

Winegrape Weed Control



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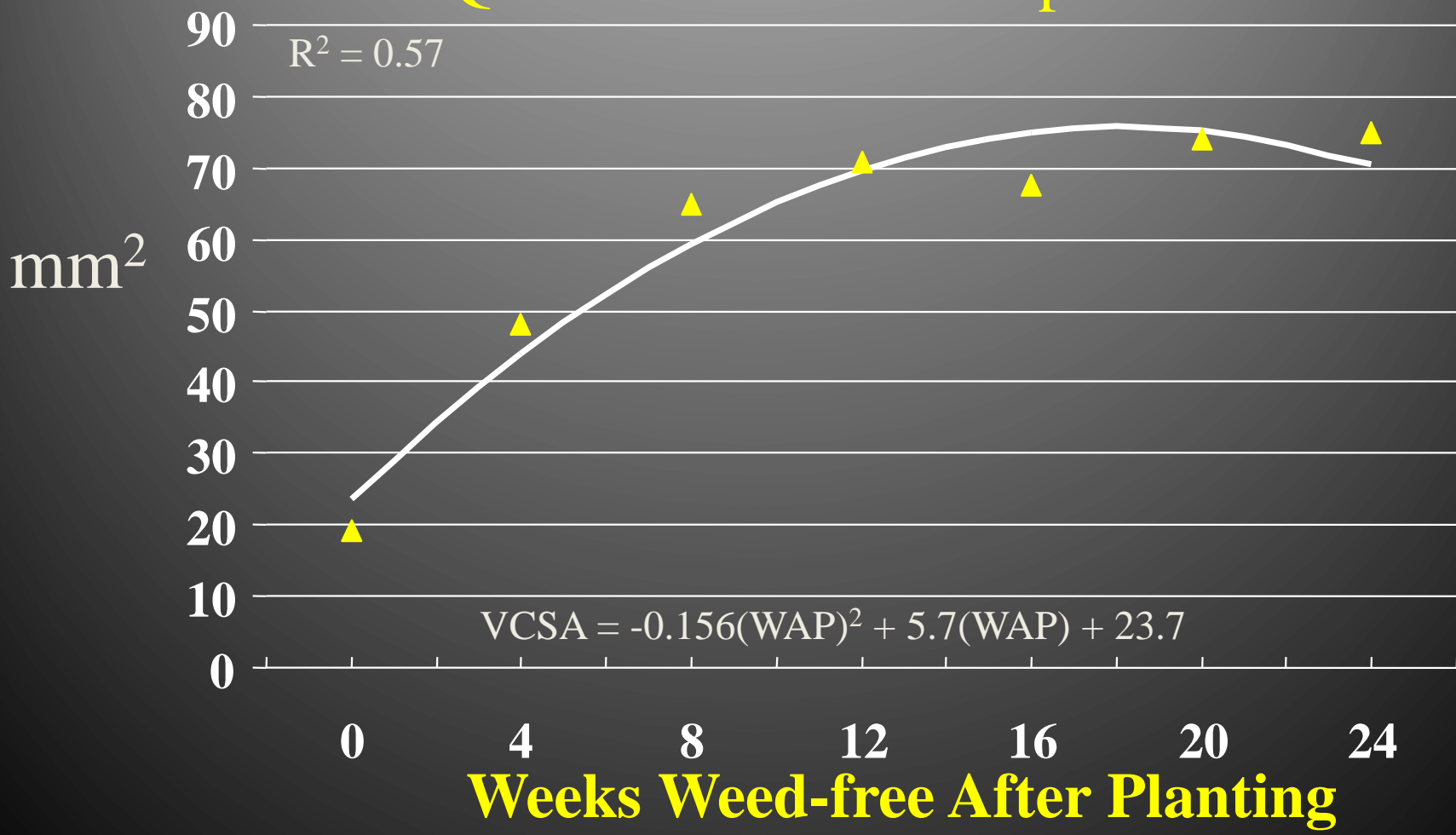
Dept. of Horticultural Science

N.C. State University



VCSA

Quadratic Relationship





0 WWF



4 WWF



8 WWF



12 WWF

Herbicide Options for Newly Planted Vineyards



- PRE
 - Chateau*
 - Oryzalin
 - Prowl H₂O
- POST
 - Glufosinate*
 - Paraquat*
 - Glyphosate*
 - Clethodim (Select)
 - Poast
 - Fusilade

*Grow tubes required

Chateau or Tuscany

flumioxazin



- 6 to 12 oz/A
- **Use hooded application equipment when applied after flowering**
- Do not tank mix with glyphosate after bud break
- 60 day PHI
- PRE and POST activity
- Broad spectrum – No activity on nutsedge



Weed Response to Chateau August 1st

| Herbicide Treatment* | Palmer Amaranth Control | Morningglory Control | Large Crabgrass Control | % Bare Ground |
|------------------------------------|-------------------------|----------------------|-------------------------|---------------|
| Chateau 6 oz Fb Chateau 6 oz | 100 a | 95 a | 98 a | 88 ab |
| Chateau 8 oz Fb Chateau 8 oz | 100 a | 98 a | 100 a | 94 a |
| Nontreated | - | - | - | 3 c |

*March 29th and June 13th were the two application dates. Gramoxone and X-77 were included at each application time for POST weed control.

