

USE OF FOMESAFEN IN IRRIGATED POTATO (*SOLANUM TUBEROSUM*). Collin P. Auwarter and Harlene Hatterman-Valenti, Research Specialist and Professor, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105

Field research was conducted at the Northern Plains Potato Growers Association Irrigation Research site near Inkster, ND to evaluate potato tolerance and weed control of fomesafen +/- s-metolachlor or +/- prepackaged mix of s-metolachlor and metribuzin to standards using four popular varieties grown under irrigation in North Dakota (Blazer, Russet Norkotah, Shepody, and Dakota Pearl). Seed pieces (2 oz) were planted on 36 inch rows and 12 inch spacing on May 24, 2009. Plots were 4 rows by 20 ft arranged in a randomized complete block design with 4 replicates. Herbicide treatments were applied 24 DAP with a CO<sub>2</sub> pressurized sprayer equipped with 8002 flat fan nozzles with a spray volume of 20 GPA and a pressure of 40 psi. Extension recommendations were used for cultural practices throughout the year.

At time of application Blazer was 80% emerged, Russet Norkotah was 75%, Shepody was 60%, and Dakota Pearl was 95%. Plants emerged at application ranged from barely poking through soil up to 1 inch in height. Dakota Pearl, with the most emerged, showed the greatest tolerance with treatments applied with fomesafen 5 DAA showing between 5-16% injured. Other varieties had between 6-28% visual injury with chlorosis as the main symptom.

Potatoes treated with fomesafen and the premix of s-metolachlor plus metribuzin (Reflex @ 2 pt/a + Boundary @ 4 pt/a) had the greatest injury 5 DAA; Blazer-26%, Russet Norkotah and Shepody-28%, and Dakota Pearl-16%. This treatment also provided 100% control of common lambsquarters throughout the trial. By 14 DAA, all treatments where fomesafen was applied still showed signs of injury ranging between 1 to 9%, and by 26 DAA, injury was reported between 0 to 2%.

Treatments with fomesafen alone had less control of common lambsquarters than treatments tank mixed with either a prepackaged mix of s-metolachlor and metribuzin, metribuzin, s-metolachlor, or rimsulfuron throughout the trial.

Russet Norkotah had the greatest yields, while Blazer was the lowest yielding variety. The marketable yields (>4 oz) were similar to total yields. Dakota Pearl had the greatest tuber counts with the untreated having the most tubers in 20 ft of row (259 tubers). However, this variety also had the most unmarketable tubers with between 53 and 69% of the tubers considered culls. Shepody had the least tuber number with all treatments having less than 141 tubers in 20 ft of row.