



# STEWARDSHIP OF HERBICIDES

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Mississippi Row Crops Short Course  
Starkville, MS  
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# **STEWARDSHIP OF HERBICIDES**

Auxin Traits & Herbicides Biggest Issues  
Resistance & Off-Site Movement





# WEEDS ARE A HUGE CONCERN

Results of Cotton Incorporated Survey of Growers' Concerns

How would you rate the following cotton production concerns or challenges on your farm?	Major	Moderate	Not an Issue	2011 Rank	2015 Rank
Cotton production input costs	81%	16%	3%	1	1
<b>Weed resistance to herbicides</b>	69%	25%	6%	5	2
<b>Weed control</b>	64%	31%	5%	4	3
Cottonseed value	51%	40%	8%	7	4
<b>Spread of plant diseases and weeds</b>	42%	43%	14%	New	5
Seedling vigor and stand establishment	42%	40%	18%	6	6
Consumer attitudes about Ag's impact on the environment	40%	38%	22%	31	7
Cotton's tolerance to heat and drought	39%	48%	13%	3	8
Efficient use of fertilizer	37%	43%	20%	19	9
Adequate water supply	37%	35%	28%	15	10
Variety selection	34%	43%	23%	2	11
Plant bug control	32%	44%	24%	9	12



# TOP 5 MAJOR PRODUCER CONCERNS

## Far West:

1. Input costs
2. Adequate water supply
3. Tolerance to heat and drought
4. Weed control
5. **Herbicide resistant weeds (tied with) variety selection**

## Southwest:

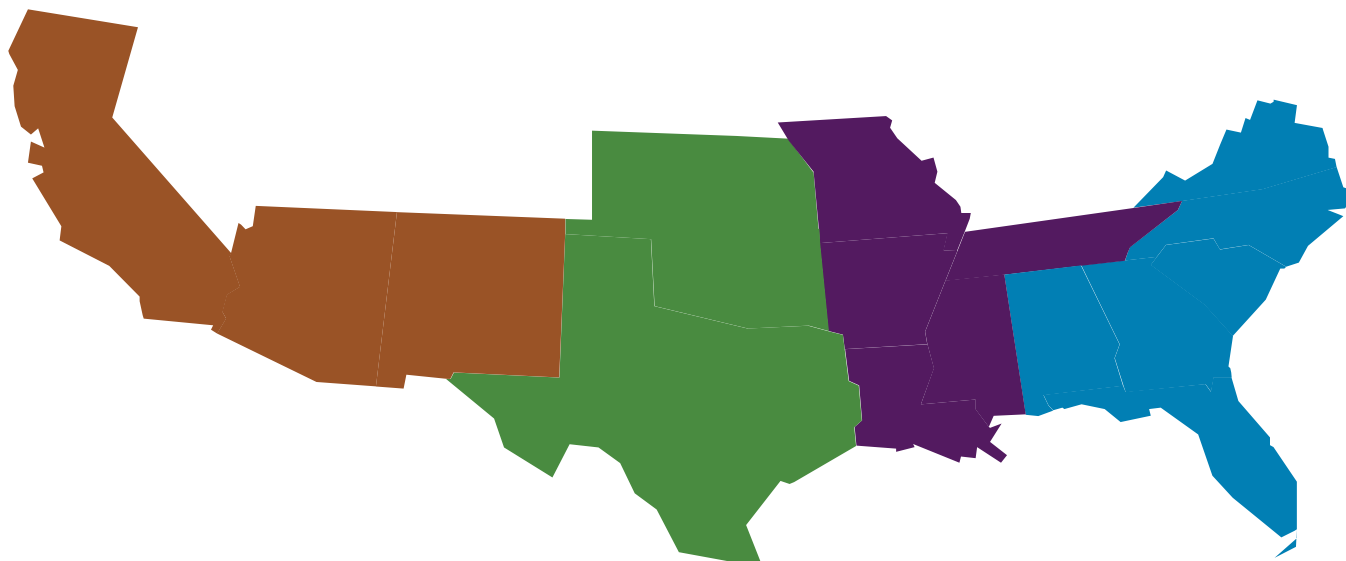
1. Input costs
2. **Herbicide resistant weeds**
3. **Weed control**
4. Cottonseed value
5. Adequate water supply

