

Weed Control Updates for Southwest North Dakota 2025

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Fall Application of Metribuzin and Zidua in Field Pea

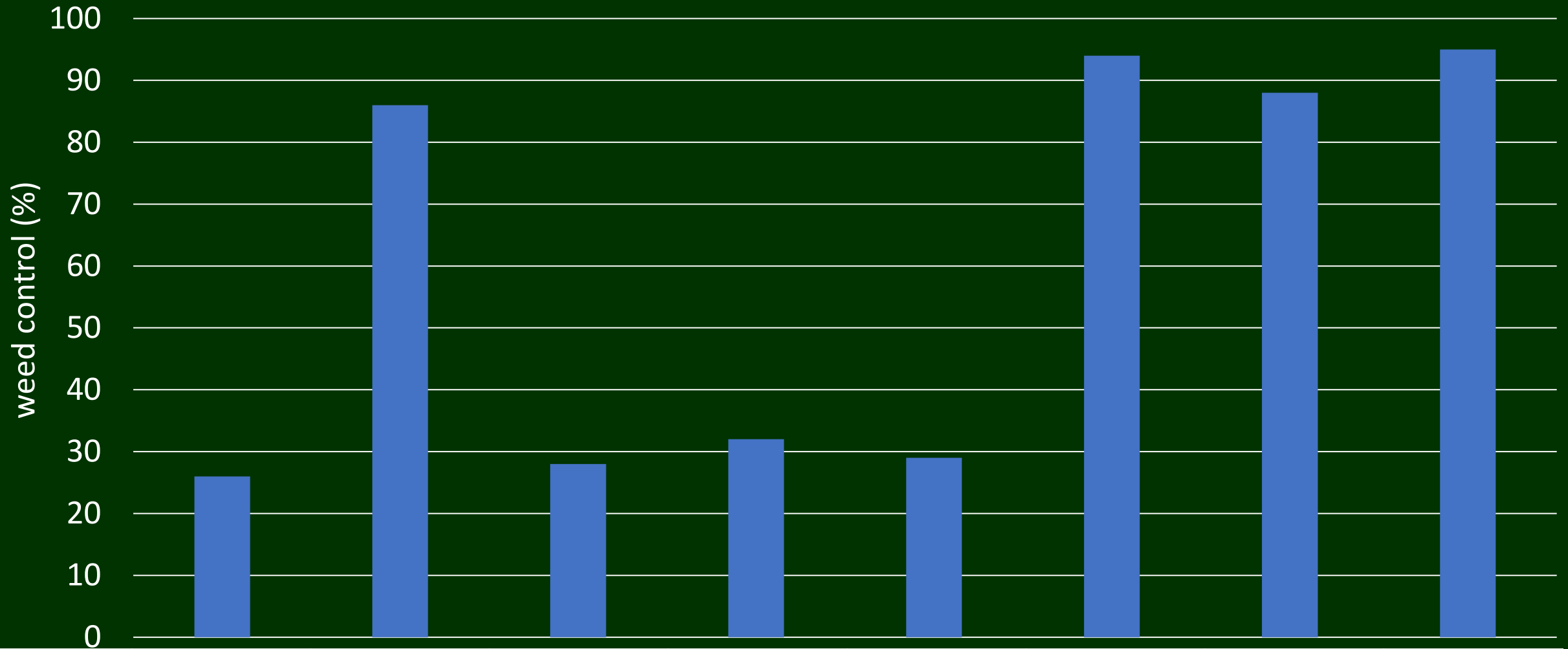
- Evaluation of weed control in field peas
- Kochia tolerance to PPO herbicides such as sulfentrazone (Spartan) and saflufencil (Sharpen) is becoming more common
- Fall application of PRE herbicides get herbicides in place prior to planting
- Trial was conducted to evaluate fall application of metribuzin and Zidua (pyroxasulfone)

Fall Application of Metribuzin and Zidua in Field Pea

- Fall treatments applied on Nov 4, 2024
- Herbicide treatments: all PREs were tank-mixed with glyphosate
 - Zidua SC (pyroxasulfone): 4 oz/A (2 oz ai/A)
 - Metribuzin 75% DF: 4, 6, and 8 oz/A (3, 4.5, and 6 oz ai/A)
 - Combinations of Zidua and Metribuzin at all rates
 - Compared with no herbicide (untreated) and glyphosate alone
- Weeds present in trial area included:
 - Cheatgrass, wild oat, kochia, wild buckwheat, and prickly lettuce
- To control grasses, Section 3 (clethodim) was applied to entire trial following the evaluation of weed control 3 weeks after planting