Surflan or Oryzalin

oryzalin

- 2 to 6 qt/A
 - Sequential applications
 - 2.5 months between application
 - Cannot exceed 12 qt/A in 12 month period
- PRE tank mix partners
 - Simazine
 - Rimsulfuron
 - Zeus Prime XC
- Extend residual control of annual grasses
- Orange label or Green label?

Zeus Prime XC

Sulfentrazone + Carfentrazone



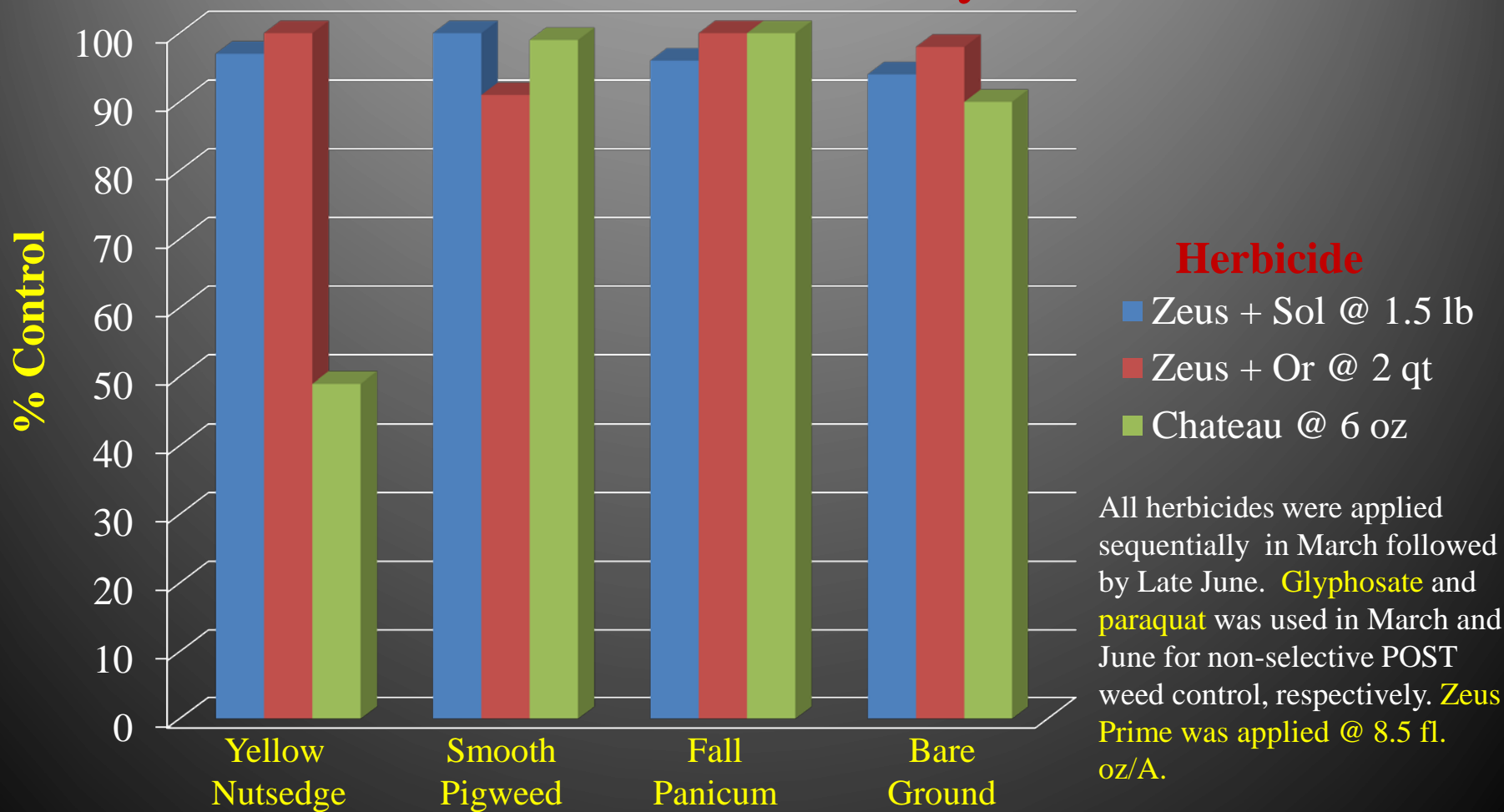
- 8 to 15 fl. oz/A
- Use on vines established more than 2 growing seasons
- DO NOT tank mix with Chateau
- After bud break apply with shielded application equipment
- 3 day PHI
- 60 days between sequential applications
- Yellow nutsedge, Crabgrass, Goosegrass, Groundsel, Pigweed, Lambsquarters, Mallow, Morningglory, Nightshade, Prickly Lettuce, Filaree, Sowthistle

