# #089

## A Biosensor for Sclerotinia Stem Rot Forecasting

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We have been working on developing low-cost, in-field, real-time biosensors for accurate and in-time Sclerotinia stem rot spore detection and disease forecasting to prevent yield loss and unnecessary application of fungicide. we present the development of an impedimetric non-Faradaic biosensor based on anti-S. sclerotiorum polyclonal antibodies as probes to selectively capture the ascospores and sense their binding by an impedance based interdigitated electrode which was found to directly and unambiguously correlate the number of ascospores on sensor surface with the impedance response. We also developed an app that can transmit the signal from the sensor chip to a cell phone in a real-time fashion. Studies were also conducted under controlled environment and field conditions to build correlation between number of spores and the petal infection / disease severity. The spore-disease severity correlation will be used to set the threshold for the biosensor to warn producers that a disease outbreak is imminent, and actions need to be taken to control the disease.