

# **Sugarcane Herbicide and Weed Control Research**

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**Sugar Research Station**

**St. Gabriel, LA**



# 2023 Zidua At-Planting Trials



A selective residual herbicide for use in agricultural crops

**Active Ingredient:**

**pyroxasulfone:** 3-[[[5-(difluoromethoxy)-1-methyl-3-(trifluoromethyl)-1H-pyrazol-4-yl]methyl]sulfonyl]-4,5-dihydro-5,5-dimethylisoxazole . . . . . 41.46%

**Other Ingredients:** . . . . . 58.54%

**Total:** . . . . . 100.00%

Contains 4.17 pounds of pyroxasulfone per gallon formulated as a water-based suspension concentrate

EPA Reg. No. 7969-374

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN  
CAUTION/PRECAUCION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See full label for complete **First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Shake container well before use.

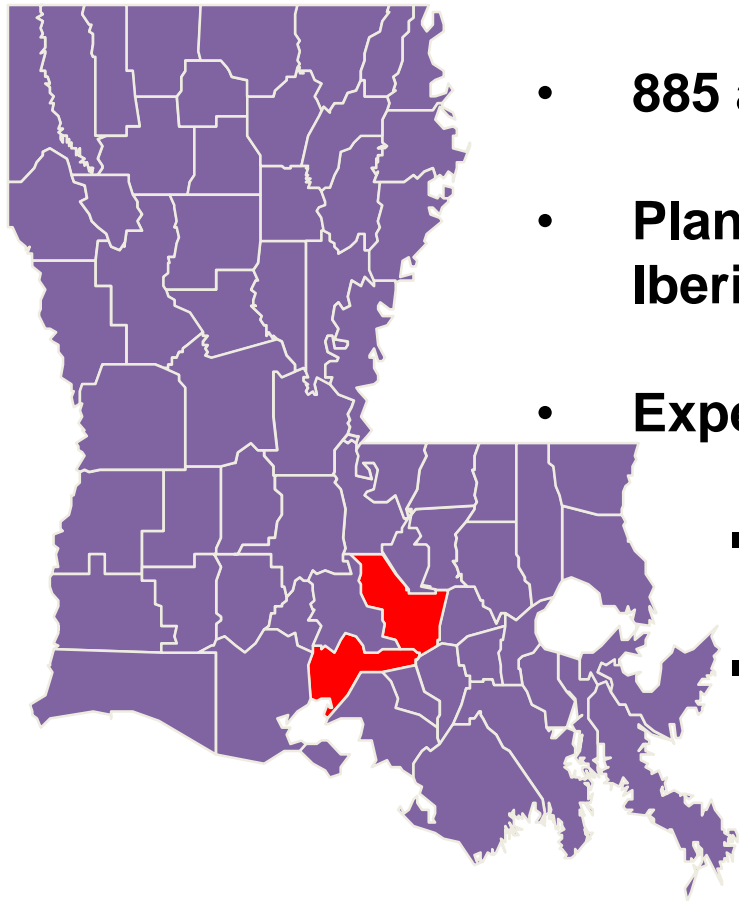
**Net Contents:**

BASF Corporation  
26 Davis Drive, Research Triangle Park, NC 27709

- Not currently labeled in sugarcane
- Active ingredient: Pyroxasulfone
- Pyrazole chemical family
- Group 15: long-chain fatty acid inhibitor
- Only preemergence activity
- Controls annual grasses and small seeded broadleaf weeds (some yellow nutsedge suppression)

# 2023 Zidua At-Planting Trials

- Evaluate the efficacy of Zidua SC on Johnsongrass, yellow nutsedge, and Italian ryegrass
- St. Gabriel (silt loam) and New Iberia (clay)
- 885 at both locations
- Planting dates: 8/17 (St. Gabriel) and 9/13 (New Iberia)
- Experimental design: RCB with 4 reps
  - Plot size: 1 row by 40 ft
  - 15 GPA



# 2023 Zidua At-Planting Trials

- Treatments:

1. Nontreated control
2. Command at 3.3 pt/a + Metribuzin at 1.5 lb/a
  - Followed by Dual II Magnum at 20 oz/a (November 9)
3. Zidua SC at 8 oz/a + Prowl H<sub>2</sub>O at 3 qt/a
4. Metribuzin at 3 lb/a + Prowl H<sub>2</sub>O at 3 qt/a
  - Followed by Zidua SC at 8 oz/a (November 9)
5. Metribuzin at 3 lb/a + Prowl H<sub>2</sub>O at 3 qt/a + Zidua SC at 8 oz/a

**Note: Zidua SC isn't currently labeled in sugarcane**

- In both trials, weed emergence and herbicide activity severely limited due to dry conditions
  - Efficacy data on Johnsongrass and yellow nutsedge not collected
  - Nontreated plots were equivalent to treated plots (no weed emergence) until sufficient rainfall was received.
  - First activating rainfall: **55 DAT** in St. Gabriel and **26 DAT** in New Iberia

# 2023 Zidua At-Planting Trials

11/9: 30 days after substantial rainfall event

Treatment	Rate/Acre	% Control Summer and Winter Annuals 85 DAT (St. Gabriel)	% Control Summer and Winter Annuals 56 DAT (New Iberia)
Command + Metribuzin	3.3 pt + 1.5 lb	85 a	85 a
Zidua SC + Prowl H <sub>2</sub> O	8 oz + 3 qt	90 a	90 a
Metribuzin + Prowl H <sub>2</sub> O	3 lb + 3 qt	90 a	90 a
Metribuzin + Prowl H <sub>2</sub> O + Zidua SC	3 lb + 3 qt + 8 oz	90 a	90 a
Nontreated		0 b	0 b



Here come the weeds!

