WEATHER FOR THE 2012 SEASON

Environmental conditions at the Monsanto Learning Center at Scott, MS during the 2012 growing season contributed to above average yields for all crops. Temperatures were fairly moderate for the region with few extreme heat indexes recorded. Precipitation for the season was slightly above average. Heat units for crop growth and development accumulated at a rate similar to the 2011 season.

Temperature, Humidity, and Rainfall

Temperatures during the 2012 season were similar to the long-term average at the Learning Center. May was slightly warmer than usual, but the months of June, July, August, and September followed the normal temperatures. There were only a few days in late July when the daytime high temperature was at or above 100ºF, and only one night when the recorded low was above 80ºF (Figure 1). The lack of extended periods of extreme heat during the season contributed to the high yields for all crops at the Learning Center.

The humidity was abnormally low during late June and early July, which helped to reduce the potential for extreme heat during this period. The heat index dipped even lower through mid-July, along with almost 5.5 inches of rainfall received from July 8th through July 16th (Figures 1 and 2). The only extended period of high to extreme heat occurred from mid– to late July.

Rainfall was periodic and timely during the season (Figure 2). Monthly total rainfall was as follows: May 1.8 inches, June 4.8 inches, July 5.5 inches, August 6.2 inches, and September 4.6 inches for a total of nearly 23 inches of rainfall. May rainfall was below average, but June, July, August, and September were all above average. The longest period of no rain was 25 days from mid-June through the first week in July. Rainfall events of more than one inch occurred once in May, twice in June, three times in July, twice in August, and once in September. The rainfall helped to produce above average yields in dryland crop production systems. The lack of flooding rains combined with adequate drainage helped provide an advantage to 30-inch row production systems in both corn and soybeans. Adequate rainfall combined with periods of low humidity, cool nights, and minimal periods of high to extreme heat helped contribute to above average yields observed for all crops in 2012.

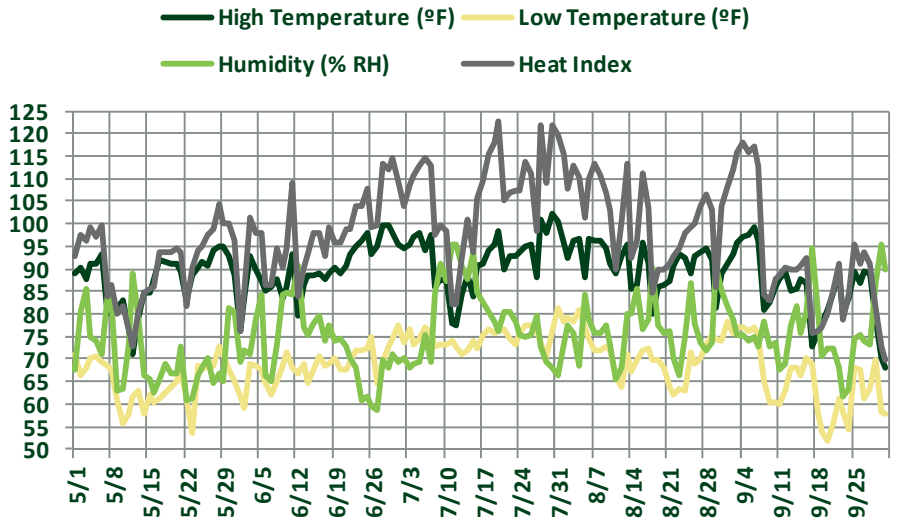

Figure 1. High and low temperatures, relative humidity, and heat index for Scott, MS from May 1 to October 1, 2012.

