

# AgroClimate Mobile Apps: Helping Growers Reduce Climate Risk in the Southeast USA

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## Introduction

The recent expansion of mobile phones in agricultural areas is causing a revolution in the way information is provided to farmers around the world. There has been considerable interest in the potential role mobile phones have begun to play in the marketing of agricultural outputs and also in providing information with the potential to help increase production and reduce risks. Mobile phones are an effective way to reach farmers at the time decisions are made in the field. With this idea in mind, researchers at University of Florida and University of Passo Fundo are cooperating to develop solutions delivered via mobile phones.

## Objectives

Our main goal is to develop smartphone apps to help producers in the SE U.S.A. make better decisions related to crop, irrigation and disease management. Two recent developed apps are highlighted in this poster: The AgroClimate and Strawberry Advisory System mobile apps.



AgroClimate app icon.



Strawberry Advisory System app icon.

## Methodology

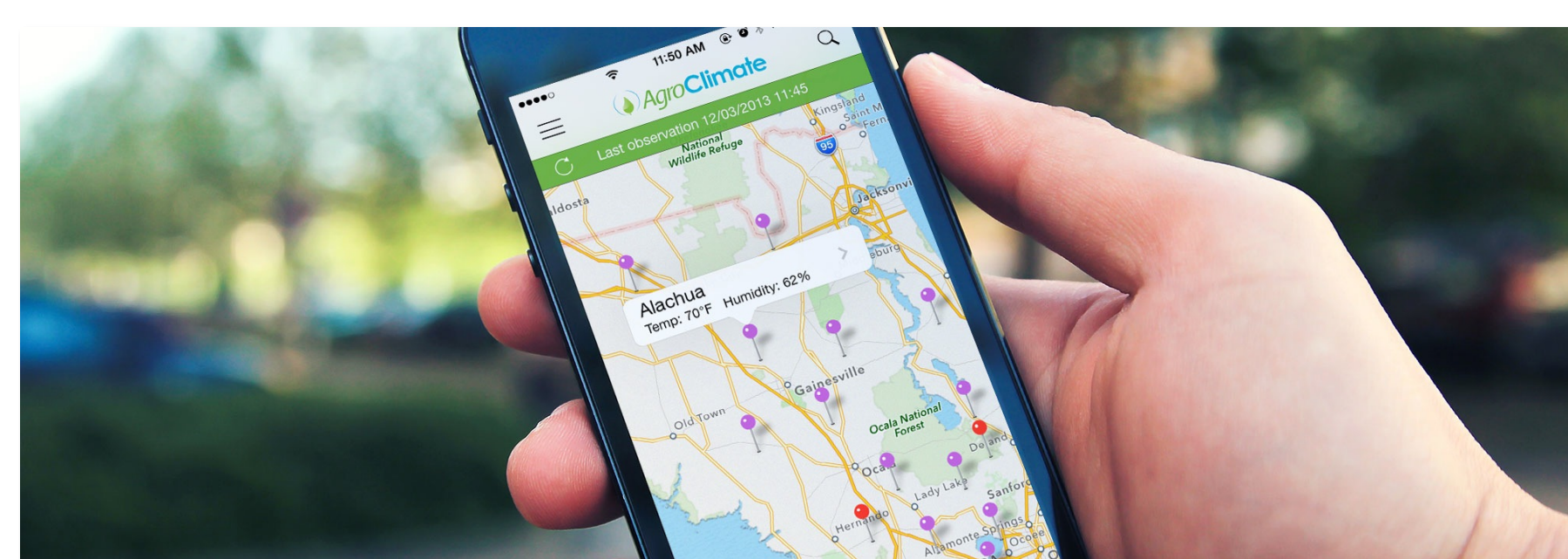
The apps were developed using the official tools and programming language provided by Apple® (iOS SDK and Objective C) which allowed the designing and coding of modern mobile applications for interaction and presentation of data from a variety of models.

The apps communicate with AgroClimate servers and databases via specific developed web services that return data for the requests in JSON (JavaScript Object Notation) format.

The AgroClimate and Strawberry Advisory System apps are currently available for mobile devices with iOS operating system on the App Store®.