■ Cheatgrass

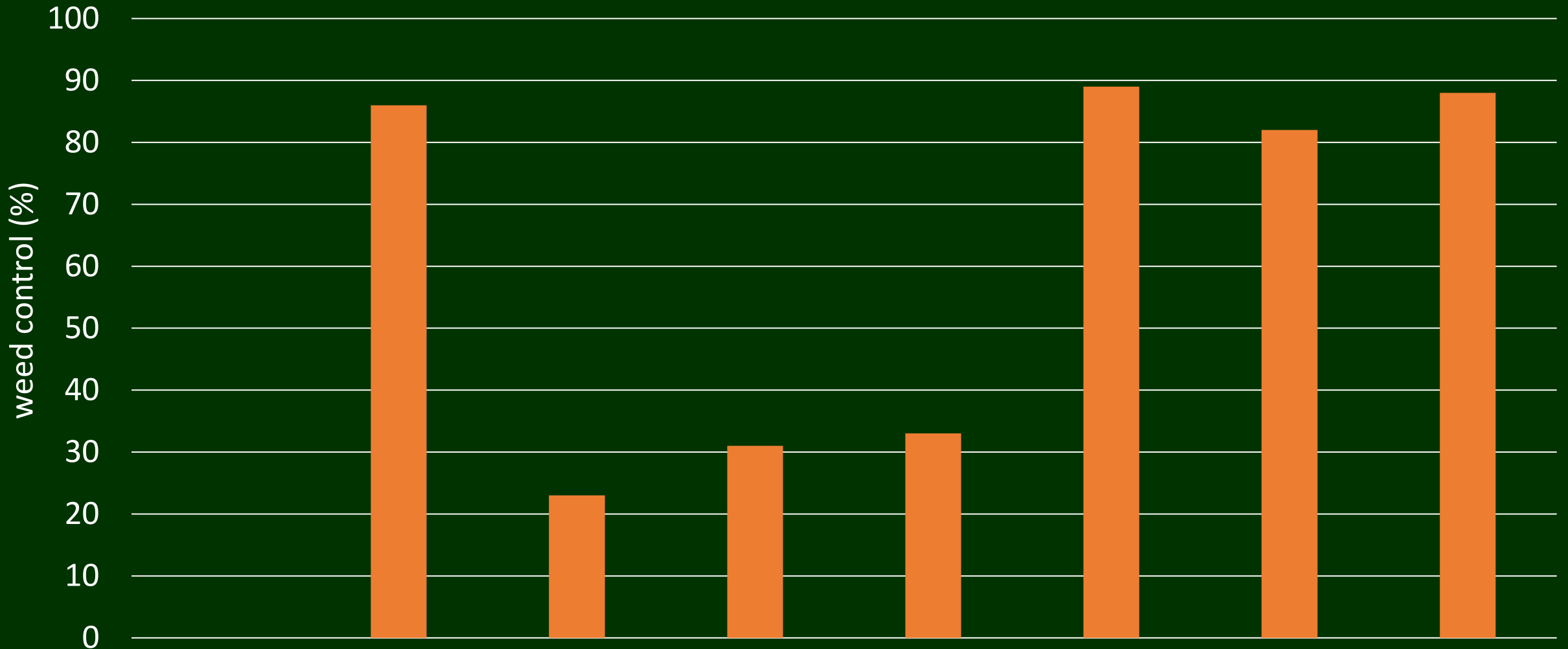
LSD (0.05) = 7.7



Zidua	0	4	0	0	0	4	4	4
Metribuzin	0	0	4	6	8	4	6	8

Wild oat

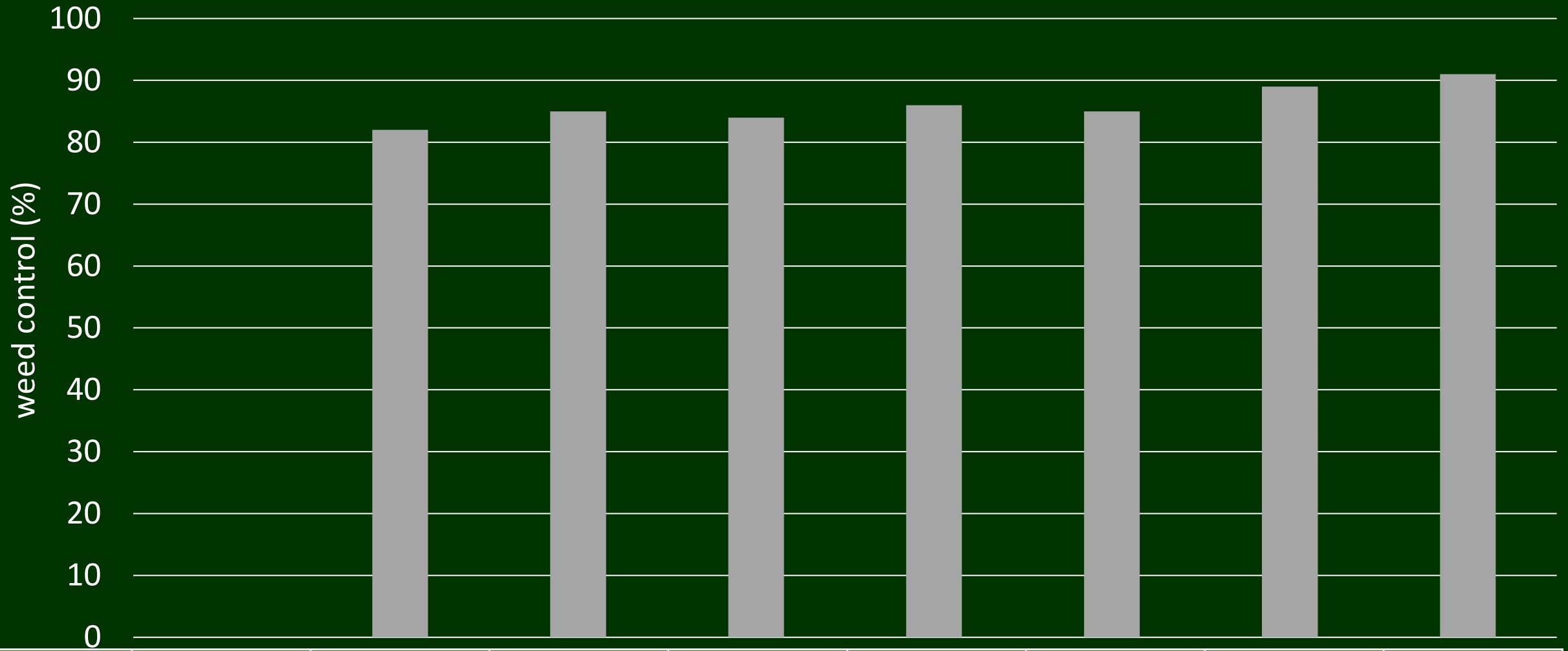
LSD (0.05) = 9.8



Zidua	0	4	0	0	0	4	4	4
Metribuzin	0	0	4	6	8	4	6	8

■ Kochia

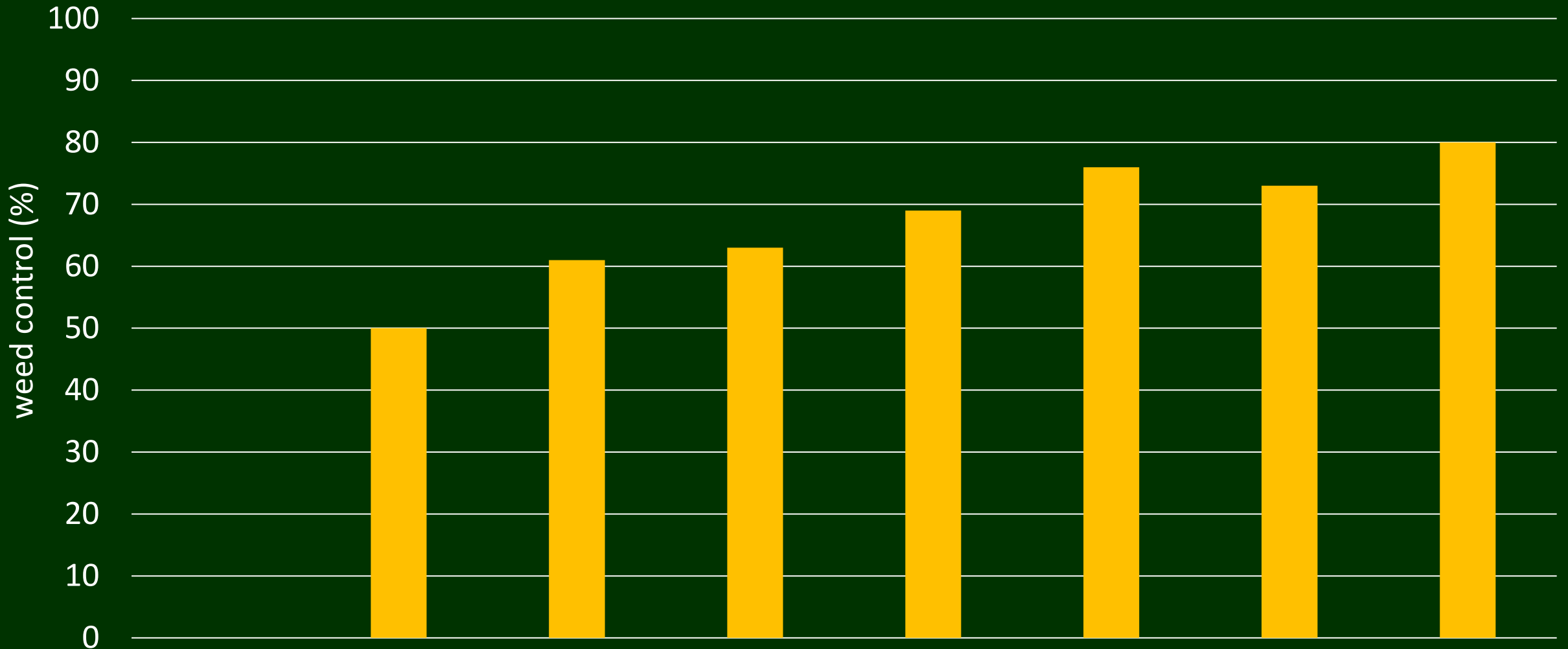
LSD (0.05) = 4.7



Zidua	0	4	0	0	0	4	4	4
Metribuzin	0	0	4	6	8	4	6	8

■ Wild Buckwheat

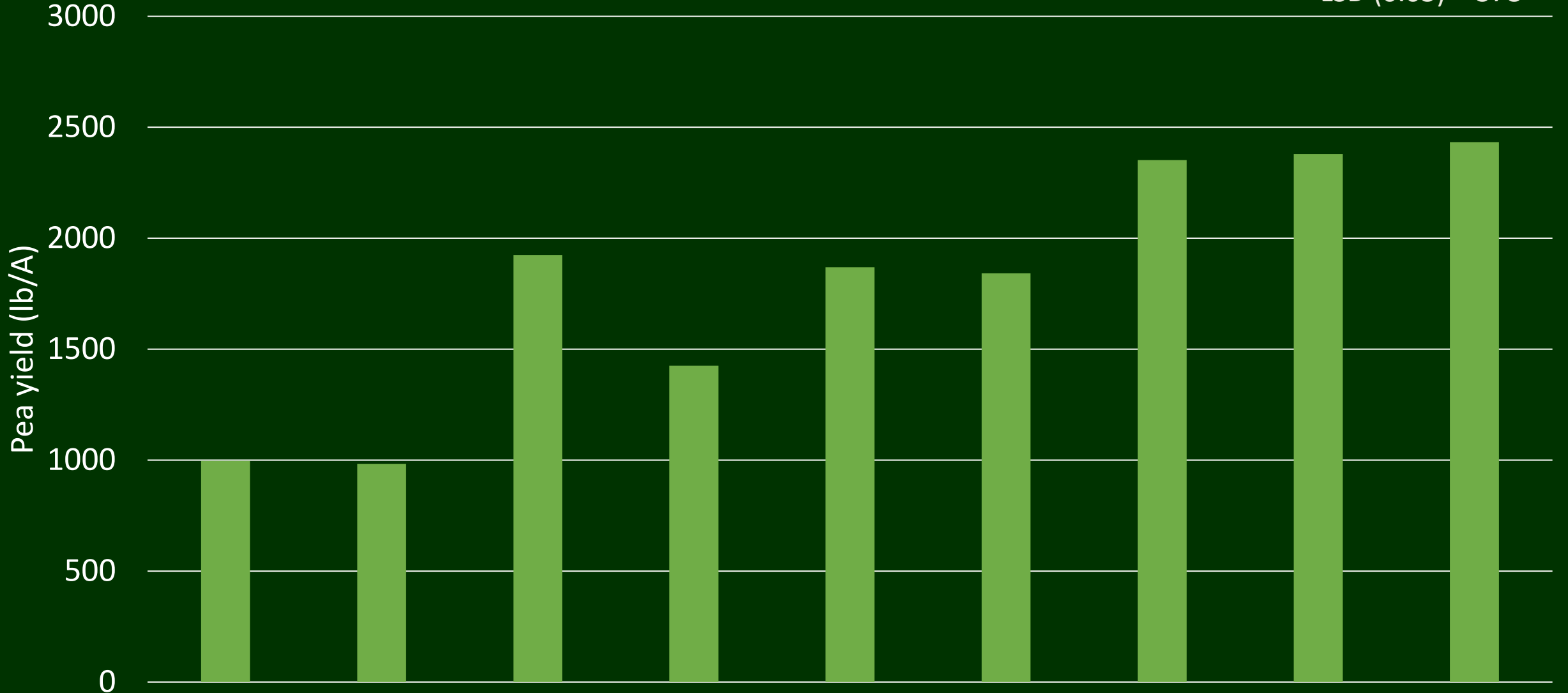
LSD (0.05) = 6.1



Zidua	0	4	0	0	0	4	4	4
Metribuzin	0	0	4	6	8	4	6	8

■ Yield

LSD (0.05) = 378



Zidua	UNT	0	4	0	0	0	4	4	4
Metribuzin		0	0	4	6	8	4	6	8

Bottom Line

- Cheatgrass and wild oat are very competitive with peas
 - Controlling these through fall application of Zidua reduces competition
 - Probably still benefit from a POST application of grass herbicide such as clethodim
- Fall application of Zidua SC:
 - Helped to control cheatgrass, wild oat, and kochia