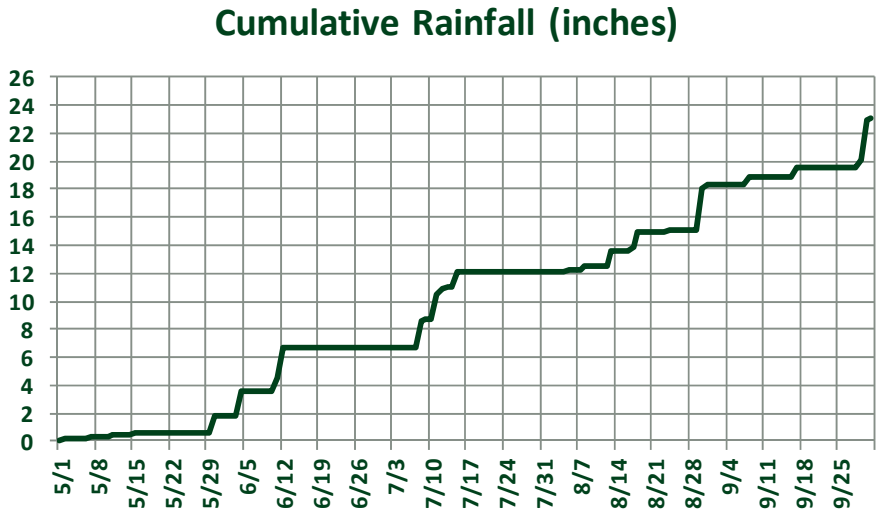

Figure 2. Accumulated rainfall for Scott, MS from May 1 to October 1, 2012.

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Technology Development & Agronomy by MONSANTO

WEATHER FOR THE 2012 SEASON

from previous page

Heat Index and Worker Safety

Extreme heat can severely impact crops, as well as individuals working on the farm. The heat index is the temperature felt by the human body due to the combined effects of temperature and humidity, and can be used to help determine the risk of heat-related illness for outdoor workers. A combination of high heat and high humidity can mean trouble to workers in the field. A very high to extreme risk level occurs when the heat index is greater than 115ºF. Risk level is high when the heat index is 103ºF to 115ºF. A moderate risk level occurs when the heat index is 91ºF to 103ºF, and one should exercise caution when the heat index is less than 91ºF. Over 70% of the working days during May through September in 2012 had a heat index of 91ºF or greater (Figure 1).

Everyone should be careful while conducting field work in the heat. When heat advisories are issued, anyone working outdoors should take extra precaution. Workers should conduct strenuous outdoor activities in the early morning or evening, wear light-weight materials, drink plenty of water, and take frequent breaks in shade or air conditioning.

Heat Units (DD60)

Plant growth and development is related to heat unit accumulation. Heat units are equal to the average temperatures for a day minus some minimum growing temperature. DD60 heat units are used as an aid in managing cotton, providing information about when to plant, when to expect first bloom and when bolls might be maturing.

Heat unit accumulation varied throughout the 2012 growing season, but DD60s were accumulated at a rate similar to previous seasons (Figures 3 and 4). The accumulated heat units per day ranged from around 10 to 20 DD60s during May and September, peaking around 25 to 30 DD60s during July. The average heat unit accumulation was 19.2 DD60s per day from May 1 to October 1, 2012.

