

## **Proso Millet Tolerance to Sharpen™ (Saflufenacil)**

A field study was initiated at the High Plains Agricultural Laboratory near Sidney, NE to evaluate proso millet tolerance to Sharpen herbicide (saflufenacil). The experimental plot design was a randomized complete block with three replications. Herbicide treatments were applied with an ATV-mounted sprayer set to deliver 12 gallons/acre at 3 miles/hour and 15 psi. Plots were 10 feet wide by 40 feet long. The study was located on an Keith silt loam soil with an organic matter content of 2.3% and a pH of 7.1. The initial preplant (EPP) treatments were applied on May 27, 2009, however, wet weather delayed proso seeding by more than 14 days, so a second set of PP treatments were applied on June 15. Although wet weather again delayed proso seeding beyond 7 days, proso millet 'Sunrise' was no-till seeded into wheat stubble on June 26 at the rate of 15 pounds/acre. The preemergence (PRE) treatments were applied on June 26, after planting. Immediately after applying the PRE treatments, 0.3 of an inch of water was applied via sprinkler irrigation to ensure herbicide activation. We had intended to apply 0.5 of an inch of water at this time, but wet soil conditions limited what we could apply without runoff. Postemergence (POST) treatments were applied on July 15 to proso millet that was in the 3- to 5-leaf stage and 4 to 5 inches in height. Crop injury from Sharpen consisted of leaf necrosis and stand reduction. Except for three treatments, weeds were controlled by hand to eliminate weed pressure as an influence on crop response. Weed pressure in the three treatments evaluated for weed control was light and consisted primarily of redroot pigweed. Plots were harvested on September 28.

Visual injury from Sharpen was greatest when applied PRE compared to EPP or PP. Injury with the PRE treatments was greatest at the 4 ounce/acre rate. Crop stand was also significantly reduced with the PRE treatment applied at 4 ounces/acre compared to the nontreated check. By early August, when all treatments were evaluated for crop injury, proso millet had outgrown the early season injury resulting from Sharpen. No crop injury was observed from any treatment in early August.

Sharpen applied at 2 ounces/acre provided excellent control of redroot pigweed when applied PP or PRE, but the EPP treatment provided no noticeable weed control. This suggests that at this rate, Sharpen may provide only a few weeks of residual weed control. It should be noted, however, that about 7.5 inches of precipitation was received between the time of the EPP and PP treatments, which is nearly half of the average annual precipitation for Sidney. The 9.93 inches of precipitation received in June of 2009 was record setting in its quantity.

Although crop injury from Sharpen was observed in this study, proso millet was able to fully recover from this early season injury and yield well. This was similar to the results observed in 2008, when crop injury was greater than that observed in 2009. Sharpen did provide excellent control of a light infestation of redroot pigweed when applied PP or PRE. Although research with Sharpen in proso should continue to look at tolerance across different soil types, it does appear that Sharpen could be used successfully on many silt loam soils in western Nebraska. If labeled for use in proso millet, it would be the only herbicide labeled for PP or PRE use.

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Treatment	Rate	Timing	Crop injury	Stand	Redroot pigweed control	Yield
			July 7	July 16	Sept. 11	
	oz prod/A		%	plants/m row	%	bu/A
Nontreated check			0	34	--	51.6
Sharpen	2	EPP	3	31	--	53.6
Sharpen	4	EPP	2	34	--	56.6
Sharpen	2	PP	5	26	--	57.4
Sharpen	4	PP	7	31	--	59.0
Sharpen	2	PRE	10	27	--	56.1
Sharpen	4	PRE	18	25	--	52.7
Sharpen	2	EPP	--	--	0	55.4
Sharpen	2	PP	--	--	93	59.6
Sharpen	2	PRE	--	--	100	60.1
Aim	1	POST	--	--	--	62.9
2,4-D amine	16	POST	--	--	--	56.3
2,4-D amine Aim	12 0.5	POST	--	--	--	59.3
2,4-D amine Clarity	12 4	POST	--	--	--	54.1
2,4-D amine Peak	12 0.35	POST	--	--	--	60.0
LSD (5%)			4	8	8	7.5