

IMPACT OF FOLIAR OVERSPRAYS ON DUAL-GENE COTTONS

COTTON INCORPORATED'S
2012 - CROP MANAGEMENT SEMINAR AND WORKSHOPS

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GENERAL BT TECHNOLOGY COMPARISON

Pest	Bollgard (Cry1Ac)	Bollgard II (Cry1Ac + Cry2Ab)	Widestrike (Cry1Ac + Cry1F)	TwinLink (Cry1Ac + Cry2Ae)
	1996	2003	2005	2013
Bollworm	4	2.5	3	2.5
Tobacco Budworm	1	1	1	1
Pink Bollworm	1	1	1	1
Beet Armyworm	2	2	2	2
Fall Armyworm	2.5	2	1	2
Soybean Looper	1	1	1	1
	1 = Complete control	2 = Rarely requires oversprays	3 = Sometimes requires oversprays	4 = Frequently requires oversprays

SPRAYING DUEL GENE COTTON FOR WORMS

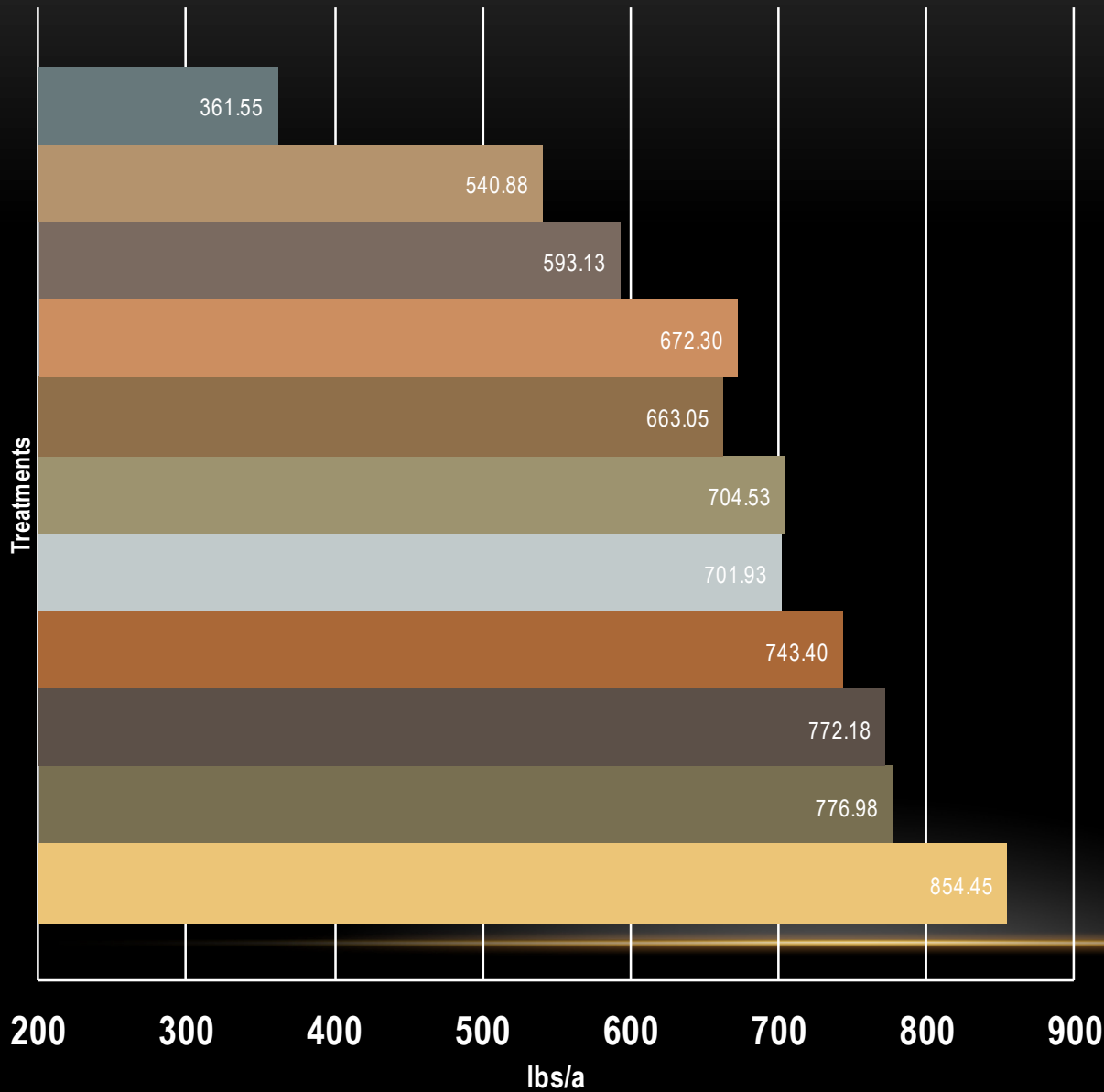


- Current technologies are not bullet proof
- Under what conditions
 - Bt technology in question
 - BGII vs WS
 - Threshold/pressure
- Insecticide choice
 - Efficacy/resistance
 - Other considerations
 - Other pests
 - Yield enhancement

MID-SOUTH THRESHOLDS

	Non-Bt	Bt
Louisiana	5 worms per 100 plants plus eggs present	Treat when 2-3% live larvae in fruit or when 10% plant terminals infested
Mississippi	(small larvae) Before bloom and cutout: 8 larvae/100 plants, After bloom: 4 larvae per 100 plants	(at least 1/8 inch long larvae) Before bloom: 8 larvae/100 plants or 5% damaged fruit, After bloom: 4 larvae per 100 plants or 2% damaged bolls and larvae are present
Tennessee	Before bloom and cutout: 8 small larvae/100 plants or square retention of < 80%, After bloom: 4 small larvae per 100 plants or 5% damaged squares	(at least 1/8 inch long larvae) Before bloom: 8 larvae/100 plants or 5% damaged fruit, After bloom: 4 larvae per 100 plants or 2% damaged bolls and larvae are present
Arkansas	1 larvae (< 0.25 inch) per 2 row ft, or 1 per 4 row ft for larger larvae, or 1 damaged square per row ft plus eggs and small larvae, time to egg hatch	1 per 4 row ft larvae (\geq 0.25 inch)