 - Not enough control of wild buckwheat and prickly lettuce
- Fall application of metribuzin:
 - Helped control kochia, wild buckwheat, and prickly lettuce
 - No or little control of cheatgrass and wild oat
- Combinations of Zidua SC and metribuzin
 - Good to excellent control of all weeds
 - Resulted in highest pea yields

Kochia Control with POST Herbicide Combinations in Spring Wheat

- Trials conducted in 2024 and 2025 to evaluate control of kochia and other weeds in spring wheat with various herbicide combinations
 - Some herbicides are tank-mixes others are commercial premixes of herbicides
- Treatments applied on June 7 2024 and June 18, 2025
 - Kochia height was
 - 2 inches in 2024
 - 4 inches in 2025
- Weeds evaluated for control at two weeks after treatments

POST options for Kochia in Spring Wheat

Herbicide Treatment		Rate	
Active ingredient	(oz ai/A)	Trade name	(oz product/A)
Fluroxypyr ⁴	2	Starane Ultra	5.6
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 4	Starane + Maestro 2EC	5.6 + 16
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 6	Starane + Maestro 2EC	5.6 + 24
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 8	Starane + Maestro 2EC	5.6 + 32
Fluroxypyr ⁴ + bromoxynil ⁶ + pyrasulfotole ²⁷	1 + 2.4 + 0.45	Huskie FX	13.5
Bromoxynil ⁶ + pyrasulfotole ²⁷ + thien carbazone ²	3.5 + 0.45 + 0.068	Huskie Complete	13.7
Bromoxynil ⁶ + bicyclopyrone ²⁷	2.5 + 0.5	Talinor	13.7
Bromoxynil ⁶ + tolpyralate ²⁷	2.1 + 0.21	Tolvera	11
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	1.3 + 3.3 + 3.3	Carnivore	16
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	2 + 5 + 5	Carnivore	24
Bromoxynil ⁶ + MCPA ⁴	6 + 6	Bison	24
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 1	Bison + Starane Ultra	24 + 2.8
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 2	Bison + Starane Ultra	24 + 5.6

