federal Programs

# Integrated Pest Management For Cotton

- The Cotton Industry – Troubled times
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- Crop Rotations and the Farmscape
- Best Management Practices (BMP's)
- **Weed and Arthropod Insect Management**
  - ▶ **“Miss a Weed and Save an Insect”**
  - ▶ **Can't plant/spray out of these problems**

# Weed Resistance and Herbicide Use Strategies







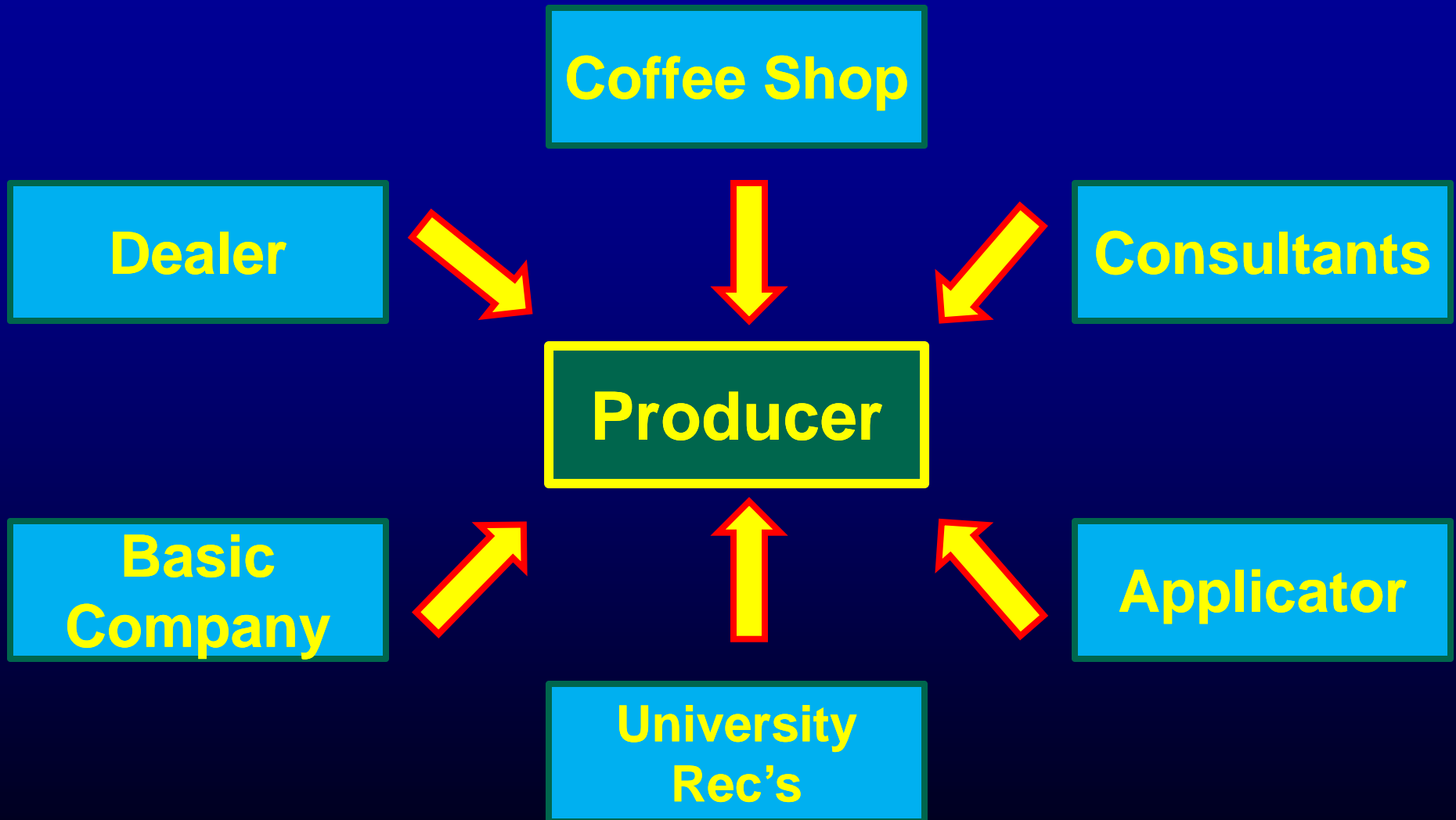
# **Costs of “Control”**

**Application Frequency  
Evolution of Actual Use Rates  
Product Costs (New vs Standard)**

# Integrated Pest Management For Cotton

- The Cotton Industry – Troubled times
- Evolving Production Systems Fast
- Crop Rotations and the Farmscape
- Best Management Practices (BMP's)
- Weed and Arthropod Management
- Who is making the decisions?
  - ▶ Basic Companies, Dealers, Applicators, etc.
  - ▶ Producer (the one who pays)