## Mid-South:

1. Input costs
2. **Herbicide resistant weeds**
3. **Weed control**
4. Plant bug control
5. Cottonseed value

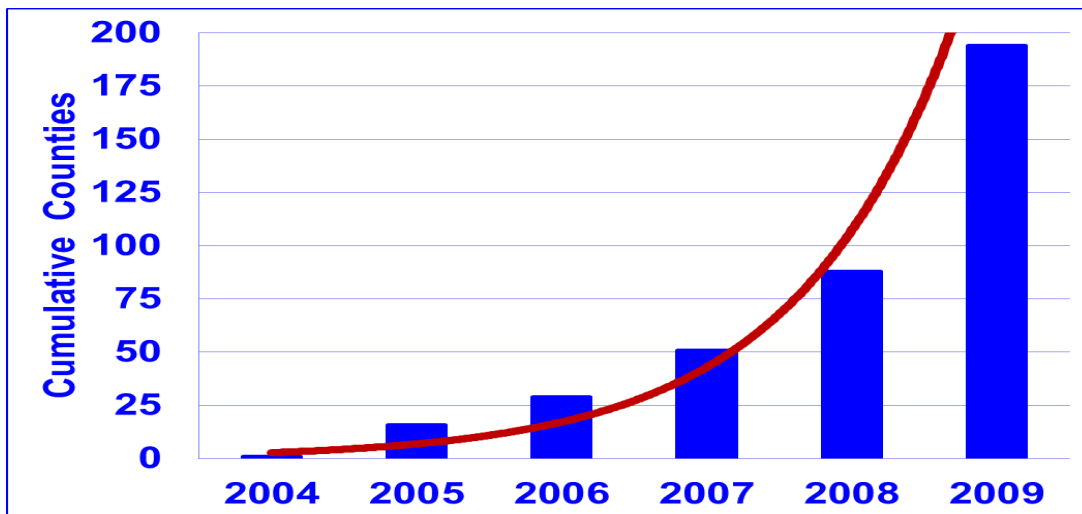
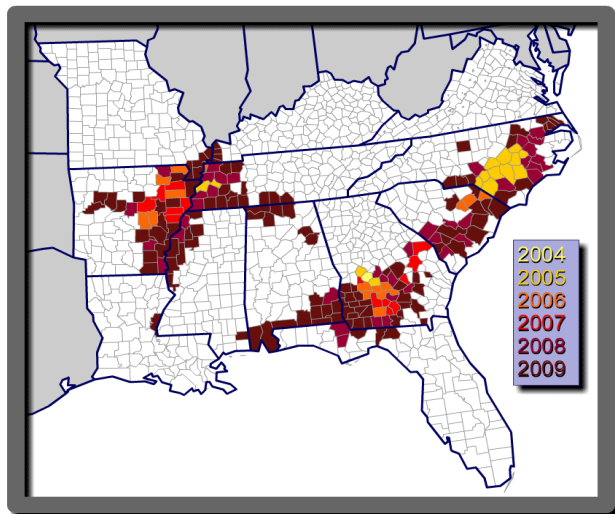
## Southeast:

1. Input costs
2. **Herbicide resistant weeds**
3. **Weed control**
4. Cottonseed value
5. Spread of plant diseases and weeds





# COUNTIES WITH CONFIRMED POPULATIONS OF GLYPHOSATE-RESISTANT PALMER AMARANTH - 2009





# 2015 DEMONSTRATION NO-TILL DRIP FIELD

(Confirmed glyphosate resistant pigweed in 2014)



## TOTAL COST TO CONTROL RESISTANT PIGWEED IN COTTON THIS YEAR

Liberty Link Systems  
ST 4946 GLB2

**\$129/acre**

Roundup Ready Flex System (no dicamba)  
DP 1522 B2XF

**\$126/acre**

Slide Credit: Shane Osborne, OSU





# AUXIN TECHNOLOGIES

## 2015 (HALF SYSTEMS)



DICAMBA RESISTANT  
VARIETIES

2,4-D + GLYPHOSATE PREMIX  
(SOME STATES)

