EFFECTS OF BROMOXYNIL AND OXYFLUORFEN RATE AND SPRAY VOLUME IN ONION. Carrie E Schumacher, Harlene Hatterman-Valenti, Graduate Assistant and Assistant Professor, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105-5051. Paul Hendrickson, Irrigation Specialist, Carrington Research Extension Center, Carrington, ND 58421.

Field research was conducted at Absaraka, Carrington, and Oakes, ND, in 2005 to determine the effect of bromoxynil and oxyfluorfen rate and spray volume on early postemergence weed control in onion (*Allium cepa* L.). Bromoxynil and oxyfluorfen are two postemergence herbicides commonly used in onion. Increased spray volume is used to improve crop safety for both of these herbicides. Onion must be in the two-leaf stage before herbicide application, but at this stage, many weeds are already beyond the effective stage of control. Onion variety 'Teton' pelleted seed was planted on May 3 using a Stanhay four double-row planter unit, with 10 cm paired rows and 35 cm between main rows. To evaluate the effect of spray volume on efficacy, two rates of each herbicide (bromoxynil at 80 and 340 g ai/ha and oxyfluorfen at 30 and 110 g ai/ha) were applied at 90, 230 and 470 L/ha using a CO_2-pressurized backpack sprayer. Treatments were applied to the middle two rows of each 2- by 6-m plot when onions were at the first true leaf stage (June 9). Results only from the Carrington site are presented due to time restraints. Lower volumes of 90 and 230 L/ha exhibited better weed control than 470 L/ha throughout the season. Weed species present in the experiment were common lambsquarters (*Chenopodium album* L.) and redroot pigweed (*Amaranthus retroflexus* L.). One week after treatment the low rate had twice as many weeds present than the high rate for both species. Onion injury was visible one week after treatment. Oxyfluorfen had twice as much injury as bromoxynil and the high rate also caused twice as much injury as the low rate. Onion height did vary throughout the season, but was not significant three weeks after treatment. Plant stand was unaffected by herbicide, rate or volume. Herbicide, rate and volume did not affect total yield that ranged from 54 t/ha (bromoxynil 80 g ai/ha at 470 L/ha) to 75 t/ha (bromoxynil 340 g ai/ha at 230 L/ha). All treatments yielded significantly better than the untreated control (7 t/ha), but not as great as the hand-weeded check (95 t/ha).

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