Weed Control Programs with Zeus Prime XC

- Tank mix with Oryzalin
 - Expanded residual control of annual grasses
- Yellow nutsedge programs
 - Require sequential applications



Residual Weed Control with Sequential Applications of Zeus + Solicam or Oryzalin

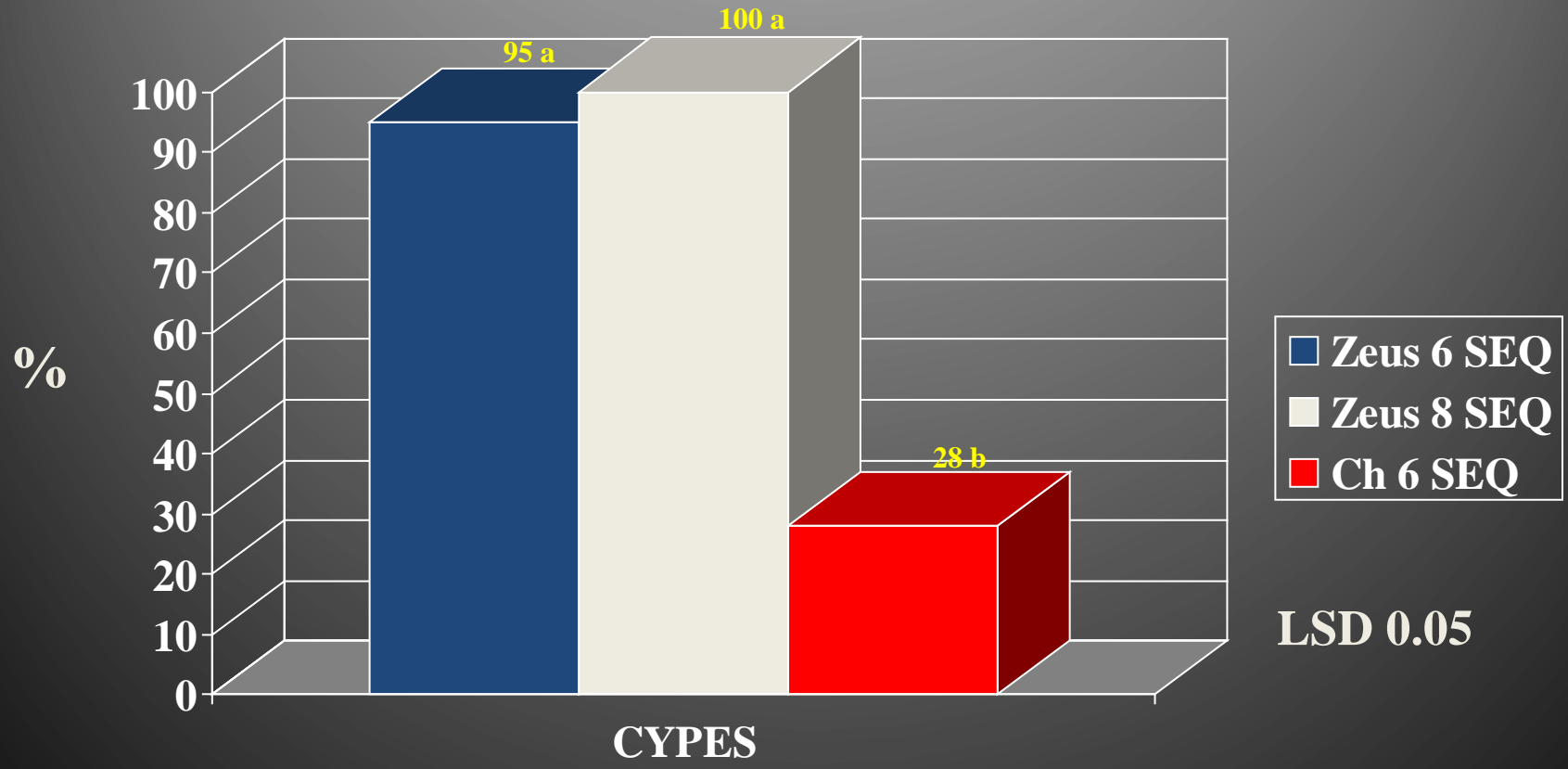


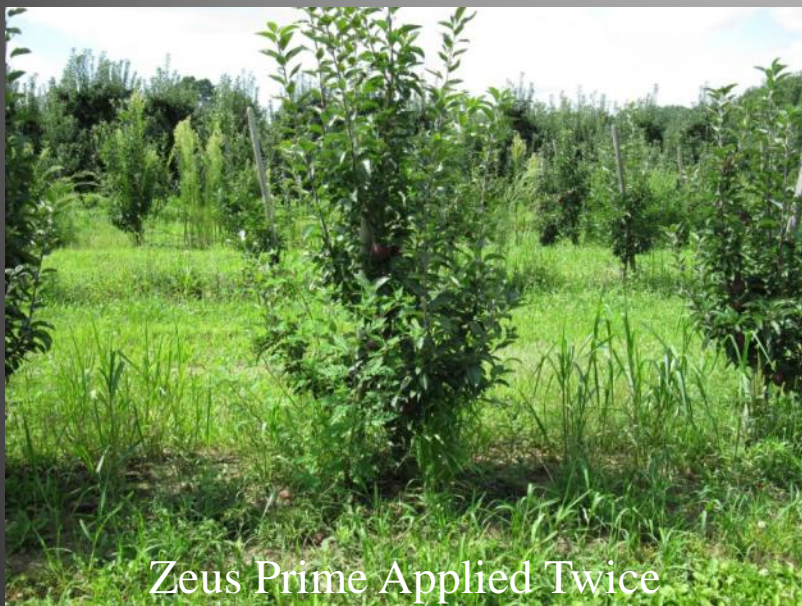
All herbicides were applied sequentially in March followed by Late June. **Glyphosate** and **paraquat** was used in March and June for non-selective POST weed control, respectively. **Zeus Prime** was applied @ 8.5 fl. oz/A.

August 9th in Henderson County, NC

Yellow Nutsedge Control

08/01/06





Zeus Prime Applied Twice



Zeus Prime + Oryzalin Applied Twice



Untreated

Although grasses are listed on the label, oryzalin must be used for extended residual control of annual grass weeds

Matrix, Pruvín, or Solida

rimsulfuron

- 4 oz/A
 - “When applied as a banded treatment (50% band or less) Matrix SG may be applied twice per year. However do not apply more than 4 oz/A on a broadcast basis”
- Vines have to be established 1 year or more
- 14 day PHI
- PRE and POST
- Yellow nutsedge activity
 - PRE + Early POST
 - Apply prior to emergence followed by 2nd application when 2” to 4” tall
 - POST + POST
 - Apply when 2” to 4” tall followed by a second application 14 days later.



Princep or Simazine

simazine

- 2 to 4 qt/A
- Make only one application per year.
- Vines established at least 3 years
- Fall or spring application
- Needs a partner for extended PRE annual grass control
