

BRADLEY, CARL A.<sup>1\*</sup>, MOHAMED F. R. KHAN<sup>2</sup>, NORMAN R. CATTANACH<sup>2</sup>, AND RANDY S. NELSON<sup>2</sup>, <sup>1</sup>Department of Plant Pathology, and <sup>2</sup>Department of Soil Science, North Dakota State University, Fargo, ND 58105. **Evaluation of Telone II fumigant and Actigard systemic acquired resistance inducer on sugarbeet in a rhizomania-infested field.**

Rhizomania, caused by beet necrotic yellow vein virus (BNYVV), is an emerging disease that is spreading quickly throughout the sugarbeet production region of the Red River Valley in North Dakota and Minnesota. Although productive resistant cultivars are available to growers for management of rhizomania, alternative management methods need to be identified in case resistance genes break down in this production region. A study was conducted at Glyndon, MN in 2003 and 2004 to evaluate Telone II fumigant and Actigard systemic acquired resistance inducer on performance of sugarbeet cultivars differing in susceptibility to BNYVV in a field infested with rhizomania. A BNYVV resistant and susceptible cultivar were used each year of the study. Telone II was applied to the soil in the autumn of each year prior to planting. Actigard was applied to sugarbeet seeds prior to planting at 3 g / kg seed. Control plots did not receive Telone II nor were planted with Actigard treated seed. Enzyme-linked immunosorbent assay (ELISA) was used to detect BNYVV in roots collected from each plot. Absorbance values of each ELISA reaction were obtained using a spectrophotometer at 405 nm. Plots were harvested and root yield, recoverable sugar, sucrose concentration, and losses to molasses were calculated. In 2003, the BNYVV resistant cultivar consistently outperformed the susceptible cultivar; however, no significant differences among Telone II fumigated plots, plots planted with Actigard treated seed, and untreated control plots were detected. In 2004, the BNYVV resistant cultivar had significantly greater sucrose concentration and less BNYVV titer than the susceptible cultivar. Untreated control plots generally outperformed plots treated with Telone II or planted with Actigard treated seed in 2004.

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Poster Presentations