

Increased Use of Liberty Herbicide

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Glufosinate-ammonium

- 75 registered with AR State Plant Board
 - Most are 280 formulation or 2.3 lb/gal
 - Surmise – 2.34 lb/gal
 - Surmise Pro – 2.34 lb/gal
 - Surmise 5 – 4.6 lb/gal
- Read label on package carefully
- All 2.3 lb/gal rates are 32-43 oz/A
 - 3 applications 5 days apart up to 87 oz
 - Emergence to R1
- Surmise 5: 14.5-21.5 oz/A, 43.5 oz/A total

Liberty® 280 SL

Herbicide

Liberty® 280 SL herbicide is a nonselective herbicide that provides control of a broad spectrum of broadleaf and grassy weeds.

Liberty 280 SL is registered for use as a:

- burndown treatment prior to planting or prior to emergence of canola, corn, sweet corn, cotton, soybean, and sugar beet
- postemergence weed control herbicide to be applied on LibertyLink® or glufosinate-resistant crops including LibertyLink canola, LibertyLink corn, LibertyLink sweet corn, LibertyLink cotton, and LibertyLink soybeans
- postemergence weed control herbicide to be applied in cotton with a hooded sprayer only

Active Ingredient:

glufosinate-ammonium*: 2-amino-4-(hydroxymethylphosphiny) butanoic acid-monoammonium salt	24.5%**
Other Ingredients:	75.5%
Total:	100.0%

* CAS Number 77182-82-2

** Equivalent to 2.34 pounds of active ingredient per U.S. gallon.

EPA Reg. No. 7969-448

EPA Est. No.

KEEP OUT OF REACH OF CHILDREN

WARNING/AVISO

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).

Net Contents:

Registered in 2025

- Glufosinate-P

- L-isomer – more active
- Labeled rate range 19-29 fl oz
 - Standard rate ~24oz
- 2 apps 5 days apart 58 total oz/yr
- Emergence to R1
- Similar crop safety as others
- Have evaluated tank mixtures with glyphosate, S-metolachlor etc.
- As effective at lower rates as standard glufosinate at 32oz
- 24C for rates up to 34oz/app, 69oz total

Liberty® ULTRA

Herbicide – Powered by Glu-L™ Technology

Liberty® ULTRA herbicide – Powered by Glu-L™ Technology is a nonselective herbicide that provides control of a broad spectrum of broadleaf and grassy weeds in LibertyLink or glufosinate-resistant crops.

Active Ingredient:

Glufosinate-P-Ammonium* 18.7%**

Other Ingredients: 81.3%

Total: 100.0%

* CAS Number 73777-50-1

** Equivalent to 1.76 pounds of active ingredient per U.S. gallon; equivalent to 1.61 pounds per U.S. gallon acid equivalent, as glufosinate-P.

EPA Reg. No. 7969-500

EPA Est. No.

KEEP OUT OF REACH OF CHILDREN

DANGER/PELIGRO

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

Liberty Ultra Label

9.2 Mandatory Spray Drift Buffers

9.2.1 For aerial and ground applications, maintain a downwind buffer between the last spray row and the protection area as follows:

Application Method	Droplet Size Distribution (DSD)	Minimum Buffer Distance
Aerial	medium	50 ft
Ground	medium to coarser	10 ft

11.0 MANDATORY RUNOFF MITIGATION:

- **DO NOT** apply when soils are saturated or above field capacity.
- **DO NOT** apply during rain.

You must achieve a minimum of three points for the crop uses listed on this label unless otherwise stipulated below. Applicators must access and search Bulletins Live! Two (BLT) at <https://www.epa.gov/pesticides/bulletins> within six months of the application to determine whether the application site falls within a Pesticide Use Limitation Area (PULA) that has a Bulletin in BLT. If you are located inside a PULA, follow the instructions in the bulletin.

If the application site is located outside a PULA, runoff/erosion mitigation is required for this product unless certain field/application parameters are present at the time of application (i.e., subsurface or tile drains with controlled outlet, perimeter berm systems, irrigation tailwater return systems, spot treatment, etc). Access EPA's Mitigation Menu Website at www.epa.gov/pesticides/mitigation-menu for a full list of field/application parameters to evaluate whether your field is subject to runoff/erosion mitigation.

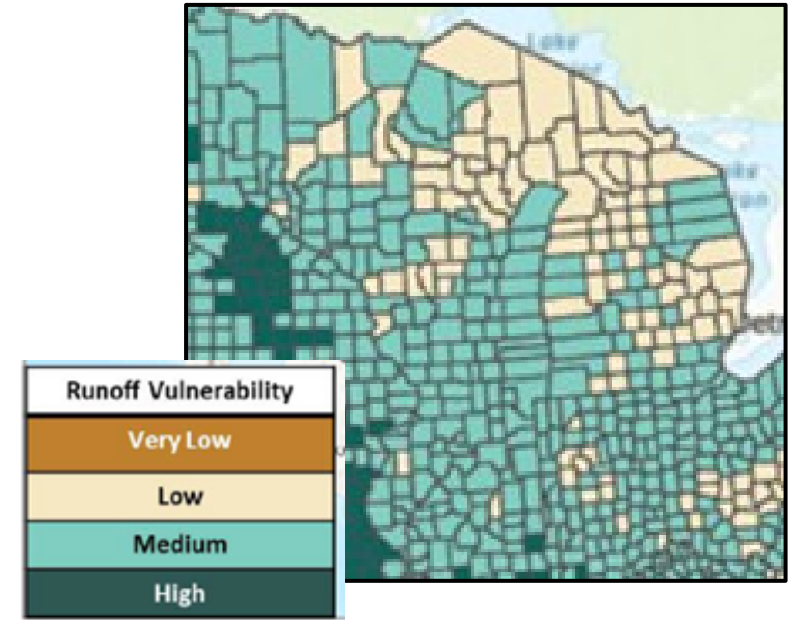
Liberty[®] ULTRA

ESA Implications and Requirements

- Liberty ULTRA will require **3 runoff mitigation points**

Measures to earn mitigation points

- Non-irrigated field: **3 points**
- Field with slope $\leq 3\%$: **2 points**
- Reduced Tillage: **2 points**
- No Till: **3 points**
- Field is predominately a sand, loamy sand or sandy loam: **2 points**
- Keeping record of mitigation efforts: **1 point**



Vulnerability	Automatic Pts
Very Low	6
Low	3
Medium	2
High	0

- For a full list of mitigation options, refer to [Mitigation Menu | US EPA](#)

All about timing and coverage with glufosinate! And... temp, humidity, GPA, TOD, water quality, sunshine



