EFFECT OF SURROUND WP, KV-6, AND KV-10 ON SUGARBEET QUALITY AND YIELD IN 2001

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INTRODUCTION AND OBJECTIVE

Surround WP, KV-6, and KV-10 are different formulations of kaolin-based products of Engelhard Corporation. Surround WP, sprayed on the leaves and fruits of crops such as apple and pear have shown to increase yield, and on lemon and grape, have increased their sugar content.
The objective of this research was to determine the effect of Surround WP, KV-6, and KV-10 on sugar content and yields of sugarbeet in the Red River Valley.

MATERIALS AND METHODS

Research was conducted at Breckenridge, MN, on a silty loam soil between 11 May and 24 September 2001. 'HH Agate' sugarbeet seeds were planted on 11 May 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 6 June. Treatments were applied on July 12, 19, 26, August 2, 16, 29, and September 5 directly to the 4-inner rows of the 6-row plots with a boom sprayer operating at 100 psi and delivering 20 gallons spray solution per 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 24 September. 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

There was no observable difference in plant growth between treated and untreated plots. Although the KV-6 and KV-10 treatments resulted in the highest sucrose contents, the results indicate that there were no significant difference in the sucrose content, sucrose loss to molasses, root yield and recoverable sucrose per acre between the treated plots and the untreated check (Table 1). Yields were about three tons lower than the average for the factory district. The lower yields are most likely a result of late planting (about three weeks later than normal) because of wet fields. It is possible that with a longer (normal) growing season, higher tonnage may have resulted in higher recoverable sucrose per acre for plots treated with KV-6 and KV-10.

ACKNOWLEDGEMENT

Thanks to the Sugarbeet Research and Education Board of Minnesota and North Dakota, and Engelhard Corporation for their financial support to this research. Thanks to Charles Hotvedt of American Crystal Sugar Company Quality Tare Laboratory, East Grand Forks, Minnesota, for sugarbeet quality analysis.

Table 1. Effect of Surround WP, KV-6, and KV-10 On Sugarbeet Quality and Yield at Breckenridge, MN 2001.

Treatments And Rates Per Acre	Sucrose Content (%)	Sucrose Loss to Molasses (%)	Root Yield (T/Acre)	Recoverable Sucrose (lb/T)	Recoverable Sucrose (lb/Acre)
Surround WP 12.5 lb/20 gal	16.4	1.5	16.1	299	4743
KV-6 12.5 lb/20 gal	17.2	1.4	16.4	315	5133
KV-10 12.5 lb/20 gal	17.4	1.4	15.8	322	5019
Untreated Check	17.0	1.4	17.4	311	5327
LSD (P=0.05)	0.78	0.13	3.06	14.86	1029
CV (%)	2.87	5.8	11.65	2.98	12.73