

KHAN, MOHAMED F.R.^{1*}, RANDY NELSON², and LARRY CAMPBELL³, ¹North Dakota State University & University of Minnesota, Soil Science Department, Fargo, ND 58105-5758, ²North Dakota State University, Soil Science Department, Fargo, ND 58105, ³USDA, Agricultural Research Service, Northern Crop Science Laboratory, Fargo, ND 58105. **Optimum plant population of Rhizomania resistant sugarbeet varieties for highest recoverable sucrose per acre.**

Use of Rhizomania resistant varieties has increased due to the prevalence of Rhizomania in the Red River Valley. The objective of this study was to determine the optimum population of Rhizomania resistant sugarbeet varieties that would result in the highest recoverable sucrose per acre. Trials were conducted in Foxhome, MN. Van der Have (VDH) 46177 (2N) was planted in 2003, and VDH 46177 and Beta 4818 (3N) were planted in 2004. Plots were comprised of six 22-inch wide rows that were 30 feet long. Experiments were arranged in a split-plot design with four replications. Plots were planted at 3 inch seed spacing, and thinned at the four to six leaf stage. Plant populations after thinning were 100, 125, 150, 175, 200, and 225 plants per 100 ft. of row. The middle two rows of each plot were harvested and root yield and quality were determined. In 2003, there was no significant difference in recoverable sucrose among treatments. However, the 175 plants per 100 ft. of row population resulted in the highest recoverable sucrose among treatments. In 2004, both VDH 46177 and Beta 4818 at 175 plants per 100 ft. of row, resulted in the highest recoverable sucrose. The data suggest that a plant population of 175 plants per 100 ft. of 22-inch wide rows would result in the highest recoverable sucrose per acre for Rhizomania resistant varieties, irrespective of whether they are diploids or triploids.

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