THE WEB-BASED CROP-WEATHER PROGRAM FOR SOUTH TEXAS: MONITORING COTTON DEVELOPMENT

C.J. Fernandez
TAMU Agricultural Research & Ext. Center
Corpus Christi, TX
T.N. Trolinger
The Texas Agricultural Experiment Station
The Texas A&M University System

Abstract

Plant Development is one of the tools available to users registered with The Crop-Weather Program for South Texas (http://cwp.tamu.edu). The Plant Development tool simulates cotton phenology - the change of developmental stages with time- plant growth in terms of production of main stem nodes, and the progression of flowering. The occurrence of developmental stages is estimated using empirical equations based on degree-day (DD60) accumulation from the date of planting. To run the Plant Development simulation tool, a user just login into MyCWP and selects one of his previously-created and stored field profiles to retrieve inputs such as nearest weather station, planting date, and cotton cultivar. Before the simulation program is run, the user is asked to confirm or change the default date to end the calculations. Outputs produced by Plant Development are presented in three easy-to-read summary tables. The first of these tables displays information that identifies the particular cotton field subjected to calculation, including the field profile ID, the cotton cultivar planted, the planting date, and the end of calculations. The second summary table displays estimated dates of crop development stages, namely, emergence, first square, pin-head square, match-head square, first bloom, and first open boll. Two estimates are provided, one for weather conditions of the current year and another for weather conditions of an average (normal) year. If the user entered growth and development data collected for that field using My Cotton Growth tool, these observations are also displayed in this table. The third summary table displays estimated values of the number of main-stem nodes, the node number of the first sympodial branch, the number of sympodial branches, the node number of the first-position bloom, the number of nodes above white bloom, and the maximum number of first position green bolls and opened bolls. This third table also displays the corresponding observed values if these were entered in the user's database using My Cotton Growth tool. Information generated by Plant Development can be used for supporting in-season crop management decisions such as timely application of plant growth regulators, fertilizers, insecticides, and irrigation.