

Influence of Sharpen Applied as a Desiccant in Dry Beans in 2009 to a Follow Crop of Sunflowers Planted in 2010 at Scottsbluff, Nebraska.

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A field study was initiated near Scottsbluff, Nebraska to compare the effects of different rates of Sharpen on the desiccation of dry beans and the carryover potential to a follow crop of sunflowers. The experimental design was a randomized complete block with four replications. Plots were 11 feet wide by 25 feet long and were located on a sandy loam soil with a pH of 8.1 and organic matter of 1.2%. Dry beans, black 'Shania' were planted on June 10. Beans were grown in a conventional manner throughout the growing season. Herbicides were applied on September 16 when approximately 80% of the bean pods were yellow (physiological maturity of the bean plant). Herbicides were applied with a backpack sprayer calibrated to deliver 20 GPA of water. Environmental conditions at the time of treatment were as follows: air temperature 78 (F), humidity 52%, wind out of the NW at 2 mph, and herbicides were applied between 1 and 2 PM. Weather conditions the first week after treatment were moderate with daytime highs ranging from 55 to 80 (F) with rainfall occurring on September 21 and 22. Visual evaluations of dry bean and common lambsquarters desiccation were taken on September 21 and 28 (Table 1). On September 21, dry bean desiccation ranged from 80 to 91% and common lambsquarters desiccation ranged from 28 to 35% with Sharpen rates of 0.0321 and 0.1338 lb/acre providing similar activity. By September 28, 12 days after treatment, desiccation of dry beans was complete but none of the Sharpen treatments provided more than 48% desiccation of common lambsquarters. Dry beans were pulled from the soil and trashed with a Hege plot combine on September 30. At the time of harvest 4 plants from each treatment were collected out of each replication for a total of 12 plants per treatment. Each plant was divided into three sections and pods were removed from the top, middle, and bottom section of each plant. Pods were kept separate for each section and treatment. Seeds were shelled from pods, and a 100 seed weight recorded. One hundred seeds from each treatment were placed in petri dishes with moist filter paper and kept in a germination chamber set at 12 hours at 85 (F) and 12 hours at 75 (F) for 14 days and percent seed germination determined. There was a trend for Sharpen to reduce 100 seed weight and percent seed germination in seeds collected on the top and bottom sections of bean plants. Sharpen applied at the lowest rate of 0.0321 lb/acre had seed germination values of 76, 81, and 77% for the top, middle, and bottom sections of the plant while the nontreated had seed germination values of 99, 96, and 100% for the top, middle, and bottom sections of the bean plant.

The results of this study suggest that Sharpen is not very effective in killing large mature common lambsquarters plants and the herbicide may be translocating in the bean plant and having an effect on seed germination.

Table 1. Influence of Sharpen Applied as a Desiccant in Dry Beans to a Follow Crop of Sunflowers at Scottsbluff, Nebraska during the 2009 Growing Season.

Treatment ¹	Rate	Visual evaluation of dessication				Dry bean seed yield	100 Seed weight			Seed germination		
		Dry bean	Common lambsquarters	Dry bean	Common lambsquarters		Top 1/3	Mid 1/3	Bottom 1/3	Top 1/3	Mid 1/3	Bottom 1/3
		9/21		9/28			9/30					
(lb/acre)	----- (%) -----				(bu/acre)	----- (gm) -----			----- (%) -----			
Nontreated	--	0	0	8	0	28.9	19.5	18.8	19.6	99	96	100
Sharpen + AMS + MSO	0.0321	89	34	94	44	35.2	17.6	18.2	18.1	76	81	77
Sharpen + AMS + MSO	0.0446	80	30	89	33	32.4	15.5	20.4	19.2	68	82	90
Sharpen + AMS + MSO	0.0892	90	28	95	36	33.6	16.4	18.6	18.0	74	95	81
Sharpen + AMS + MSO	0.1338	91	35	95	48	36.4	15.9	17.9	18.3	45	86	83
LSD (P = 0.05)	--	7	11	11	19	NS	--	--	--	--	--	--

¹Herbicide treatments applied on September 16. Ammonium sulfate (AMS) added at the rate of 17 lb/100 gallons of spray solution. Methylated seed oil was added at 1% per volume of carrier.