Prediction of leaf wetness duration and *Botrytis*, and validation in strawberry fields with multi-sensor arrays

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Botrytis cinerea (Botrytis fruit rot) is one of the most destructive pathogens affecting strawberry production in North Carolina. Disease caused by *B. cinerea* is also commonly referred to as gray mold due to the visible colonization of the fungus on plant tissues, most often observed on fruits. *Botrytis cinerea* infection is not limited to the field as symptoms can continue to develop post-harvest affecting strawberry production on the grower, shipper, and consumer level. The ideal environmental conditions for *B. cinerea* infection are cool and wet. Therefore, variables such as temperature, leaf wetness, and relative humidity are important factors to consider when making management decisions. Models like the Bulger infection model, which consider these variables, have proven to be useful tools for predicting the infection risk for *B. cinerea*; however, they are limited by the accuracy of the data gathered from local weather stations, which may differ significantly from the actual conditions observed in the field. Additionally, variables such as leaf wetness can be very difficult to measure, so an alternative is leaf wetness simulation models. An experiment is being conducted to evaluate the leaf wetness and *Botrytis* prediction models using sensors deployed in the field. The field sensors include a Phytos leaf wetness sensor, Temperature, RH, along with custom visual and infrared sensors for detecting leaf wetness. Model predictions made from in-field weather sources will be compared to those made from two local weather stations (ECONet and Wilmington, NC) and a numerical 2.5 km grid weather source NOAA NCEP URMA.