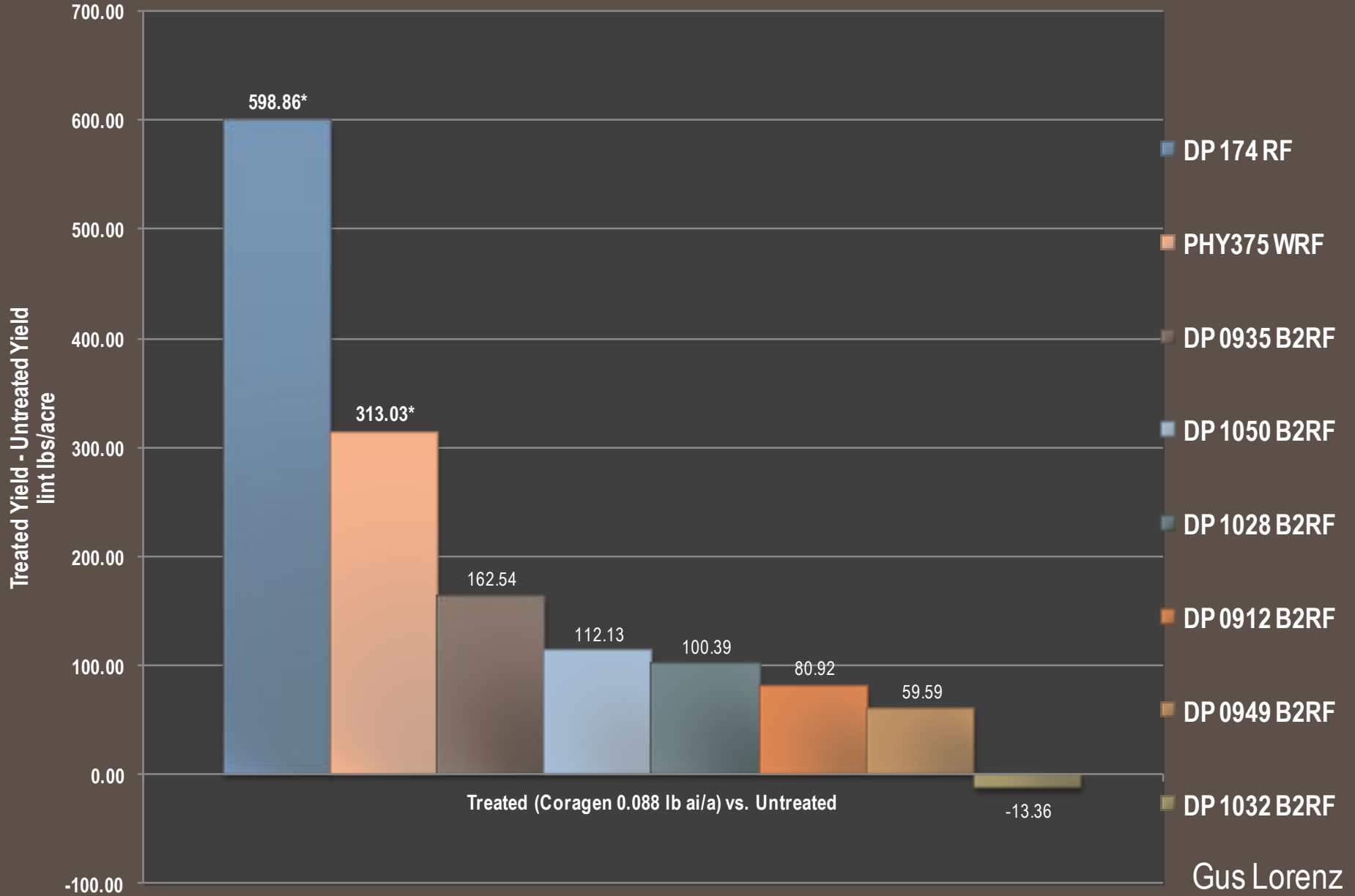
Yield Increase Compared to UTC Conventional Cotton, 2011



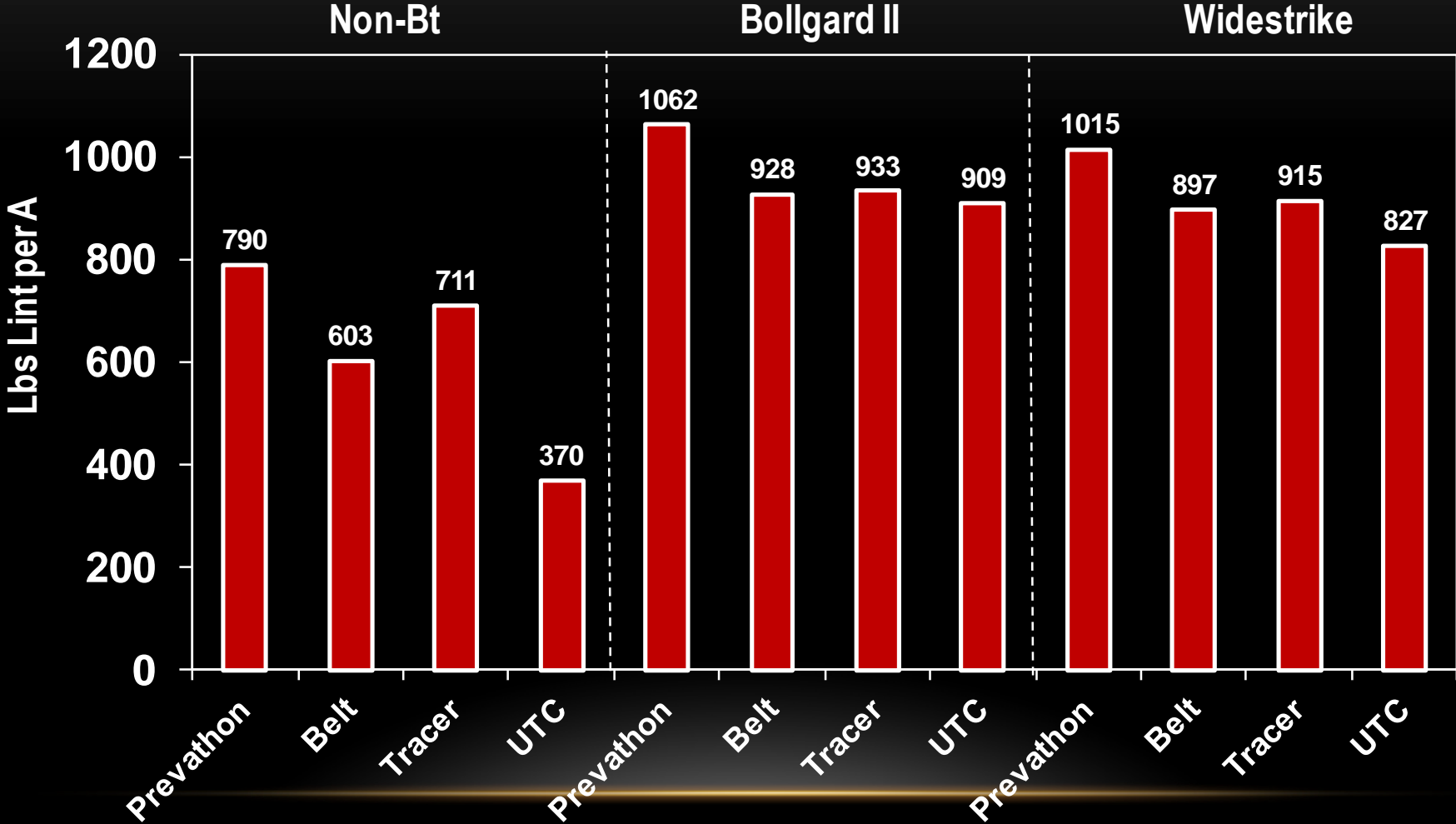
- Cobalt Adv 25 fl oz/a
- HGW86 6.75 oz/a
- HGW86 13.5 oz/a
- HGW86 10.1 oz/a
- Brigade 6.4 fl oz/a
- Belt 2 fl oz/a
- Belt 1.5 fl oz/a + Brigade 6.4 fl oz/a
- Beseige 9 fl oz/a
- Belt 3 fl oz/a
- Beseige 12.5 fl oz/a
- Prevathon 20 oz/a

