

RELATIONSHIP BETWEEN *BEET NECROTIC YELLOW VEIN VIRUS* AND INCIDENCE AND SEVERITY OF RHIZOCTONIA ROOT ROT

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In all sugar beet production areas throughout the USA, most approved cultivars possess genetic resistance to *Beet necrotic yellow vein virus* (BNYVV), conferred by *Rz1*, *Rz2* or some combination of the two. It has been reported that cultivars with *Rz1* resistance are more susceptible than those with *Rz2* and that a combination of *Rz1* & *Rz2* provides the strongest resistance. However, the minor genes associated with these major dominant genes frequently play an important part in the final degree of resistance exhibited by a particular cultivar, and cultivars with the same dominant gene/s can vary significantly in their susceptibility to BNYVV and rhizomania. When susceptible sugar beet roots are infected by BNYVV, their physiological functions become disrupted and normal plant/soil water relations become impaired. It was hypothesized that chronic infection by BNYVV might be affecting susceptibility to *Rhizoctonia solani* and cultivars with less tolerance to infection by BNYVV possibly would be more susceptible to Rhizoctonia root rot. A field study was conducted near Hector, MN in which nine cultivars that varied in susceptibility to BNYVV and *R. solani* were evaluated to see if incidence and severity of Rhizoctonia root rot were correlated to BNYVV titer. The field was naturally infested with BNYVV. Plants were inoculated with *R. solani* AG2-2 IIIB barley inoculum July 10 and harvested September 12. The incidence and severity of Rhizoctonia root rot in each plot was evaluated and root subsamples were collected to determine titer of BNYVV. Significant differences existed in incidence and severity of Rhizoctonia root rot among cultivars, but differences were not strongly correlated to original Rhizoctonia root rot ratings and were not affected by *Rz* gene or gene combinations.