Weed Control 14 DAT in 2024

Herbicide Treatment			Kochia
Active ingredient	(oz ai/A)	(oz product/A)	% Control at 15 DAT
Fluroxypyr ⁴	2	5.6	72
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 4	5.6 + 16	81
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 6	5.6 + 24	92
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 8	5.6 + 32	92
Fluroxypyr ⁴ + bromoxynil ⁶ + pyrasulfotole ²⁷	1 + 2.4 + 0.45	13.5	88
Bromoxynil ⁶ + pyrasulfotole ²⁷ + thiencazone ²	3.5 + 0.45 + 0.068	13.7	88
Bromoxynil ⁶ + bicyclopyrone ²⁷	2.5 + 0.5	13.7	84
Bromoxynil ⁶ + tolpyralate ²⁷	2.1 + 0.21	11	85
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	1.3 + 3.3 + 3.3	16	86
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	2 + 5 + 5	24	90
Bromoxynil ⁶ + MCPA ⁴	6 + 6	24	85
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 1	24 + 2.8	93
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 2	24 + 5.6	90
LSD (0.05)			9.1

Weed Control 15 DAT in 2025

Herbicide Treatment			Kochia	Common lambsquarters
Active ingredient	(oz ai/A)	(oz product/A)	% Control at 15 DAT	
Fluroxypyr ⁴	2	5.6	62	31
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 4	5.6 + 16	73	89
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 6	5.6 + 24	80	97
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 8	5.6 + 32	85	99
Fluroxypyr ⁴ + bromoxynil ⁶ + pyrasulfotole ²⁷	1 + 2.4 + 0.45	13.5	90	98
Bromoxynil ⁶ + pyrasulfotole ²⁷ + thiencazone ²	3.5 + 0.45 + 0.068	13.7	88	99
Bromoxynil ⁶ + bicyclopyrone ²⁷	2.5 + 0.5	13.7	81	94
Bromoxynil ⁶ + tolpyralate ²⁷	2.1 + 0.21	11	87	100
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	1.3 + 3.3 + 3.3	16	74	96
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	2 + 5 + 5	24	79	98
Bromoxynil ⁶ + MCPA ⁴	6 + 6	24	78	97
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 1	24 + 2.8	83	98
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 2	24 + 5.6	82	98
LSD (0.05)			5	5

Kochia Control 2024 vs 2025

Herbicide Treatment			2025	2024
Active ingredient	(oz ai/A)	(oz product/A)	% Control at 15 DAT	
Fluroxypyr ⁴	2	5.6	62	72
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 4	5.6 + 16	73	81
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 6	5.6 + 24	80	92
Fluroxypyr ⁴ + bromoxynil ⁶	2 + 8	5.6 + 32	85	92
Fluroxypyr ⁴ + bromoxynil ⁶ + pyrasulfotole ²⁷	1 + 2.4 + 0.45	13.5	90	88
Bromoxynil ⁶ + pyrasulfotole ²⁷ + thiencazone ²	3.5 + 0.45 + 0.068	13.7	88	88
Bromoxynil ⁶ + bicyclopyrone ²⁷	2.5 + 0.5	13.7	81	84
Bromoxynil ⁶ + tolpyralate ²⁷	2.1 + 0.21	11	87	85
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	1.3 + 3.3 + 3.3	16	74	86
Fluroxypyr ⁴ + bromoxynil ⁶ + MCPA ⁴	2 + 5 + 5	24	79	90
Bromoxynil ⁶ + MCPA ⁴	6 + 6	24	78	85
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 1	24 + 2.8	83	93
Bromoxynil ⁶ + MCPA ⁴ + fluroxypyr	6 + 6 + 2	24 + 5.6	82	90
LSD (0.05)			5	9

Bottom Line

- Kochia is controlled better when smaller in size
 - For better results, apply herbicide when kochia is 2 inches in height
- Wheat can be very competitive with weeds
 - Weeds not controlled produce seed and become next year's problem
- Still many viable POST options for wild buckwheat and kochia control in spring wheat
 - Can't rely on fluroxypyr alone
 - Better to have at least 2 modes of action (3 is better)
 - Group 4 (growth regulators)
 - Group 6 (photosynthesis inhibitors)
 - Group 27 (pigment inhibitors)



Maestro EXT

- Upcoming new herbicide for spring wheat
 - Hoping for registration soon (2026-2027?)
 - Active ingredients are dichlorprop-p (3.2 lb/gal) and bromoxynil (1.6 lb/gal)
 - Dichlorprop is a Group 4 herbicide (same family as 2,4-D)
 - Bromoxynil is a Group 6 herbicide (Photosystem II inhibitor)
 - Application rate of 20 oz/A (active ingredient: 8 oz/A dichlorprop + 4 oz/A bromoxynil)
 - Crop rotation interval of 9 months or less for most crops
 - Controls annual broadleaf weeds:
 - Kochia, wild buckwheat, lambsquarters, pigweeds, etc
 - No control of grasses

