



Managing Glyphosate Resistant Palmer Amaranth With Residual Herbicides

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The Objective of this Study was to Determine The Most Effective Residual Herbicides for Use in Cotton

1. At planting
2. Postemergence
3. Layby



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Locations

- Two NC locations and the GA location in 2006 received rainfall within 5 days of application.
- Data for three locations with timely rainfall combined.
- GA location in 2007 received rainfall 17 d after application.
- GA location in 2007 reported separately.

Methods

- Plot Size – 6 feet by 22-25 feet
- Conventional Tillage
- All herbicides applied to soil without debris
- All residual herbicides were applied PRE



Methods

- Factorial Treatment Arrangement

13 residual herbicides

1 and 1.5 X rates for Southeastern soils



Herbicide Treatments and 1X Rates

- Caparol (2 pt)
- Cotoran (2 pt)
- Direx (2 pt)
- Dual Magnum (1 pt)
- Envoke (0.1 oz)
- Layby Pro (2 pt)
- Linex (2 pt)
- Prowl H2O (2 pt)
- Reflex (1 pt)
- Stalwart (1 pt)
- Staple LX (1.7 oz)
- Suprend (1.0 lb)
- Valor SX (1.5 oz)

All treatments were applied at 1X and 1.5X rates

Percent Palmer Control Averaged Over Herbicide Treatments, 21 DAT.

| Rate | GA/NC |
|-------|-------|
| 1 X | 74 |
| 1.5 X | 81 |
| LSD | 3 |



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Percent Palmer Control Averaged Over Herbicide Treatments, 35 DAT.

| Rate | GA/NC |
|-------|-------|
| 1 X | 53 |
| 1.5 X | 62 |
| LSD | 5 |



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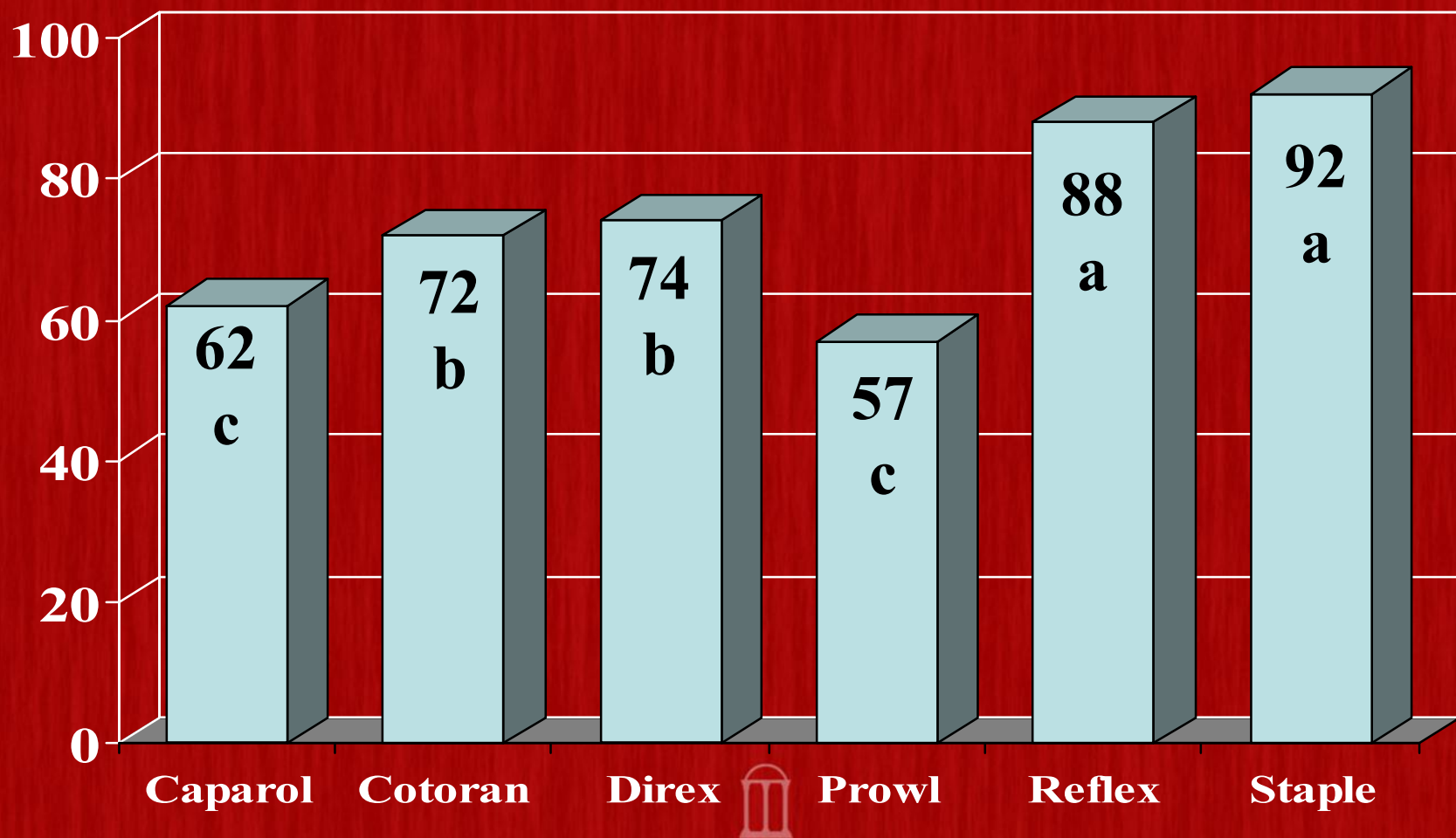
Herbicide Options