**Note: Zidua SC isn't currently labeled in sugarcane**

# 2023 Zidua At-Planting Trials

Treatment	Rate/A	% Control Italian ryegrass 125 DAT, 40 DAT for seq. app. (St. Gabriel)	% Control Italian ryegrass 96 DAT, 40 DAT for seq app. (New Iberia)
Command + Metribuzin fb Dual II Magnum	3.3 pt + 1.5 lb  20 oz	100 a	100 a
Zidua SC + Prowl H <sub>2</sub> O	8 oz + 3 qt	98 a	98 a
Metribuzin + Prowl H <sub>2</sub> O fb Zidua SC	3 lb + 3 qt  8 oz	100 a	100 a
Metribuzin + Prowl H <sub>2</sub> O + Zidua SC	3 lb + 3 qt + 8 oz	98 a	98 a
Nontreated		0 b	0 b



Nontreated control

**Note: Zidua SC isn't currently labeled in sugarcane**

Note: No crop injury was observed from Zidua SC





## **Nontreated Control**

**New Iberia 1-31-24 (139 DAT for at planting application and 83 DAT for Nov. application)**







**Command at 3.3 pt/a + Metribuzin at 1.5 lb/a at planting  
Followed by Dual II Magnum at 20 oz/a (November 9)**

**New Iberia 1-31-24 (139 DAT for at planting application and 83 DAT for Nov. app.)**





**Zidua SC at 8 oz/a + Prowl H2O at 3 qt/a at planting**

**New Iberia 1-31-24 (139 DAT)**





**Metribuzin at 3 lb/a + Prowl H2O at 3 qt/a at planting  
Followed by Zidua SC at 8 oz/a (November 9)**

**New Iberia 1-31-24 (139 DAT for at planting application and 83 DAT for Nov. app.)**





**Metribuzin at 3 lb/a + Prowl H2O at 3 qt/a + Zidua SC at 8 oz/a at planting**

**New Iberia 1-31-24 (139 DAT)**





**Nontreated Control**

**St. Gabriel 2-1-24 (169 DAT for at planting application and 84 DAT for Nov. app.)**





**Command at 3.3 pt/a + Metribuzin at 1.5 lb/a at planting  
Followed by Dual II Magnum at 20 oz/a (November 9)**

**St. Gabriel 2-1-24 (169 DAT for at planting application and 84 DAT for Nov. app.)**

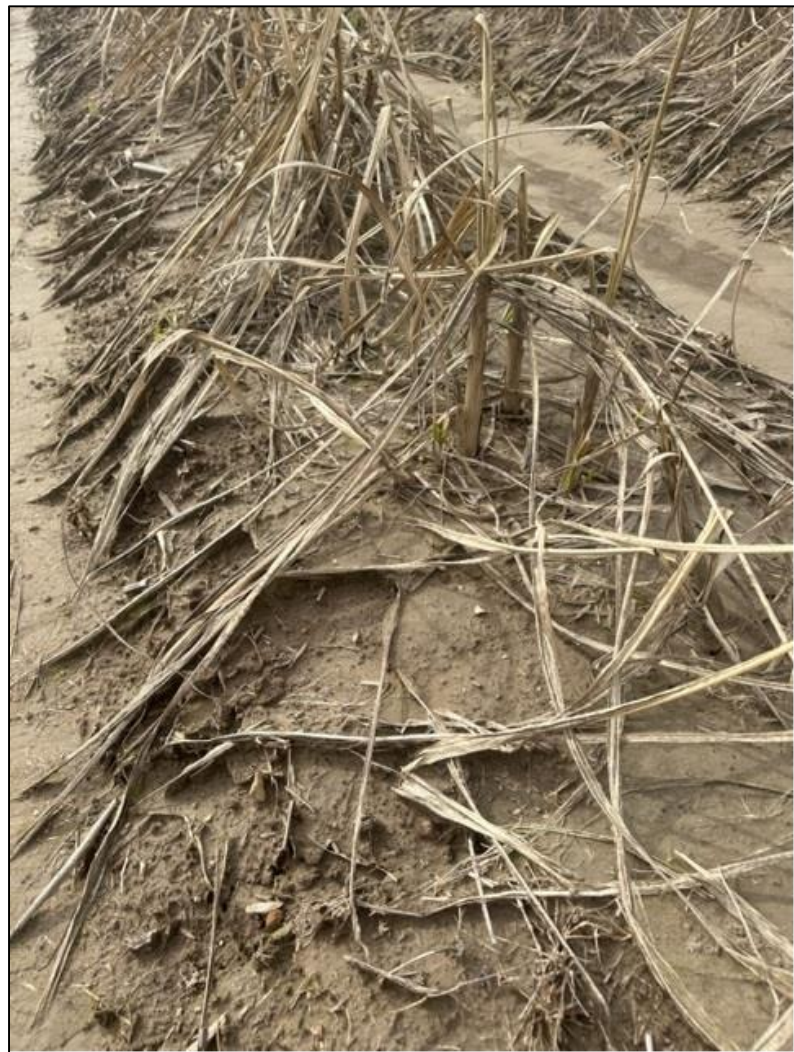




**Zidua SC at 8 oz/a + Prowl H2O at 3 qt/a at planting**

**St. Gabriel 2-1-24 (169 DAT)**





**Metribuzin at 3 lb/a + Prowl H2O at 3 qt/a at planting  
Followed by Zidua SC at 8 oz/a (November 9)**

**St. Gabriel 2-1-24 (169 DAT for at planting application and 84 DAT for Nov. app.)**





**Metribuzin at 3 lb/a + Prowl H2O at 3 qt/a + Zidua SC at 8 oz/a at planting**

**St. Gabriel 2-1-24 (169 DAT)**

# 2023 Fall vs. Spring Applied Herbicide Trial

- Plant cane: 885 and 299 (billet-planted)