DUAL-GENE COTTON OVER SPRAYS
HIGH BOLLWORM PRESSURE

High Pressure 2010 Yield Difference Comparison Treated (Coragen 0.088lb ai/a) vs. Untreated



MID-SOUTH BT OVERSPRAY – YIELD

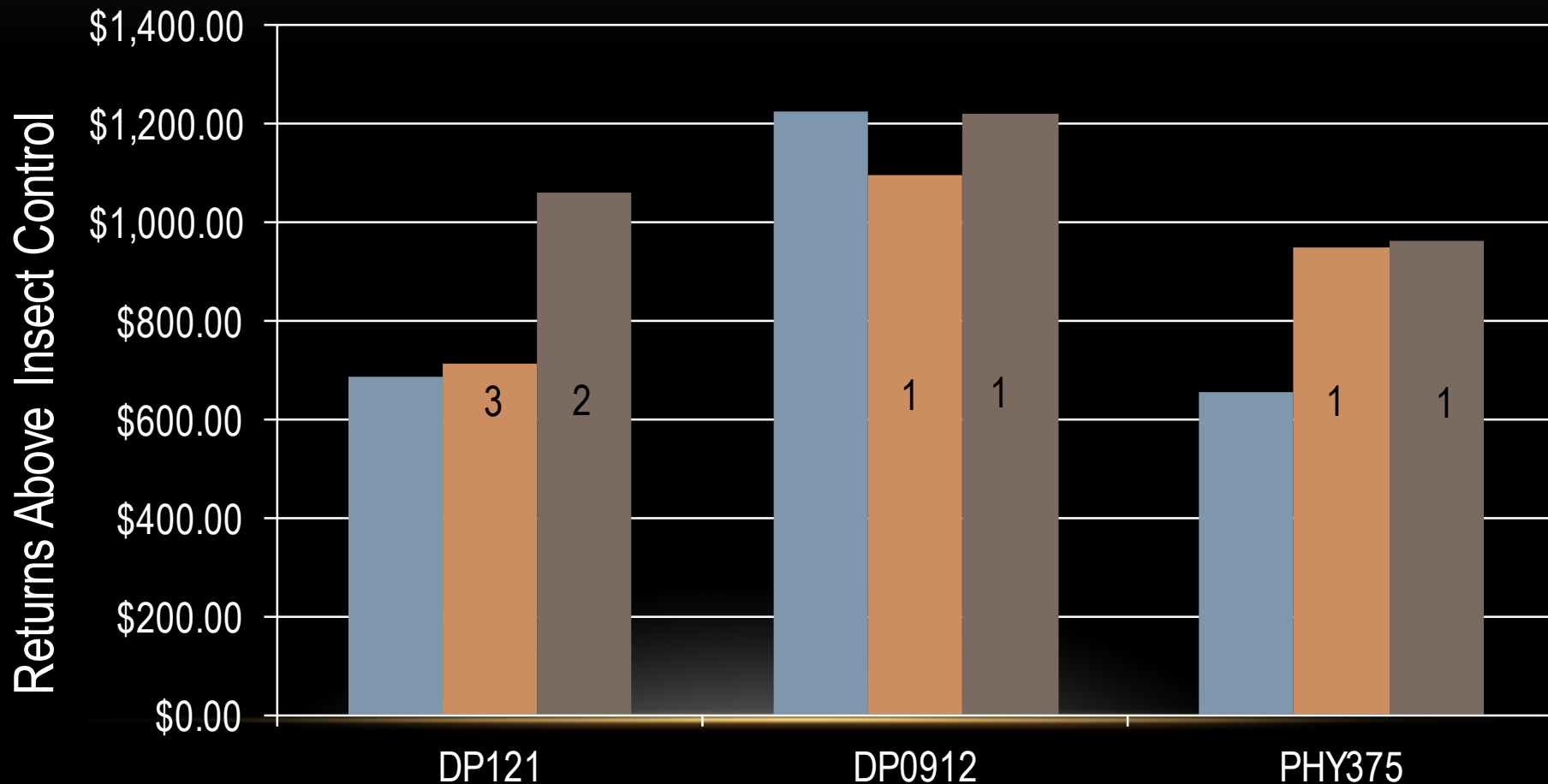


Off-Station Value-Added Trait Study – Tchula

Insecticide Applications Triggered on Larval Thresholds Individually

