Metribuzin and Sulfentrazone for Preemergence Weed Control in Field Pea at Hettinger, ND, 2025.

A trial was conducted to evaluated the use of metribuzin and sulfentrazone for weed control and for tolerance in field pea. Field pea were planted on May 7, 2025 and herbicide treatments were applied on May 9. Field pea emerged on May 19. Rainfall measuring 4.17 inches fell during the time between planting and pea emergence. Kochia, wild buckwheat, and common mallow were evaluated for weed control 32 and 49 days after treatment (DAT). Kochia control was above 90% with all herbicide treatments 32 DAT, but tended to increase with herbicide rate, especially for combinations of metribuzin and sulfentrazone. At 49 DAT, 4oz/A of metribuzin resulted in 87% control of kochia, which was the lowest level of control observed. The highest level of control was with the combination of metribuzin (8 oz/A) and sulfentrazone (6.75 lb/A). This combination also resulted in the best control of wild buckwheat and common mallow.

Table 1. Evaluation of weed control from preemergence application of metribuzin and sulfentrazone in field pea.

Treatment[a]		Rate	Kochia		Wild buckwheat		Common mallow	
			32 DAT	49 DAT	32 DAT	49 DAT	32 DAT	49 DAT
		oz/A	% control					
1	Untreated		0d	0e	0i	0e	0h	0g
2	Metribuzin	4	93bc	87d	83h	68d	79g	65f
3	Metribuzin	6	96abc	88d	89fg	73d	87ef	75e
4	Metribuzin	8	97abc	90bcd	92de	84c	91cde	84d
5	Spartan	3.75	93abc	90cd	86gh	71d	85f	72e
6	Spartan	5.25	91c	88d	91ef	81c	88def	76e
7	Spartan	6.75	96abc	90cd	98abc	83c	87f	83d
8	Metribuzin Spartan	4 3.75	99a	94a-d	95bcd	83c	87ef	82d
9	Metribuzin Spartan	4 5.25	95abc	90cd	94cde	86bc	92bcd	85cd
10	Metribuzin Spartan	4 6.75	97abc	97abc	96abc	92ab	96ab	90bc
11	Metribuzin Spartan	6 3.75	98ab	94a-d	95bcd	83c	96abc	85cd
12	Metribuzin Spartan	6 5.25	94abc	96abc	99a	93ab	96ab	91b
13	Metribuzin Spartan	6 6.75	96abc	92a-d	97abc	92ab	99a	94ab
14	Metribuzin Spartan	8 3.75	97ab	98ab	96abc	86bc	96ab	91b
15	Metribuzin Spartan	8 5.25	95abc	98ab	97abc	93a	96ab	93ab
16	Metribuzin Spartan	8 6.75	99a	99a	98ab	96a	99a	98a
LSD P=.05			5.8	8.2	3.4	6.6	4.5	4.8
Standard Deviation			4.9	6.9	2.8	5.5	3.8	4.0
CV			14.48	5.49	7.97	7.02	4.42	5.13
Treatment F			20.413	95.227	46.089	66.549	154.570	126.843
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

[a]Metribuzin, 75% DF; Spartan, sulfentrazone 4lbai/gal. All treatments included AMS at 8.5 lb/100gal.

[c]Abbreviations: DAT, days after treatment; lbai/gal, pounds active ingredient per gallon.

Field pea injury was less than 10% for all herbicide treatments. Pea stand count was the least in the untreated control (likely due to weed interference. There was no consistent response of field pea stand to the herbicides applied. There was no difference in field pea height when measured 48 DAT. There was no difference in field pea yield with yields ranging from 2594 to 3067 lb/A.

Table 2. Evaluation of field pea tolerance to preemergence application of metribuzin and sulfentrazone.

Treatment[a]		Rate	Injury 32 DAT	Stand count 33 DAT	Pea height 48 DAT	Pea yield
		oz/A	%	plants/A	inches	lb/A
1	Untreated		0c	278,000g	11.9-	2594-
2	Metribuzin	4	0c	338,000abc	11.9-	2693-
3	Metribuzin	6	0c	340,000abc	12.1-	2784-
4	Metribuzin	8	0c	317,000a-f	12.2-	2900-
5	Spartan	3.75	0c	289,000efg	11.8-	2760-
6	Spartan	5.25	0c	352,000a	11.8-	2866-
7	Spartan	6.75	0c	331,000a-d	11.6-	2885-
8	Metribuzin	4	0c	305,000c-g	11.6-	2735-
	Spartan	3.75				
9	Metribuzin	4	0c	280,000fg	11.9-	2737-
	Spartan	5.25				
10	Metribuzin	4	0c			
	Spartan	6.75		318,000a-f	11.8-	2899-
11	Metribuzin	6	0c			
	Spartan	3.75				
12	Metribuzin	6	0c	334,000a-d	12.1-	3067-
	Spartan	5.25				
13	Metribuzin	6	1c			
	Spartan	6.75		351,000ab	11.6-	2986-
14	Metribuzin	8	4b			
	Spartan	3.75				
15	Metribuzin	8	3b	298,000d-g	12.1-	2985-
	Spartan	5.25				
16	Metribuzin	8	9a	314,000b-g	11.5-	2803-
	Spartan	6.75				
LSD P=.05			1.3	37433.9	0.53	283.9
Standard Deviation			1.1	31522.4	0.44	239.1
CV			99.78	9.92	3.75	8.45
Treatment F			20.413	2.138	1.178	1.051
Treatment Prob(F)			0.0001	0.0252	0.3228	0.4252

[a]Metribuzin, 75% DF; Spartan, sulfentrazone 4lbai/gal. All treatments included AMS at 8.5 lb/100gal.

[c]Abbreviations: DAT, days after treatment; lbai/gal, pounds active ingredient per gallon.

Table 3. Application environment and equipment for preemergence application in peas.

Application Description		Application equipment	
Date	May-9-2025	Equipment Type	Tractor mounted
Start, Stop Time	2:48, 3:30 PM	Operation Pressure	42 PSI
Air Temperature Start, Stop	82.2, 77.4 F	Nozzle Model	11002DG
% Relative Humidity Start, Stop	24.9, 24.1	Nozzle Spacing	20 IN
Wind Velocity+Dir.	5.1 MPH, WNW	Boom Height	22.0 IN
Wind Velocity+Dir. Max	13.0 MPH, WNW	Ground Speed	4 MPH
Soil Temperature	43 F	Application Amount	10 GAL/AC