

ARE THERE DIFFERENCES BETWEEN ADJUVANTS USED WITH GLYPHOSATE FOR WEED CONTROL IN SUGAR BEET?

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A study was conducted in 2010 and 2012 to compare various adjuvants applied with glyphosate applied at 0.5 and 1X rates (0.385 and 0.77 lb ae/A). Betaseed variety 'BTS 26RR14' was planted April 15 and 25, 2010 and 2012, respectively. Experimental design was a randomized complete block with four replications and individual plots were 7.33 by 30 ft. Herbicides were applied with a CO₂-pressurized bicycle-wheel sprayer calibrated to deliver 15 gpa at 26 psi using 11001 flat fan nozzles. Crop injury and weed control were evaluated 8, 23, and 86 days after application in 2010 and 17, 27 and 91 days after application in 2012. The two center rows of each plot were harvested mechanically October 7, 2010 and September 27, 2012. None of the treatments injured the crop. Weed response differences were observed between years. Weather conditions during the first 30 days after planting in 2010 were colder and wetter than in 2012. Glyphosate applied at 0.75 lb ae/A with or without any of the adjuvants tested had better overall weed control than glyphosate applied at 0.35 lb ae/A with or without any adjuvant. Some weed species such as redroot pigweed, hairy nightshade, and green foxtail were effectively controlled with 0.35 lb ae/A with or without an adjuvant. However, kochia, common lambsquarters and Russian thistle control were variable depending on the adjuvant used. Glyphosate + Alliance at 0.35 lb ae/A + 1.25% v/v had the best overall weed control with the lower glyphosate rate. However, most of the glyphosate treatments applied at 0.75 lb ae/A controlled one or more weed species better than glyphosate + Alliance at 0.35 lb ae/A + 1.25% v/v. Root yields ranged from 1 to 34 ton/A and sucrose yields ranged from 368 to 9,283 lb/A. Sugar beet root and sucrose yields were ranked in the same order, which indicates that herbicide treatment did not influence sugar content.