Untreated



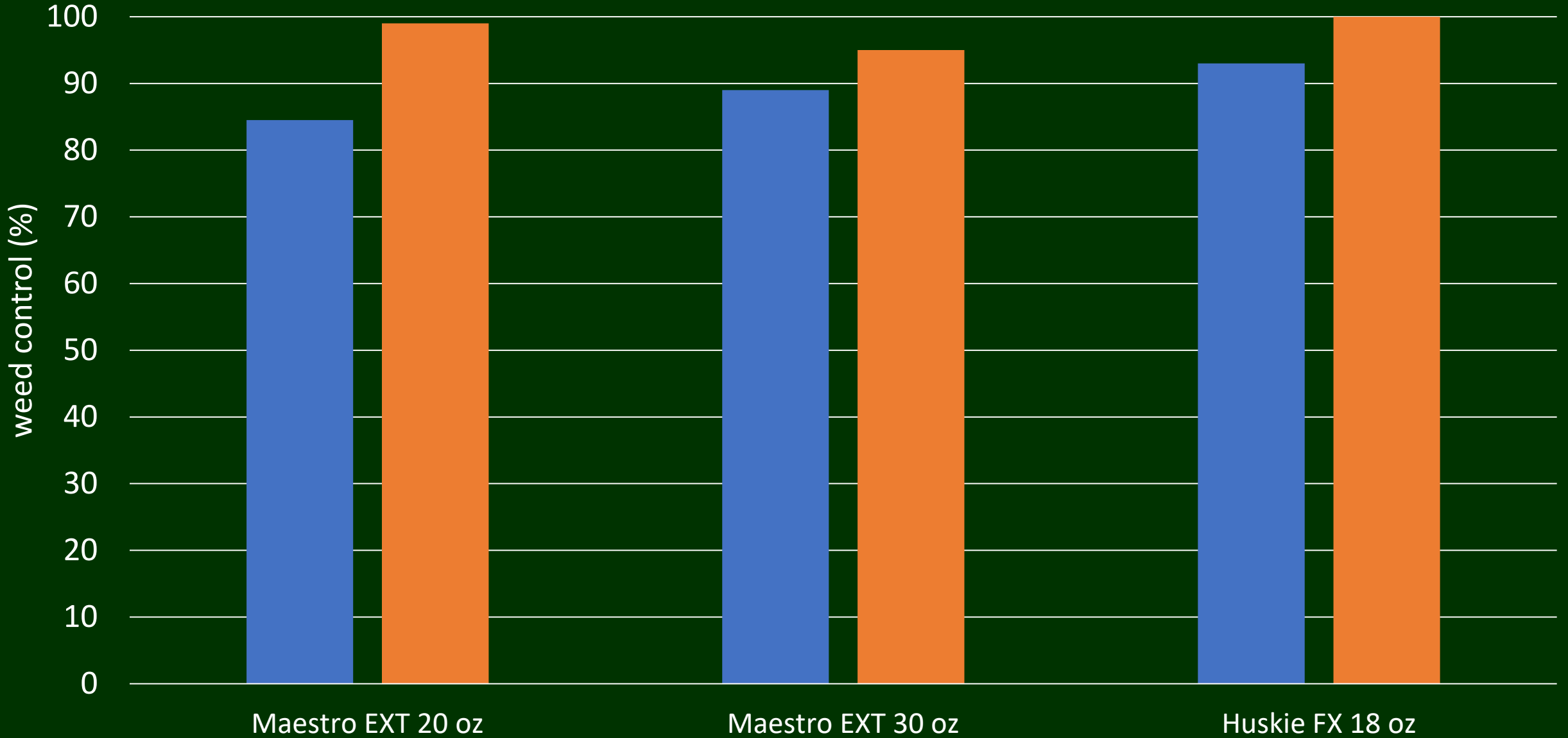
Maestro EXT (20 oz/A) 14 DAT



2024 Trial

Kochia Wild Buckwheat

LSD (0.05) = 5 (kochia); 7 (buckwheat)