At-Planting

- Caparol
- Cotoran
- Direx
- Prowl H₂O
- Reflex
- Staple

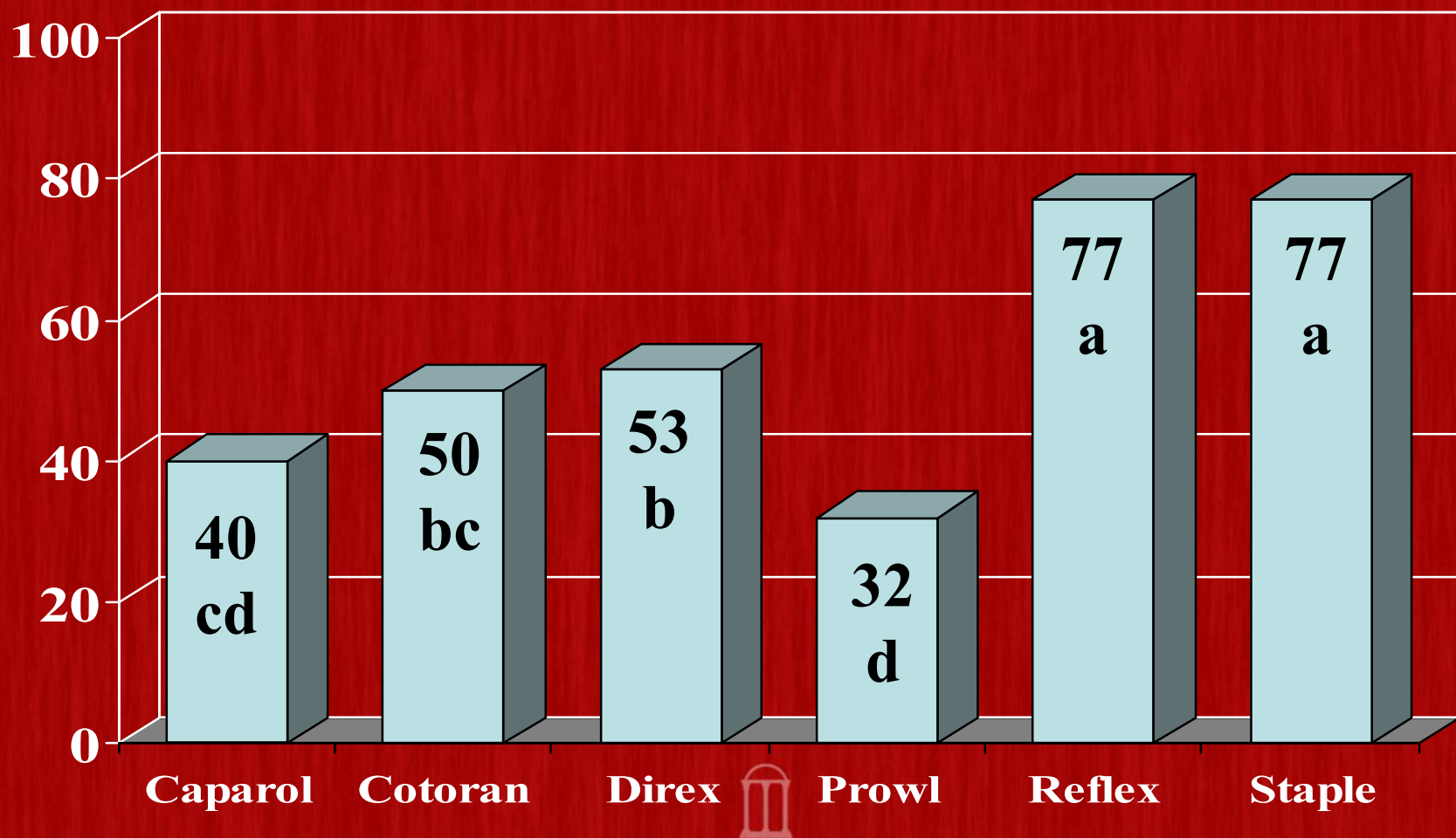


Percent Palmer Control by PRE Residual Herbicides. 21 DAT.*



*Data pooled over two rates and three locations.

Percent Palmer Control by PRE Residual Herbicides. 35 DAT.*



*Data pooled over two rates and three locations.

