

Effect of Portable Ground Control Points on the Accuracy of UAV-Based Remote Sensing Data for Plant Health Prediction

This presentation talks about the effect of portable ground control points (GCPs) on the accuracy of unmanned aerial vehicle (UAV)-based remote sensing data in predicting plant health. 6 GCPs equipped with GPS receivers were spaced around the experimental plots of citrus and strawberry. UAVs equipped with multispectral sensors were then used to collect the remote sensing data of citrus and strawberry plants. The remote sensing data was used to calculate various vegetation indices including normalized difference vegetation index (NDVI), Green NDVI, and soil adjusted vegetation indices (SAVI). These indices were compared with the data obtained from proximal sensors that include Handheld Spectroradiometer and Chlorophyll Meter. Correlation between various vegetation indices, chlorophyll content, and spectroradiometer data will be shown and discussed. A significantly higher correlation coefficients were obtained between the remote sensing and proximal sensor data when the GCPs were used. Increased accuracy of remote sensing data is important for the widespread adoption of UAV-based remote sensing technology for precision agriculture so that the technology can be used for site-specific input management by taking into account the infield variability.