- Location: St. Gabriel
- Experimental design: RCB (factorial) with 4 reps
  - Plot size: 1 row by 30 ft
  - 15 GPA
- Treatments:
  1. Command at 3.3 pt/a
  2. Metribuzin at 2 lb/a
  3. Dual II Magnum at 1 pt/a
  4. Prowl H<sub>2</sub>O at 3 qt/a
- Applied over-the-top on November 10, 2023, and will be applied again in the spring
  - Yield will be collected





# Suspected Herbicide-Resistant Weeds

During the summer, suspected Roundup-resistant junglerice and goosegrass plants were collected from fallow fields



**Goosegrass  
(Napoleonville 2021)**



**Junglerice  
(Napoleonville 2023)**



**Goosegrass  
(White Castle 2023)**

# Suspected Herbicide-Resistant Weeds

- Plants were grown to maturity and seeds were collected
- A greenhouse trial to screen for herbicide resistance is currently underway at the LSU campus (Dr. Prashant Jha)
- Some alternatives to Roundup (or can tank-mix with it)
  - Select (30-day plant back restriction)
  - Poast (30-day plant back restriction)
  - Fusilade DX (60-day plant back restriction)
- Antagonism with some broadleaf products (2,4-D and dicamba)
  - A good rule of thumb is to apply a graminicide 3 days before applying broadleaf herbicides or 7 days after



# Other Research

- Evaluation of Liberty (glufosinate) as a layby treatment (Warner Simon master's project)
  - Effect on cane yield
  - Efficacy on itchgrass

**Note: Liberty isn't currently labeled for use in sugarcane**

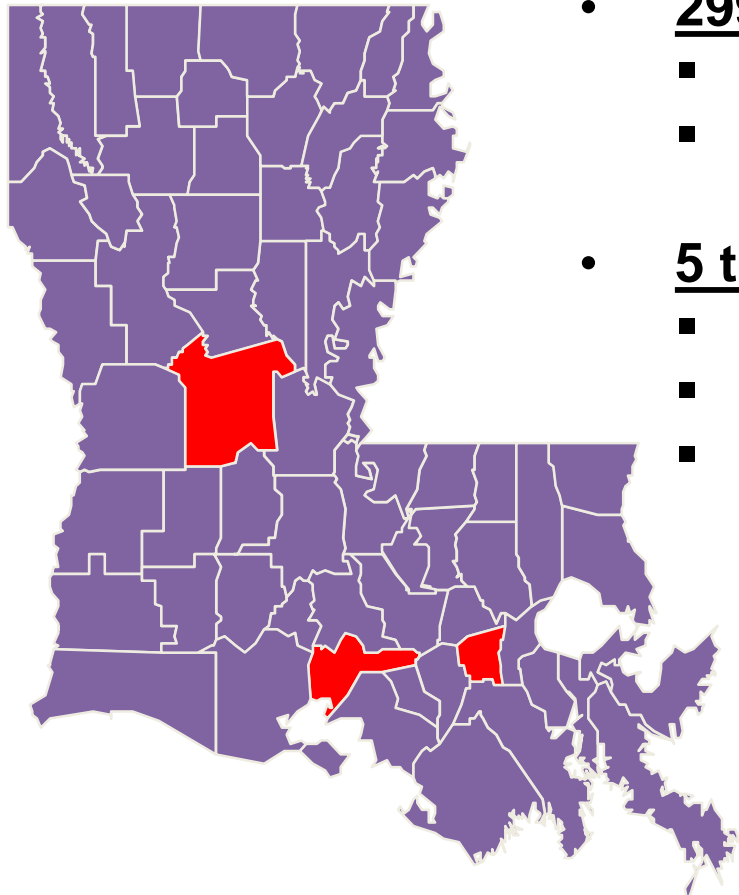




# 2023 Liberty at Layby Trials

**Note: Liberty isn't currently labeled for use in sugarcane**

- **Conducted at 3 locations**
  - Vacherie (6/9)
  - Cheneyville (6/28)
  - Jeanerette (6/26)
- **299 at each location**
  - Plant cane- Jeanerette
  - 1<sup>st</sup> stubble- Vacherie and Cheneyville
- **5 treatments plus a nontreated control**
  - Applied post-directed
  - 2 OC-02 nozzles
  - 15 GPA
- **Experimental design: RCB with 4 reps**
  - Plot size: 5 rows by 25 ft
  - Harvested center 3 rows