# Centers of Influence



**University Recommendations Are Guidelines !!**

**FINAL DECISIONS ON THE  
SPECIFIC INSECTICIDE  
TREATMENT SHOULD BE A  
JOINT DECISION BETWEEN THE  
AG CONSULTANT AND THE  
PRODUCER !**





**\*\* It is rare that Agricultural Consultants can recommend products to control a single pest.**

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- Weeds and Arthropod Management
- Who is Making the Decisions?
  
- Are You Getting What You Want and Pay For?
  - ▶ Seed, Traits, ST's, Sprays

# Bt Traits and Herbicide Resistance



# The Seed Treatment Revolution





DP 488 BG/RR

DLM/GAU

LOT #

466-E-4571-H62A

TREATMENT CODE H6

0084

ORIGIN AZ

Baytan 30 / Protégé FL / Allegiance LS / Argent 30 / Kodiak FL / Gaucho / Lorsban 30 FL / Apron XL / Maxim / Systhane 40WP

TEST DATE 04/06 U.S. PATENT NUMBER 6927325

04-01-06

U.S. PROTECTED VARIETY - PVPA 1994

APPROX SEED PER BAG 250,000

APPROX SEED PER LB

5289

NET WT 47 ALBS 21.5 KG

CROP KIND . . . . .	COTTON	OTHER CROP SEED . . . . .	0.00%	GERMINATION . . . . .	80%
PURE SEED . . . . .	99.00%	WEED SEED . . . . .	0.00%	HARD SEEDS SEED . . . . .	0.00%
INERT . . . . .	1.00%	NOXIOUS WEED SEED . . . . .	NONE	GERM. & PLANTS SEED . . . . .	80%
					6927325

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# All Products Are Not Created Equal !!

**Table 1. A list of common and trade names for selected basic and generic insecticides used in LA row crops<sup>1</sup>**