2-4 in Pigweed



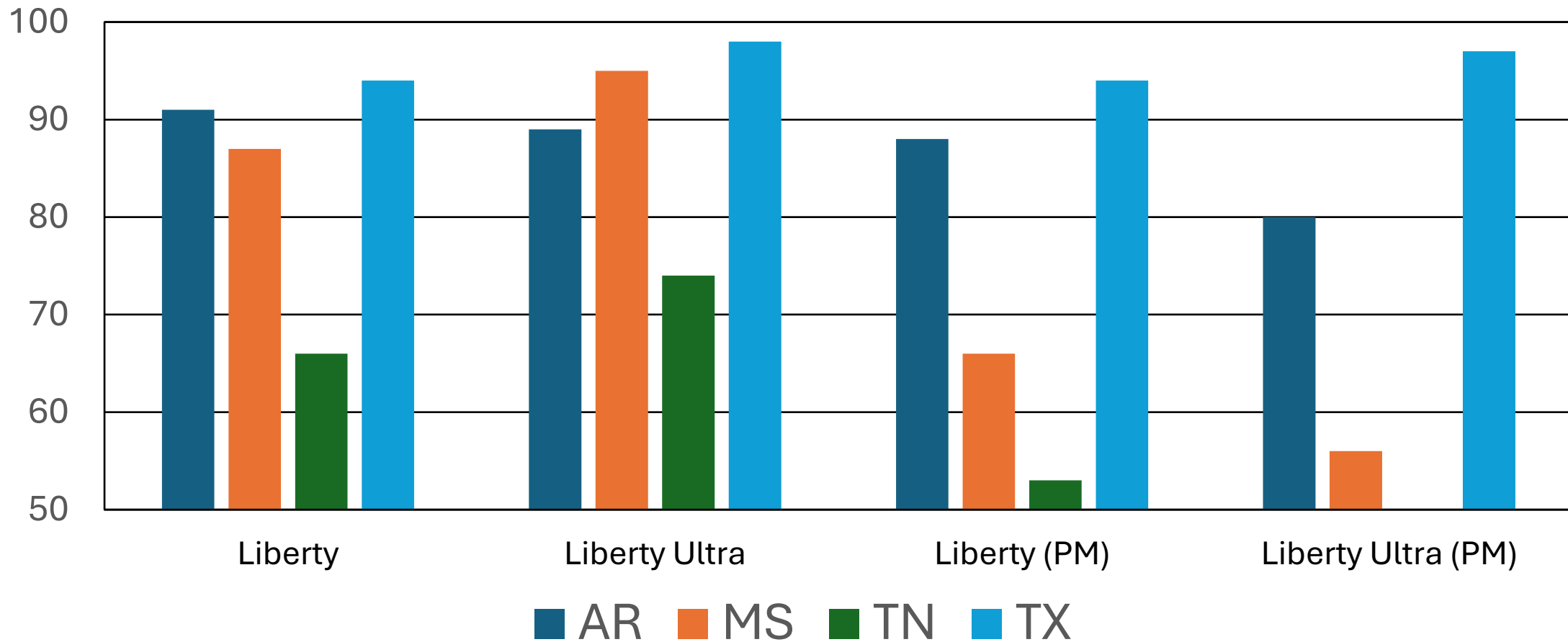
6-8in Pigweed

Table 1. Palmer amaranth control at 21 days after treatment (DAT) at 4 locations.

Herbicide/Rate	Spray Volume (GPA)	Application Timing	21 DAT			
			AR	MS	TN	TX
Liberty @ 32 fl oz/A	5	Mid-Morning	85	89	60	93
	10	Mid-Morning	86	96	63	94
	15	Midi-Morning	91	87	66	97
	20	Mid-Morning	85	97	69	97
	5	Late-Evening	89	43	58	97
	10	Late-Evening	94	67	48	96
	15	Late-Evening	88	66	53	98
	20	Late-Evening	93	65	40	96
Liberty Ultra @ 24 fl oz/A	5	Mid-Morning	89	97	68	92
	10	Mid-Morning	81	93	75	97
	15	Mid-Morning	86	95	74	98
	20	Mid-Morning	89	95	61	98
	5	Late-Evening	86	65	60	96
	10	Late-Evening	93	34	53	96
	15	Late-Evening	80	56	50	97
	20	Late-Evening	92	49	48	96
LSD (p=0.05)			4.21	23.84	10.82	1.93

Palmer amaranth control with Liberty and Liberty Ultra at 21 days after treatment at 4 locations by application timing at 15 GPA.

Liberty (32oz/A) and Liberty Ultra (24oz/A)



Liberty Ultra

5 GPA vs. 15 GPA



Newport, AR 10 days after application of 24 oz Liberty Ultra
Primary weed: Palmer Amaranth

Liberty Ultra

- GPA requirement Liberty Ultra (24 oz) / glufosinate (32 oz)



