

The 2000 Arizona Cotton Advisory Program

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Abstract

Arizona Cooperative Extension generates and distributes weather-based Planting Date and Cotton Development Advisories for 19 cotton production areas (Aguila, Buckeye, Cochise Co., Coolidge, Eloy, Greenlee Co., Harquahala, Laveen, Litchfield Pk., Marana, Maricopa, Mohave Valley, Paloma, Parker, Pinal Co., Queen Creek, Roll, Safford and Yuma Valley). Planting Date Advisories are distributed from legal first planting date until the end of April and provide updates on heat-unit-based planting windows, recent and forecasted weather conditions, heat unit accumulations, variety selection, soil temperatures, recommended plant population, and early insect management and control. Cotton Development Advisories are distributed from early May through early September and provide updates on crop development, insects, weather and agronomy. The Cotton Advisory Program will continue in 2000, and growers may obtain from the AZMET Internet Web Page (<http://ag.arizona.edu/azmet>) or by mail/fax from local extension offices.

Introduction

Arizona Cooperative Extension has published and distributed weekly, weather-based advisories for Arizona cotton producers since 1991. This document provides a brief summary of the advisory program, then details plans for the 2000 program.

Advisory Content

The Cotton Advisory Program provides cotton growers weekly updates on crop development, agronomy, pests and weather from mid-February until early September. Two related but distinct advisories are used during the season-long program: the Planting Date Advisory and the Cotton Development Advisory. The Planting Date Advisory (Figure 1) is generated each Monday from the start of the planting season until late April or early May (depending on location) and emphasizes planting cotton in windows defined by heat unit (HU, 86° /55°F thresholds) accumulations rather than calendar dates. The HU windows identify planting periods which typically result in optimal performance for short, medium and full season cotton varieties. A simple graph showing annual HU accumulation and the planting windows is used to illustrate the proper planting time (Figure 1).

The remainder of the Planting Date Advisory is devoted to weekly updates on 1) weather conditions (current situation, long-term normals and 5-day forecast), 2) early season pest management, and 3) agronomy. Among the topics discussed in the Planting Date Advisories are variety selection, seeding rates, plant population, optimal planting conditions for rapid and uniform germination and early season crop phenology.

Cotton Development Advisories are issued beginning in late April or early May and provide growers information on cotton development, pest management, and season-long crop management (Figure 2). A simple graph tracking HU accumulation for cotton crops planted on five representative planting dates (four at high elevation areas) is located at the top of the advisory (Figure 2). Heat-unit-based development time lines are used to indicate when growers should expect particular phenological or physiological events such as pinhead square, susceptible square, first flower, peak bloom, cut-out, etc.

The text portion of the Cotton Development Advisory is similar to that of the Planting Date Advisory and provides updates on weather (both normal and forecasts), insects and cotton agronomy. Estimates of cotton water use are added to the weather section to assist growers with irrigation management, and regular updates on the heat stress conditions are provided during monsoon. Insect updates discuss appropriate scouting and control measures for pink bollworm, whitefly, lygus, aphids and other insect pests. The Agronomy Update provides details on nitrogen and water management, factors impacting fruit retention, crop monitoring techniques, identification of cut-out, timing of terminal irrigations and defoliation strategies.

Advisory Development and Distribution

The data processing center (DPC) of the Arizona Meteorological Network (AZMET) serves as the site for advisory development. Because the advisories make use of near-real time weather information (e.g., HUs, soil temperatures, evapotranspiration, humidity and rainfall), the presence of a local AZMET weather station is a prerequisite for advisory development. Table 1 lists 19 locations served by the program, and the AZMET weather stations serving each location.

Advisories are developed each Monday morning in the following manner. First, AZMET personnel summarize the previous week's data and make the necessary computations of weather-based variables. Second, Extension Specialists in entomology and cotton agronomy submit their respective weekly updates to the AZMET DPC for inclusion in the advisories. AZMET personnel then develop, proof and transfer the advisories to the Main AZMET Internet Web Page (<http://ag.arizona.edu/azmet>). County Extension personnel retrieve the advisories from the Internet and insert additional local information prior to distribution to growers. Local information typically consists of additional detail on local production or pest problems.

Growers interested in accessing advisories by computer may use the AZMET Internet Web Page which carries the URL address of <http://ag.arizona.edu/azmet>. Advisories are placed on the Internet page at noon each Monday and remain on the system through Saturday of each week. Procedures for retrieving advisories from the Internet are provided later in this publication.

