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69361. Performance of rhizomania tolerant sugar beet varieties in a newly infested field.

Sugar beet varieties tolerant to rhizomania are an important component of disease management strategy for known infested fields. However, performance of rhizomania tolerant varieties in Nebraska is not well documented since these were developed in other production areas. Our objective in this study was to compare tolerant varieties that were expected to be available to growers within the next few years, with varieties commonly grown in the western Nebraska production region. Three seed companies submitted 13, 10, and 8 tolerant varieties, respectively, for the 1993, 1994, and 1995 field trials. Seedex Monohikari, Monohy 55, and Betaseed 1399 were included as reference varieties in all three years. The study included one site each year in non-rhizomania infested soil plus one site in 1993 and 2 sites in 1994 and 1995 in moderately infested soil. A randomized complete block design with eight replications was used. A field with scattered infestations of the disease was used for the test because it was the only site available after the disease was first detected in Nebraska. In infested sites, tolerant varieties provided improved root yields and sugar content compared to reference varieties. But in noninfested sites, sugar content was lower in resistant varieties though root yield was no different than in the reference varieties. We also examined the usefulness of visual indicators to rate the incidence of rhizomania at the time of harvest. Wine glass shape of roots, root hairness, and root tip vascular discoloration were not consistent or reliable indicators of rhizomania disease based on associated plot yields and ELISA tests for beet necrotic yellow vein virus. These symptoms were sometimes visually similar to symptoms of the sugar beet cyst nematode that was present in the test sites.