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Assessing optimum timing for detecting Potato mop-top virus (PMTV) in potato seed tubers

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Potato mop-top virus (PMTV)-induced tuber necrosis is known to increase during storage, but it is not clear if virus titre reacts similarly. Hence, the goal of the study is to determine the optimum time for testing stored seed tubers. Ten tubers from each of 11 cultivars grown in a PMTV-infested field were evaluated for virus presence monthly over a period of six months after harvest. All tubers were stored at 4°C without sprout inhibitor treatment. PMTV was detected using real-time PCR. Total RNA was isolated from tissue excised from the apical and basal ends of each tuber. Preliminary results indicate that PMTV was detected in 44% of tubers across cultivars and evaluation dates. Specifically, PMTV was detected in the apical end of 16% of tubers, 13% in the basal end and 15% in both apical and basal ends. The probability of detecting PMTV across time was evaluated using a logistic regression. The probability of detecting PMTV varied significantly among cultivars. Across all cultivars, when compared with testing 6 months after harvest, the probability of detecting PMTV was significantly lower (-51%) one month after harvest and significantly higher (35%) five months after harvest. Within cultivar, a significant difference in PMTV detection frequency was observed across time in five of 11 cultivars. Analyses are ongoing and a second year of data will be included in the logistic regression to strengthen recommendations for post-harvest tuber testing.