POSTER 3

Regional Ascospore Detection Correlates to Disease Incidence Providing Accurate Timing for Disease Management of Sclerotinia Rot of Carrot

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Sclerotinia rot of carrot (SRC), caused by *Sclerotinia sclerotiorum* (Lib.) de Bary, is an important disease of carrot (*Daucus carota* L., subsp. *sativus*); epidemics are sporadic but infection can be severe, particularly in postharvest storage. The objective of this study was to determine the relationship between ascospore counts and disease incidence to improve the timing of disease management practices against SRC. In 2008, ascospore counts remained below the SRC forecast model threshold of 5 ascospores (0-4.4, with single peaks of 11.8 and 28.5 at two test sites) and there was low incidence of SRC at all three test sites (0-3%, with a single peak at one test site of 14%). Considering a 1 week delay between ascospore detection and infection, the mean daily number of ascospores were correlated with disease incidence at all sites (r=0.78–0.87, p=0.0026-0.0118). In 2009, at two of four test sites, low numbers of ascospores were detected (0-4.3 with a single peak of 9) and showed similar trends with low disease incidence (0-4%). At the remaining two test sites, ascospore counts surpassed the SRC forecasting model threshold (0-31.7) and were correlated with disease incidence (r=0.74 and 0.88, p=0.0097 and 0.0095, respectively). Trimming the carrot canopy in combination with boscalid or 0.2% chitosan timed according to ascospore detection reduced SRC compared to the untrimmed/untreated control (AUDPC: trim + boscalid or chitosan 22 and 70, respectively; boscalid or chitosan alone 215 and 252, respectively; control 564; p<0.0001). These results indicate that disease prediction is accurate and demonstrate that control is effective when accurately timed according to inoculum detection.