20/15 GPA either product



10/5 GPA



Check

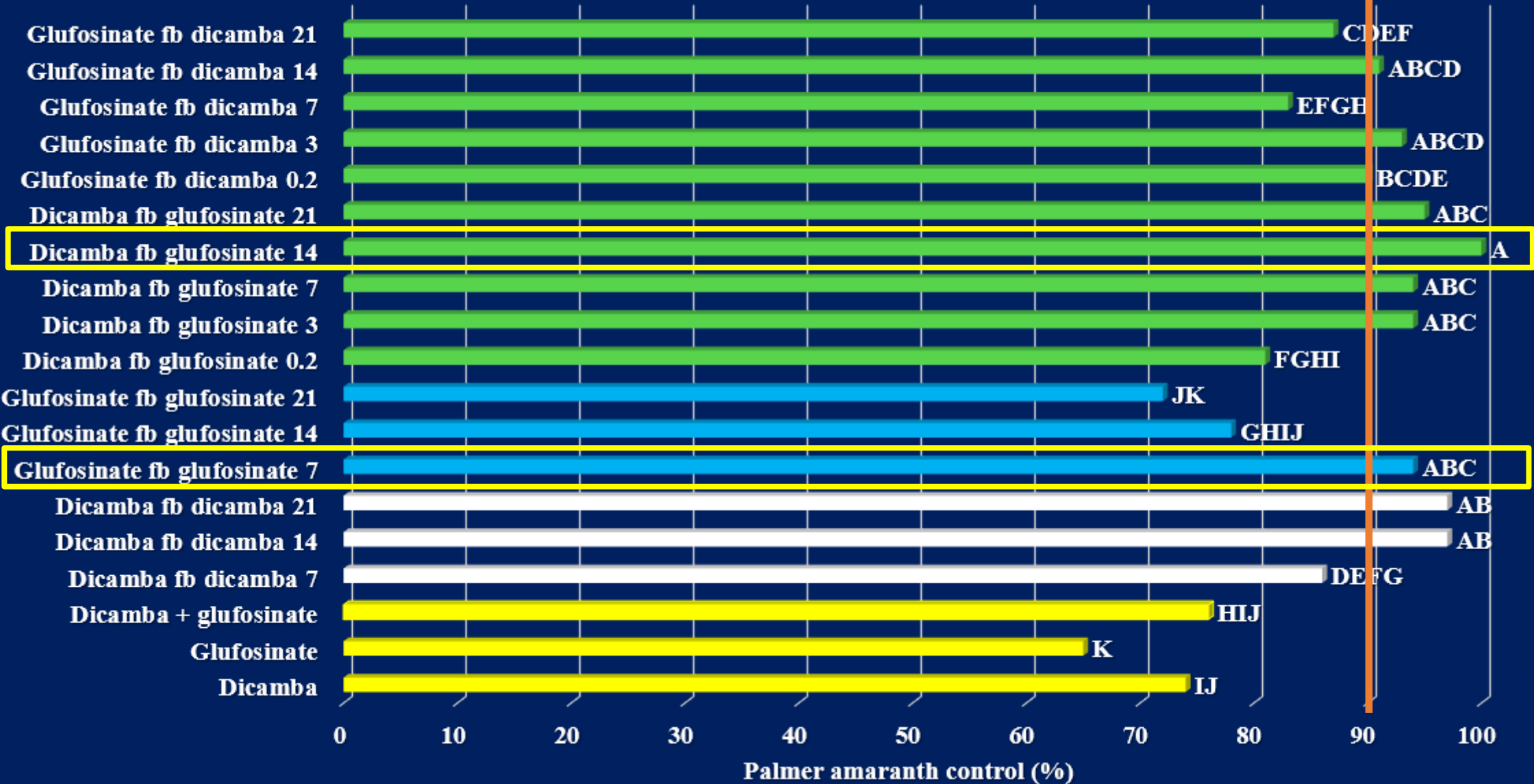
Late applications of glufosinate

- What happens when we spray past R1?
 - Bloom loss can occur
 - At R3 – pod shed
 - Tank mixtures or additional surfactants may increase response
- Row spacing <30in can help prevent late applications



XtendFlex Recommendations

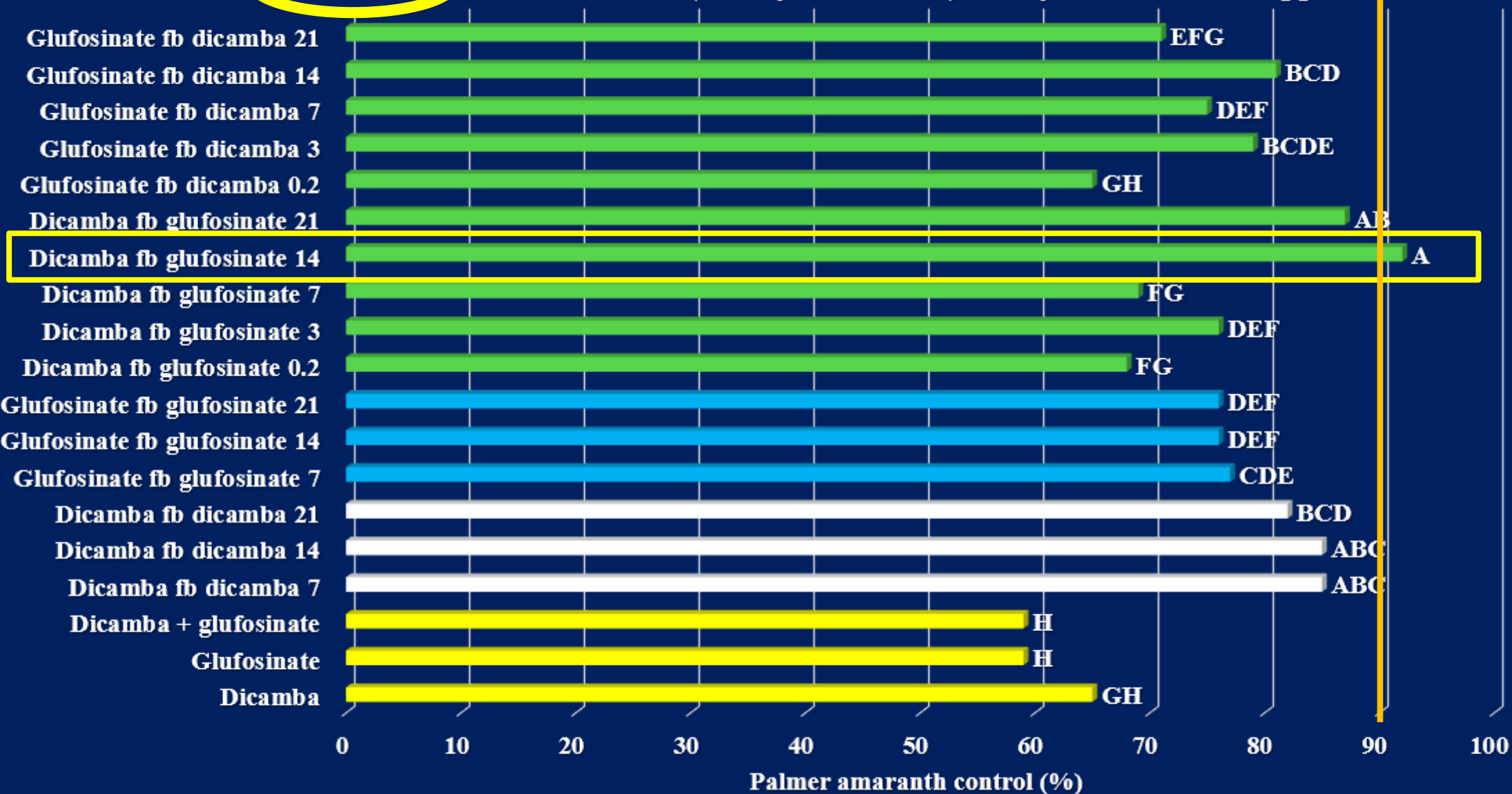
<4 inch Palmer amaranth control (two site-years of data) 28 days after the final application



XtendFlex Recommendations

4 to 10 inch

Palmer amaranth (4 site-years of data) 28 days after the final application



2024 Crittenden County, Arkansas 20-59



Preemergence: Paraquat + Dicamba + S-metolachlor

Early Postemergence: Dicamba + Glyphosate + S-metolachlor

Mid-Postemergence: Dicamba + Glyphosate

Late Postemergence: Glufosinate + Glyphosate + S-metolachlor

Soybean Weed Control Thoughts for 2026

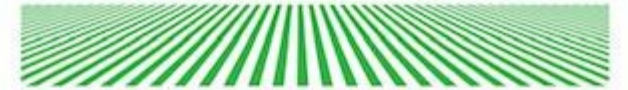
- **Narrow the row spacing with soybean (15in) where possible**
- **Start clean with effective PRE program: 2 MOA + knockdown**
 - **Zidua + Metribuzin, Boundary 1qt/A, + Classic or Firstrate**
 - **Authority Edge 7oz, Fierce + metribuzin**
 - **Several 3-way mixtures, Antares Complete, Intimidator, Tendovo, Kyber Pro**
- **Liberty-based system – target small weeds, spray during banking hours**
 - 15 GPA with smaller droplets (airmix tips)
 - 2 POST apps needed for pigweed, grasses and other broadleaves
 - 7-10 days apart
 - For pigweed: Spray auxin first and follow with glufosinate 14 DAT
 - Enlist system: tankmix of Enlist One + Roundup + Liberty for larger weeds

Thanks, and Good Luck in 2026!