The 2000 Cotton Advisory Program

The 2000 Cotton Advisory Program will function in much the same manner as the 1999. that time. Growers and other interested individuals may obtain advisories from two sources: 1) AZMET's Internet Web Page or 2) County Extension Offices. Procedures required to access advisories from each source are provided below.

The AZMET Internet Web Page

The Arizona Meteorological Network provides access to the cotton advisories via the AZMET Internet Web Page. The AZMET Web Page URL address is:

<http://ag.arizona.edu/azmet>

To access the advisories, simply log on to your Internet service provider and enter the URL address provided above. The Main AZMET Web Page will appear on your screen. The main page contains a box labeled "Weekly Cotton Advisories." Simply click on this button to access to the Cotton Advisories sub-page. Identify the advisory location

of interest and then click on the word "Current" to view this week's advisory. Advisories from past weeks, last year and a current advisory designed for use with the Adobe Acrobat Reader are also available for each location.

The Cotton Advisory sub-page also provides a link to the Arizona Cotton Information Site (ACIS) which contains a wide array of information pertaining to cotton production in Arizona. Simply click on this link to move to ACIS. The ACIS URL is:

<http://ag.arizona.edu/cotton>

The AZMET Web Page also provides an FTP site for individuals interested in downloading files. Specifics on the FTP site are as follows:

Host Name: ag.arizona.edu
Host Type: automatic detect
User ID: anonymous
Password: guest
Initial Directories at Remote Host: /pub/azmet

The file **cotton.txt** in the Documentation directory provides the proper filenames for the cotton advisories.

Individuals planning to generate hard copy output of advisories downloaded from the AZMET Web Page may need to adjust their printer settings for page length, print typeface and type pitch to obtain a usable report. Adjust the page length from 60 lines per page (normal default) to 76. Lengthening the page is necessary to get the entire advisory printed on one page. Adjust the typeface to a non-proportional or mono-spaced typeface. **Courier typeface works well! Do not use a proportional spaced typeface as the graph and columns will become distorted!** Finally, adjust the type pitch (characters per inch) to a setting of 11 or 12; a setting of 10 may result in truncated lines.

The advantage of accessing advisories via the Internet is same-day delivery. AZMET places the completed advisories on the Internet at noon each Monday. It is important to note that advisories obtained from the Internet will not contain localized information added at county extension offices. Growers interested in this local information will need to obtain advisories from their local extension office.

County Extension Offices

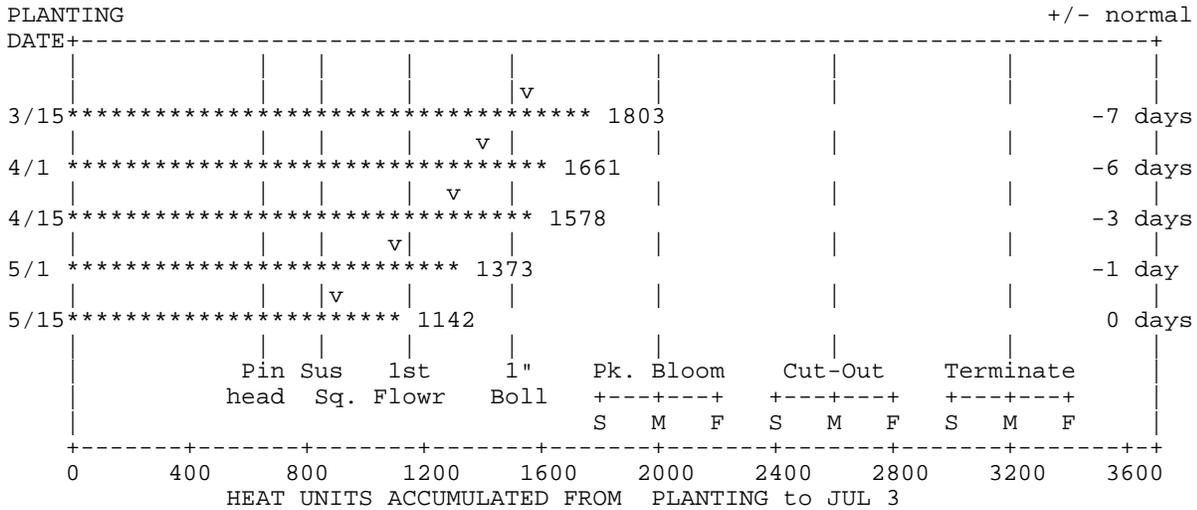
A significant number of advisories are delivered to clientele via local county extension offices. Access via the county office allows recipients to benefit from any local information generated/provided by local extension personnel. This information is presently available only from county extension offices (not available from the Internet). Most county offices distribute advisories through regular weekly mailings. Delivery via facsimile machine is offered in some circumstances. Individuals interested in receiving the advisories via county extension offices should contact their local office for details.