Non-treated

GA



Reflex



Staple



GA

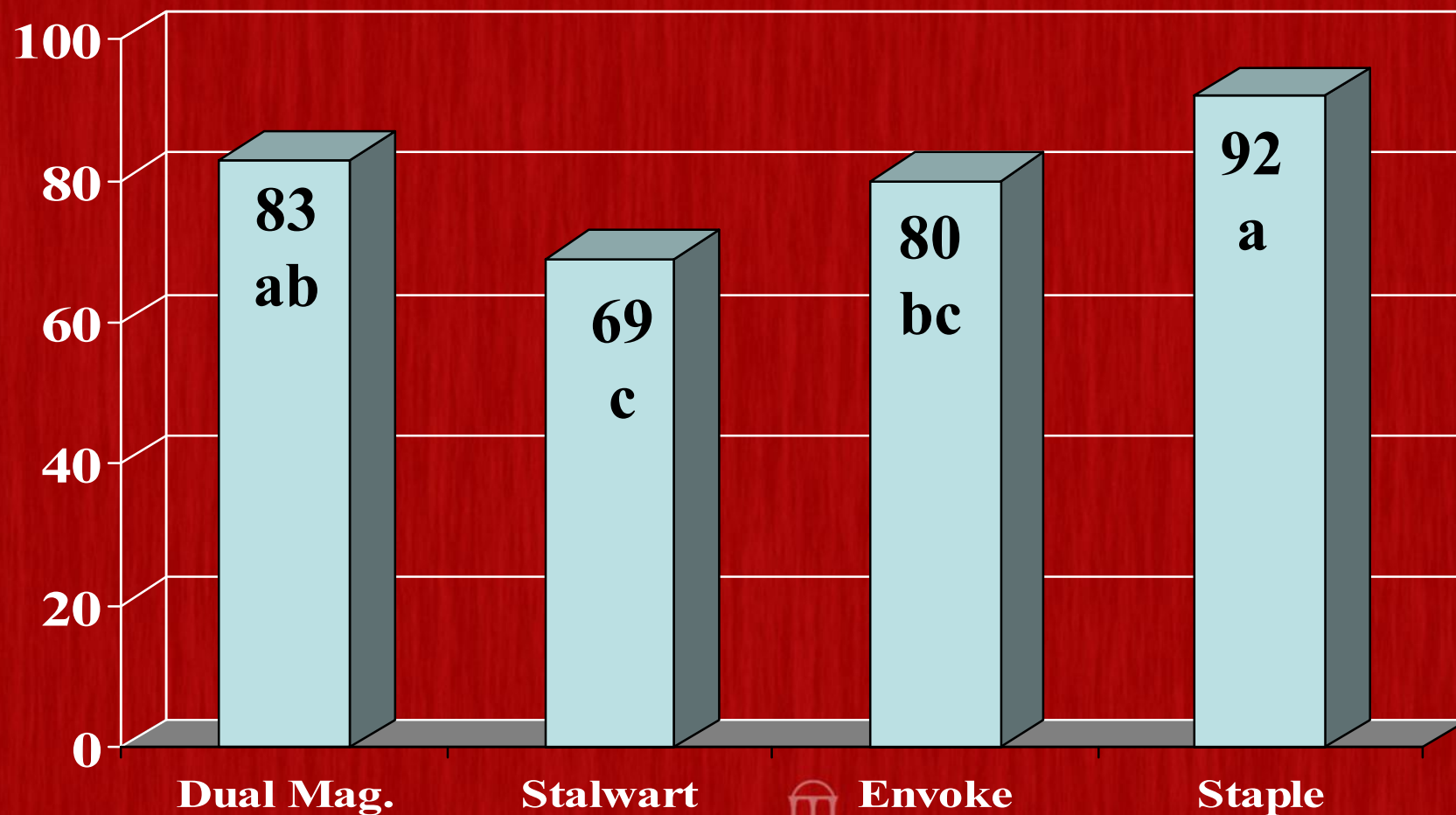
Herbicide Options

Postemergence

- Dual Magnum
- Envoke
- Stalwart
- Staple

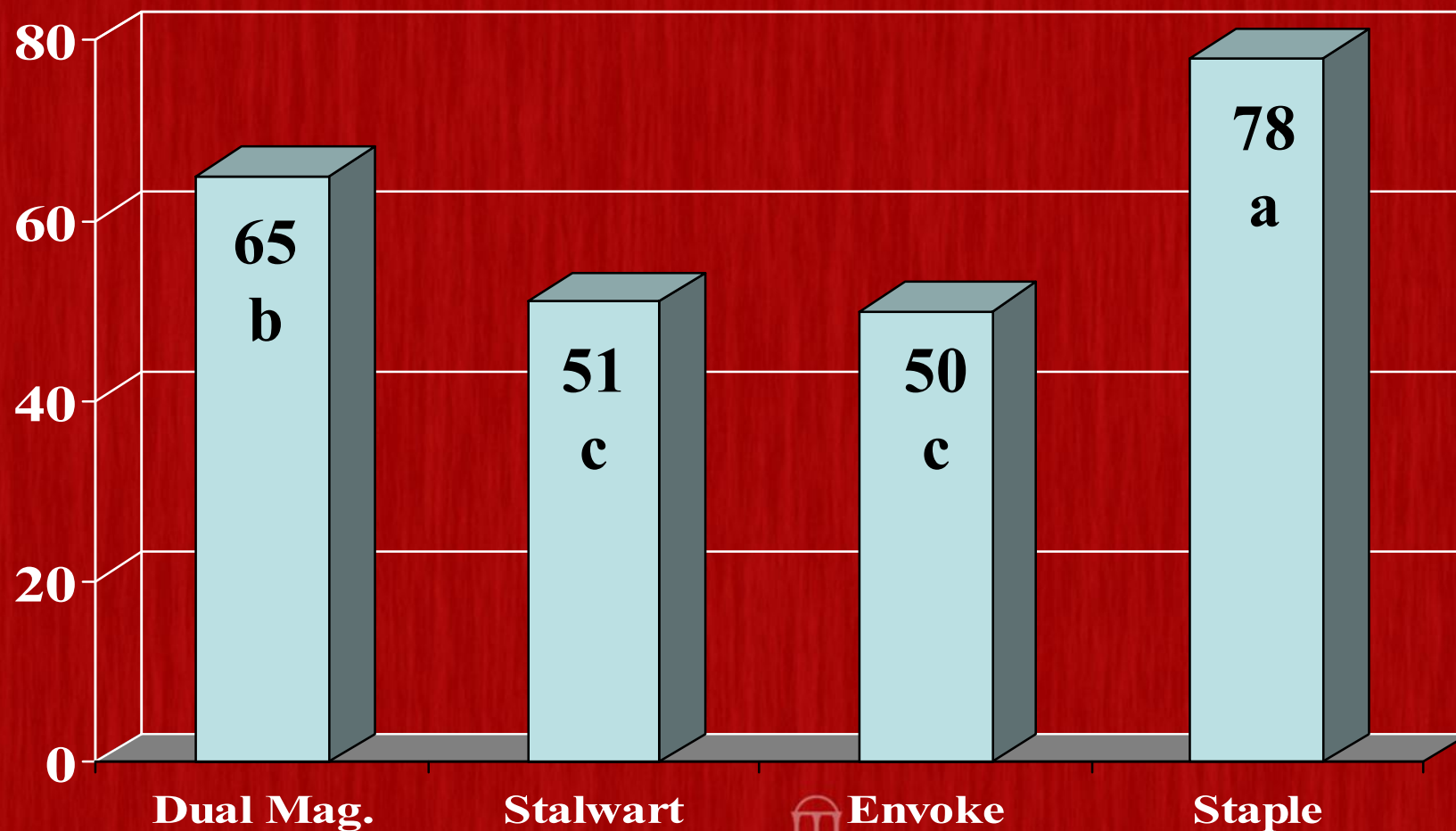


Percent Palmer Amaranth Control by POST Residual Herbicides. 21 DAT.*



*Data pooled over two rates and three locations.

Percent Palmer Amaranth Control by POST Residual Herbicides. 35 DAT.*



*Data pooled over two rates and three locations.

Stalwart



Dual Mag.