 - Oryzalin

Karmex, Diuron, or Direx 4L

diuron

- 2 to 3 lb/A or 1.6 to 2.4 qt/A
- Use on vines established at least 3 years.
- Soils with 1 to 2 % organic matter
- Crabgrass, barnyardgrasses, horseweed, lambsquarter, nightshade, wild radish, ragweed, smartweed, purslane, prickly lettuce, chickweed, morningglory, sowthistle



Alion



- Indaziflam
- Application Parameters
 - Vines established 3 years or more
 - 3.5 to 5 fl. oz/A
 - Do not use on sand
 - Do not use on soils with a 20% gravel content
 - *Use in vineyards where there are 6 inches of soil barrier between the soil surface and the major portion of the root system.*
 - Total use rate can not exceed 5 fl. oz/A
 - Allow 90 days between applications
 - 14 day PHI
 - DO NOT use in GA or FL
- Broad spectrum PRE control of broadleaf and grass weeds

Planting Depth Restriction: Fact or Fiction?



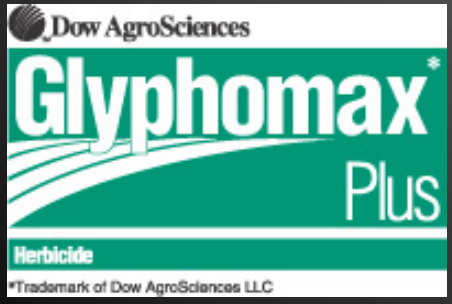
- The label clearly states:
 - *Use in vineyards where there are 6 inches of soil barrier between the soil surface and the major portion of the root system.*
- Research in NC has show there to be no injury concern
 - Consecutive application years
 - Multiple locations
 - Muscadine and bunch grapes
 - Piedmont and coastal plain



POST Herbicides



POAST



Non-Selective POST Herbicides

- Glyphosate

- Roundup PowerMax @ 22 fl. oz/A
- Generic 4 lb Glyphosate @ 1 qt/A
- Generic 5 lb Glyphosate available in 2017
- Try to limit applications
- Avoid use in newly planted vineyards