Table 1. Locations covered by the 2000 Cotton Advisory Program and the AZMET weather station(s) serving each location. Pinal County advisory uses averaged weather data from the Coolidge, Eloy and Maricopa stations.

<u>Location</u>	<u>AZMET Station(s)</u>
Aguila	Aguila
Buckeye	Buckeye
Cochise Co.	Bonita
Coolidge	Coolidge
Eloy	Eloy
Greenlee Co.	Duncan NOAA *
Harquahala	Harquahala
Laveen	Laveen
Litchfield Pk.	Litchfield Pk.
Marana	Marana
Maricopa	Maricopa
Mohave Valley	Mohave
Paloma	Paloma
Parker Valley	Parker (Poston)
Pinal County	Maricopa/Coolidge/Eloy
Queen Creek	Queen Creek
Safford	Safford
Roll	Roll
Yuma Valley	Yuma Valley

*NOAA National Weather Service Data (No AZMET Station)

LITCHFIELD COTTON DEVELOPMENT ADVISORY
 JUL 4, 1999



v = Heat Units on JUN 27; S,M,F = Short, Medium, and Full Season Varieties

INSECT UPDATE

The most reliable measure of PBW levels is cutting bolls & searching for live larvae. Concentrate search efforts to 1) non-Bt fields, & 2) the earliest planted (& squaring) fields. These fields are at greatest risk for early PBW infestation. Treat non-Bt cotton when 10% bolls have live PBW. Bt cotton should not require sprays for PBW. WFs may be found in many fields via sweepnet. Confirm their ID & start leaf-turn sampling. 3 species may be present: greenhouse (pupae: long hairs; adults: overlapping wings), bandedwinged (darker pupae: short fringe; adults: bands) & sweetpotato (naked pupae; adults: yellow bodies & slightly parted wings). Bandedwinged WFs may still be the most abundant WF species in some fields & generally do not require controls.

WEATHER UPDATE, STATISTICS & ESTIMATED COTTON WATER USE

Last Week : JUN 27 - JUL 3					This Week : JUL 4 - JUL 10				
Normal	HIGH	LOW	DEWPT	HUS	Normal	HIGH	LOW	DEWPT	HUS
106	106	72	40	186	106	106	75	48	195
Recorded	107	80	54	208	1998	102	75	59	195

Monsoon humidity, already in place in southeast AZ, will spread across the state this week, bringing above normal dew points & a significant chance for afternoon & evening thunderstorms. Temperatures should run about 2-3 degrees above normal due to warm night temperatures caused by high humidity & clouds. Expect minimum temperatures to run in the upper 70s & low 80s in low elevation production areas. The atmospheric pattern driving this week's monsoon flow is expected to continue through most of the week.

Heat Units (HU) are running about 5 days behind normal. HU last week = 208.
 Heat Unit accumulation since Jan 1 = 2244; Last year = 1903; 30 year normal = 2395.

Planting date :	3/15	4/1	4/15	5/1	5/15
Water Use (last week):	2.53"	2.22"	2.04"	1.6"	1.1"

AGRONOMY UPDATE

Good irrigation management is critical at this time to achieve good crop vigor (height:node ratio,HNR) & fruit retention (FR). Water stress at this stage of the season should be avoided. Patterns in crop vigor (HNR)& FR should be monitored regularly. Plants need to set as many sites as possible, therefore strong growth rates are acceptable, IF the FR levels are also good. If applications of mepiquat chloride are being considered, the best potential for positive yield responses are when HNRs are increasing above the Arizona baselines & FR is dropping. Identify causes of fruit losses. N applications should be completed as the crop goes into peak bloom (approx. 2000 HUAP), based on crop condition (FR and vigor)& previous fertilizer applications.

Figure 2. Example of a 1999 Cotton Development Advisory in ASCII format.