GA

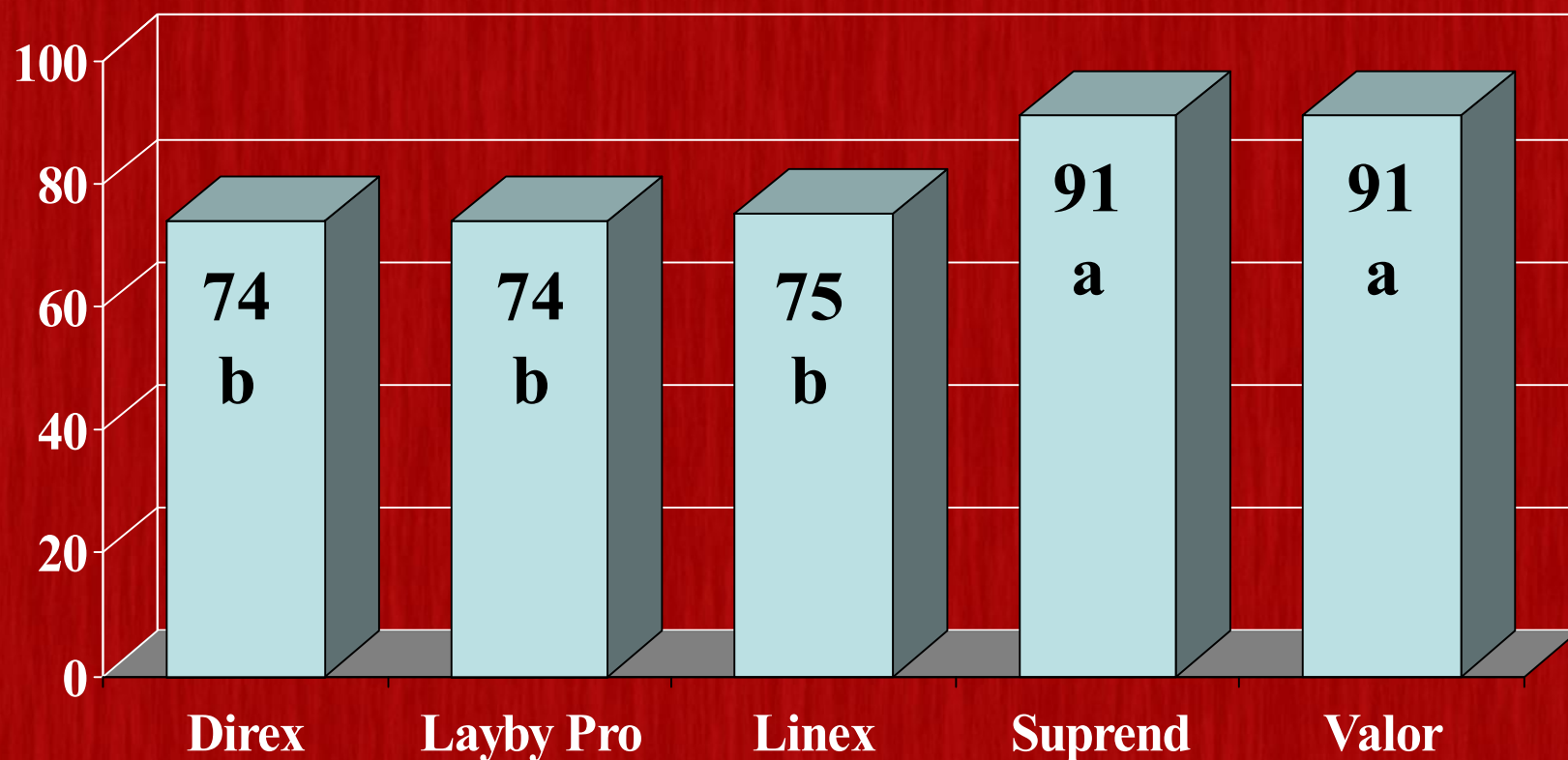
Herbicide Options

Layby

- Direx
- Linex
- Layby Pro
- Suprend
- Valor



Percent Palmer Amaranth Control by Layby Residual Herbicides. 21 DAT.*

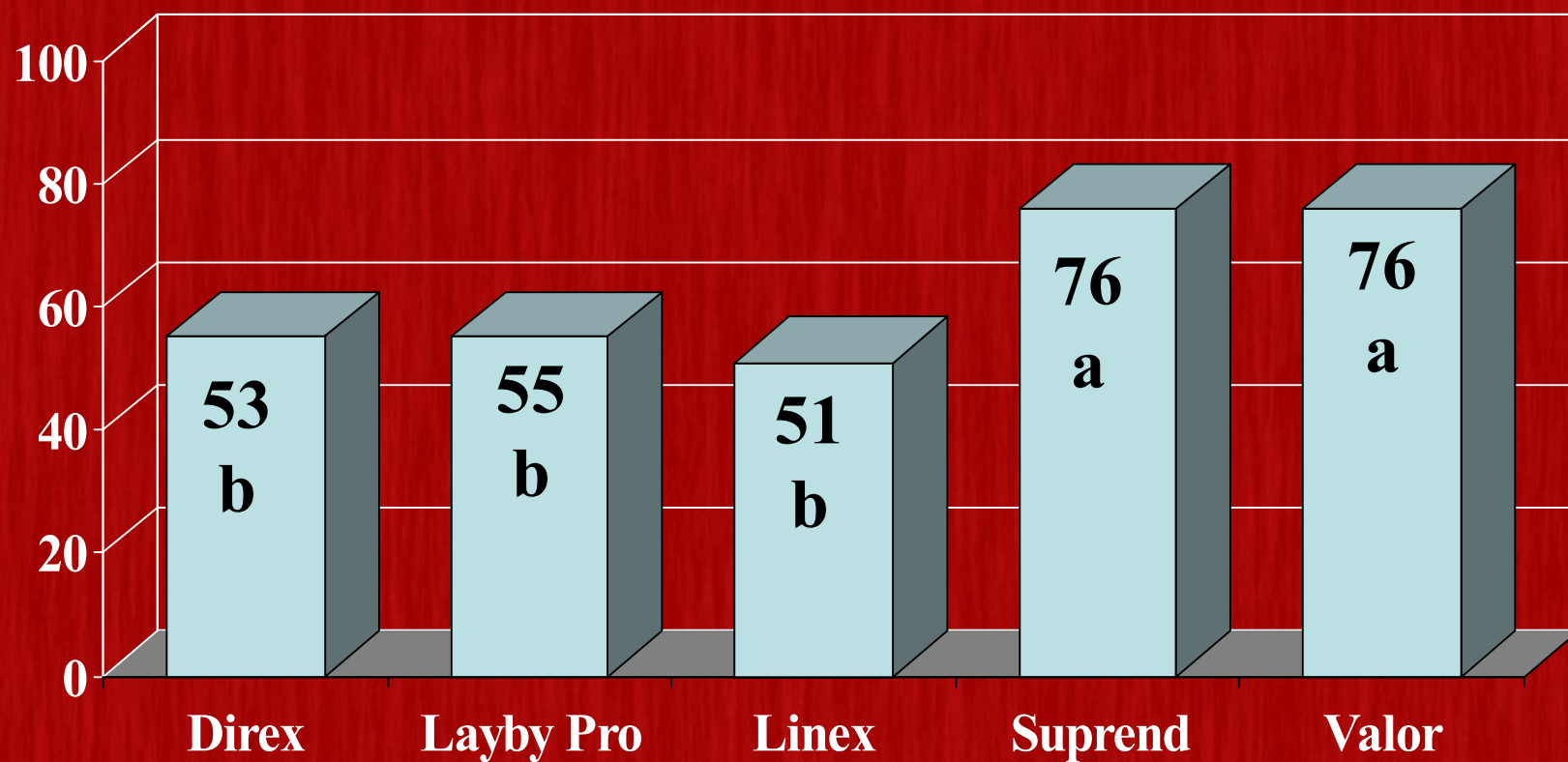


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Percent Palmer Amaranth Control by Layby Residual Herbicides. 35 DAT.*



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*Data pooled over two rates and three locations.

