

# SOUTHEAST ARIZONA CROP WATER USE REPORT

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## Weather Update

Temperatures averaged near normal for the fourth consecutive week (Fig. 1) as cooler temperatures late in the week offset very warm early week conditions. The trough of low pressure that passed through late in the week brought an increase in cloudiness and humidity which helped keep evaporative demand at near normal levels (Fig. 2). Precipitation was reported at all three AZMET reporting sites, but was generally very light, ranging from 0.04" at Bowie to 0.12" at Bonita and Kansas Settlement. Annual precipitation totals now stand at 4.22", 3.55" and 7.81" at Bonita, Bowie and Kansas Settlement, respectively. Annual precipitation at the long-term Bonita station stands at 47% of normal (Fig. 3).

A large trough of low pressure is expected to influence local weather conditions much of the week. Expect breezy and much cooler temperatures with a chance for showers and thunderstorm mid-week. A slow warming trend is forecast for the weekend. Expect water use to run below normal this week due to cooler temperatures and an increased level of cloudiness.

**This will be the final report for the 2009 season. Have a safe and profitable harvest!.**

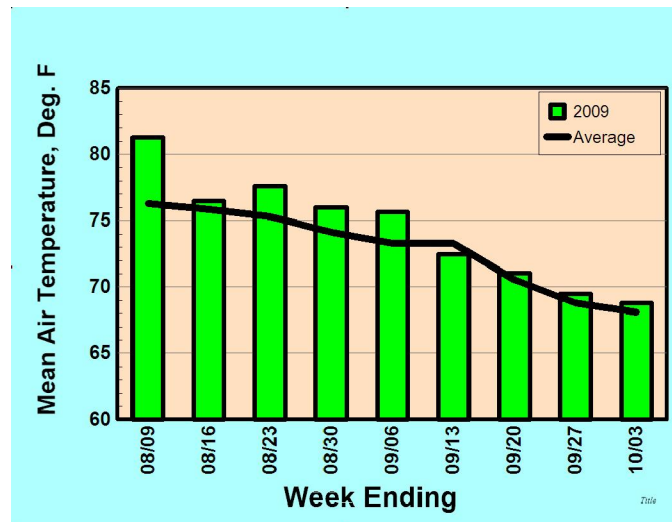


Figure 1. Average weekly air temperature for the period 9 August through 3 October 2009. The black line provides the long term average value for each period.

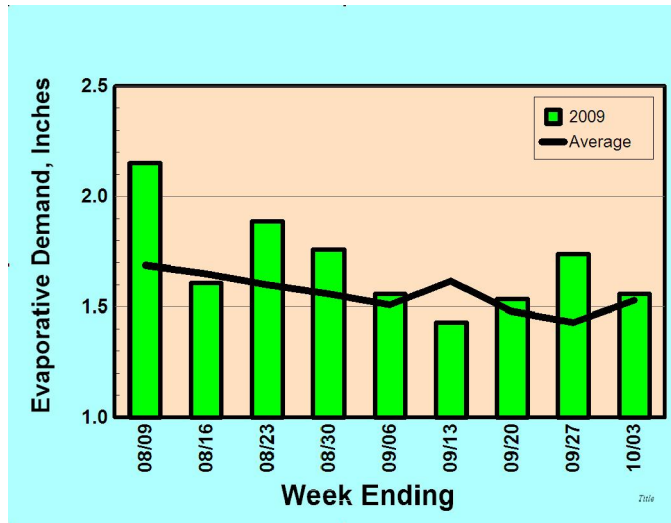


Figure 2. Total weekly evaporative demand for the period 9 August through 3 October 2009. The black line provides the long term average value for each period.

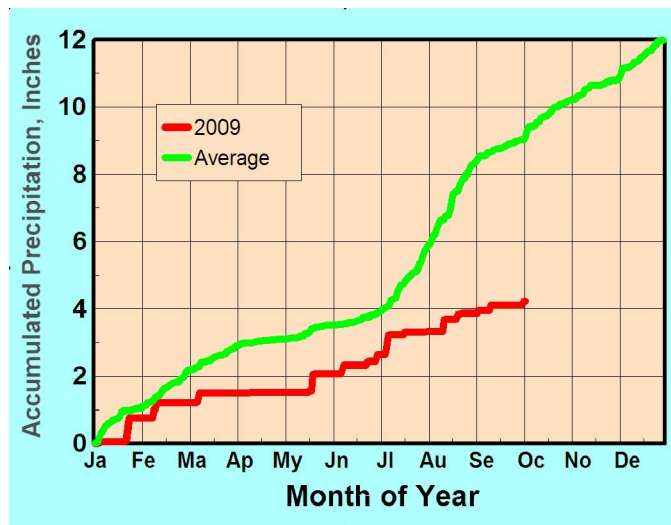


Figure 3. Cumulative precipitation for Bonita since 1 January 2009 (red line). The green line shows the normal cumulative precipitation trend for Bonita.

