

SOUTHEAST ARIZONA CROP WATER USE REPORT

Sept. 13, 2008
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Weather Update

Last week proved to be another cool week with below normal evaporative demand and scattered precipitation. Cooler weather spread into the region mid-week and produced yet another below normal week of temperatures (Fig. 1). The higher humidity and cloudiness associated with the lingering trough of low pressure helped keep evaporative demand at below normal levels (Fig. 2). The late summer has truly been cool and relatively moist. Temperatures have averaged below normal in seven of the past ten weeks. Evaporative demand has averaged below normal for eight of the past ten weeks. All three AZMET stations reported precipitation, but totals were generally light with Bonita, Bowie and Kansas Settlement reporting 0.35", 0.21" and 0.63", respectively. The annual precipitation total at the long term Bonita now stands at 6.88" or approximately 79% of normal (Fig. 3). Annual precipitation at Bowie and Kansas Settlement presently stands at 7.96" and 8.63", respectively.

A much drier pattern in forecast for this week and it appears the monsoon is about done for the year. High pressure is expected to dominate this week's weather, producing sunny skies with warm days and cool to mild evenings. Precipitation will be generally light and mostly limited to higher elevation areas. Crop water use values should approach normal levels this week.

This will be the final advisory for the 2008 growing season. Feedback regarding this program would be appreciated and should be directed to Paul Brown via email (pbrown@ag.arizona.edu) or cell phone (520-419-2991). Serious shortfalls in state and University budgets are forcing us to evaluate the effectiveness of all outreach programs, including AZMET. Programs that are deemed weak or ineffective may be reduced in scope or eliminated in the very near future.

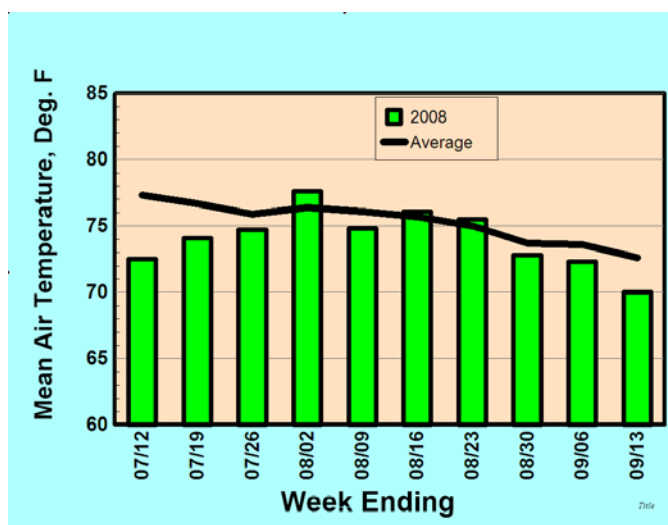


Figure 1. Average weekly air temperature for the period 12 July through 13 September 2008. The black line provides the long term average value for each period.

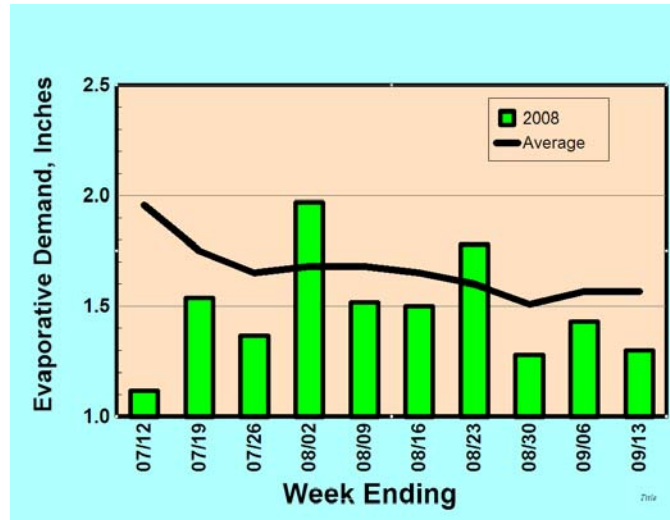


Figure 2. Total weekly evaporative demand for the period 12 July through 13 September 2008. The black line provides the long term average value for each period.

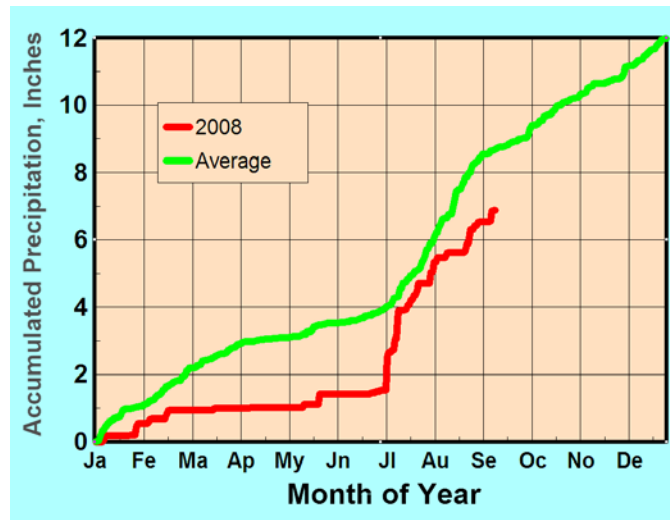


Figure 3. Cumulative precipitation for Bonita since 1 January 2008 (red line). The green line shows the normal cumulative precipitation trend for Bonita.

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 2 at the end of this report to translate inches of water into pivot run times.

Chile Water Use By Planting Date								
Location	Water Use Last Week, Inches				Water Use This Week, Inches			
	Apr 1	Apr 15	May 1	May 15	Apr 1	Apr 15	May 1	May 15
Bonita	1.5	1.6	1.6	1.6	1.5	1.7	1.7	1.7
Bowie	1.3	1.4	1.5	1.5	1.4	1.6	1.7	1.8
Kansas Set.	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.8

Location	Alfalfa Water Use							
	Cut: Aug 26		Cut: Sep 2		Cut: Sep 9		Cut: Sep 18	
	Last Week	This Week	Last Week	This Week	Last Week	This Week	Last Week	This Week
Bonita	1.6"	1.3"	1.5"	1.7"	0.9"	1.7"	0.8"	1.0"
Bowie	1.5"	1.3"	1.5"	1.8"	0.9"	1.8"	0.9"	1.1"
Kansas Set.	1.5"	1.3"	1.5"	1.7"	0.9"	1.7"	0.8"	1.0"

Location	Nut Tree Water Use*			
	Pistachio		Pecan	
	Last Week	This Week	Last Week	This Week
Bonita	1.2"	1.3"	1.7"	1.6"
Bowie	1.2"	1.3"	1.8"	1.5"
Kansas Set.	1.2"	1.3"	1.8"	1.5"

* Water use for orchards that shade 60% or more of the orchard floor during the summer. See table below to adjust values for immature orchards.

Table 1. Adjustment factors for immature orchard water use. Estimate the percentage of ground shaded at mid-day in summer. Then adjust water use values in table above using the percentage value listed.

% Area Shaded	% of Table Water
10	25
20	45
30	60
40	85
50	95
60	100

Table 2. 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.

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