# 2023 Liberty at Layby Trials

Treatment	Rate/A	Pop/A	Tons/A	TRS	SPA
Liberty 280 SL	29 oz	57,112.0 a <sup>a</sup>	46.6 a	235 b	10,955 a
Liberty 280 SL + Asulox	29 oz + 4 qt	57,208.8 a	45.3 a	247 ab	11,233 a
Gramoxone SL 2.0	48 oz	55,756.8 a	44.2 a	246 ab	10,876 a
Metribuzin + Trycera	2 lb + 40 oz	56,531.2 a	46.2 a	237 ab	10,953 a
Liberty 280 SL	44 oz	57,015.2 a	45.7 a	242 ab	11,096 a
Nontreated		57,305.6 a	47.2 a	248 a	11,768 a

<sup>a</sup> Means within columns followed by the same letter are not significantly different at  $p < 0.05$ .

- Data averaged across three locations
- COC at 0.5% v/v added to all treatments

**Note: Liberty isn't currently labeled for use in sugarcane**



# New Formulation of Liberty

**Liberty<sup>®</sup> ULTRA**

Herbicide – Powered by **Glu-L™** Technology

- Anticipated to launch this year
- The inactive D isomer was removed and the herbicidally active L isomer was concentrated
- 32 oz/A rate of Liberty = 24 oz/A rate of Liberty Ultra

# New Generic Formulation of Command

CLOMAZONE GROUP 13 HERBICIDE

## CLOMATE™ 3ME

**SPECIMEN LABEL**

<b>ACTIVE INGREDIENT:</b>	
Clomazone: 2-(2-Chlorophenyl)methyl-4,4-dimethyl-3-isoxazolidinone.....	30.51%
<b>OTHER INGREDIENTS:</b> .....	69.49%
<b>TOTAL:</b> .....	100.0%

Contains 3.0 pounds of active ingredient per gallon.  
This product contains sodium nitrate

**KEEP OUT OF REACH OF CHILDREN /  
MANTÉNGASE FUERA DEL ALCANCE DE LOS NIÑOS  
CAUTION / PRECAUCIÓN**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)


See inside booklet for additional Precautionary Statements and Directions For Use.  
Consulte el folleto de la etiqueta interior para obtener DECLARACIONES DE PRECAUCIÓN  
e INSTRUCCIONES DE USO adicionales.

*For Agricultural and Commercial Use Only  
NOT FOR USE IN CALIFORNIA*

*For control of weeds on Bean (dry and succulent),  
Brassica head and stem vegetable group 5-16,  
Chinese broccoli, Cottonseed subgroup 20C, Cucurbit  
Vegetables Crop Group 9, Herb Subgroup 19A,  
Kohlrabi, Peas (Succulent), Peppermint tops, Peppers,  
Rapeseed (canola varieties only), Rhubarb, Rice,  
Soybeans, Spearmint tops, Stalk and Stem Vegetable  
Subgroup 22A except kohlrabi, Sugarcane, Tobacco,  
Tuberous and Corm Vegetables subgroup 1D except  
Potato, and Vegetable Soybean (Edamame).*

MANUFACTURED BY:  
ALBAUGH, LLC  
1525 NE 36th Street, Ankeny, IA 50021

EPA Reg. No. 45002-60  
AD0922235

 **ALBAUGH®**  
your alternative

- Applied to 885 plant cane in St. Gabriel
- Efficacy was equivalent to Command





**EPA Reg. No. 5905-580  
Section 18 File Symbol: 23LA01**

**For Control of Divine Nightshade (*Solanum nigrescens*) in Sugarcane  
Section 18 Specific Emergency Exemption**

**FOR DISTRIBUTION AND USE ONLY IN LOUISIANA UNDER  
SECTION 18 SPECIFIC EMERGENCY EXEMPTION**

**This specific emergency exemption is effective October 1, 2023  
and expires on May 31, 2024**

- This labeling must be in the possession of the user at the time of application.
- It is in violation of federal law to use this product in a manner inconsistent with its labeling. Read the label affixed to the container for TRYCERA before applying.
- Carefully follow all precautionary statements and applicable use directions.
- Any adverse effects resulting from the use of TRYCERA under this emergency exemption must be immediately reported to the Louisiana Department of Agriculture and Forestry.



**FIFRA 24(c) SLN**  
For distribution and use only within  
the state of Louisiana

**FIFRA 24(c) Special Local Need Label (SLN)**  
For control of weeds in sugarcane



EPA REG. NO. 5481-684

EPA SLN NO. LA21-0003

This label expires and must not be distributed or used in accordance with this SLN  
registration after December 15<sup>th</sup> 2024.