Valor



Direx



GA

“What If It Does Not Rain For 17 Days After Application of My Residual Herbicides?”

Initial flush was controlled with Ignite at 17 d after application of residual herbicides. The data reported is control of Palmer Amaranth after the first activating rainfall.



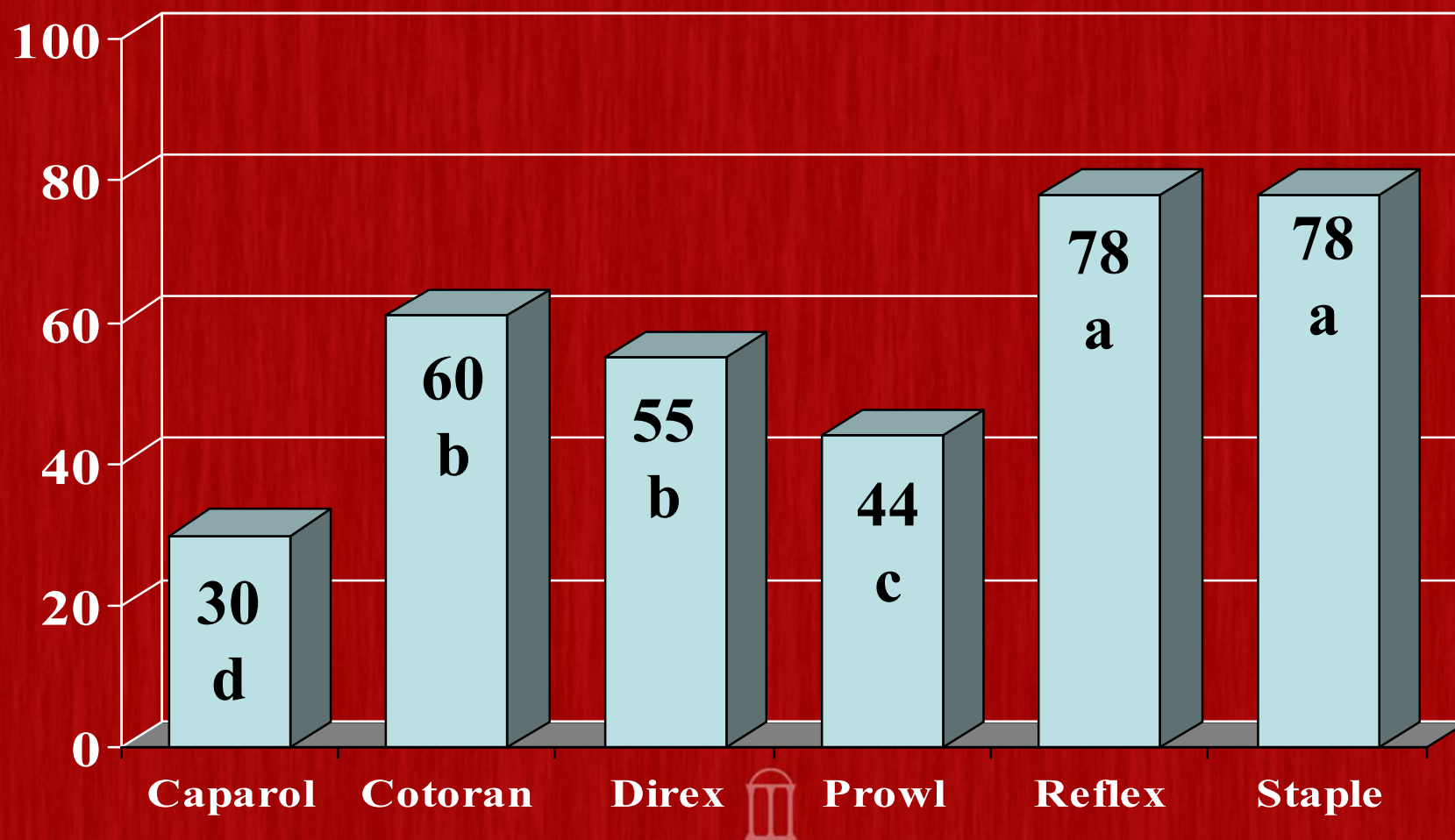
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Percent Palmer Control, 27 d After Activation. Rainfall Activated Herbicides 17 DAT.

