EFFECT OF 'WET-SOL' ON SUGARBEET QUALITY AND YIELD IN 2000

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INTRODUCTION AND OBJECTIVE

'Wet-Sol 99' contains alkylphenyl-hydroxypolyoxyethylene as its active ingredient. 'Wet-Sol Gro' contains alkylphenyl-hydroxypolyoxyethylene, growth enzymes, bio-stimulants, B-complex vitamins and fermentation products. Both of these products are surfactants. Schaeffer Manufacturing Company, St. Louis, Missouri claims that soil application of 'Wet-Sol 99' and 'Wet-Sol Gro' at planting will cause water to penetrate and flow through the soil readily, and thus help in reduction of water logging. 'Wet-Sol Gro' would also improve sugarbeet root-mycorrhizal interaction and nutrient availability since the feeding supplements will stimulate microbial growth. Consequently, the addition of 'Wet-Sol 99' and 'Wet-Sol Gro' to the soil will enhance yield and sucrose quality.

Our objective was to determine the effect of 'Wet-Sol 99' and 'Wet-Sol Gro' on sugar content and yields of sugarbeet in the Red River Valley.

MATERIALS AND METHODS

Research was conducted at Fargo, North Dakota, on a Fargo silty clay soil and at Breckenridge, Minnesota, on a silty clay loam between. 'Van der Have H66183' sugarbeet seeds were planted on 28 April at Breckenridge and 5 May at Fargo with a John Deere MaxEmerge 2 planter into plots 11 feet in width (6 22-inch wide rows) and 30 feet in length. Seeds were placed 1.25 inches deep and 3 inches apart in rows that were 22 inches wide. Counter was applied at 11.9 lb/acre at planting to control sugarbeet root maggot. The experiment was arranged in a randomized complete block design with four replications. Plots were thinned manually to 150 beets per 100 foot of row on 26 May at Breckenridge and 9 June at Fargo. Treatments were applied at planting directly to the 4-inner rows of the 6-rows plot with a CO_2 pressurized sprayer. 'Wet-Sol 99' was applied in a band at 1 pint/acre and 'Wet-Sol Gro' was applied in furrow at 2 pints/acre. There were also untreated check plots. Fertilization was done according to standard recommendation for sugarbeet. Plots were kept weed free using micro-rates of herbicides recommended for sugarbeet, and cultivation. Eminent and Supertin were used for controlling Cercospora leaf spot.

The middle two rows of each 6-rows plot were harvested on 19 September at Fargo and 26 September at Breckenridge. Yield was determined, and quality analysis performed by American Crystal Sugar Company Quality Tare Laboratory, East Grand Forks, Minnesota. Data was

analyzed for differences by analysis of variance and LSD using Agriculture Research Manager, version 6.0.

RESULTS AND DISCUSSION

At both Fargo and Breckenridge, the plot data indicate that there were no significant difference in the sucrose content, sucrose loss to molasses, root yield and recoverable sucrose per acre between the plots treated with 'Wet-Sol 99', 'Wet-Sol Gro' and the untreated check (Table 1).

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Table 1. Effect of 'Wet-Sol 99' and 'Wet-Sol Gro' On Sugarbeet Quality and Yield, Fargo, ND, 2000.

Treatment	Sucrose Content (%)	Sucrose Loss to Molasses (%)	Root Yield (T/Acre)	Recoverable Sucrose (lb/T)	Recoverable Sucrose (lb/Acre)
Wet-Sol 99	17.2	1.0	21.3	323	6692
Wet-Sol Gro	17.4	1.0	19.7	328	6357
Check	17.9	1.0	20.9	338	6947
LSD (P=0.05)	1.2	0.2	3.6	29.5	929
CV (%)	4.1	13.8	9.9	5.2	8.1

Table 2. Effect of 'Wet-Sol 99' and 'Wet-Sol Gro' On Sugarbeet Quality and Yield, Breckenridge, MN, 2000.

Treatment	Sucrose Content (%)	Sucrose Loss to Molasses (%)	Root Yield (T/Acre)	Recoverable Sucrose (lb/T)	Recoverable Sucrose (lb/Acre)
Wet-Sol 99	20.1	1.1	25.2	380	9420
Wet-Sol Gro	19.9	1.1	22.7	376	8409
Check	20.0	1.2	25.1	376	9291
LSD (P=0.05)	0.8	0.2	3.4	18.4	1333
CV (%)	2.4	11.2	8.2	2.8	8.5