



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
Weed resistance to herbicides	69%	25%	6%	5	2
Weed control	64%	31%	5%	4	3
Cottonseed value	51%	40%	8%	7	4
Spread of plant diseases and weeds	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:

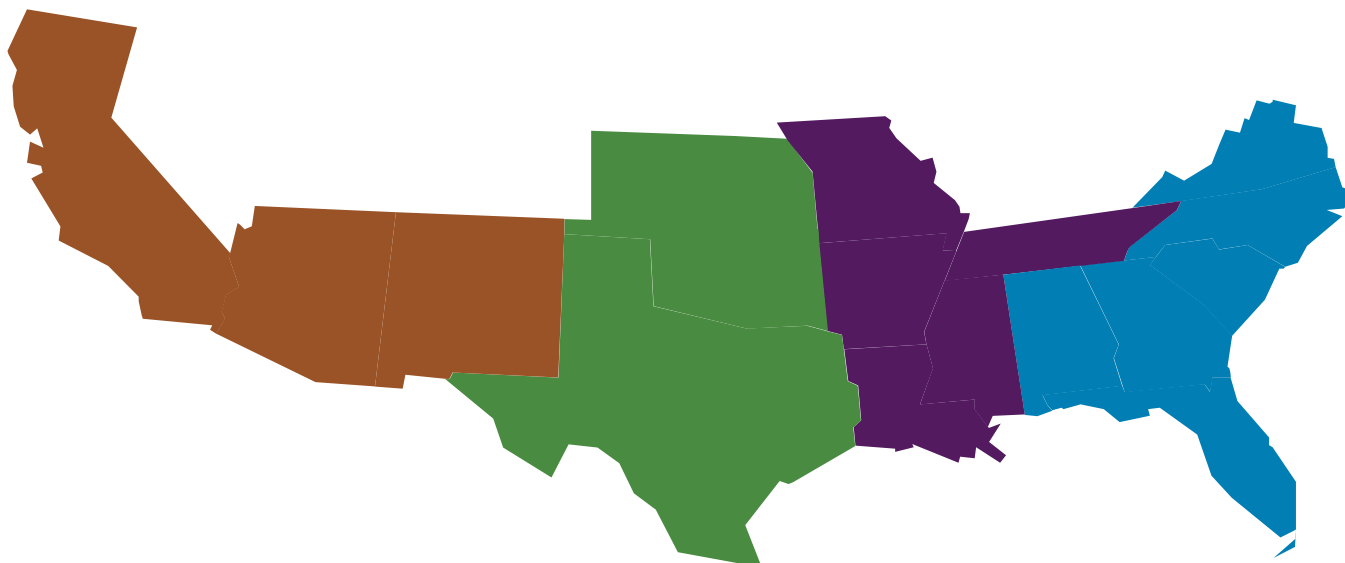
1. Input costs
2. **Herbicide resistant weeds**
3. **Weed control**
4. Cottonseed value
5. Adequate water supply

Mid-South:

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

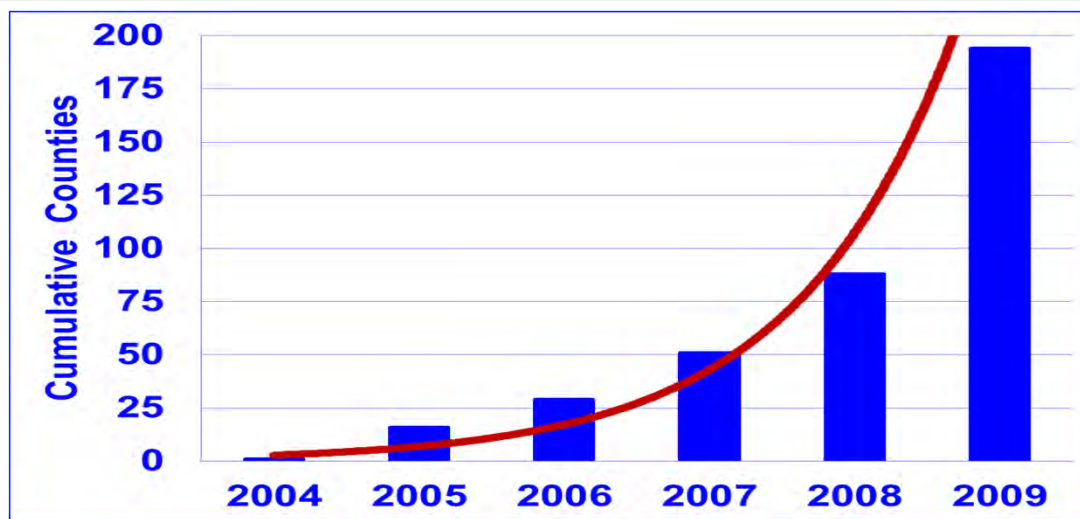
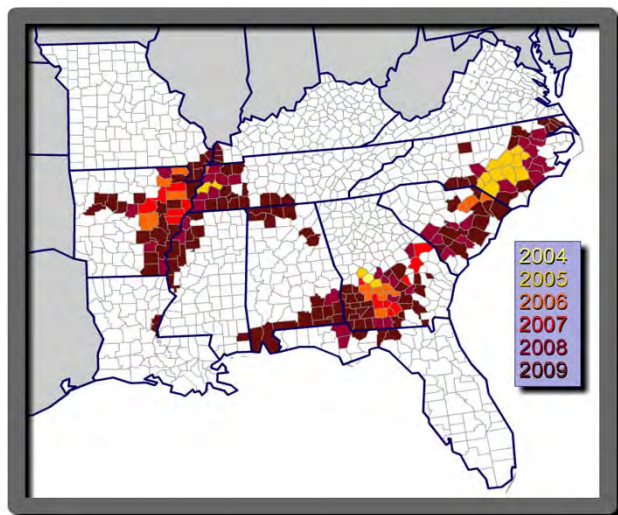
Southeast:

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



Slide Credit: Shane Osborne, OSU



AUXIN TECHNOLOGIES 2015 (HALF SYSTEMS)



DICAMBA RESISTANT
VARIETIES

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





AUXIN TECHNOLOGIES

2016 (FULL SYSTEMS ANTICIPATED)



DICAMBA SYSTEM

VARIETIES



HERBICIDE



2,4- SYSTEM

VARIETIES



HERBICIDE





POTENTIAL SOURCES OF DAMAGE

TANK CONTAMINATION

DRIFT

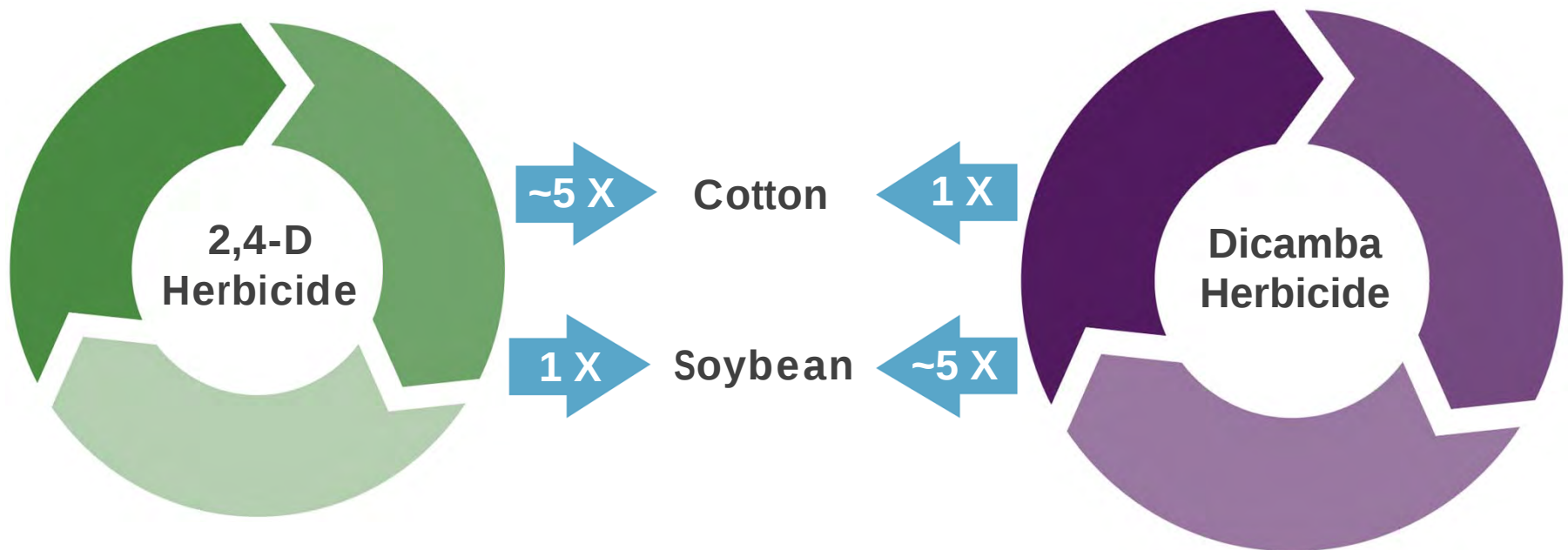
VOLATILIZATION





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

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 MANAGEMENT



Logo - Dr. Neil Rhodes of Uni. TN