| Rate | GA |
|-------|----|
| 1 X | 53 |
| 1.5 X | 65 |
| LSD | 4 |

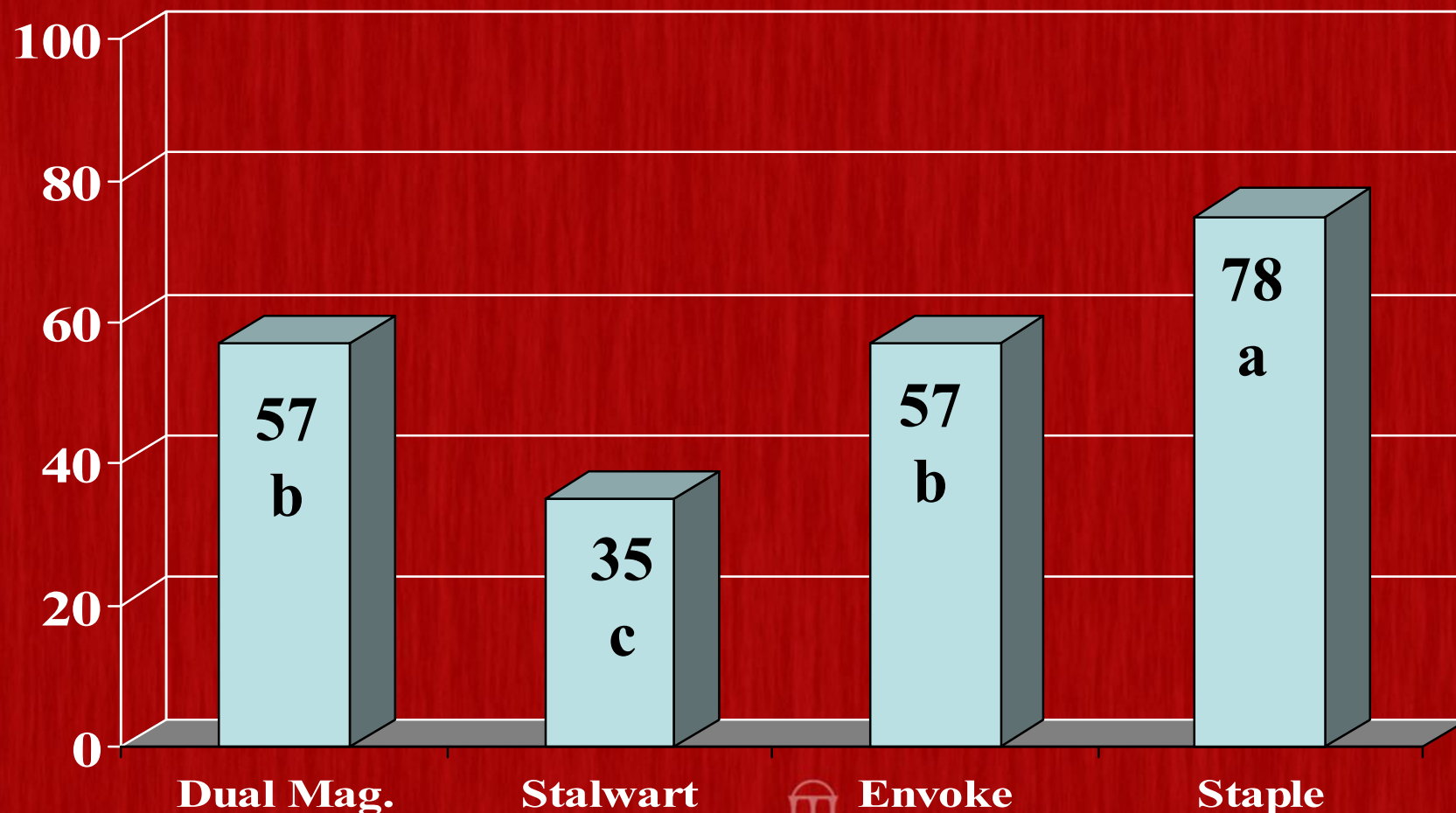


Percent Palmer Control, 27 d After Activation. Rainfall Activated Herbicides 17 DAT.