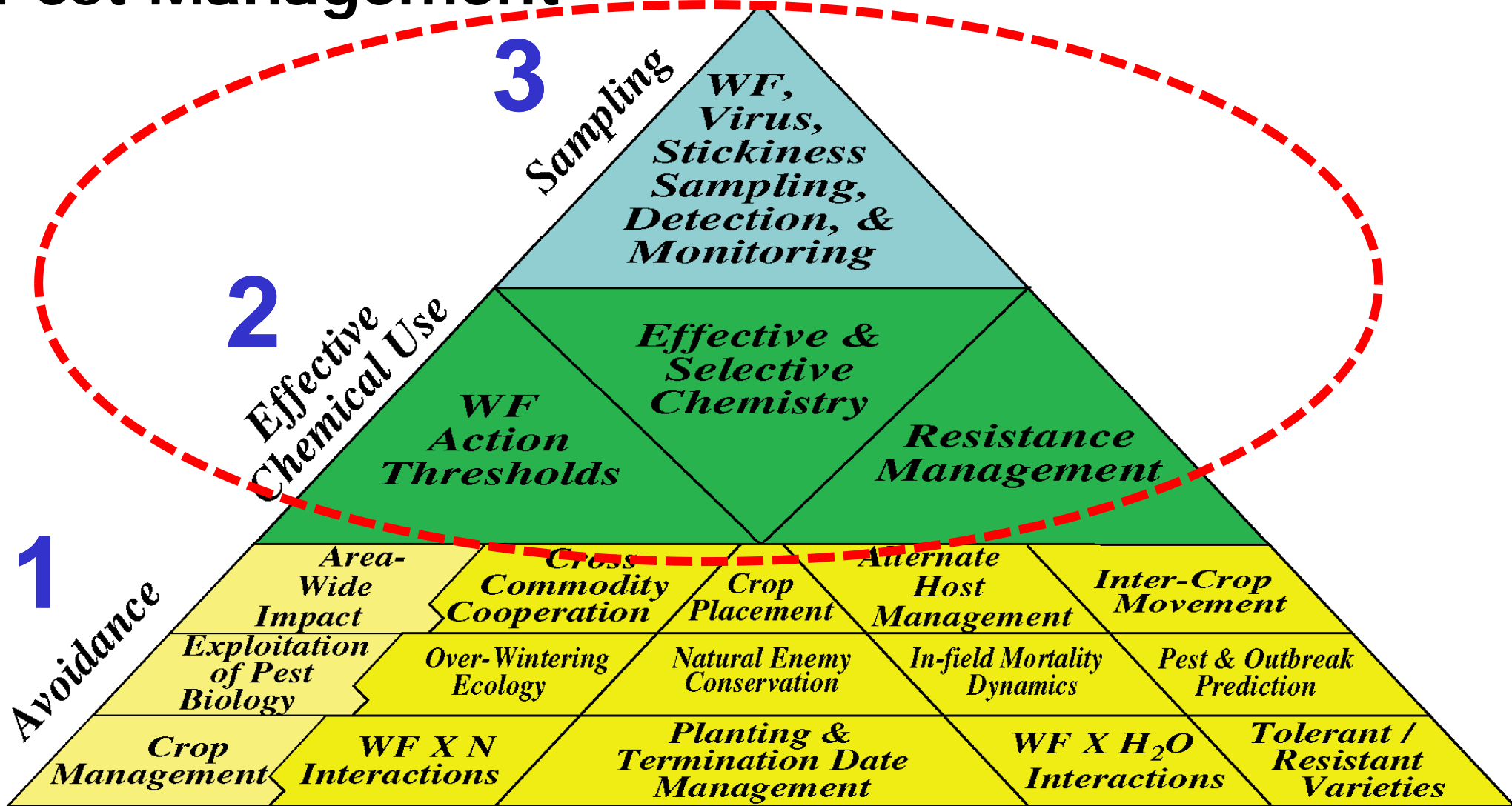
Common Name	Trade name	Formulation	# or % AI	Manufacturer
Karate				
lambda-cyhalothrin	Grizzly Z	CS	1.0 #	Agrilliance
lambda-cyhalothrin	Helena Lambda	CS	2.08 #	Helena
lambda-cyhalothrin	Kaiso 24	WG	24%	Nufarm
lambda-cyhalothrin	Karate-Z	CS	2.08 #	Syngenta
lambda-cyhalothrin	Lambda-Cy EC	EC	1.0 #	UPI
lambda-cyhalothrin	Lambdastar 1CS	EC	1.0 #	LG Life Sciences
lambda-cyhalothrin	Lambda-T	CS	1.0 #	Helena
lambda-cyhalothrin	Mystic Z	CS	2.08 #	Agrilliance
lambda-cyhalothrin	Province	CS	1.0 #	Tenkoz
lambda-cyhalothrin	Silencer	EC	1.0 #	MANA
lambda-cyhalothrin	Taiga Z	CS	1.0 #	Agrilliance
lambda-cyhalothrin	Warrior II	CS	2.08 #	Syngenta
lambda-cyhalothrin	Warrior-Z	CS	1.0 #	Syngenta

# Integrated Pest Management For Cotton

- The Cotton Industry – Troubled times
- Evolving Production Systems Fast
- Crop Rotations and the Farmscape
- Best Management Practices (BMP's)
- Weeds and Arthropod Management
- Who is Making the Decisions
- Are You Getting What You Want and Pay For
- **IPM Should Not be a Covert Activity!**
  - ▶ Cotton Industry - Good Stewards
  - ▶ Nobody Knows – Publications and People

# Successful and Sustainable Pest Management

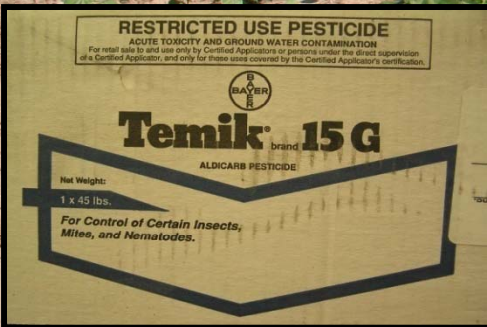
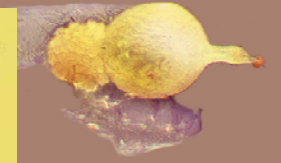
**Regardless of Crop**  
 ...depends on integration



# Integrated Pest Management For Cotton

- **What To Do – Easier Said Than Done!**
  - ▶ **Make an IPM Plan and Stick to It**
  - ▶ **Recognize “Weed to Bug“ Problems**
  - ▶ **Use All Available Information**
  - ▶ **If It Does Not Fit, Do Not Buy It**
  - ▶ **Take Action Before Someone Else Does**

**“INTEGRATE”**



- Equipment / Handling
- Application Timing
- Application Patterns
- Soil Moisture

# Louisiana Cotton Producers Association



## COTTON INCORPORATED



**Building Markets For Cotton And  
Cotton Products**