

# Weed Control Update

**Brian Jenks**  
**NDSU - Minot**

# Reviton

- Helm Agro
- Group 14 PPO Inhibitor
- Common name: Tiafenacil
- Has less residual than Sharpen
- “Reviton has no preemergence activity”
- Currently has a 14-day planting interval to soybean, but will be changed to 0-day in the future.
- 0-day planting interval for corn and wheat; 30-60 days for sugarbeet
- 4-6 months for other crops
- 2024 before labeled for other crops

# Reviton

- **2.83 lb/gal**
- **Applied at 1-3 fl oz**
- **“Used to control or suppress a broad spectrum of emerged broadleaf and grass weeds”**
- **Has grass activity, good on wild oat**
- **Not as good on horseweed compared to Sharpen**
- **Always use MSO/COC or NIS**
- **AMS or UAN is allowed**

# Kochia control with fall Valor and Spartan

- **Kochia difficult to control in the spring burndown:**
  - **Glyphosate resistance**
  - **High densities**
  - **Hairy leaves**
  - **Cold temperatures**
- **POST kochia control is now more difficult with more resistance to Starane showing up**

# Kochia control with fall Valor and Spartan

May 9  
0.40"

May 24  
0.54"

Jun 6  
0.61"

Treatment	Rate	Timing	Weed Control			
			May-6	May-22	May-29	Jun-11
		Oct 8/May 6	-----%-----			
Untreated			0	0	0	0
Valor	3 oz	FALL	52	23	20	10
Valor + Spartan	3 oz + 4 oz	FALL	61	33	25	15
Spartan / Spartan <sup>a</sup>	2.5 oz / 2.5 oz	FALL/PRE	27	63	42	23
Spartan	5 oz	FALL	48	22	13	8
Spartan <sup>a</sup>	4 oz	PRE	0	75	59	43
Valor / Authority MTZ <sup>a</sup>	3 oz / 11 oz	FALL/PRE	61	99	98	95
Authority MTZ <sup>a</sup>	11 oz	PRE	0	97	94	89
Valor / Spartan + Sharpen <sup>a</sup>	3 oz / 4 oz + 1 oz	FALL/PRE	54	77	63	38
Spartan + Sharpen <sup>a</sup>	4 oz + 1 oz	PRE	0	73	58	37
Valor + Metribuzin + 2,4-D	3 oz + 0.33 lb + 0.5 pt	FALL	85	65	58	42
Glyphosate + AMS	32 oz + 2.5 gal	PRE	0	56	42	25

<sup>a</sup>Applied with MSO (1%) + AMS (2.5 gal)

\*Kochia <1" tall at PRE application.

# Fall vs spring kochia control

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Treatment	Rate	Timing	Weed Control			
			Oct 8/May 6	May-6	May-22	May-29
			-----%-----			
Untreated			0	0	0	0
Valor / Spartan <sup>a</sup>	3 oz / 4 oz	FALL/PRE	7	62	40	27
Reglone + NIS	1.5 pt + 0.25%	PRE	0	80	62	32
Reglone + Spartan Charge <sup>a</sup>	1.5 pt + 5 oz	PRE	0	74	60	33
Reglone + Metribuzin + NIS	1.5 pt + 0.25 lb + 0.25%	PRE	0	97	95	89
Reglone + Aim <sup>a</sup>	1.5 pt + 1 oz	PRE	0	66	50	23
Reglone + Sharpen <sup>a</sup>	1.5 pt + 1 oz	PRE	0	74	53	27
LSD (0.05)			7.8	3.2	2.6	4.5

<sup>a</sup>Applied with MSO (1%) + AMS (2.5 gal)

\*Kochia <1" tall at PRE application.

