

Operation and Maintenance of the Strawberry Advisory System

Clyde Fraisse

Summary

During the 2024/2025 season, the AgroClimate Strawberry Advisory System (SAS) operated continuously without significant interruptions. All automated routines for data acquisition, model execution, and near-real-time publication of risk levels and alerts functioned as expected throughout the season.

Background

The Strawberry Advisory System (SAS) is a decision support tool designed to help growers reduce unnecessary fungicide applications by using weather-driven disease risk models. It estimates the risk of Anthracnose Fruit Rot (AFR) and Botrytis Fruit Rot (BFR) infection based on leaf wetness duration (LWD) and temperature during wet periods, using data collected from weather stations. Risk simulations run at short intervals of 15 minutes to 1 hour, and alerts are sent via SMS and email when conditions conducive to disease development are detected. Growers can also access current and historical risk data through web and mobile interfaces. Over nearly 15 years of operation, SAS has supported research and enabled growers to reduce fungicide use and associated costs without compromising disease control.

Methods

A total of ten weather stations were maintained for operational disease risk predictions, covering Arcadia, Balm, Dover, Plant City, Lake Alfred, Apopka, Floral City, Umatilla, Citra, and Bronson. Figure 1 illustrates the system interface and risk chart for the Balm station, serving as a representative site for the central production area.

Anthracnose showed several continuous periods of moderate risk early in the season (October–November) and shorter events later in February, with only a few days reaching high-risk levels. Botrytis presented fewer risk days overall, though high-risk conditions occurred more frequently across the season. Risk levels mainly remained low to moderate from January through February, consistent with the drier and cooler conditions typical for that period.

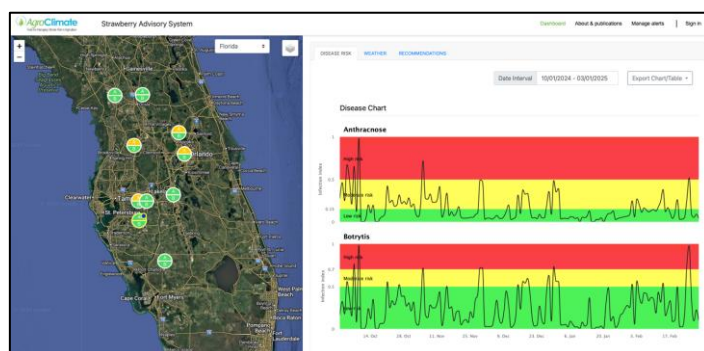


Figure 1. Screenshot of the SAS dashboard for the Balm station, illustrating daily AFR and BFR risk levels during the 2024-2025 season.

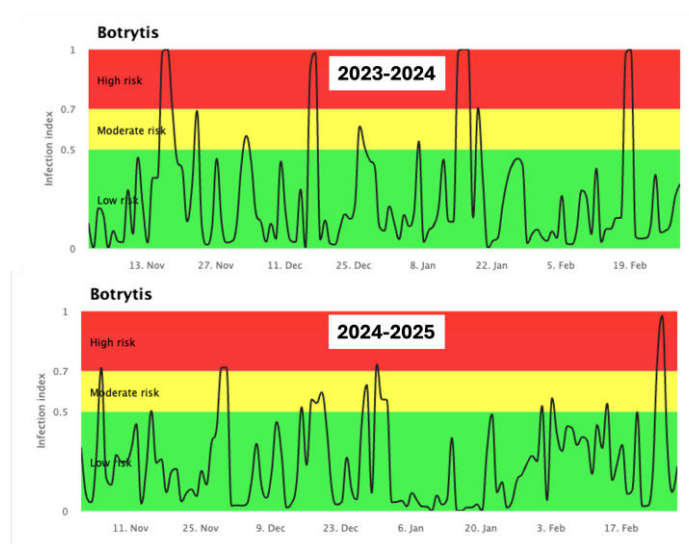


Figure 2. Comparison of BFR risk levels during the 2023-2024 season (top) and 2024-2025 season (bottom).

Results

The system's infrastructure and user services remained stable throughout the season, with no failures in data retrieval, processing, or alert dissemination. Both the web and mobile applications performed reliably, providing real-time updates to growers and advisors. In total, 2,715 SMS alerts were sent to 111 registered users.

With the support of the FSGA, we successfully maintained the SAS throughout the 2024/2025 season, ensuring uninterrupted delivery of timely, data-driven disease-risk information for the Florida strawberry growers. The continued collaboration between the University of Florida and FSGA sustains this capacity for operational reliability and user trust. Building on this foundation, upcoming AgroClimate efforts will emphasize broader spatial coverage through the integration of gridded weather datasets (e.g., NOAA RTMA) and ongoing improvements to system diagnostics and forecasting performance, further strengthening decision support in future seasons.

Takeaways

- The results indicate that SAS IT infrastructure is stable and reliable to offer continuous information about AFR and BFR risk levels throughout the season.
- The system allows not only the monitoring of the current season, but it also has the ability to plot AFR and BFR risk levels of past seasons.

Contact

Dr. Clyde Fraisse
Agricultural and Biological Engineering Department
University of Florida IFAS
P: 352-2946742
E: cfraisse@ufl.edu
<http://agroclimate.org/>