Tom Barber: Extension Weed Scientist

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Soybean Weed Control: Palmer amaranth

- We now have confirmed resistance to:
 - Group 2 (Scepter, Classic)
 - Group 3 (Prowl, Treflan)
 - Group 4 (2,4-D, Dicamba, Loyant)
 - Group 9 (Roundup -glyphosate)
 - Group 10 (Liberty –glufosinate)
 - Group 14 (Flexstar, Sharpen, Valor)
 - Group 15 (Dual, Warrant, Zidua)
 - Group 27 (Callisto, Laudis)*



- Pigweed management is now a year-round sport!
- Residuals are critical to success!
- Survival vs. weed free?

Effectiveness of POST herbicides for control of glufosinate-resistant Palmer amaranth (20-59)

2 weeks after treatment



Nontreated



Liberty 43 oz/A



Gramoxone 40 oz/A



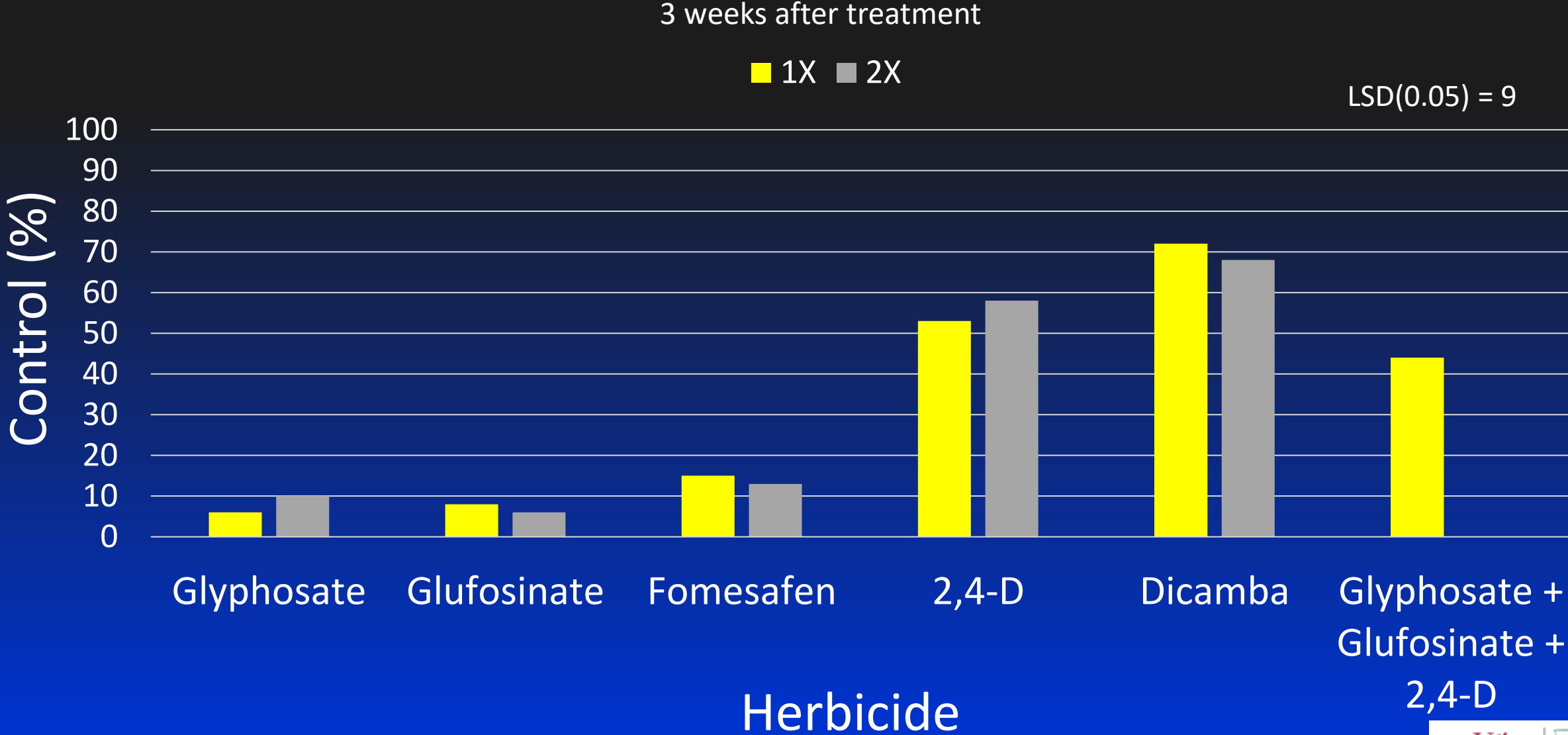
Liberty 64oz/A
Dual Magnum



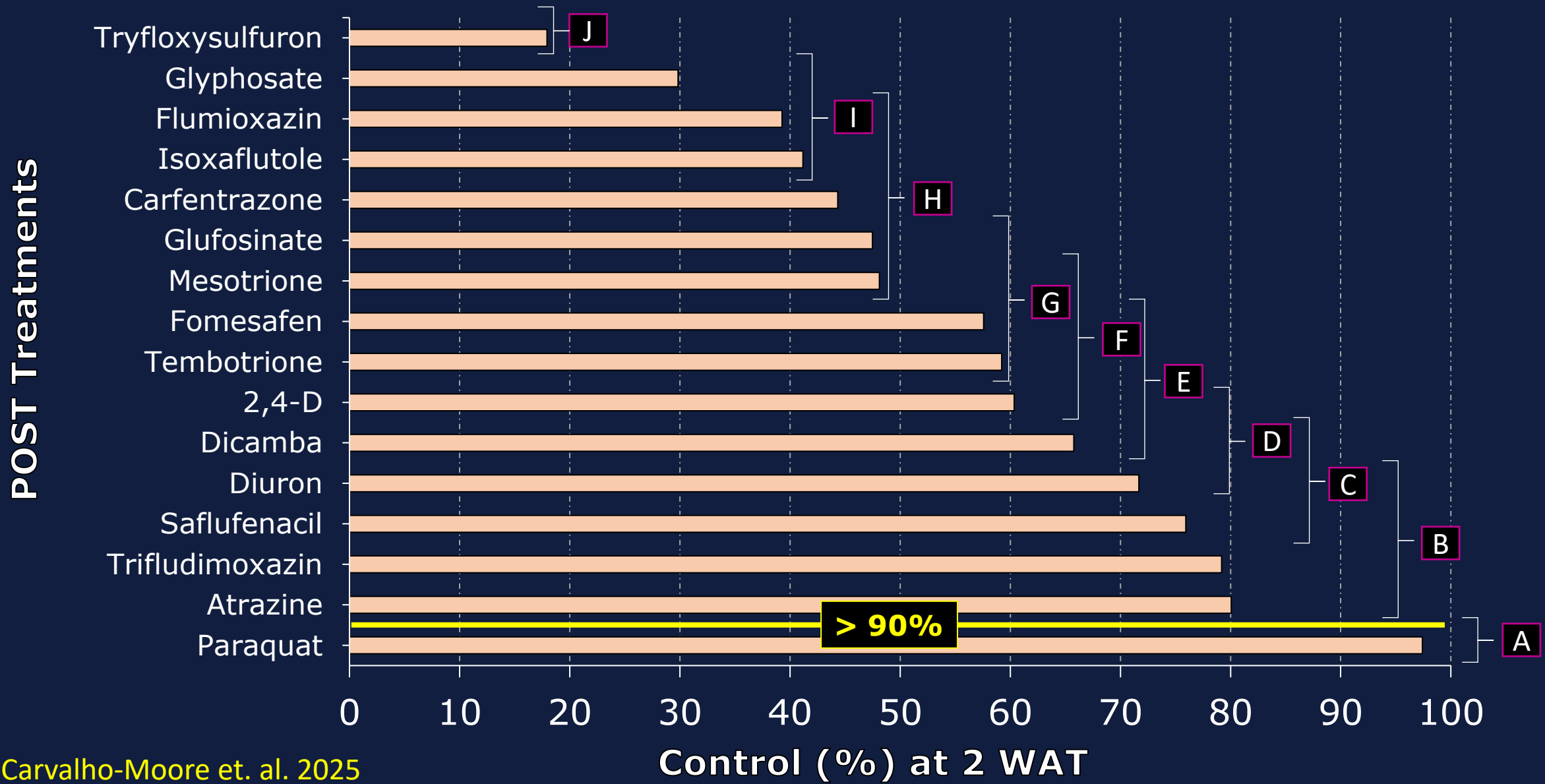
Roundup
Liberty
Enlist One
Dual Magnum

Population 20-59

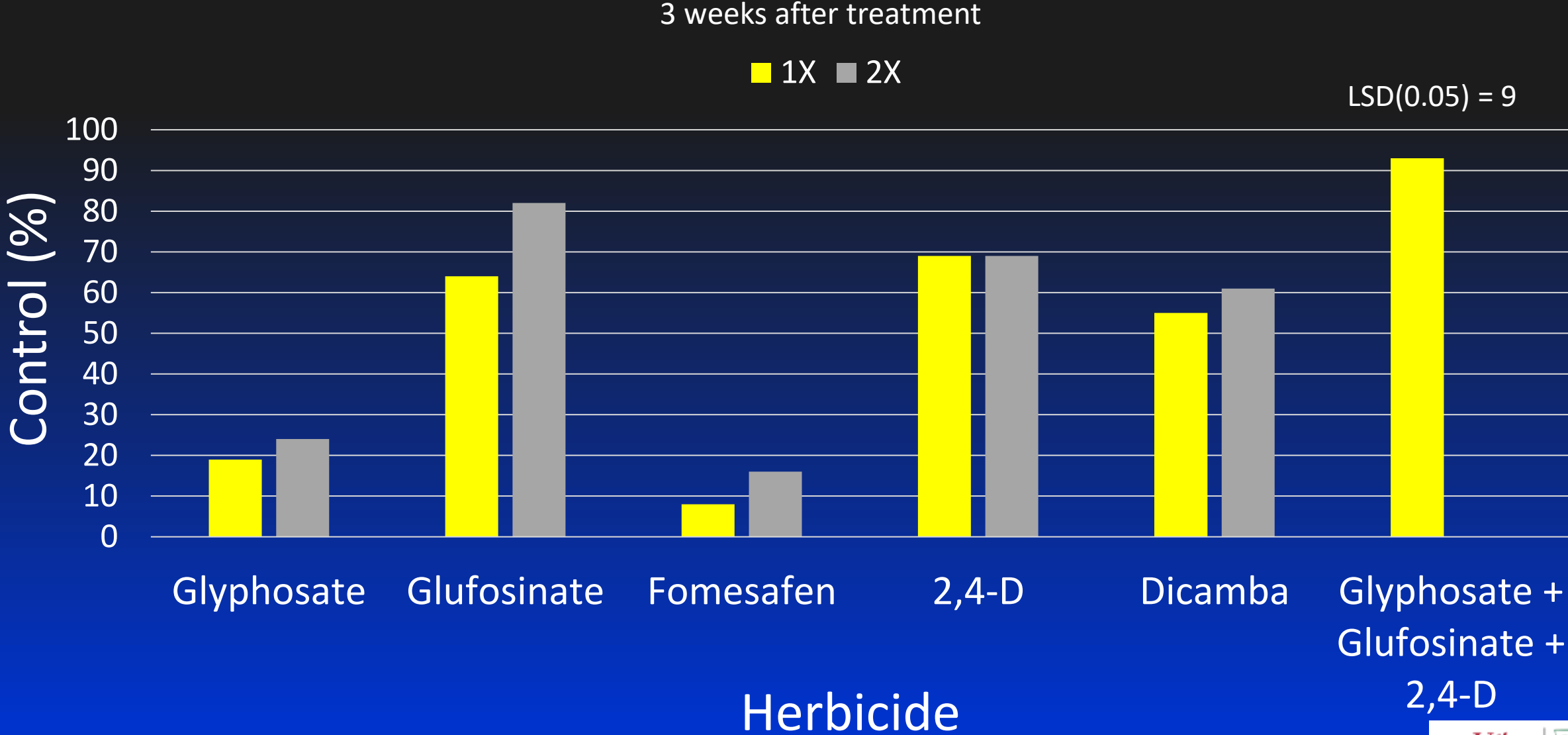
Palmer amaranth (20-59) control with POST herbicides