# **Effect of metribuzin on emerged kochia control**



# Effect of metribuzin on emerged kochia control

<sup>a</sup>All treatments applied as a burndown

**May 29**  
**3" kochia**  
**63 F**

Treatment <sup>a</sup>	Rate	% Kochia control	
		Jun-8	Jun-19
Untreated		0	0
Spartan <sup>b</sup>	4 oz	64	58
Spartan + Gly <sup>b</sup>	4 oz + 22 oz	71	70
Spartan + Gly + Metribuzin <sup>b</sup>	4 oz + 22 oz + 0.25 lb	84	80
Spartan + Metribuzin <sup>b</sup>	4 oz + 0.25 lb	73	65
Sharpen <sup>b</sup>	1 oz	48	42
Sharpen + Gly <sup>b</sup>	1 oz + 22 oz	79	75
Sharpen + Gly + Metribuzin <sup>b</sup>	1 oz + 22 oz + 0.25 lb	87	84
Sharpen + Metribuzin <sup>b</sup>	1 oz + 0.25 lb	75	65
Reglone + NIS	1.5 pt + 0.25%	40	35
Reglone + Metribuzin + NIS	1.5 pt + 0.25 lb + 0.25%	77	71
Roundup + AMS	22 oz + 2.5 gal	76	72
Metribuzin <sup>b</sup>	0.25 lb	20	17

<sup>b</sup>Applied with AMS + MSO

# **Kochia control with Roundup, Liberty, and Enlist**

# Kochia control with Roundup, Liberty, and Enlist

May 29  
65 F  
37% RH  
0.25-2"

Treatment <sup>a</sup>	Rate	% Kochia control	
		Jun-13	Jun-26
Untreated		0	0
Liberty	32 oz	99	98
RoundUp PM	28 oz	81	79
Liberty + Roundup PM	32 oz + 28 oz	99	99
Liberty + Roundup PM	32 oz + 21 oz	99	98
Liberty + Roundup PM	43 oz + 21 oz	99	99
Liberty + Enlist Duo	32 oz + 4.75 pt	99	98
Liberty + Enlist One	32 oz + 2 pt	97	95
Enlist Duo	4.75 pt	93	94
Enlist One	2 pt	61	58
Liberty	43 oz	98	97
Roundup PM	21 oz	73	70

<sup>a</sup>All treatments applied with AMS (3 lb)

