

**Title** Postharvest storage losses associated with rhizomania in sugar beet  
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**Citation** Plant Disease 92 ( 4): 575-580. 2008.  
**Keywords** *Beta vulgaris* L.; BNYVV; long-term storage

### Abstract

During storage of sugar beet, respiration and rots consume sucrose and produce invert sugar. Diseases that occur in the field can affect the magnitude of these losses. This research examines the storage of roots with rhizomania (caused by *Beet necrotic yellow vein virus*) and the effectiveness of rhizomania-resistant hybrids in reducing postharvest losses. Roots of susceptible hybrids from sites with rhizomania had respiration rates 30 days after harvest (DAH) that ranged from 0.68 to 2.79 mg of CO<sub>2</sub> kg<sup>-1</sup> h<sup>-1</sup> higher than roots of the resistant hybrids. This difference ranged from 2.60 to 13.88 mg of CO<sub>2</sub> kg<sup>-1</sup> h<sup>-1</sup> 120 DAH. Roots of resistant hybrids from sites with rhizomania had 18 kg more sucrose per ton than roots from susceptible hybrids 30 DAH, with this difference increasing to 55 kg Mg<sup>-1</sup> 120 DAH. The invert sugar concentration of susceptible hybrids from sites with rhizomania ranged from 8.38 to 287 g per 100 g of sucrose higher than that for resistant hybrids 120 DAH. In contrast, differences between susceptible and resistant hybrids in respiration rate, sucrose loss, and invert sugar concentration in the absence of rhizomania were relatively small. Storage losses due to rhizomania can be minimized by planting resistant hybrids and processing roots from fields with rhizomania soon after harvest.