Palmer amaranth Control - POST



Palmer amaranth (21-46) control with POST herbicides





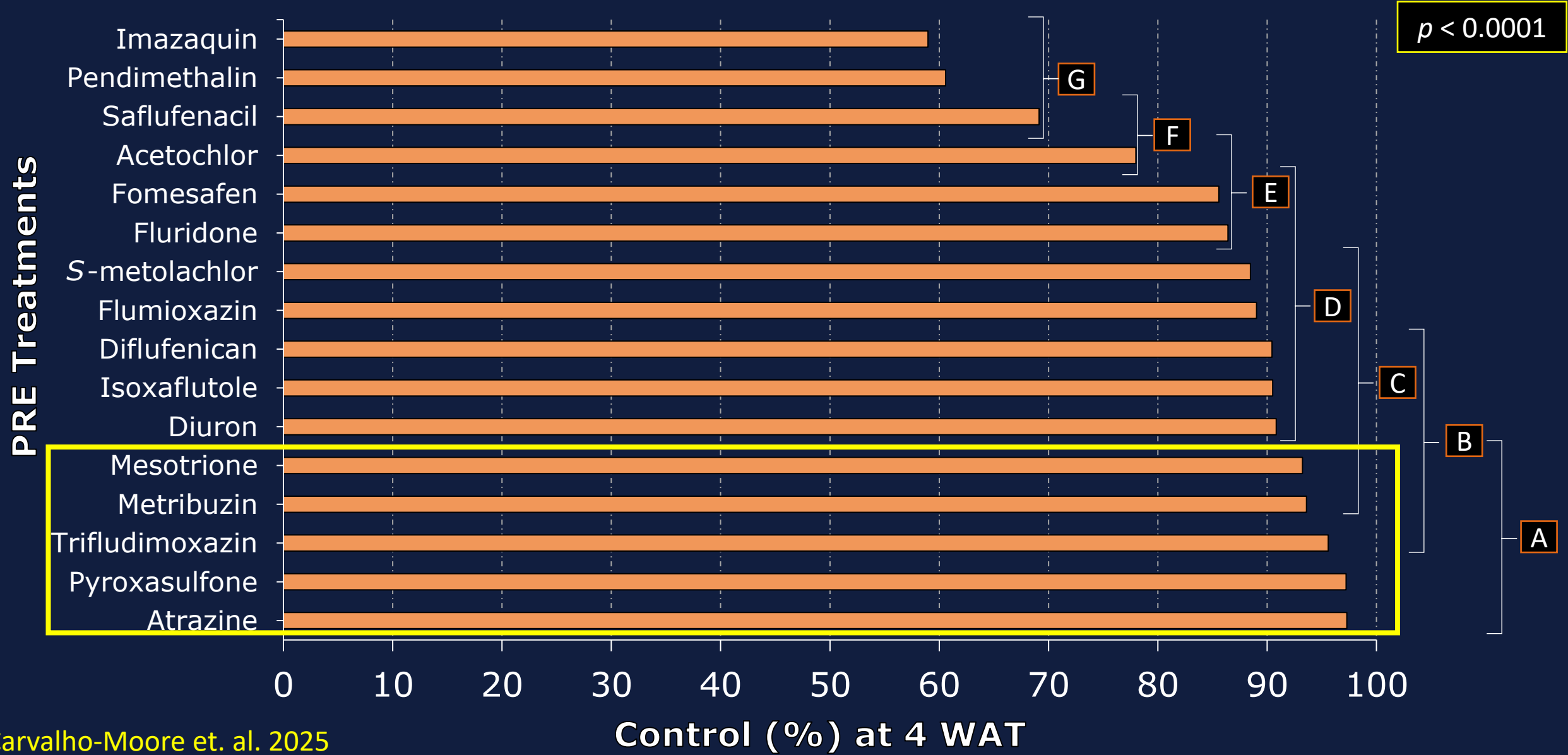
Roundup
Enlist One
Dual Magnum



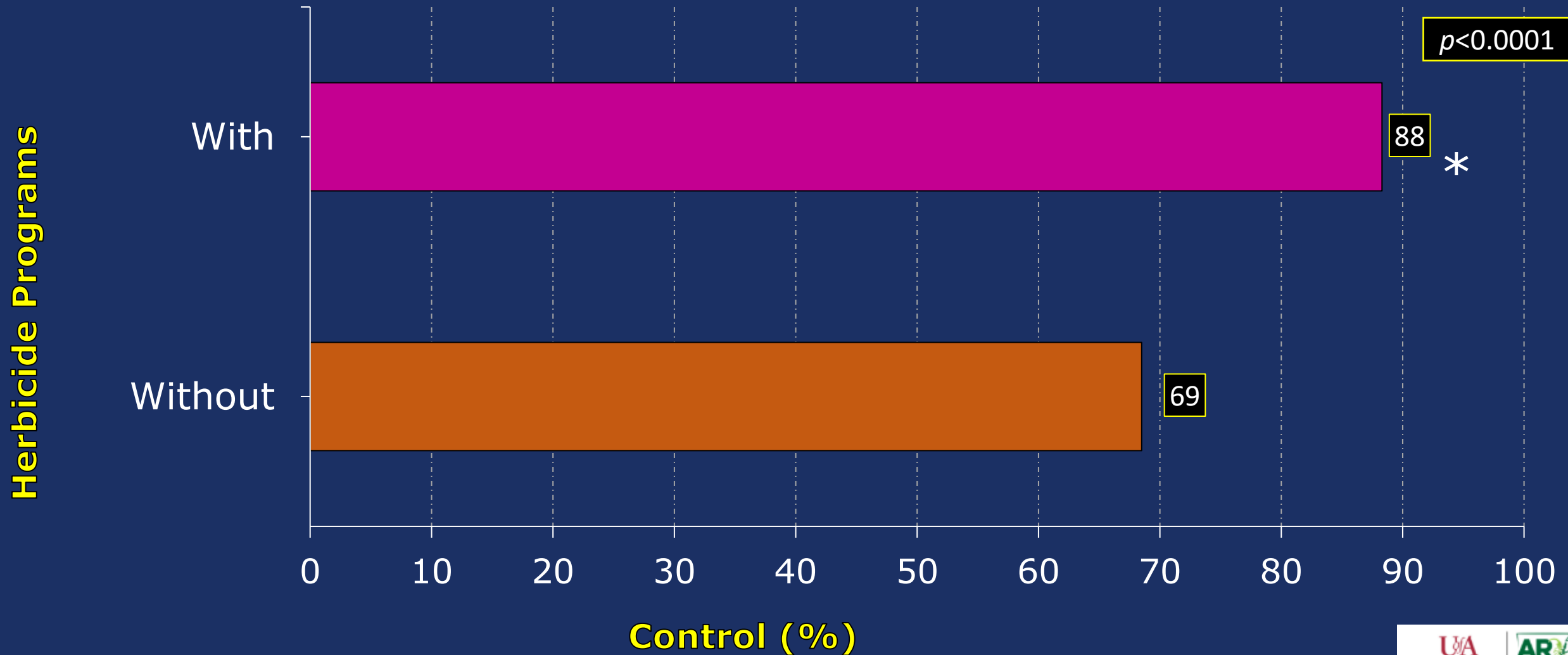
Roundup
Liberty
Enlist One
Dual Magnum

Population 21-46

Palmer amaranth Control - PRE

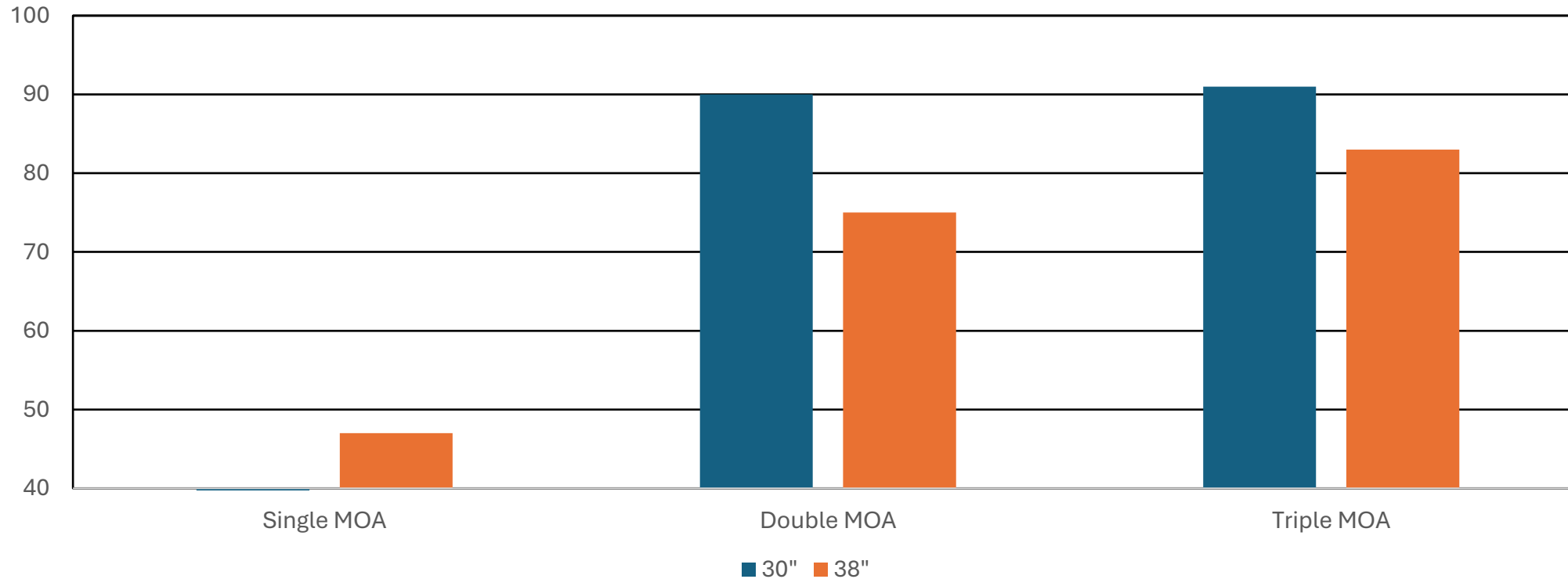


Does the addition of residual herbicides impact the efficacy of the herbicide program?



Palmer amaranth control 30" vs 38" rows (Newport-30" vs. Marianna-38")*

% Palmer amaranth control at 63 days after planting



* Irrigation/Rainfall 1 and 5 days

LSD (0.05) = 20 and 19

Planting Date Affect



April 15



May 15

Planting Date Affect



April 1



May 1

Effect of row spacing on canopy closure

June 26
31 DAP

Drill



15"



30"



38"



July 2
37 DAP



*Gramoxone + Valor + Dual (fall or early spring) At planting (5/23) Gramoxone 32 oz/A + Preview (metribuzin + Sulfentrazone) 18 oz/A + Zidua 3.25 oz/A PRE fb. Roundup + Liberty 4 WAE.

RCS 25 Burndown 03

Effect of row spacing on canopy closure

July 30
65 DAP