# Narrowleaf hawksbeard control

- Winter annual
- Glyphosate, Valor, Express, 2,4-D



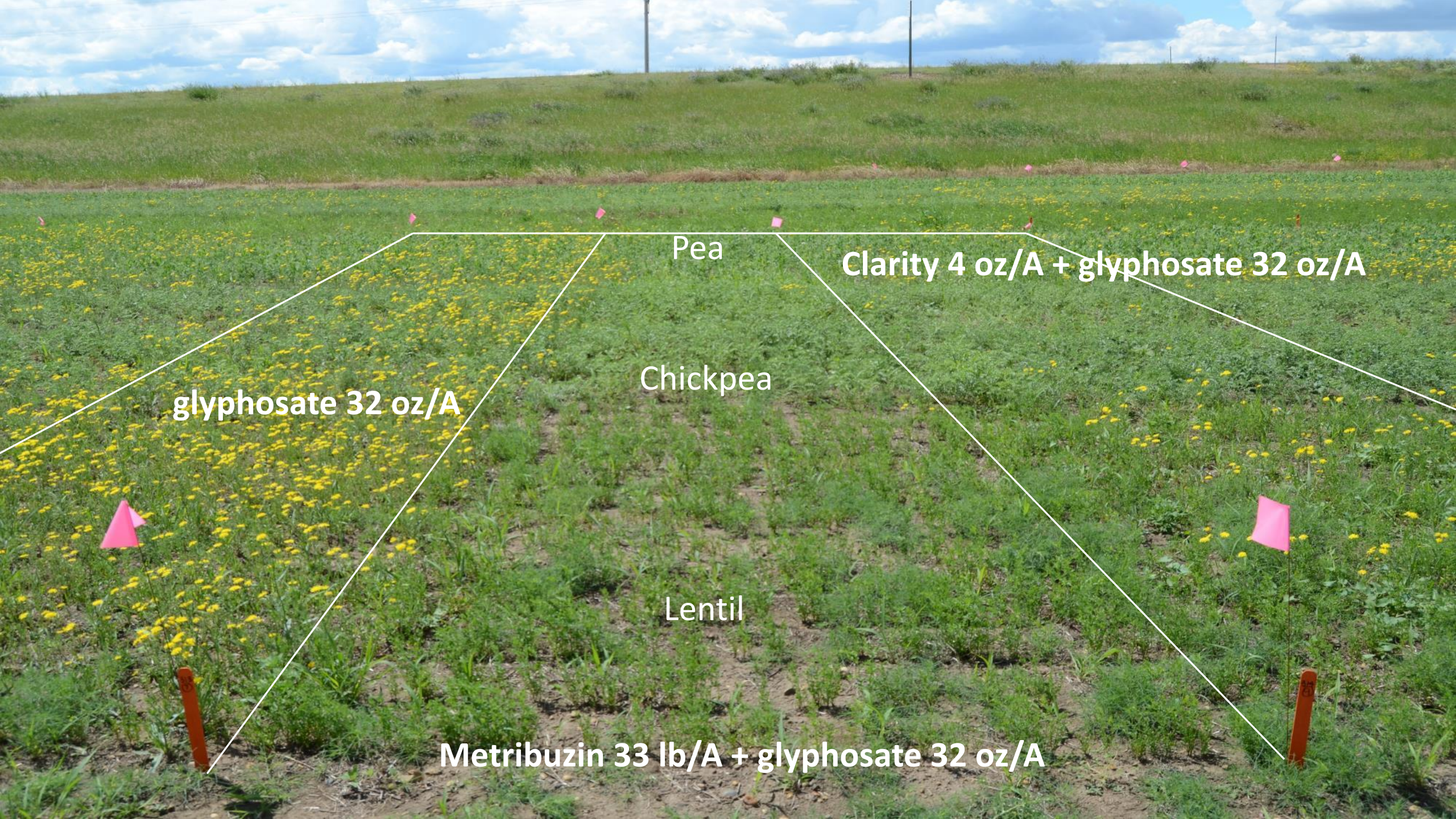
Photo: Ed Davis  
Montana State University

Table 8. Metribuzin applied late fall to evaluate Narrowleaf Hawksbeard control in pulse crops. (Bozeman) (Ed Davis)

Treatment <sup>a</sup>	Rate	Crop Injury				Weed Control									
		Dry pea		Lentil		Lambsquarters		Russian thistle		Wild buckwheat		Green foxtail		NLHB <sup>a</sup>	
		Jun-4	Jul-9	Jun-4	Jul-9	Jun-4	Jul-9	Jun-4	Jul-9	Jun-4	Jul-9	Jun-4	Jul-9	Jul-9	
		-----%-----				-----% control-----								# / plot	
Untreated		0	0	0	0	0	0	0	0	0	0	0	0	0	13.5
Metricor	0.5 pt	0	0	0	0	69	40	58	25	14	25	16	0	1.5	
Metricor	0.75 pt	0	0	0	0	95	53	69	34	26	29	19	5	0.3	
Metricor	1 pt	0	3	0	3	100	88	83	53	41	51	36	13	0.3	
Metricor + Valor	0.75 pt + 2 oz	0	0	5	0	100	81	95	74	41	50	28	0	1.3	
Metricor + Valor	0.75 pt + 3 oz	0	0	12	0	100	79	100	79	76	59	46	0	0.0	
Metricor + Panoflex	0.75 pt + 0.4 oz	0	0	0	0	98	59	68	40	64	46	26	0	0.3	
Metricor + Panoflex	0.75 pt + 0.6 oz	1	0	12	4	100	75	68	41	74	44	31	0	1.0	
Metricor + Sonalan HFP	0.75 pt + 2 pt	0	0	0	0	100	81	68	68	40	54	55	28	0.8	
Metricor + Prowl H2O	0.75 pt + 3 pt	4	0	11	0	100	91	69	41	50	44	83	70	0.3	
LSD (0.05)		NS	NS	7.7	NS	3.6	16.7	13.5	15.1	14.5	13.6	11.4	10.6	3.5	

