# Cercospora Leaf Spot Impacts on Postharvest Disease and Respiration of Affected Sugarbeet Roots

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## Abstract

In Michigan, sugarbeets *(Beta vulgaris)* are stored for up to 200 days postharvest, during which time sugar loss may occur as a result of energy use from respiration and factors such as rot. Cercospora leaf spot (CLS) has been considered a potential predisposing factor for increased storage rot. To investigate these impacts, field and postharvest studies evaluated storage rot symptom development in sugarbeets with designated "high" or "low" in-season CLS severity. Root slices of sugarbeets from each CLS level were inoculated with *Fusarium graminearum, Botrytis cinerea*, or *Penicillium vulpinum*, and symptoms were assessed after 7 days. Across three CLS-susceptible commercial varieties, there were no significant differences among storage rot susceptibility to any of the tested pathogens in hand-harvested sugarbeets, regardless of CLS level, at any storage time point in 2020 or 2021 ($P > 0.05$). In studies using CLS-susceptible and -resistant germplasm and varieties, CLS effects were inconsistent and only significant in one parameter at two out of six storage time points across these years ($P < 0.05$). Across storage pathogens, prior CLS level also did not impact root respiration or the change in respiration rate from initial to final storage time point in either 2021 or 2023 ($P > 0.05$). Of note, *B. cinerea* caused more severe symptoms than other pathogens in these studies ($P < 0.05$). Finally, varietal responses differed significantly to storage pathogens ($P < 0.05$) and may be of interest to future cultivar development efforts. This research increases our understanding of factors contributing to potential storage losses, which will improve yield and profit for sugar growers