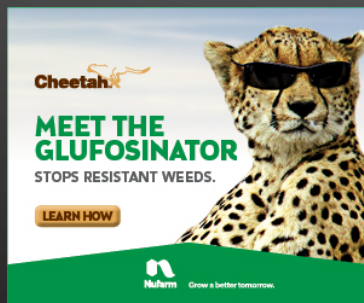
- Paraquat

- Gramoxone SL @ 3 pt/A
- Generic paraquat @ 2 pt/A



- Glufosinate (commit this to memory)

- Rely @ 32 to 48 oz/A
- Generic formulations are in the market place
 - Reckon
 - Life Line
 - Cheetah



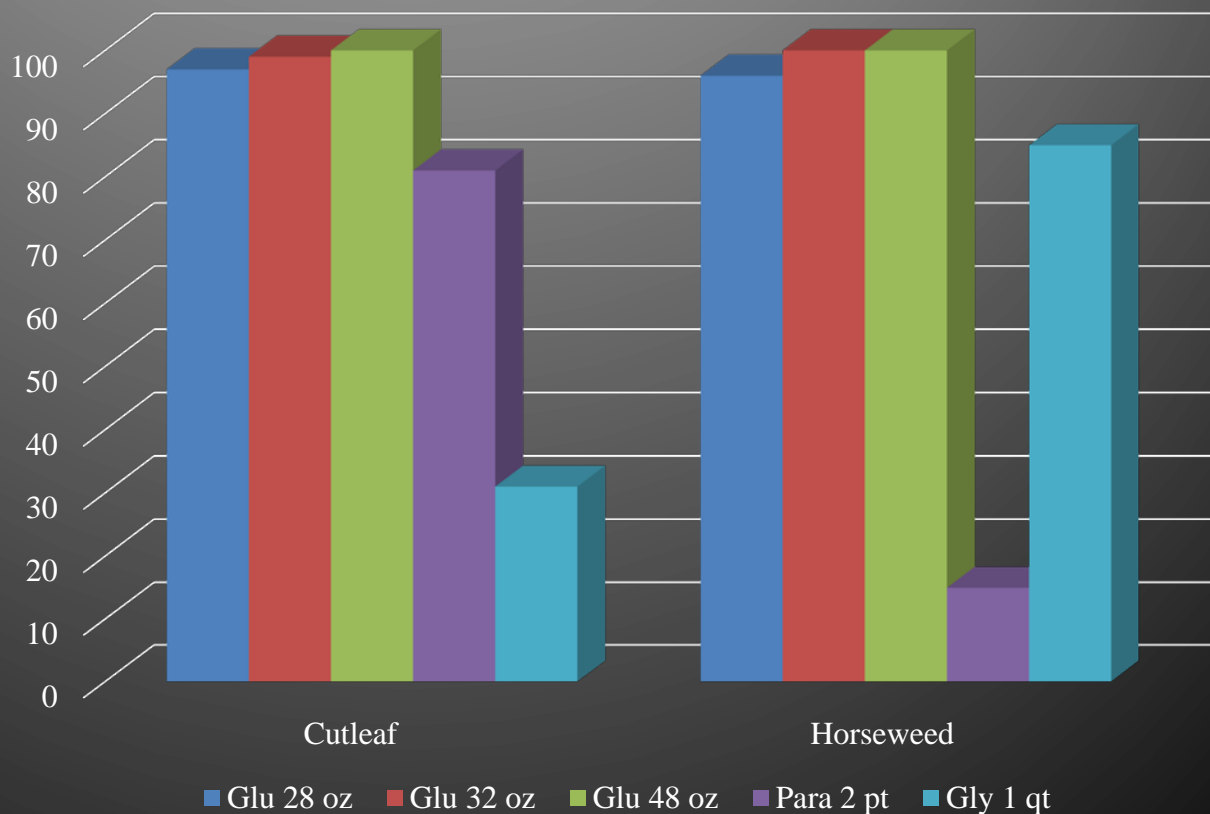
Use Grow Tubes for 2 years!!!

Non-Selective POST Herbicides

- Non-selective POST

- Paraquat
- Glyphosate
- Glufosinate

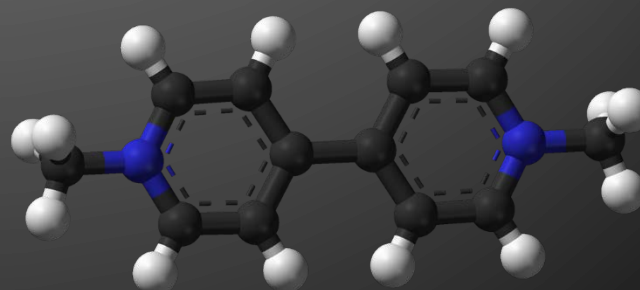
POST Weed Control with Reduced Rates of Glufosinate 14 DAT



