CONTROLLING ROUNDUP READY VOLUNTEER CORN AND SOYBEAN FOR $1/A. Richard K. Zollinger and Jerry L. Ries, Associate Professor and Research Specialist, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105.

Replicated field research was conducted in 2004 at several locations to evaluate herbicide efficacy from reduced rates on Roundup Ready volunteer corn and soybean. Treatments were applied to volunteer corn at 20 to 24 inches tall. Clethodim (Select 2EC), from 0.5 to 1.5 oz/A gave 37% to 80% corn control. Addition of nonionic surfactant to clethodim at 0.5 oz/A improved control from 37% to 60%. However, addition of nonionic surfactant did increase control at higher clethodim rates. Clethodim (V-10137) completely controlled volunteer corn at 0.75 oz/A and higher rates without additional adjuvant added. V-10137 is a 1 lb/gal formulation and has additional adjuvants in the formulation which improves grass control over the Select formualtion. Quizalofop gave 99% corn control from 0.44 to 0.99 oz/A. It appears that lower quizalofop rates than 0.44 oz/A may kill corn 18 to 24 inches tall.

Another study was conducted where clethodim (Select 2EC and V-10137) were applied at 0.75 oz/A with glyphosate-ipa salt and glyphosate-K salt at 0.38 lb/A plus ammonium sulfate at 1 lb/A to volunteer corn 30 to 40 inches tall. Glyphosate-K salt antagonized both clethodim formulations. However, the V-10137 formulation of clethodim was able to overcome some, but not all, of the antagonism. Clethodim (Select) plus glyphosate-ipa salt and ammonium sulfate gave 52% corn control. Various adjuvants were applied to determine adjuvant enhancement of this combinations. Addition only of Destiny and Superb HC oil adjuvants enhanced control of corn greater than 86%. Nonionic surfactants, fertilizer, deposition aid, retention aids, water conditioning agents, or blends of these materials did not increase corn control over no adjuvant added. Petroleum oil adjuvants increased corn control to 73%.

Broadleaf herbicides rates to control Roundup Ready soybean were significantly reduced from labeled crop use. Soybean size at application determined degree of control at reduced herbicide rates. Dicamba, dicamba & diflufenzapyr, atrazine, flumetsulam & clopyralid, and fluroxypyr & clopralid applied to V2 to V3 stage (POST) soybean gave near complete control. 2,4-D and clopyralid & 2,4-D gave 20% to 77% control. The rate of 2,4-D, clopyralid + 2,4-D, or the lowest rate of clopyralid & fluroxypyr were not high enough to give adequate soybean control. The same herbicides applied at V4 to V6 soybean slowly exhibited phytotoxicity and did not give greater than 53% control at 14 days after application. However, by 28 days after application only treatments containing dicamba gave greater than 93% control. Soybean control from treatments containing clopyralid seems inconsistent in that the greatest control was observed from clopyralid & flumetsulam. Flumetsulam is labeled preemergence on soybean but apparently causes injury applied postemergence. 2,4-D or fluroxypyr did increase soybean control with clopyralid to the same level as flumetsulam in the earlier application but was similar to clopyralid & fluroxypyr in the later application.

Additional costs of $9.00/A will be required for the Select formulation of clethodim at 1.5 oz/A to control Roundup Ready volunteer corn. Assuming a similar cost per unit for the V-10137 formulation of clethodim, it will cost $4.00 at 0.75 oz/A of V-10137 or 0.44 oz/A of quizalofop to control Roundup Ready volunteer corn. Reduced herbicide rates may be allowed if applications are made to smaller corn. Control of Roundup Ready soybean control can be achieved at 1$/A for atrazine and clopyralid & fluroxypyr. At least $2.00/A will be required for dicamba and dicamba & diflufenzapyr, and at least $3.00/A for clopyralid & 2,4-D and flumetsulam & clopyralid.

2004 North Central Weed Science Proceedings 59:177.