***Canopy Closure: Drill (45 Days), 15" (55 Days), 30" (75 Days), 38" (??)**

Single, Double and Triple MOA Residual products for pigweed in soybean – 3 Locations (Newport, Marianna and Rohwer)

- **Single MOA***

- **Zidua** (pyroxysulfone)
- **Dual** (s-metolachlor)
- **Sencor** (metribuzin)
- **Spartan** (sulfentrazone)
- **Valor** (Flumioxazin)

- **Double MOA**

- **Boundry** (Dual + Metribuzin)
- **Fierce** (Zidua + Valor)
- **BroadAxe** (Dual + Spartan)
- **Prefix** [Dual + Fomesafen (Reflex)]
- **Authority Edge** (Zidua + Spartan)

- **Triple MOA**

- **Antares Complete** (Dual + metribuzin + Sulfentrazone)
- **Intimidator** [Dual + metribuzin + Reflex]
- **Fierce MTZ**** (Zidua + metribuzin + Valor)
- **Tendovo** [Dual + metribuzin + Cloransulam-methyl (FirstRate)]
- **Warrant Ultra + metribuzin** (Warrant (acetochlor) + Reflex + metribuzin)

- *Rates based on 1X rate of group 15 for a silt loam soil with >3% OM.

- **15-25% injury.

Row Spacing:

Newport 30”

Marianna and Rohwer 38”

Days to activation:

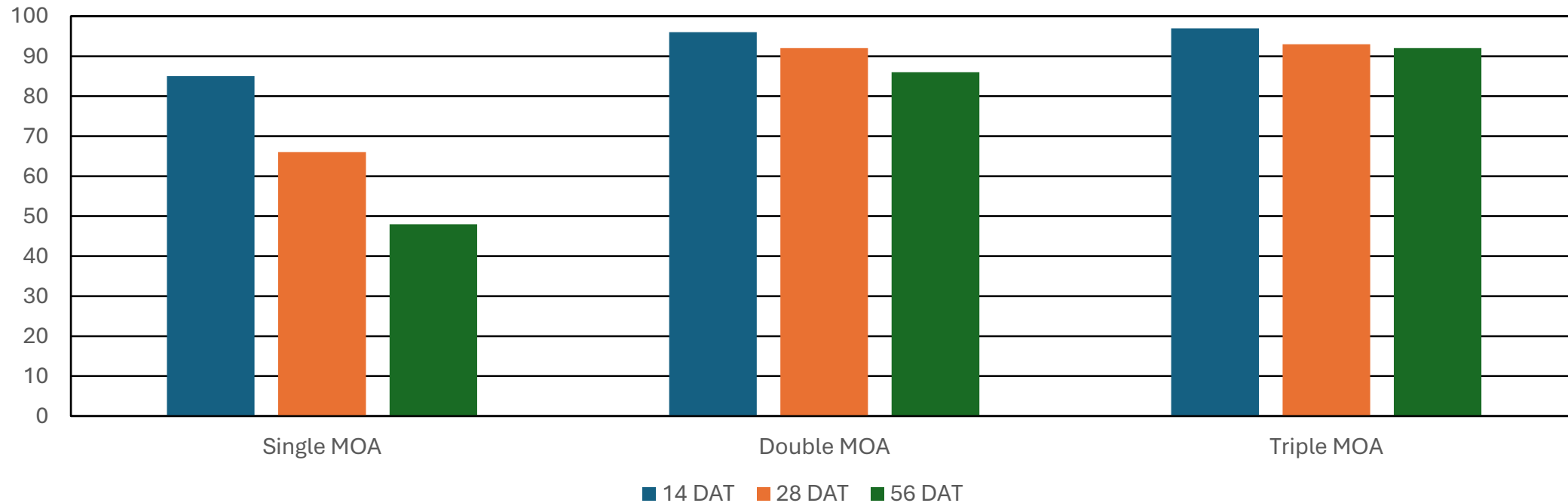
Newport 1 day (irrigated)

Rohwer 10 days (rainfall)

Marianna 5 days (rainfall)