**X** *BOLLGARD II®*  
**TENDFLEX™**  
*COTTON*





# AUXIN TECHNOLOGIES

## 2016 (FULL SYSTEMS ANTICIPATED)



### DICAMBA SYSTEM

#### VARIETIES



#### HERBICIDE



### 2,4- SYSTEM

#### VARIETIES



#### HERBICIDE







# POTENTIAL SOURCES OF DAMAGE

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**TANK CONTAMINATION**

**DRIFT**

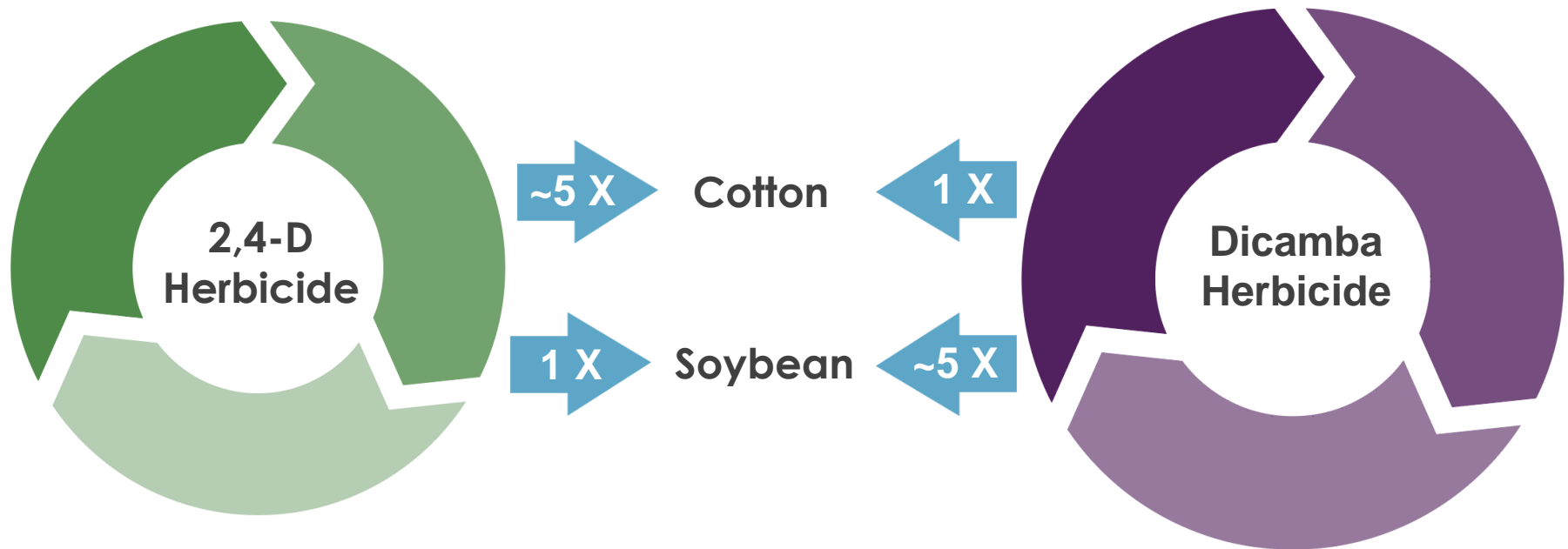
**VOLATILIZATION**





# RELATIVE EFFECTS OF EXPOSURE

EVERYTHING COUNTS: VARIETY, STAGE OF GROWTH, RATE



NO DIRECT RELATIONSHIP OF FOLIAR SYMPTOMS & YIELD LOSS



# POTENTIAL DAMAGE

**TANK CONTAMINATION**

**OWN CROP**



**DRIFT**

**NEIGHBORS  
CROP + OTHERS**



**VOLATILIZATION**

**NEIGHBORS  
CROP + OTHERS**







# POTENTIAL DAMAGE

**TANK CONTAMINATION**

**CLEAN OUT - GROWER**



**DRIFT**

**APPLICATION - GROWER**



**VOLATILIZATION**

**FORMULATION MANUFACTURER**





# POTENTIAL DOWNSIDES

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## FORMULATIONS

AS GOOD AS CHEMISTS CAN MAKE THEM

## LABELS

GOOD AS THE REGISTRATION PROCESS MAKES THEM

## IF THERE IS DAMAGE

SOMEBODY DID IT



# POTENTIAL DOWNSIDES

**WHAT, WHO WILL BE CRITICIZED FOR OFF-SITE MOVEMENT ?**



**FARMERS**



**COTTON**



**PESTICIDES**



**GMOs**

**DO IT RIGHT**

**FOLLOW APPLICATION INSTRUCTIONS**





# INPUT COSTS ARE GROWER'S TOP CONCERN

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# COTTON THEME FOR WEED MANAGMENT

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*Logo - Dr. Neil Rhodes of Uni. TN*