**Crop Water Use Update**

The tables below provide estimates of crop water use for the past and upcoming week for selected crops in southeast Arizona. Water use was estimated by applying crop-specific coefficients (Kc) to values of reference evapotranspiration (ETo) generated by local AZMET weather stations. Estimates for the upcoming week were computed using historical averages of ETo for this time of year. See table at the end of this report to translate inches of water into pivot run times.

<b>Chile Water Use By Planting Date</b>								
<b>Location</b>	<b>Water Use Last Week, Inches</b>				<b>Water Use This Week, Inches</b>			
	<b>Apr 1</b>	<b>Apr 15</b>	<b>May 1</b>	<b>May 15</b>	<b>Apr 1</b>	<b>Apr 15</b>	<b>May 1</b>	<b>May 15</b>
<b>Bonita</b>	<b>1.4</b>	<b>1.5</b>	<b>1.7</b>	<b>1.8</b>	<b>1.2</b>	<b>1.3</b>	<b>1.4</b>	<b>1.6</b>
<b>Bowie</b>	<b>1.1</b>	<b>1.3</b>	<b>1.4</b>	<b>1.6</b>	<b>1.0</b>	<b>1.1</b>	<b>1.3</b>	<b>1.5</b>
<b>Kansas Set</b>	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>1.6</b>	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>1.6</b>

<b>Location</b>	<b>Pistachio</b>		<b>Pecan</b>	
	<b>Last Week</b>	<b>This Week</b>	<b>Last Week</b>	<b>This Week</b>
<b>Bonita</b>	<b>1.2"</b>	<b>1.0"</b>	<b>1.9"</b>	<b>1.5"</b>
<b>Bowie</b>	<b>1.1"</b>	<b>1.0"</b>	<b>1.8"</b>	<b>1.7"</b>
<b>Kansas</b>	<b>1.0"</b>	<b>1.0"</b>	<b>1.6"</b>	<b>1.5"</b>

<b>Location</b>	<b>Alfalfa Water Use</b>							
	<b>Cut: Sep 8</b>		<b>Cut: Sep 15</b>		<b>Cut: Sep 22</b>		<b>Cut: Sep 29</b>	
	<b>Last Week</b>	<b>This Week*</b>	<b>Last Week</b>	<b>This Week</b>	<b>Last Week</b>	<b>This Week</b>	<b>Last Week</b>	<b>This Week</b>
<b>Bonita</b>	<b>1.8"</b>	<b>1.2"</b>	<b>1.8"</b>	<b>1.7"</b>	<b>1.1"</b>	<b>1.6"</b>	<b>1.0"</b>	<b>1.0"</b>
<b>Bowie</b>	<b>1.8"</b>	<b>1.2"</b>	<b>1.8"</b>	<b>1.7"</b>	<b>1.0"</b>	<b>1.7"</b>	<b>1.0"</b>	<b>1.0"</b>
<b>Kansas Set.</b>	<b>1.6"</b>	<b>1.2"</b>	<b>1.6"</b>	<b>1.7"</b>	<b>0.9"</b>	<b>1.6"</b>	<b>0.9"</b>	<b>1.0"</b>

\* Assumes crop is cut on Oct 6; use Sep 15 value if not cut

Pivot run times (pumping days per week) for various rates of crop water use. Example: assume you have a crop water use rate of 1.4"/week and your well supplies 900 gallons per minute. You would need to run the pivot 4.1 days during the week. Numbers in italics indicate system capacity is insufficient to offset crop water use and the crop must make up the deficit by using stored soil moisture.

<b>Crop ET</b>	<b>Pumping Days Per Week</b>				
<b>Inches/Week</b>	<b>500 GPM</b>	<b>600 GPM</b>	<b>700 GPM</b>	<b>800 GPM</b>	<b>900 GPM</b>
<b>0.35</b>	<b>1.9</b>	<b>1.6</b>	<b>1.3</b>	<b>1.2</b>	<b>1.0</b>
<b>0.70</b>	<b>3.7</b>	<b>3.1</b>	<b>2.7</b>	<b>2.3</b>	<b>2.1</b>
<b>1.05</b>	<b>5.6</b>	<b>4.7</b>	<b>4.0</b>	<b>3.5</b>	<b>3.1</b>
<b>1.40</b>	<i><b>7.0</b></i>	<b>6.2</b>	<b>5.3</b>	<b>4.7</b>	<b>4.1</b>
<b>1.75</b>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<b>6.7</b>	<b>5.8</b>	<b>5.2</b>
<b>2.10</b>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<b>7.0</b>	<b>6.2</b>
<b>2.45</b>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<i><b>7.0</b></i>
<b>2.80</b>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<i><b>7.0</b></i>	<i><b>7.0</b></i>