2012

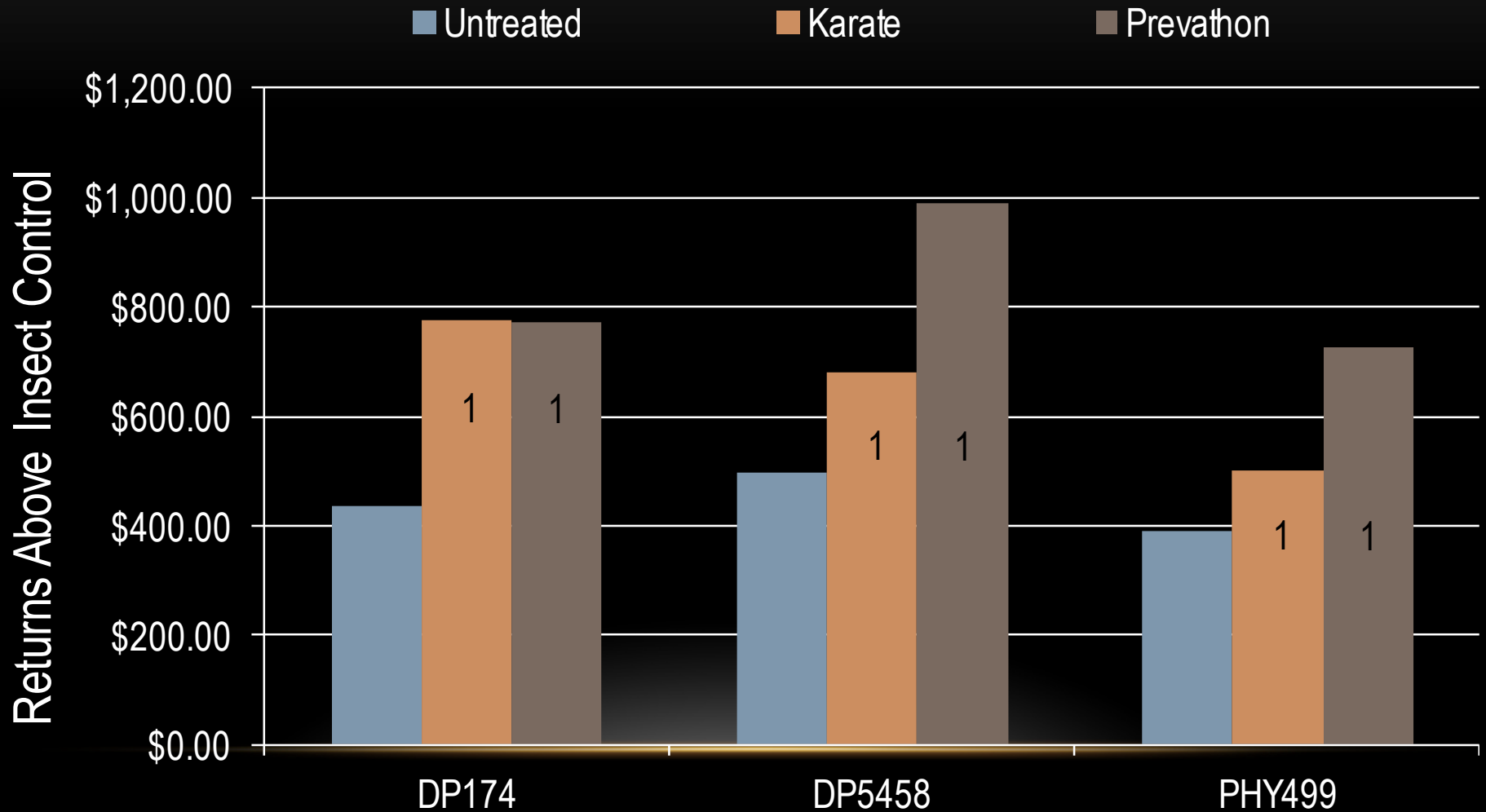
■ Untreated ■ Karate ■ Prevathon



Off-Station Value-Added Trait Study – Twin Bayou

Insecticide Applications Triggered on Larval Thresholds Individually

2012

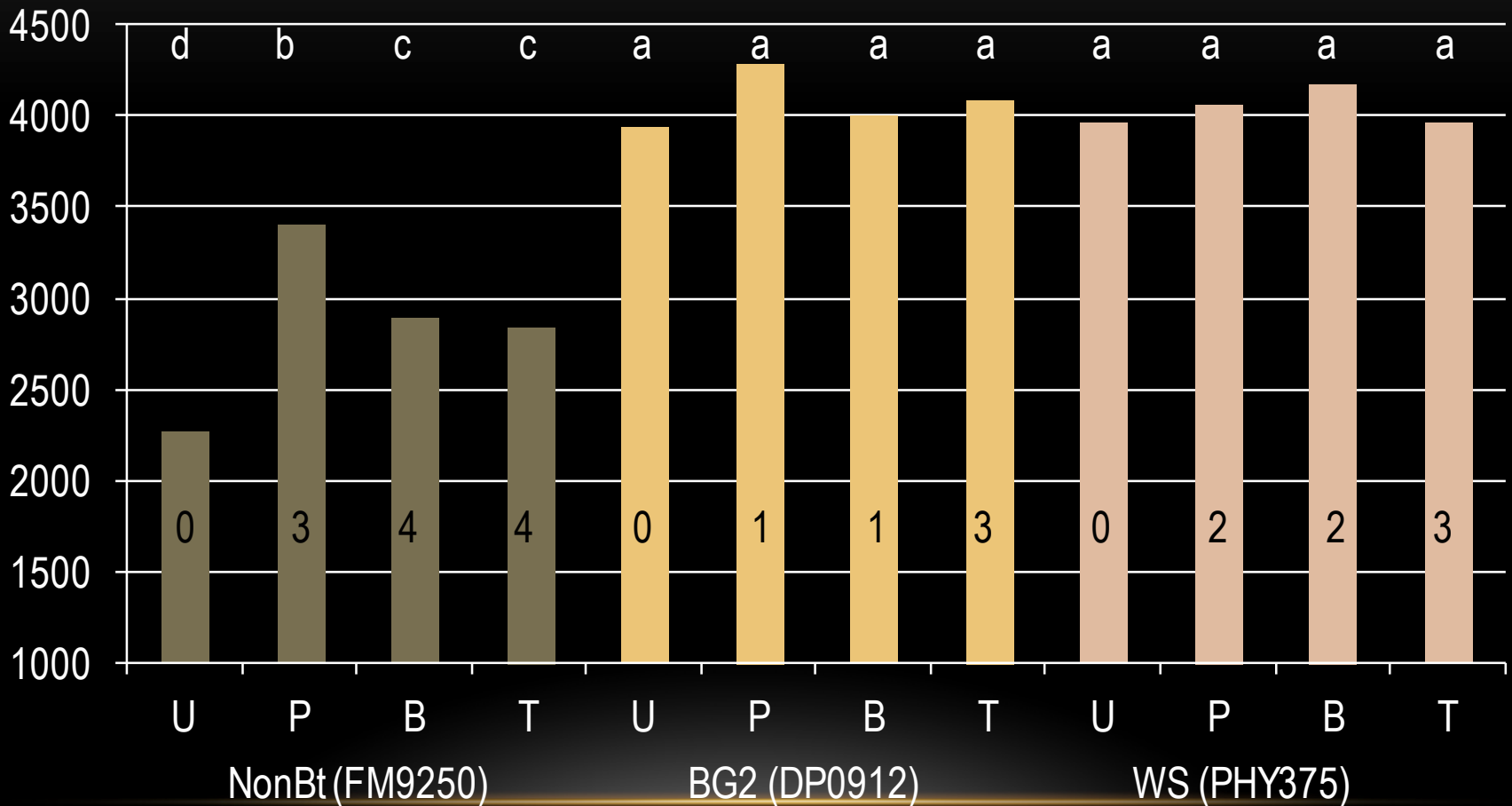


DUAL-GENE COTTON OVER SPRAYS

MODERATE BOLLWORM PRESSURE