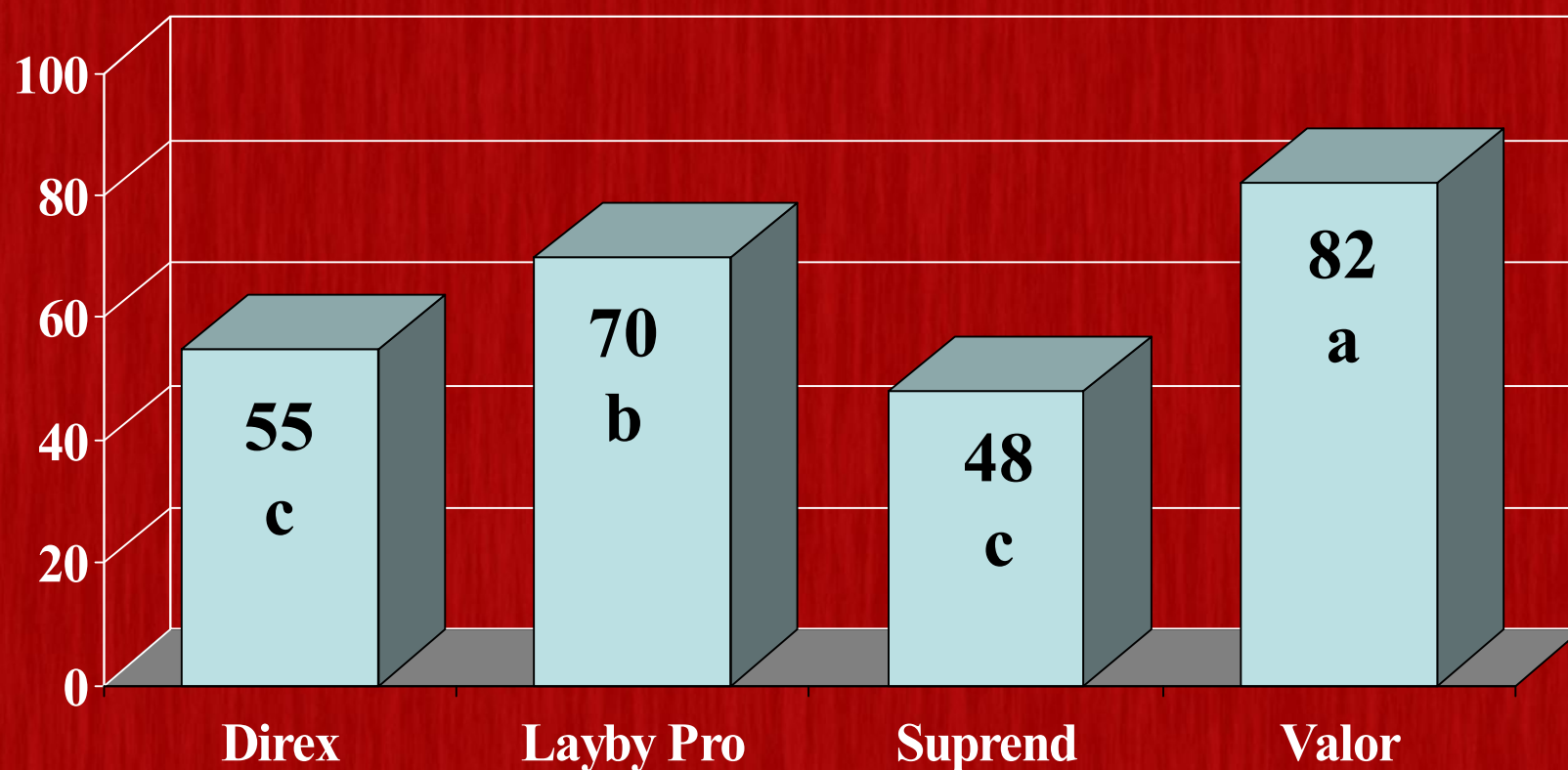
*Data pooled over two rates.

Percent Palmer Control, 27 d After Activation. Rainfall Activated Herbicides 17 DAT.



*Data pooled over two rates.

Percent Palmer Control, 27 d After Activation. Rainfall Activated Herbicides 17 DAT.



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*Data pooled over two rates.

Control of 2nd flush; Palmer emerged 25 DAT



No herbicide

Control of 2nd flush; Palmer emerged 25 DAT



Prowl H2O 2 pt/A PRE

Control of 2nd flush; Palmer emerged 25 DAT



Reflex 1 pt/A PRE

Control of 2nd flush; Palmer emerged 25 DAT



Conclusions

- At-Planting Options -- Reflex or Staple
- Topical Options -- Staple or Dual Magnum
- Layby Directed Options -- Suprend or Valor



Conclusions

- Caution with Staple and Suprend due to growing cases of ALS inhibitor resistance.
- One ALS (Staple, Envoke, Suprend) herbicide application per year.
- One PPO (Reflex and Valor) herbicide application per year.



Special Thanks To
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