Paraquat Label Changes

- User must be a “Certified Applicator”
- Closed System for bulk containers
- Applicators must complete mandatory training
 - Every 3 years
- All paraquat products released after Sept 30, 2018 will have new restrictions on product label.
- You DO NOT come under the new rules until purchase paraquat with the new label restrictions

 Gramoxone®



Graminicides

- Clethodim
 - 2 L (generic formulations)
 - 1.75 to 2.5 pt/A
 - 1 L (Select Max, Intensity One)
 - 9 to 16 fl. oz/A
 - Non-bearing ONLY!
- Poast
 - 1.5 to 2 pt/A
 - 50 day PHI
- Fusilade DX
 - 12 to 24 fl. oz/A
 - 50 day PHI



Intensity one
POST-EMERGENCE GRASS HERBICIDE



POAST

Bermudagrass

- Perennial
- Thin leaves, erect hairs on collar region
- Root at stem nodes
- Spreads via stolons and rhizomes

Control – Poast 1.5 pt (6”) fb 1 pt (4”), Fusilade 1.5 pt (8”) fb 1 pt (8”); Always include COC with Poast and Fusilade



Delayed PRE

- Mid March
 - Glyphosate @ 1qt (Generic) or 22 fl. oz (Roundup Power Max)
 - Glufosinate @ 32 to 48 fl. oz. + AMS @ 8 lb/100 gal of spray solution
- 1st or 2nd Week of May
 - Glyphosate, Glufosinate, or Paraquat + PRE
 - PRE Options
 - Alion @ 5 fl. oz
 - Simazine @ 2 to 3 qt + Oryzalin @ 3 to 4 qt
 - Chateau @ 12 oz
 - Zeus Prime @ 12 to 15 fl. oz + Oryzalin @ 3 to 4 qt



Winter/Summer Split

- Application in mid March
- Follow up application in late June
 - Glyphosate or Glufosinate plus PRE
 - Chateau @ 6 to 8 oz
 - Zeus Prime @ 10 to 12 fl. oz + Oryzalin @ 2 qt
 - Rimsulfuron @ 4 oz + Oryzalin @ 2 qt