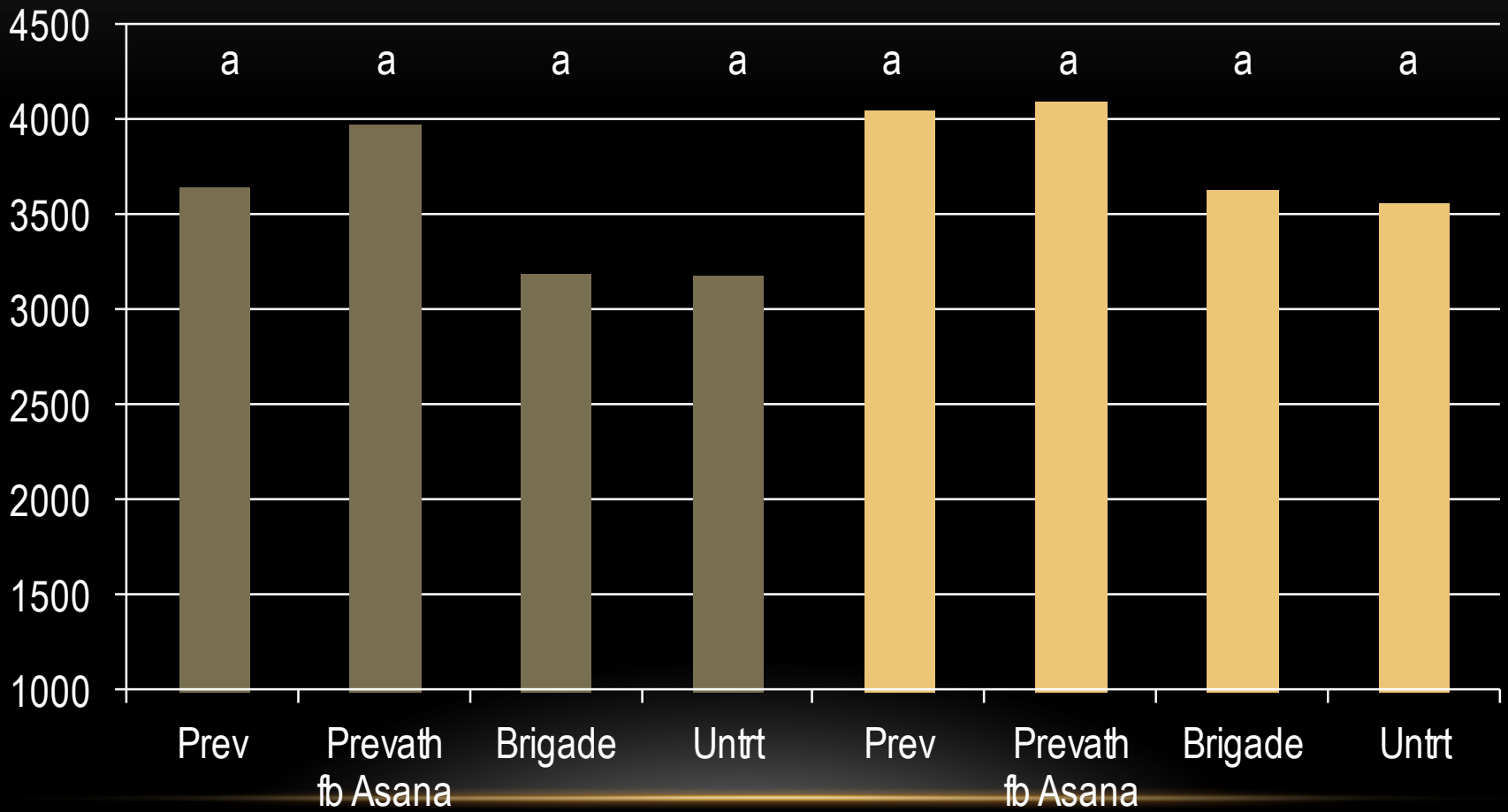
TECHNOLOGY X FOLIAR INSECTICIDE TRIAL 1 (2012)

Seed Cotton Yield (moderate pressure)



TECHNOLOGY X FOLIAR INSECTICIDE TRIAL 2 (2012)

Seed Cotton Yield (moderate pressure)



WS (PHY375)

BG2 (DP0912)

Scott Stewart

DOES PREVATHON PROMOTE YIELD VIA
SUPERIOR WORM CONTROL, OR THROUGH
SOME OTHER FACTOR?