Leafy Spurge Control In Pasture

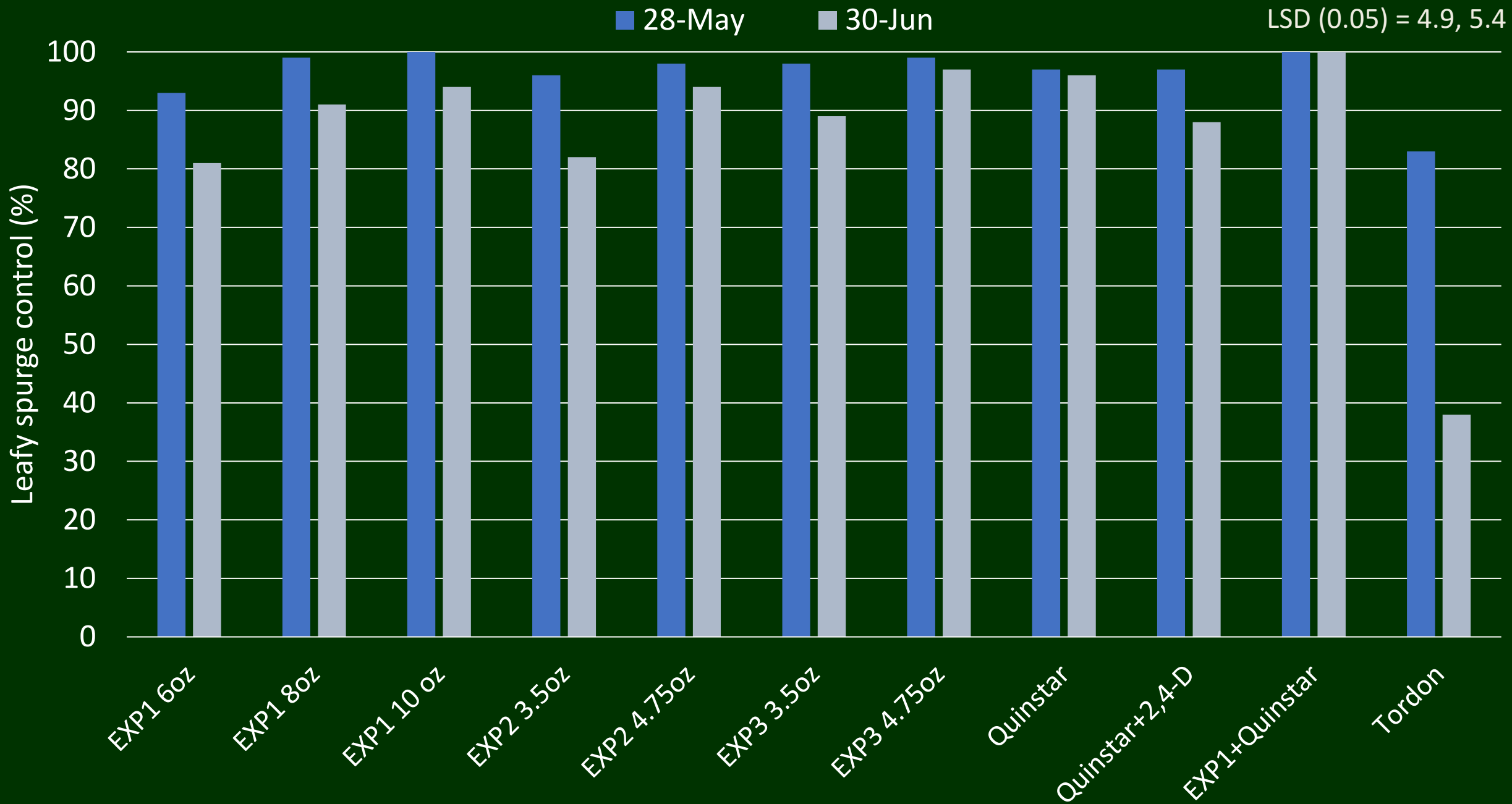


Leafy spurge control (non-crop)

- Leafy spurge is noxious weed commonly found in North Dakota
- Not palatable to cattle; sheep and goats will eat
- Trial was conducted to evaluate herbicide combinations for control
- Herbicide treatments applied on September 27, 2024
 - Field site was pasture grazed by cattle
 - Leafy spurge was fully mature and with fall regrowth
 - Treatments applied with backpack research sprayer (4 nozzles)
 - 20 gal/acre
 - 2.1 mph
 - Evaluations:
 - May 28, 2025 (243 days after treatment)
 - June 30, 2025 (276 Days after treatment)
 - Will be evaluating again in summer of 2026