**FIFRA 24(c) SLN**  
**For Distribution and Use Only Within the**  
**State of Louisiana**

**FIFRA 24(c) Special Local Need Label (SLN)**  
**Preplant Application in Sugarcane**

**Classic<sup>®</sup> Herbicide**

**EPA Reg. No. 5481-681**

**EPA SLN No. LA-130004**

**This label is valid until January 11, 2024 or until otherwise revised, amended, cancelled, or suspended.**

# Other Research

- Greenhouse trial to evaluate spray tank cleaners
  - 11 herbicides
  - 5 cleaners
- All herbicides were mixed at highest labeled rates and a 3 ft section of rubber spray hose was filled with each and then capped (6 hoses per herbicide)
  - After sitting for a week, the spray solution was drained and then hoses were filled with cleaners
  - After sitting for 24 hours, the hoses were drained and the rinsates were collected
  - Rinsates were sprayed on either cotton, soybean, or grain sorghum (depending on the crop's sensitivity to the herbicide)



# Herbicides and Cleaners Evaluated

Active Ingredient	Trade Name
2,4-D (acid)	Unison
2,4-D (ester)	Low Volume 6 Ester
Dicamba (DGA with VaporGrip)	XtendiMax
Dicamba (DMA)	Diablo
Glyphosate	Roundup PowerMAX II
Atrazine	Atrazine 4L
2,4-D (Choline) + Glyphosate	Enlist Duo
Clethodim	Clethodim 2 EC
Dicamba (BAPMA)	Engenia
Dicamba (DGA)	Detonate
Tryclopyr	Trycera

Cleaners
Tap water
Tap water with 1% ammonia
Protank (WinField)
WipeOut (Helena)
Organic cleaner (LSU)