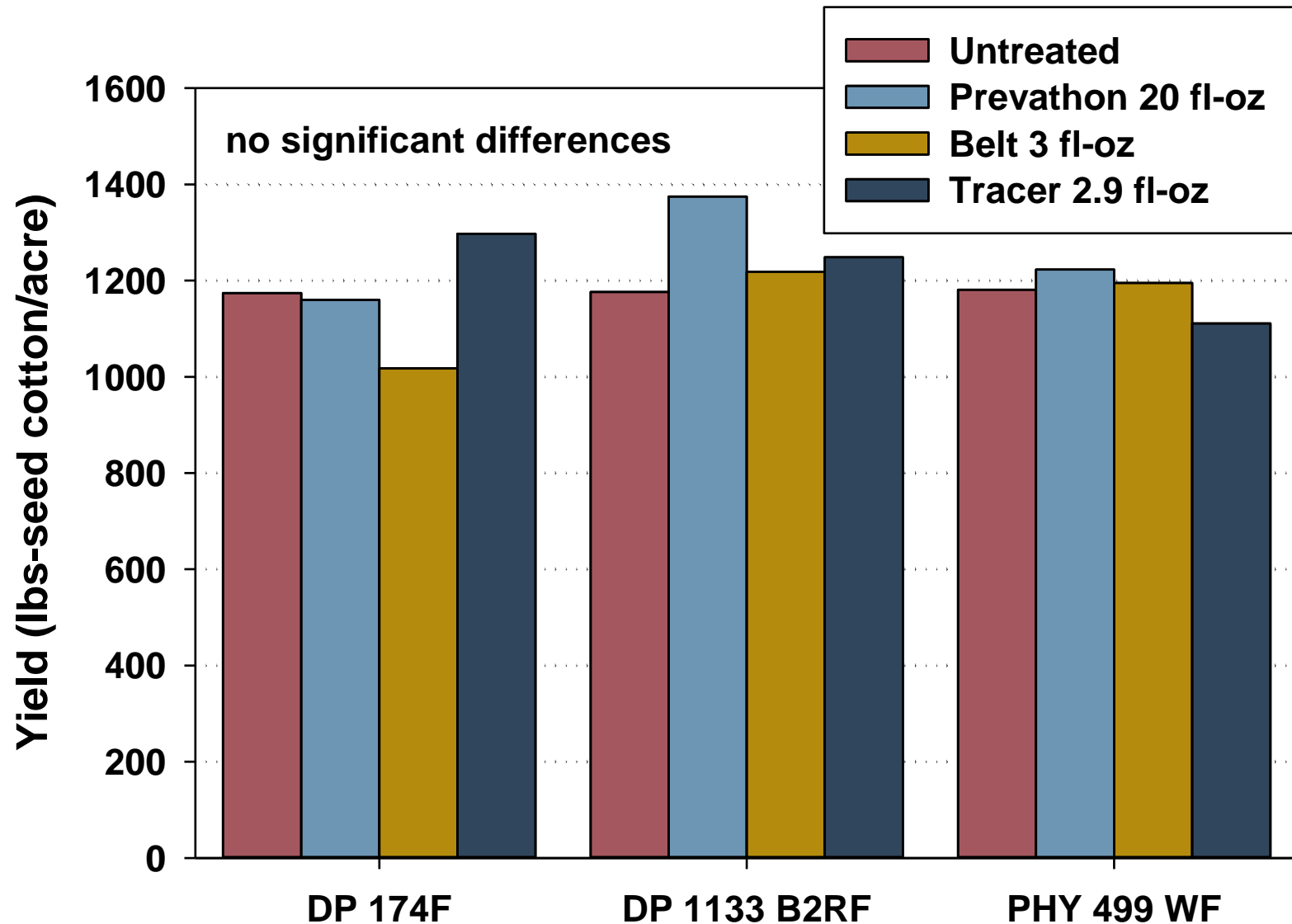


DUAL-GENE COTTON OVER SPRAYS

LOW BOLLWORM PRESSURE

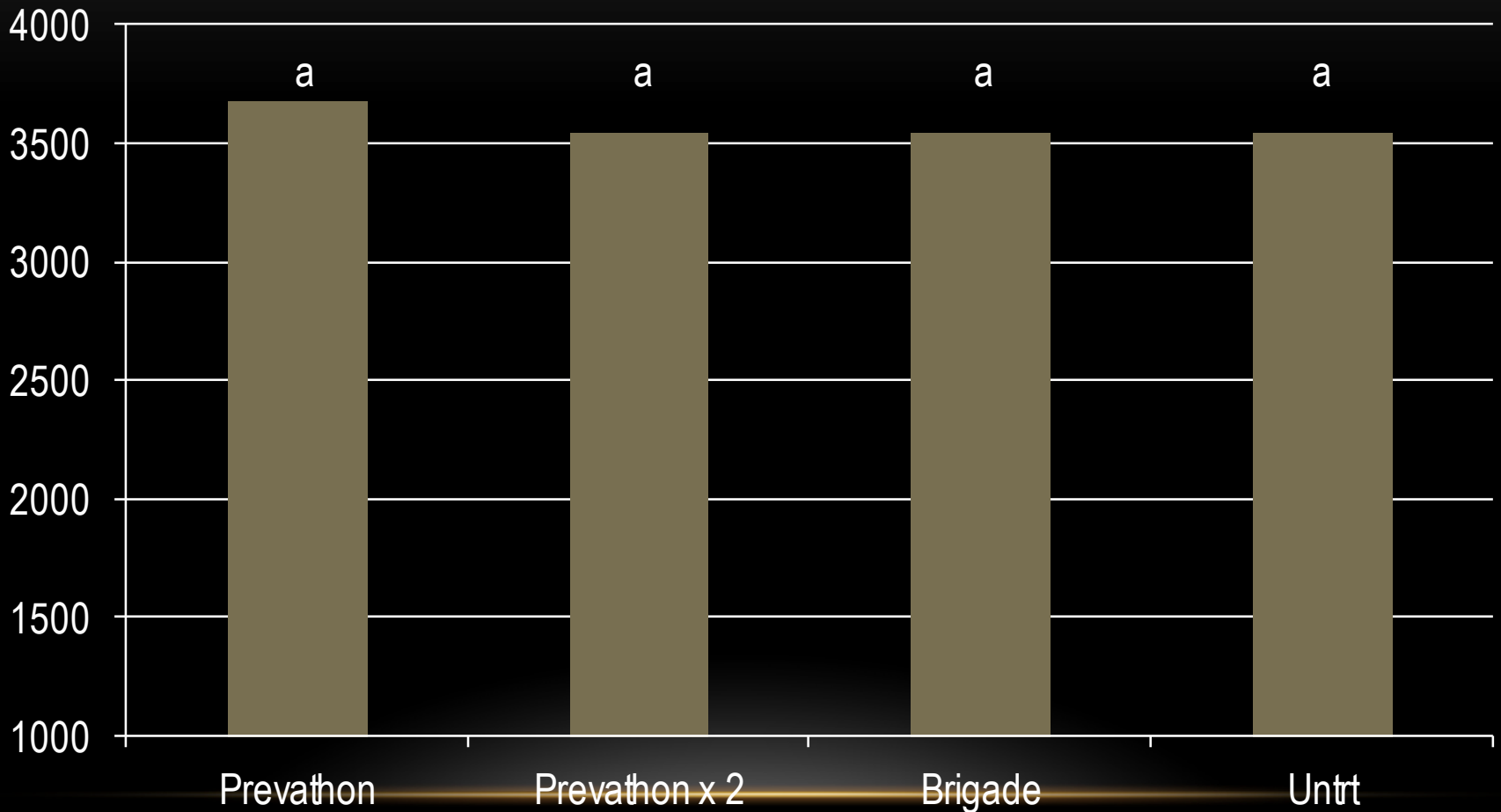
TECHNOLOGY X INSECTICIDE OVERSPRAY

LOW BOLLWORM PRESSURE – WINNSBORO, LA



TECHNOLOGY X FOLIAR INSECTICIDE TRIAL 3 (2012)