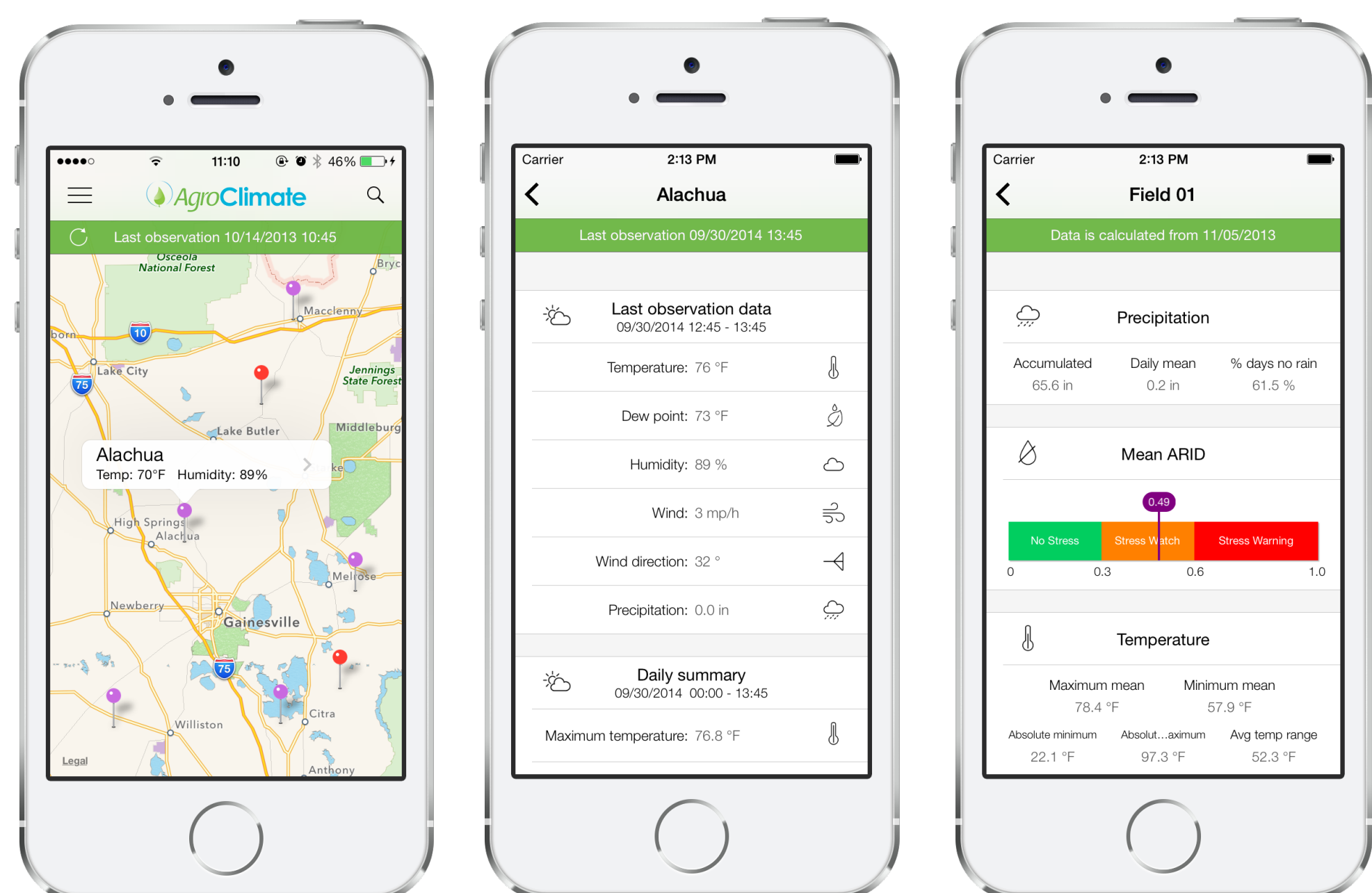
## AgroClimate App

AgroClimate app was created with the goal of helping farmers in the southeastern USA with their management strategies by delivering valuable weather and crop development information.



AgroClimate mobile app.

Users can select a station from the map or use the search input in the top bar to find a specific weather station by name. After selecting a weather station, the app will present current and observed weather data from that location. The current weather data presented includes temperature, dew point temperature, humidity, wind speed and wind direction along with observed accumulated rainfall, mean temperature and accumulated growing degree days (50°F base temperature) for the last seven, fourteen and thirty days.



Map view with geo-located stations presented.