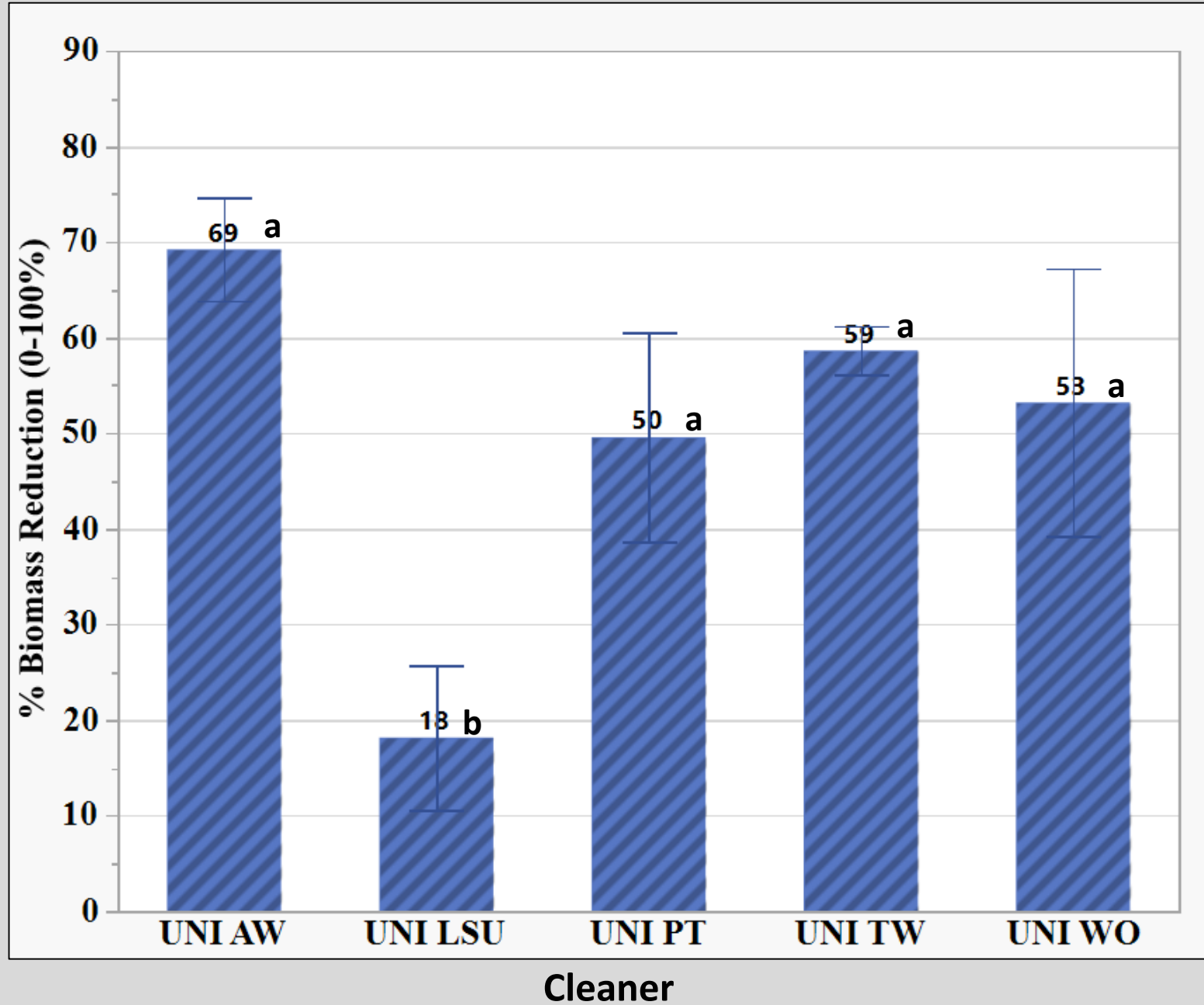


# Plants Harvested 23 DAT and Biomass Calculated

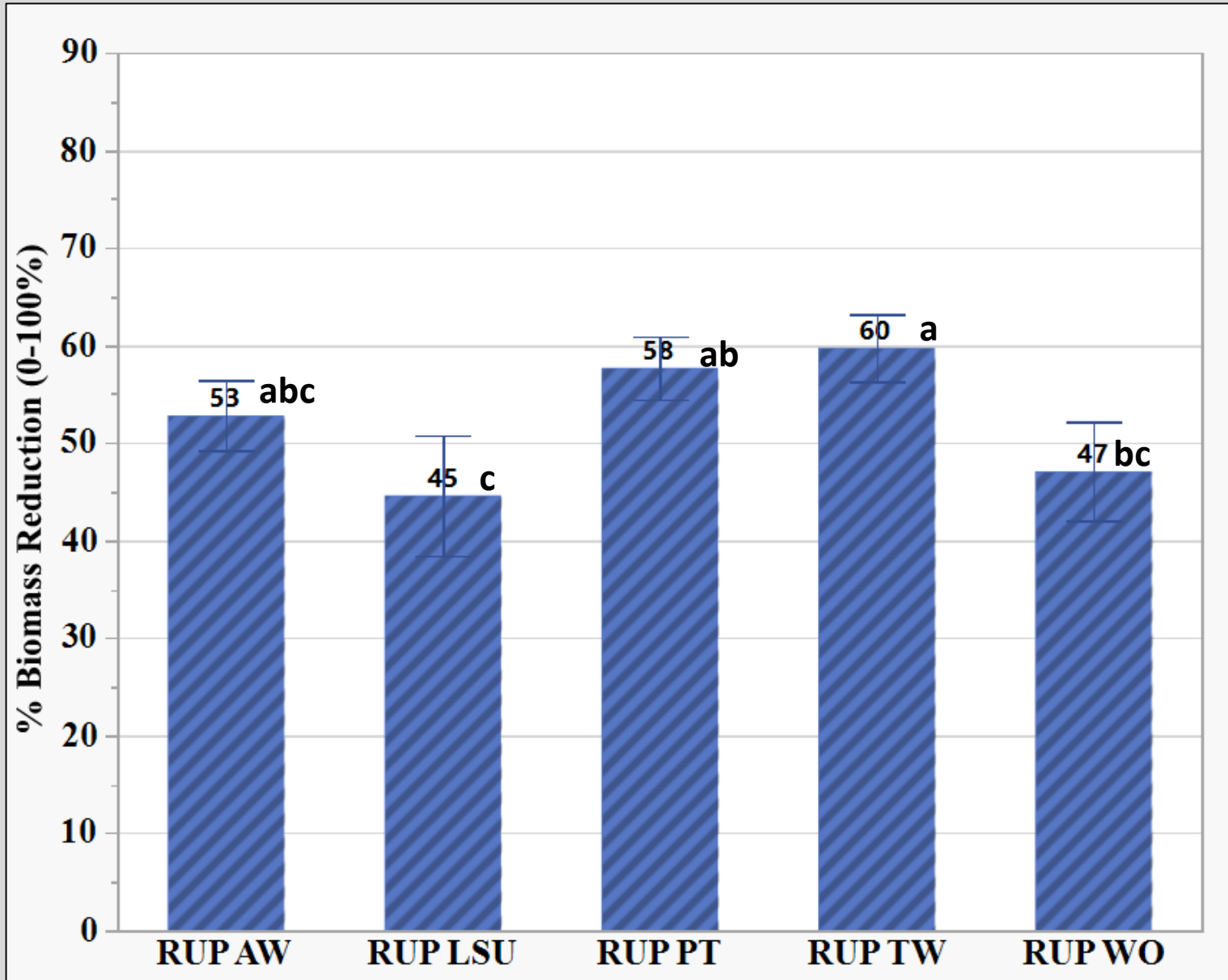