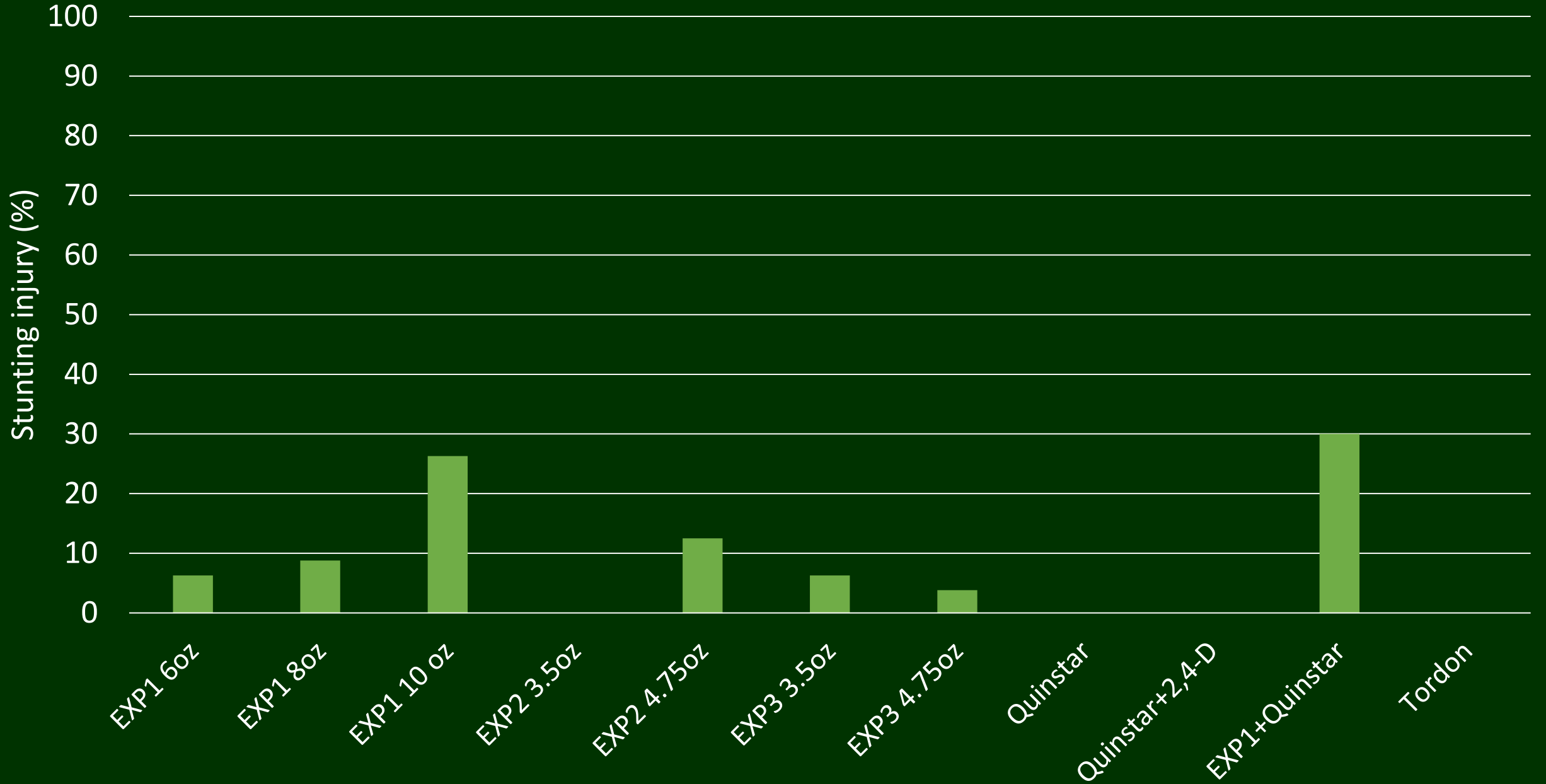
Leafy spurge control (non-crop)

Herbicide Treatment		Rate
Active ingredient	Trade name	(oz product/A)
Aminocyclopyrachlor ⁴	Experimental 1	6
Aminocyclopyrachlor ⁴	Experimental 1	8
Aminocyclopyrachlor ⁴	Experimental 1	10
Aminocyclopyrachlor ⁴ +Chlorsulfuron ²	Experimental 2	3.5
Aminocyclopyrachlor ⁴ +Chlorsulfuron ²	Experimental 2	4.75
Aminocyclopyrachlor ⁴ +Metsulfuron ²	Experimental 3	3.5
Aminocyclopyrachlor ⁴ +Metsulfuron ²	Experimental 3	4.75
Quinclorac ⁴	Quinstar 4L	24
Quinclorac ⁴ + 2,4-D ⁴	Quinstar 4L + 2,4-D Amine	16 + 16
Aminocyclopyrachlor ⁴ + Quinclorac ⁴	Experimental 1 + Quinstar 4L	8 + 16
Picloram ⁴	Tordon 22K	32



■ Grass stunting

LSD (0.05) = 9



Untreated



EXP1 (10 oz/A)



EXP2 (4.75 oz/A)

EXP3 (4.75 oz/A)

An aerial photograph of a dense, vibrant green field, likely a grassland or agricultural plot. The grass is tall and appears to be blowing in the wind, creating a textured, undulating surface. The color is a rich, bright green. In the upper center of the image, the text "EXP3 (4.75 oz/A)" is overlaid in a bright yellow, sans-serif font. The overall scene is bright and natural, suggesting a healthy, well-maintained field.

Quinstar (16 oz/A)

A photograph of a lush green grassy field. The grass is dense and appears to be a mix of species, with some taller stalks and some shorter, more uniform blades. The overall color is a vibrant green. In the upper center of the image, there is a yellow text overlay that reads "Quinstar (16 oz/A)". The background shows a continuation of the grassy field, with a few small pink markers visible in the distance.

EXP1 (8 oz/A) + Quinstar (16 oz/A)

A photograph of a field of tall, green grasses, likely a pasture or meadow. The grasses are dense and appear to be blowing in the wind. The text "EXP1 (8 oz/A) + Quinstar (16 oz/A)" is overlaid in yellow at the top of the image.

Tordon (32 oz/A)

A wide-angle photograph of a lush green field, likely a pasture or meadow. The grass is tall and dense, with numerous yellow flowers scattered throughout. The field is treated with Tordon herbicide, as indicated by the text overlay. The overall scene is vibrant and healthy, suggesting a well-maintained agricultural area.

Leafy Spurge Control

- Controlled well with aminocyclopyrachlor
- Combination of aminocyclopyrachlor + Quinstar had best control
- Aminocyclopyrachlor is not labelled yet for pasture in US
 - Labelled for pasture in Canada already (TruRange)
 - Will probably have same restrictions on manure and hay as with Milestone
 - Passes through digestive tract of animals
 - Can't be spread in areas with sensitive crops/plants, only to pasture/range
 - Hay cut within 18 months can only be used on-farm and cannot be used for mulch or compost around sensitive plants
 - Cannot be applied near trees or other sensitive species



Thank You!