<sup>a</sup> NLHB=Narrowleaf hawksbeard

- **Fall-applied Metribuzin provided good control of NLHB**
  - **Fall-applied Metribuzin and Valor did not provide season-long control of spring-emerging weeds**
- \*Roundup applied to all plots both fall and spring.



Pea

Clarity 4 oz/A + glyphosate 32 oz/A

glyphosate 32 oz/A

Chickpea

Lentil

Metribuzin 33 lb/A + glyphosate 32 oz/A



**Untreated**

**Tough + COC  
1.5 pt + 1.25 pt**

# Storm herbicide in dry pea



**Storm in dry pea:**

- **Ultra Blazer + Basagran**
- **IR-4**
- **COC > NIS > No adjuvant (weed control and injury)**

# PPO overload?

- **Dry pea, sunflower**
- **Fall Valor / Spartan**
- **Fall Valor / Spartan + Sharpen**
- **Fall Valor / Spartan + Metribuzin**
- **No injury to dry pea or sunflower in 2020 study**

# Dry pea tolerance to Group 14 herbicide tank mixes

- **Spartan, Sharpen, Aim**
  - **Spartan Charge**
  - **Spartan Elite**
  - **Sharpen**
  - **Aim**
- **Injury has been more related to soil characteristics than Group 14 combinations. If the soil is safe for Spartan, it's probably safe for tank mixes.**
- **Sharpen label now allows 1 oz in dry pea and 1-2 oz in chickpea (tank mix or sequential application with other Group 14's)**

**Table 10. Minimum Soybean Planting Intervals with other Group 14/Group E Herbicides**

<b>Minimum Preplant Interval</b> (days) <b>Required between Sharpen Application and Soybean Planting when Tank Mixed or Sequentially Applied with a Group 14/Group E Herbicide<sup>1</sup></b>		
<b>Sharpen Use Rate</b> (fl ozs/A)	<b>Soil Texture<sup>2</sup></b>	
	<b>Coarse Soils with <math>\leq 2.0\%</math> Organic Matter</b>	<b>All Other Soils</b>
1.0	30	14*
1.5	30	30
2.0	44	30

<sup>1</sup> **Group 14/Group E** herbicides such as sulfentrazone or flumioxazin

<sup>2</sup> Refer to **Table 3** for definition of soil texture groups.

\*Interval for reduced-till and no-till soybean only. Interval for conventional-till soybean is 30 days.

# Foxtail isn't competitive?



## 57 Wild oat samples

Herbicide	% resistant
Puma	35
Axial XL	17
Everest	43
GoldSky	43
Varro	52
Raptor	44
Assure II	41
Select	3

## 8 Green foxtail samples

Herbicide	% resistant
Puma	25
Axial XL	13
Discover	25
Everest	63
GoldSky	63
Varro	75
Raptor	0
Assure II	13
Select	0
Assure II + Select	0
Roundup	0

**Wild oat and green foxtail collected in 2019.**

## 153 Wild oat samples

Herbicide	% resistant
Puma	76
Axial XL	38
Everest	72
GoldSky	77
Varro	87
Raptor	53
Assure II	75
Select	6

## 93 Green foxtail samples

Herbicide	% resistant
Puma	59
Axial XL	43
Discover	62
Everest	11
GoldSky	17
Varro	17
Raptor	0
Assure II	41
Select	1
Assure II + Select	0
Roundup	0

**Wild oat and green foxtail collected 2016-19.**

**Questions?**