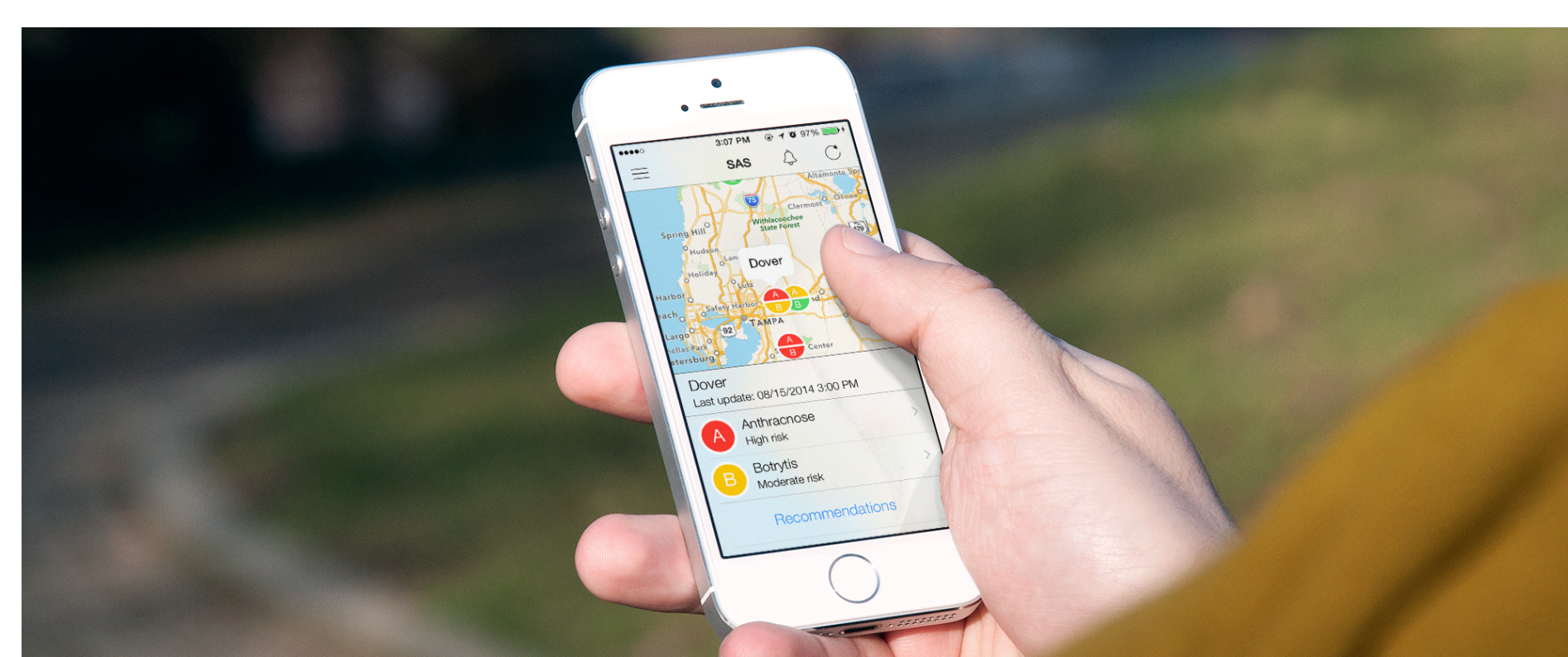
Observed weather data for the selected location.

Specific weather information of a registered field.

Users can also register and manage properties in the app to track specific weather and crop development information starting at their fields planting date.

## Strawberry Advisory System

The Strawberry Advisory System app covers six stations in central Florida and it is a mobile version of the successful web tool at [agroclimate.org](http://agroclimate.org) that has been helping strawberry producers to minimize risks and better manage fungicide applications to prevent Anthracnose and Botrytis infections.



Strawberry Advisory System app.

The disease risks are represented by colors and letters where green means “Low Risk”, orange “Moderate Risk” and red means “High Risk” for both Anthracnose (represented by the letter “A”) and Botrytis (represented by the letter “B”).



Selecting a station in the SAS app main screen.

Disease simulation of the past days and short term forecasted disease indexes.

Fungicide spray recommendations based on infection risk.

Producers can get specific fungicide recommendations based on their crop situation after answering a small questionnaire. The recommendations not only describe the need of applying or not fungicide, but they also suggest best chemicals to be used.

## Notifications

Both apps have options where users can receive valuable information from the system through push notifications.

In the AgroClimate app, producers can schedule days of the week when to receive updates of observed weather and crop development information for their fields.

The Strawberry Advisory System app allows producers to select stations they want to receive alerts when the model detects a potential infection risk according to weather conditions.



Notification received when there is risk of infection according to observed weather data. Strawberry Advisory System.

Notification presenting weather information for a specific farm and field. AgroClimate App.

Notifications are sent through the Apple Push Notification Services (APNS) protocol and are free to be sent and received.

## References

Fraisse, C.W., Breuer, N.E., Zierden, D., Bellow, J.G., Paz, J., Cabrera, V.E., Garcia y Garcia, A., Ingram, K.T., Hatch, U., Hoogenboom, G., Jones, J.W., and O'Brien, J.J. 2006. AgClimate: A climate forecast information system for agricultural risk management in the southeastern USA. Computers and Electronics in Agriculture 53 (1): 13-27. (ISSN 0168-1699, DOI: 10.1016/j.compag.2006.03.002).