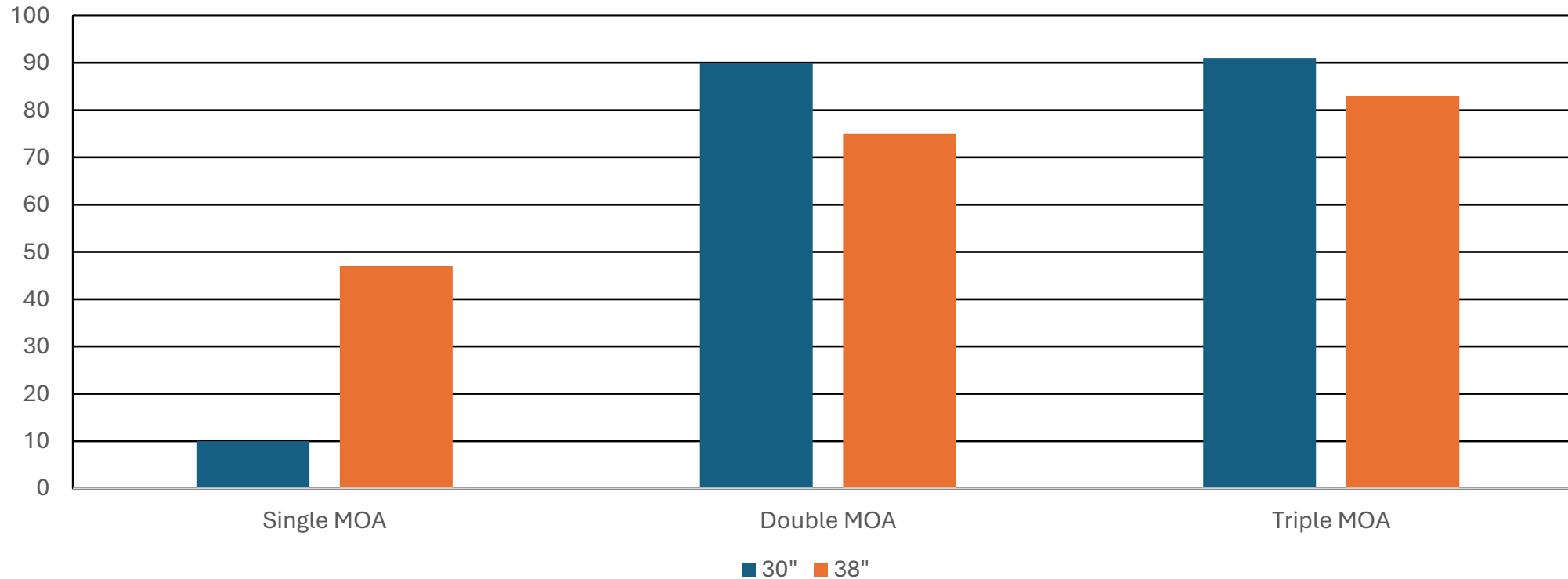
Palmer amaranth control across 3 locations and 5 single, double, and triple MOA products

% Palmer amaranth control at 14, 28 and 56 days after planting averaged over 3 locations



Palmer amaranth control 30" vs 38" rows (Newport-30" vs. Marianna-38")*

% Palmer amaranth control at 63 and 38 days after planting



* Irrigation/Rainfall 1 and 5 days

LSD (0.05) = 20 and 19

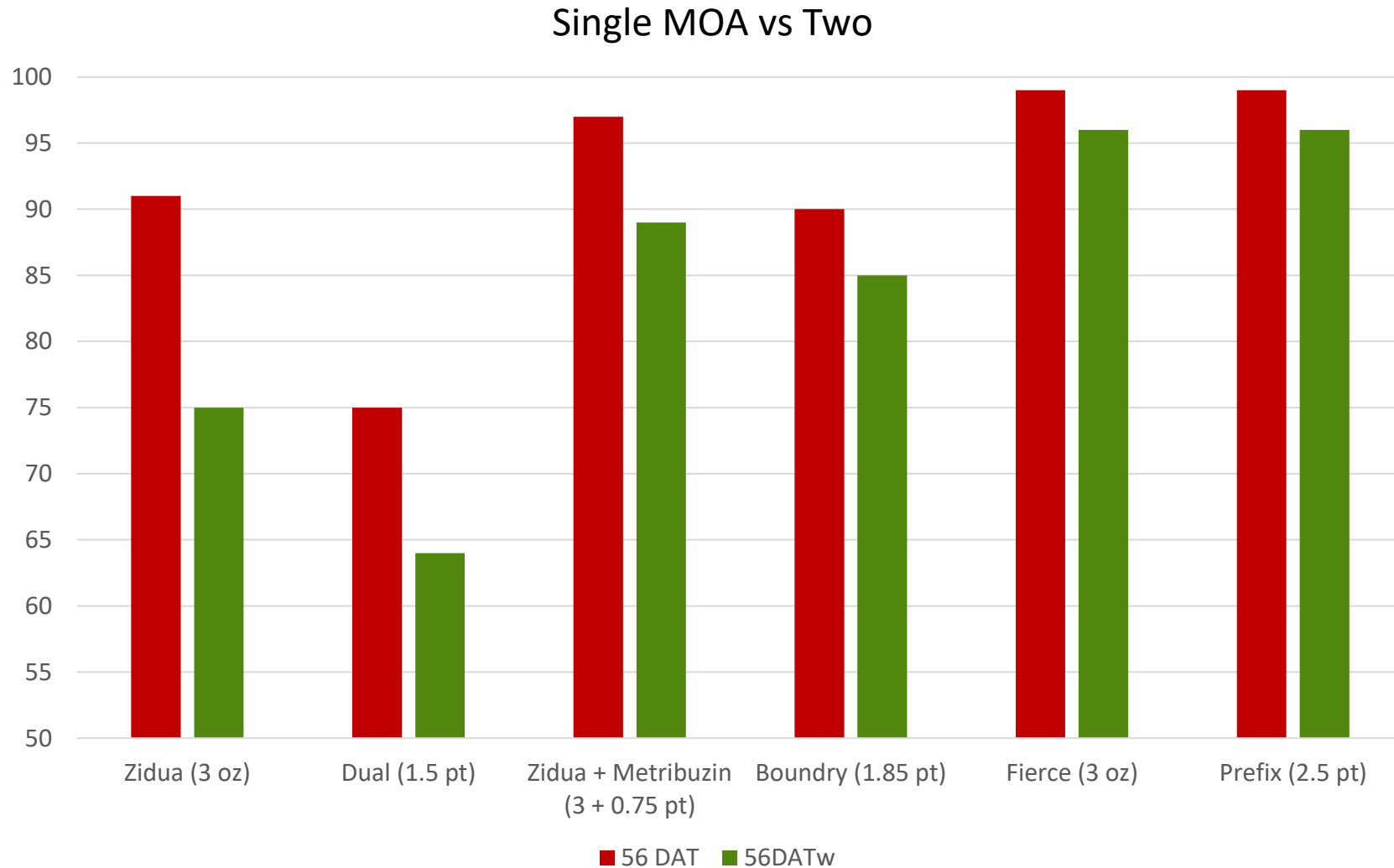
Narrow row (7.5") vs. wide row 30"



RCS 25 Soybean 05

Palmer amaranth control

Narrow vs. 30" Rows w/ Residual Herbicides



Palmer amaranth control

Narrow vs. 30" Rows w/ Residual Herbicides