Seed Cotton Yield (light pressure and oversprayed leps)



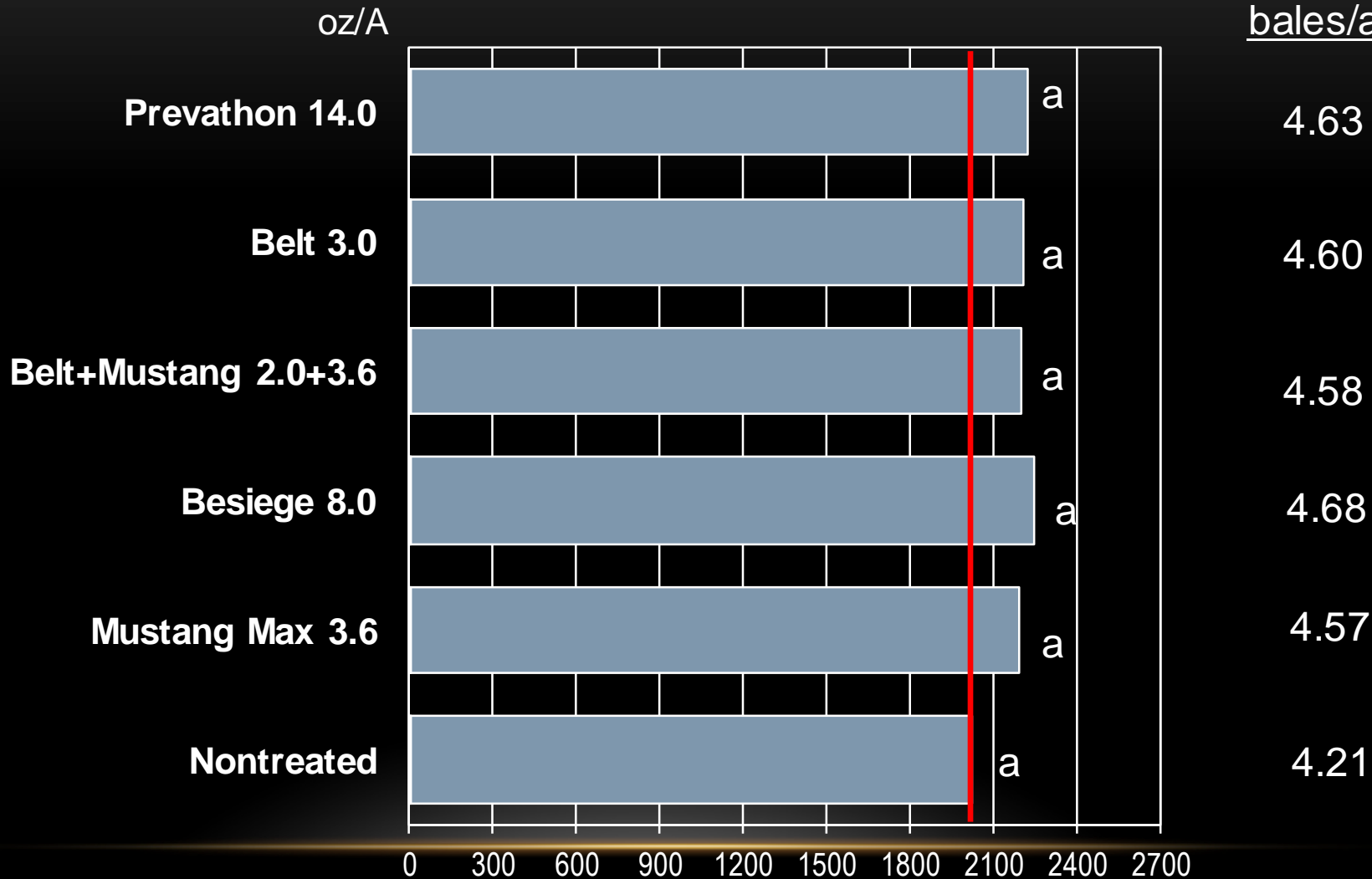


Bt Cotton Overspray Test
4.545 bales/acre avg.
2012

Insecticide Overspray of PHY367 WRF

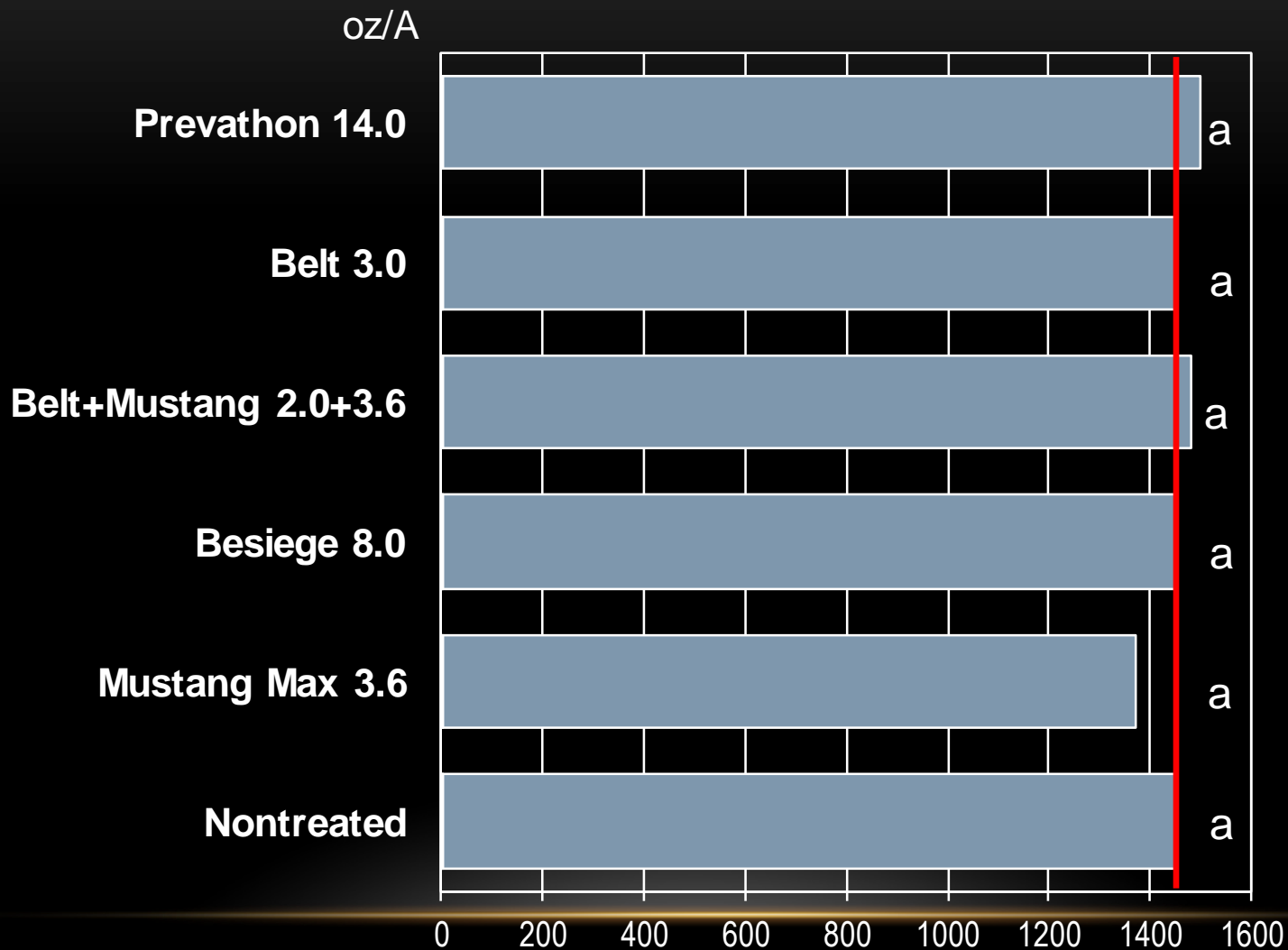
Yield lb lint/acre

480 lb
bales/a

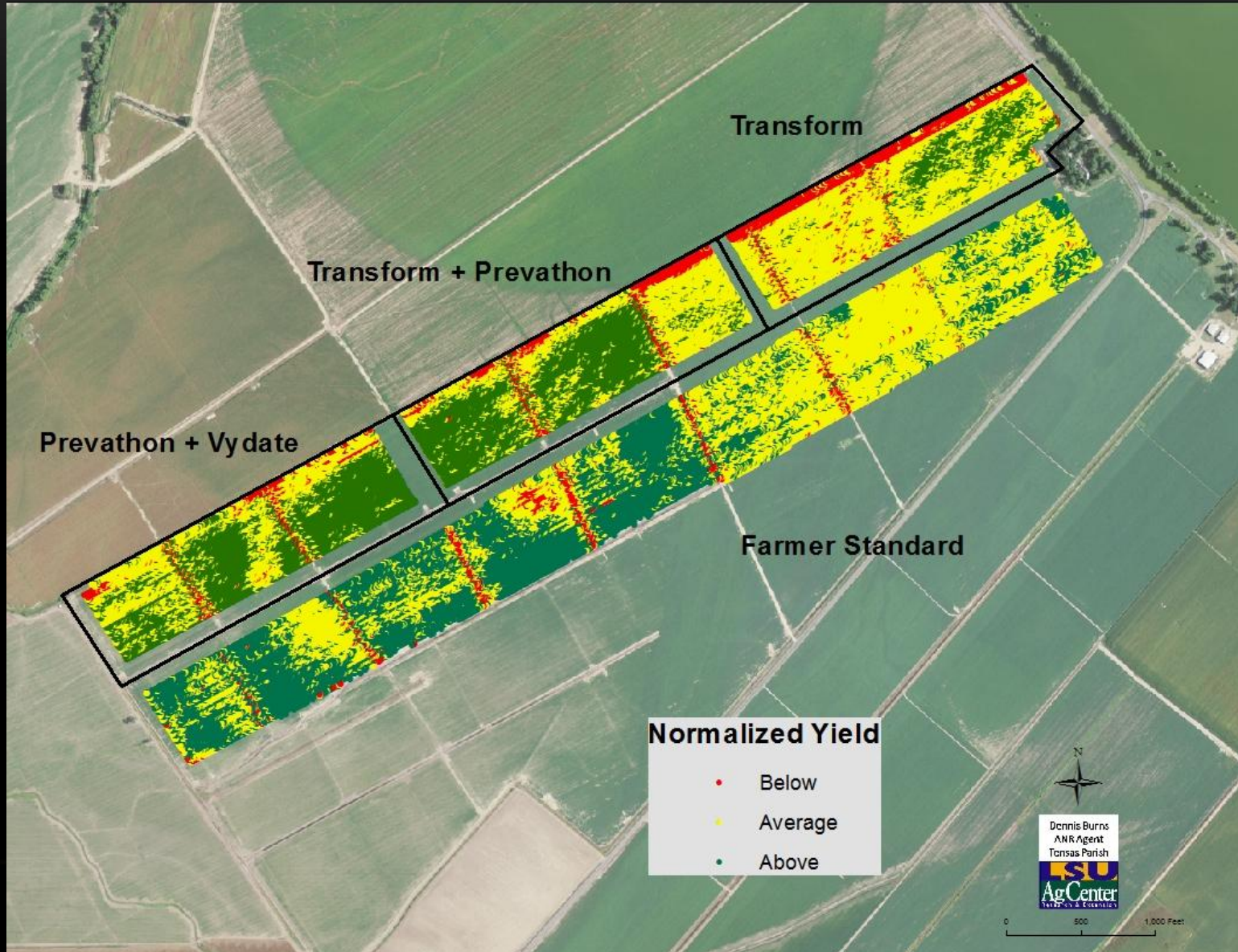


Insecticide Overspray of DP 1044 B2RF

Yield lb lint/acre



PERCEPTIONS OF INCREASED YIELD



SUMMARY

- The benefit of overspraying dual-gene Bt cotton for bollworms is dependent on the technology in question and the level of bollworm pressure
 - Bollgard II is more efficacious towards bollworms than Widestrike
 - Varietal differences also occur
 - Both Bollgard II and Widestrike can benefit from insecticide oversprays targeting bollworms when bollworm pressure is high
- Need research into adjusting action thresholds on dual gene cotton
 - Should we be basing worm sprays in Bt cotton on egg lays?
- Does Prevathon enhance cotton yield in the absence of bollworm pressure?
 - The current body of data suggests that it does not; that increases in yield appear to be due to insect control