# Cotton Biomass Reduction from Unison Rinsate



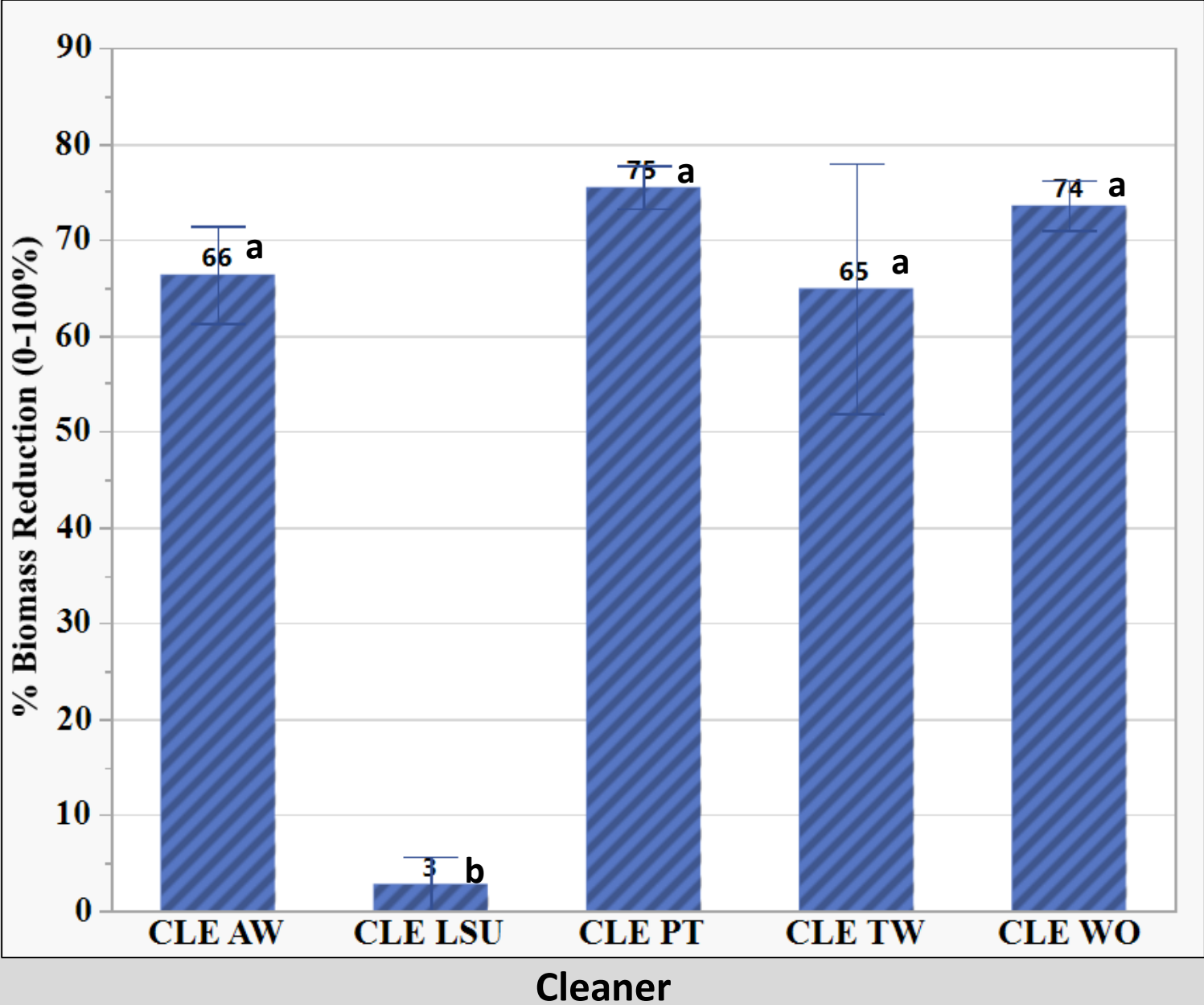
# Grain Sorghum Biomass Reduction from Roundup Rinsate



