

RUSSET BURBANK GROWTH THE YEAR FOLLOWING GLYPHOSATE SIMULATED DRIFT TO IRRIGATED POTATOES (*SOLANUM TUBEROSUM*). Collin P. Auwarter and Harlene M. 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 Grower's Association Irrigation Research site near Tappen, ND to evaluate Russet Burbank growth the year following glyphosate simulated drift to irrigated potatoes. In 2007 the study compared the injury from glyphosate applied at the tuber hooking (TH), tuber initiation (TI), early tuber bulking (EB), and late tuber bulking/early senescence stage (LB) on yield. Glyphosate was applied at rates one-third, one-sixth, and-twelfth, and one-twenty-fourth the standard use rate (0.25, 0.125, 0.0625, and 0.0313 lb ae/A) at the TI, EB, and LB stages, and at 0.25 lb ae/A at the TH stage. Tuber samples from these plots were stored and used for seed in 2008. Seed was planted and plants maintained until harvest.

Potatoes treated with glyphosate at the TH stage yielded significantly lower after harvesting in 2007 (51 cwt/A), however daughter tubers planted from the 2007 seed yielded 405 cwt/A in 2008. The untreated yielded 451 and 418 cwt/A in 2007 and 2008, respectively.

Daughter plants from potatoes treated with 0.25 and 0.125 lb/A glyphosate the previous year at the LB stage or 0.25 lb/A glyphosate the previous year at the TI stage had a significantly lower yields compared to all other treatments, 89, 168, and 233 cwt/A, respectively. In contrast, daughter plants from potatoes treated with 0.0313 lb/A glyphosate at the LB stage the previous year had the highest yield with 450 cwt/A, followed by daughter plants from potatoes treated with 0.0625 lb/A glyphosate at the LB stage the previous year with 419 cwt/A. The untreated had the third highest yield.

Potatoes treated with 0.25 and 0.125 lb/A glyphosate at the LB stage showed a yield loss of 200 and 100 cwt/A, respectively, compared to the untreated during 2007. In 2008, seed from these two treatments resulted in a loss of 329 and 250 cwt/A (potatoes treated with 0.25 and 0.125 lb/A glyphosate at LB stage in 2007).