STORDAHL, JAMES B., ALAN G. DEXTER, and ALLAN W. CATTANACH. Department of Crop and Weed Sciences, North Dakota State University, Fargo, ND 58105. - Control of living cover crop in sugarbeet.

ABSTRACT

Seeding sugarbeet into a living cover crop reduces soil erosion and reduces the potential for sugarbeet stand loss from wind as compared to seeding into a conventionally tilled field with little surface residue. The success of using a living cover crop is dependent on methods to completely control the cover crop and prevent sugarbeet yield loss from competition.

Winter rye was seeded in September, 1989 and sugarbeet was seeded into the winter rye April 24, 1990. The winter rye was treated with glyphosate (Roundup) at planting or with sethoxydim (Poast), fluazifop-P (Fusilade-2000), or quiazlofop (Assure) at 1,2 or 4 weeks after planting. All herbicide treatments gave total control of the winter rye. Sugarbeet from plots treated at planting or 1, 2, or 4 weeks after planting yielded an average of 7000, 6500, 5900, and 2500 lb/A of extractable sucrose, respectively. Sugarbeet from plots treated at planting plus Poast at 1, 2 or 4 weeks after planting yielded an average of 7400 lb/A of extractable sucrose. These results suggest that fall seeded living cover crop should be treated with a herbicide at sugarbeet planting to avoid sugarbeet yield loss from competition.

Winter wheat and winter rye were seeded in strips across plots in September, 1989. Sugarbeet was seeded April 24, 1990. Roundup and Assure gave or tended to give better control of winter rye than winter wheat while Poast, Fusilade-2000, and clethodim (Select) gave or tended to give better control of winter wheat than winter rye. Roundup at 0.75 lb/A, Select at 0.18 lb/A, and Assure at 0.18 lb/A applied at planting gave winter rye control superior to Roundup at 0.38 lb/A, Poast at 0.4 lb/A or Fusilade-2000 at 0.4 lb/A. All herbicides gave similar control of winter wheat. Roundup was applied with ammonium sulfate and X-77 surfactant and other tested herbicides were applied with oil adjuvant.

Sugarbeet was seeded into non-tilled and lightly-tilled winter rye. The tillage was with a field cultivator plus rolling basket with the field cultivator shovels set to lightly scratch the soil. the population of winter rye was not reduced significantly by tillage. Tilled winter rye was much more tolerant of Roundup than non-tilled winter rye. Applying Roundup three or more days prior to tillage eliminated the tillage effect. Roundup applied from one day before to three days after tillage gave less control of tilled than of non-tilled winter rye.