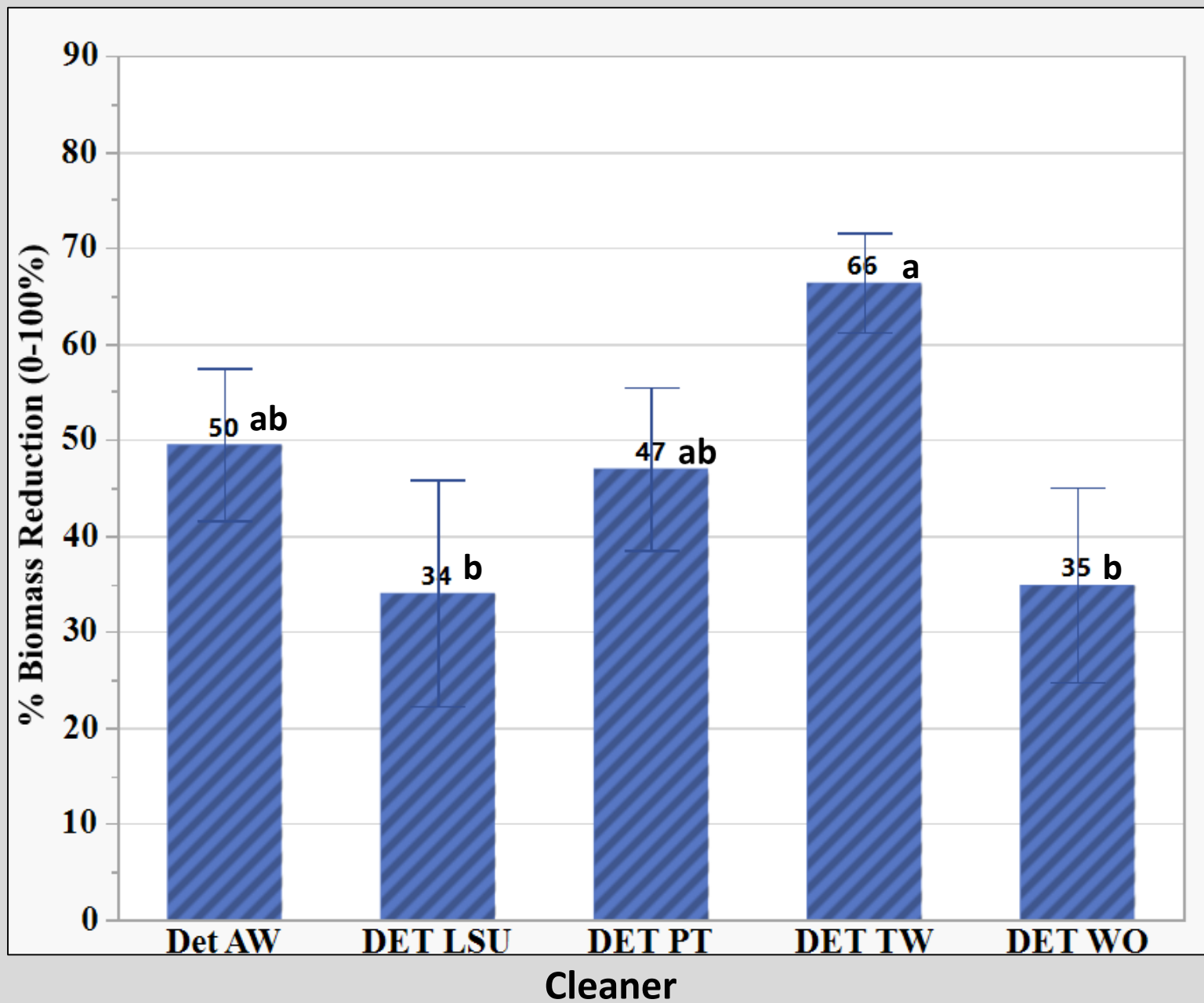
Cleaner



# Grain Sorghum Biomass Reduction from Clethodim Rinsate

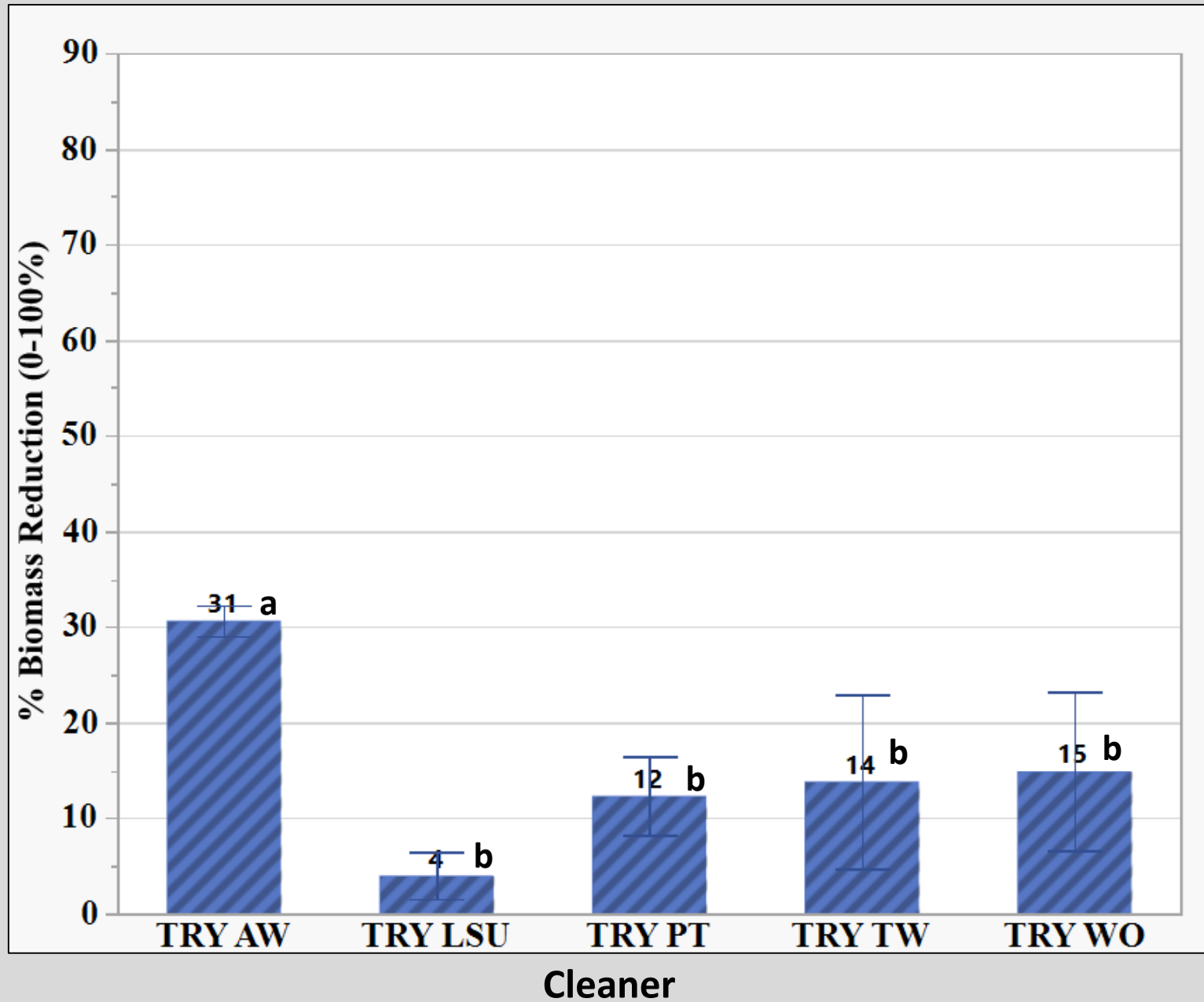


# Soybean Biomass Reduction from Detonate (dicamba) Rinsate





# Cotton Biomass Reduction from Trycera Rinsate



# Acknowledgements



- Dr. Ali Wright
- Dr. Prashant Jha
- Producers
- Extension agents
- Consultants
- Sugar Research Station staff
- Mr. Warner Simon



# Thanks! Questions?

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