

**CWP.TAMU.EDU: THE CROP WEATHER PROGRAM
FOR SOUTH TEXAS**

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Abstract

The Crop Weather Program for South Texas (<http://cwp.tamu.edu>) has been developed to help farmers and consultants to monitor weather conditions, crop growth and development, crop water use, and soil water storage that allow them to make management decisions conducive to profitable crop production. CWP is the gateway for: (1) accessing up-to-the-hour weather data measured hourly by a network of 21 automated weather stations spread throughout 10 South Texas counties. Hourly or daily databases can be searched on-line quickly with just a few button clicks. (2) Requesting field-specific crop-environment calculations to estimate time- and weather-sensitive variables such as crop growth and development, potential evapotranspiration (PET), crop water use, and soil water balance. To access this area of CWP, users need to register and create their own password-protected web site where they can store unlimited number of field profiles used to run the various calculations.

Introduction

In cotton production, knowing the environmental conditions throughout the growing season, such as soil and air temperature and status of water storage in the soil profile, as well as being able to predict the occurrence of critical stages of plant development, may help growers to adopt appropriate management decisions involving plant growth regulators, in-season additions of fertilizers, pesticides, and defoliant. In irrigated cotton, knowing soil water storage and the crop water use is obviously of primary importance to effectively and efficiently manage water application. The objective of this project is to develop an easy-to-use tool to help farmers and consultants to monitor weather conditions, crop growth and development, crop water use, and soil water storage that allow them to make management decisions conducive to profitable crop production.

Methodology

The development of The Crop Weather Program for South Texas (<http://cwp.tamu.edu>) began in September 1999 upon realizing that the Internet is the most effective way of communication and delivery of information.

The Crop Weather Program for South Texas is the gateway for the following:

- (1) Instant access to hourly and daily weather data measured by a network of 21 automated weather stations spread throughout 10 South Texas counties. (This phase of the project is completed). The web site has been designed to secure easiness and speedy data searches. Several navigation paths from the home page to the weather data search page have been implemented to accommodate users with different experience and knowledge about the location of the weather stations. Navigation paths include the following steps: State of Texas, Districts, Coastal Bend Region, County, and weather stations. A user can initiate the data search at any of these steps. The weather databases are updated hourly, and the data search

page allows for the display of "today's" hourly data, as well as hourly and daily weather data for any other day or sequential multiple days. A quick summary of data for the searched period is displayed preceding the output table. Weather data includes air and soil temperature, relative humidity, solar radiation, wind speed and direction, and rainfall.

- (2) Field-specific crop-environment calculations to estimate time- and weather-sensitive variables such as crop growth and development, potential evapotranspiration (PET), crop water use, and soil water balance. (This phase of the project is under development, and at this time a beta version is available for Reference PET and Crop Development). Access to these field-specific crop-environment calculations (applications) is granted upon registration. By registering, users create their own password-protected web site in which they can store an unlimited number of field profiles that identify a given production year in a particular field. The field unit is one that has a particular or predominant type of soil, that has been planted in a given date, with particular cultivar, a particular row spacing, a particular seeding rate, etc, or that can just be fallow. Upon registration and creation of at least one field profile, a user can just login with his name and password and access the applications panel where he can select a particular field profile and launch an application. The calculations are performed on-line and in very short time (seconds) and a summary is displayed on a tabular form. The display of day-to-day calculated values is optional as well its download.

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