TEXAS TECH UNIVERSITY

Off-Target Movement of Auxin Herbicides

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With Dr. Peter Dotray

Potential Drift Scenario

Damage from Off-Target Movement

Dicamba Injury

2,4-D Injury

Objectives

Determine the effects that different rates and timings of dicamba and 2,4-D applications have on:

- Boll number
- Boll distribution
- Yield
- Fiber quality

Another Way of Thinking…

Rather than a simulated drift scenario, this would be similar to a tank contamination

Timings of these applications would then be when the grower is applying POST herbicides or residual herbicides

Gallons of Solution Left in a 1000 Gallon Sprayer	
1X	Intentional App.
1/10X	100 Gallons of solution
1/50X	20 Gallons of solution
1/100X	10 Gallons of solution
1/500X	2 Gallons of solution
1/1000X	1 Gallon of solution

Determining Auxin Injury on Cotton

2,4-D Injury
1/10X Rate
14 DAA

Dicamba Injury
1/10X Rate
7 DAA

Determining Auxin Injury on Cotton

Dicamba Injury
1/50X Rate
7 DAA

2,4-D Injury
1/10X Rate
7 DAA

Determining Auxin Injury on Cotton

2,4-D Injury
1X Rate
7 DAA (4 weeks after first bloom)

Dicamba Injury
1X Rate
7 DAA (First Square +2 weeks)

Differences in Injury Symptoms

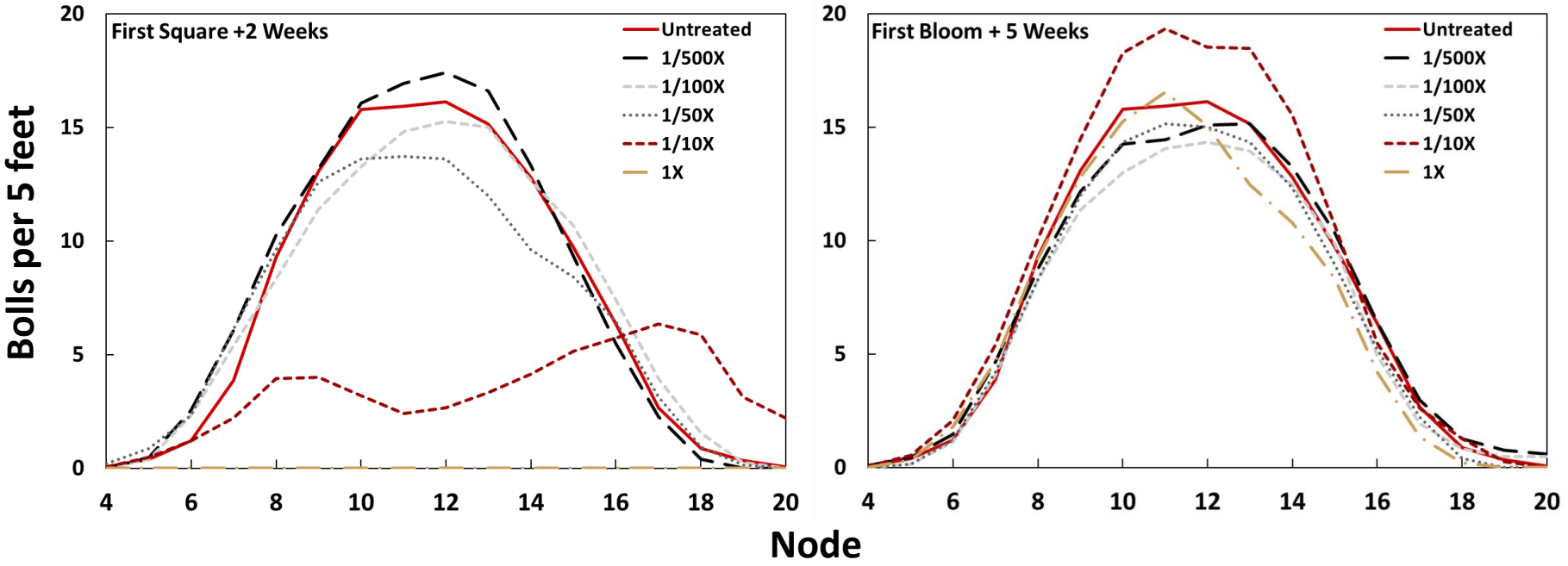
Both pictures taken 21 days after the application

2,4-D Injury
1/1000X Rate
Sprayed July 16th (FS+2wks)

2,4-D Injury
1/1000X Rate
Sprayed July 22nd (FB)

Changes to Boll Distribution

Changes to Boll Distribution



Changes to Cotton Fiber Quality

Rate	Timing	Yield (kg ha^{-1})	Micronaire	Length (mm)	Uniformity (%)	Strength (g tex^{-1})	Elongation (%)
Control	--	1603 AB	4.1 ABCD	31.0 A	81.3 AB	31.3 ABCD	6.2 AB
1/500X	FS+2wks	1632 A	3.9 BCDE	31.1 A	82.1 AB	33.5 A	6.2 AB
	FB	1497 AB	4.0 ABCDE	29.8 AB	81.8 AB	31.5 ABC	6.1 BC
	FB+2wks	1594 AB	4.0 BCDE	29.7 ABC	81.9 AB	32.3 ABC	6.1 BC
	FB+5wks	1188 CD	3.9 BCDE	28.9 BC	81.4 AB	33.1 AB	6.5 A
1/100X	FS+2wks	1512 AB	4.2 ABC	29.9 AB	80.6 AB	29.7 CD	6.2 AB
	FB	1609 AB	4.0 ABCD	30.1 AB	81.8 AB	31.6 ABC	6.1 AB
	FB+2wks	1542 AB	4.2 AB	30.0 AB	81.3 AB	31.7 ABC	6.2 AB
	FB+5wks	1628 AB	4.1 ABCD	29.6 ABC	82.2 A	32.5 ABC	6.3 AB
1/50X	FS+2wks	1593 AB	4.4 A	29.5 ABC	81.4 AB	30.1 BCD	6.0 BC
	FB	1645 A	4.0 BCDE	30.8 A	81.9 AB	32.2 ABC	6.2 AB
	FB+2wks	1486 ABC	4.1 ABCD	30.6 AB	81.4 AB	32.2 ABC	6.1 BC
	FB+5wks	1600 AB	4.2 AB	30.5 AB	82.5 A	31.1 ABCD	6.1 BC
1/10X	FS+2wks	1134 D	3.9 BCDE	29.3 ABC	82.2 AB	31.7 ABC	6.3 AB
	FB	1176 D	3.8 CDE	30.5 AB	81.3 AB	31.8 ABC	5.7 C
	FB+2wks	1321 BCD	4.2 AB	30.8 A	82.6 A	32.6 ABC	6.0 BC
	FB+5wks	1490 ABC	3.6 E	30.8 A	81.9 AB	32.0 ABC	6.3 AB
1X	FS+2wks†	22 F	---	---	---	---	---
	FB	147 F	3.9 BCDE	27.7 C	77.7 C	27.9 D	6.0 BC
	FB+2wks	605 E	4.0 ABCDE	28.8 BC	79.7 BC	29.7 CD	6.0 BC
	FB+5wks	1585 AB	3.7 DE	29.9 AB	81.1 AB	30.9 ABCD	6.1 BC

Thank You

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