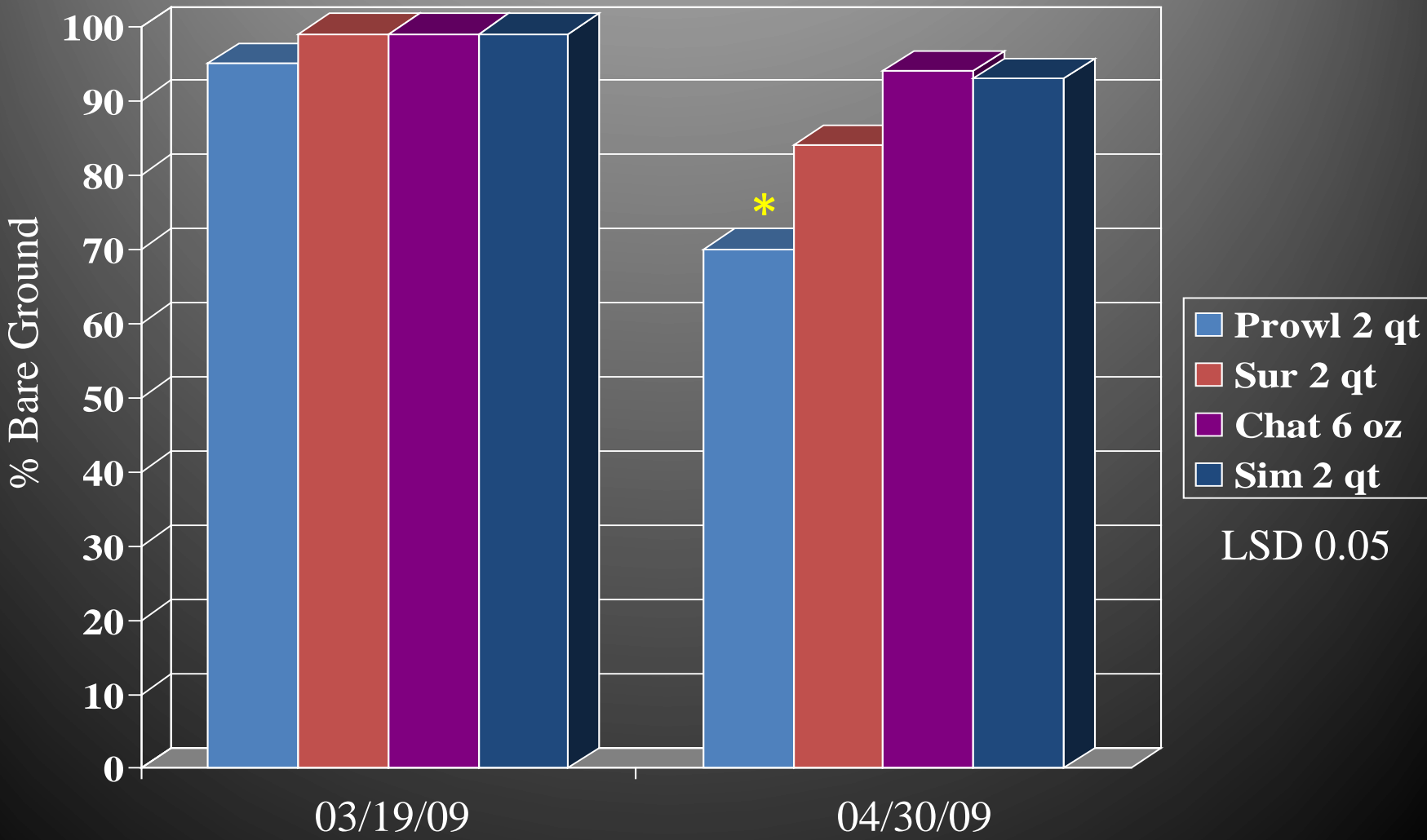


Fall/Summer Split

- Late Oct. thru Thanksgiving
 - Glufosinate or Paraquat + PRE
 - Simazine @ 2 qt
 - Chateau @ 8 to 10 oz
 - Alion @ 3.5 fl. oz
- Late May or Early June
 - Glyphosate, Glufosinate, or Paraquat + PRE
 - PRE Options
 - Chateau @ 6 to 12 oz
 - Alion @ 5 fl. oz
 - Simazine @ 2 to 3 qt + Oryzalin @ 3 to 4 qt
 - Rimsulfuron @ 4 oz + Oryzalin @ 3 to 4 qt
 - Zeus Prime @ 12 to 15 fl. oz + Oryzalin @ 3 to 4 qt
 - Karmex @ 2 to 3 lb

Fall PRE Herbicide Benefit

Applied Oct. 31



Herbicide Management is a critical part of Weed Management!!

- Use herbicide rotation
- As with anything TIMING is very important
 - Fall/Spring Split
 - Delayed PRE
 - Winter/Summer Split
- Limit glyphosate use

Southeast Regional Bunch Grape Integrated Management Guide



<http://www.smallfruits.org/>

IPM/Production Guides

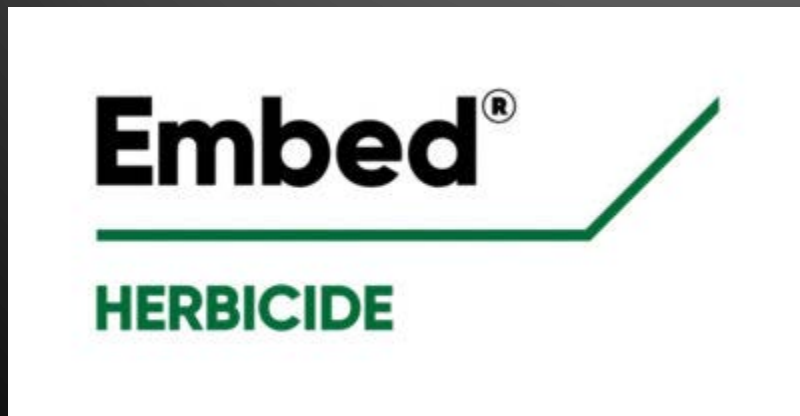
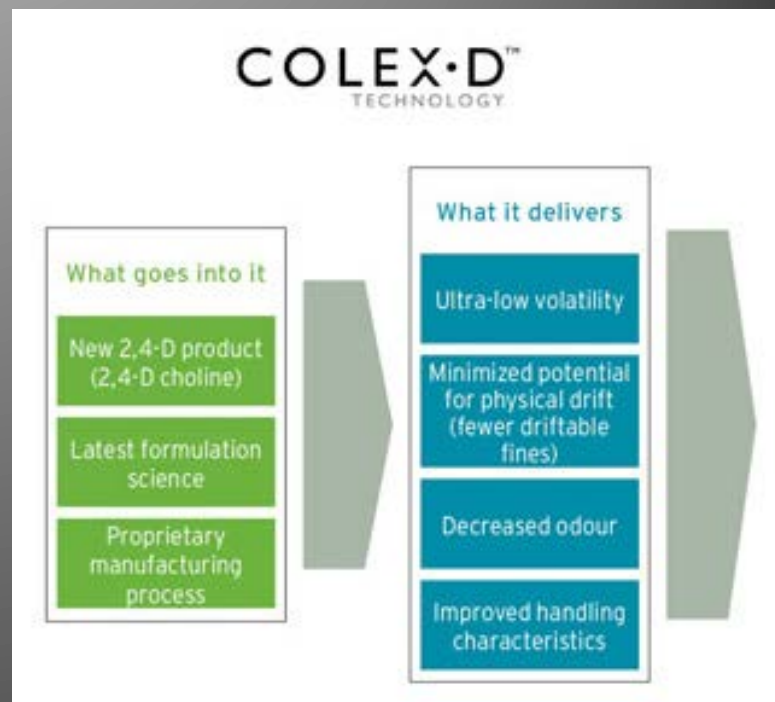
Organic Weed Control Options

- Physical removal
 - Specialty tillage equipment
 - Timely
- Organic mulch
 - Thick
 - Replace annually
- Landscape fabric
- Organic herbicides
 - Non-selective
 - Regrowth
 - Timely

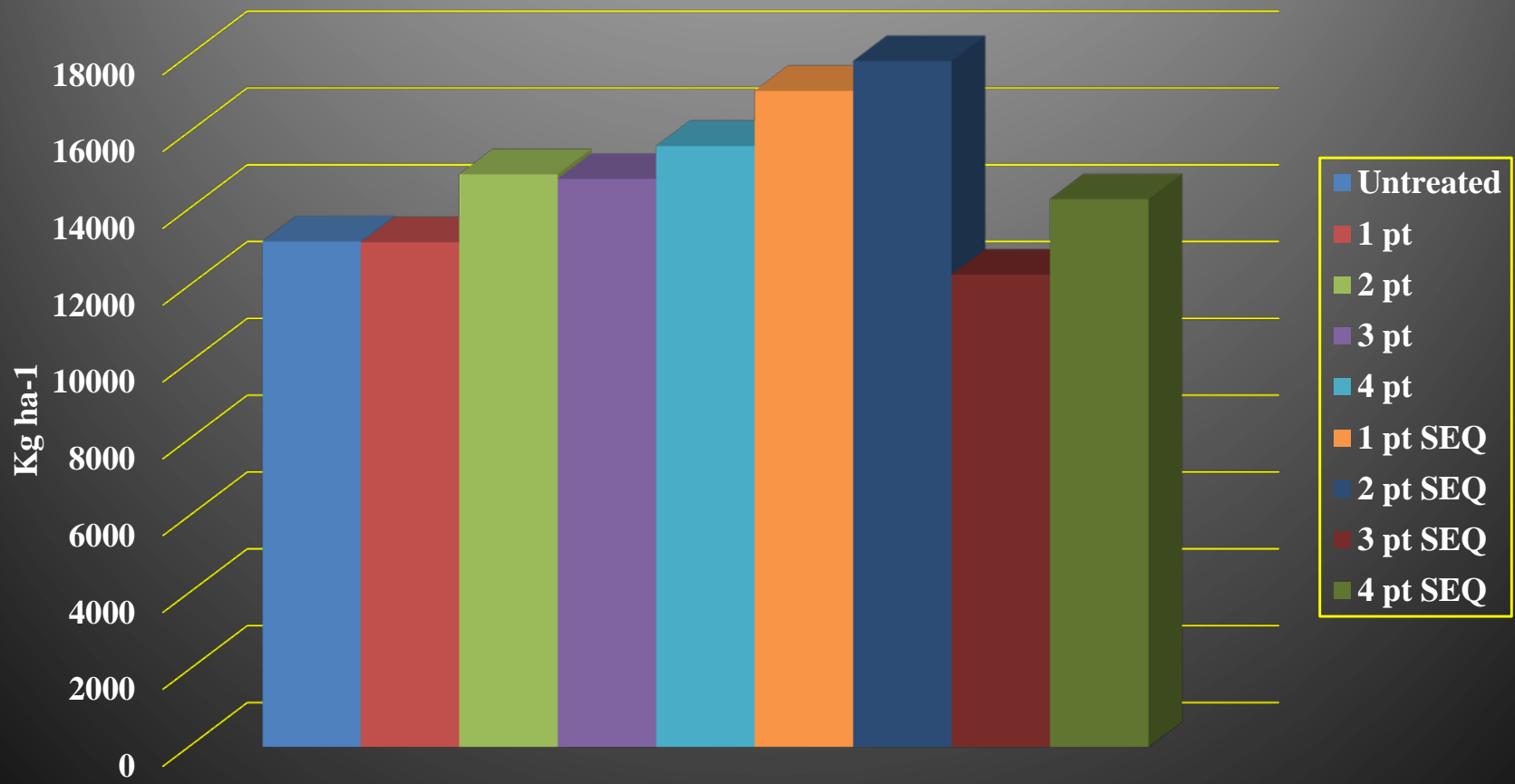


Embed Extra Herbicide

- 2, 4-D Choline
 - Colex D Technology
- Used in Enlist Duo Crops
- Reduction in driftable fines
- No sacrifice in efficacy



2,4-D Choline Impact on Muscadine Yield



2,4-D Choline Phytotoxicity to Muscadine