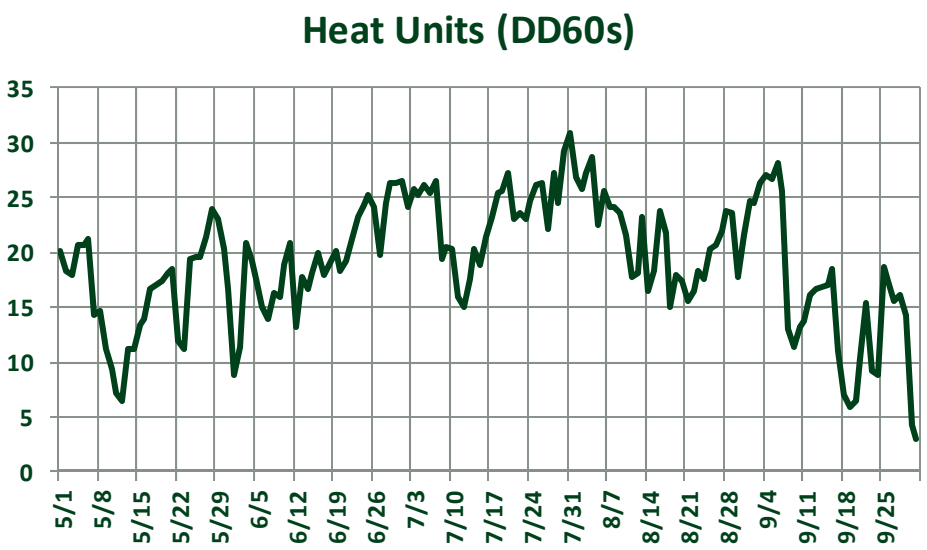
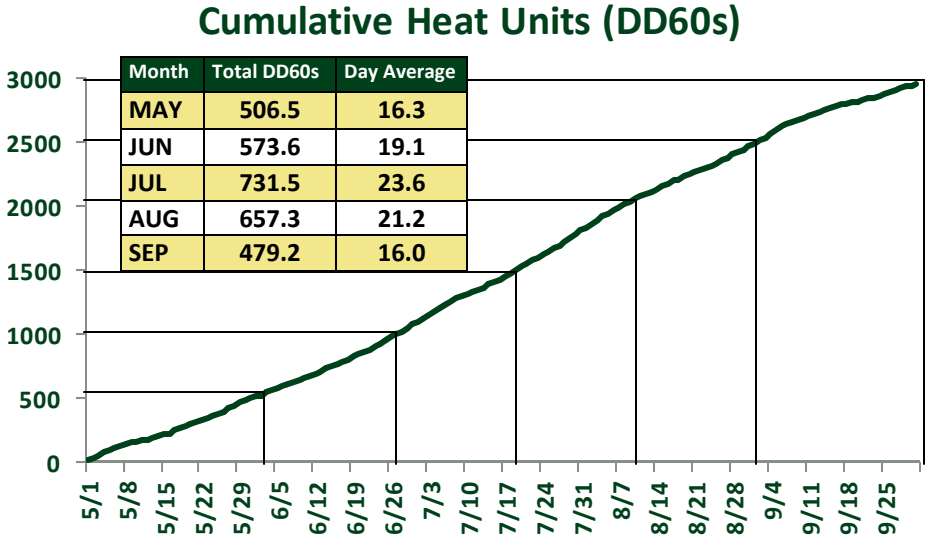


Figure 3. Heat units during the season for Scott, MS from May 1 to October 1, 2012.



Month	Total DD60s	Day Average
MAY	506.5	16.3
JUN	573.6	19.1
JUL	731.5	23.6
AUG	657.3	21.2
SEP	479.2	16.0

Figure 4. Heat unit accumulation for Scott, MS from May 1 to October 1, 2012.

Continued on next page

WEATHER FOR THE 2012 SEASON

from previous page

Comparison of 2011 and 2012 Weather

Environmental conditions were good for crop production during both 2011 and 2012 at the Learning Center. Heat unit accumulation for crop growth and development was similar in both years (Figure 5).

Temperatures were fairly moderate in both years. However, heat indexes were generally not as high in 2012 (Figure 5). There were more extended periods of heat indexes over 115, and more days where the daytime high was over 100ºF in 2011. Rainfall received from mid-June to late September was nearly equivalent in both years. Multi-week periods of no rainfall also occurred in both years that caused some production problems.

The period of mid-June through mid-July was an important contrast in crop growing conditions between 2011 and 2012. The humidity was abnormally low during this period in 2012, resulting in lower heat indexes and reduced crop stress. Favorable humidity conditions were a major reason for above average yields for all crops across the south in 2012.

The information discussed in this report is from a single site, non-replicated, one-year demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

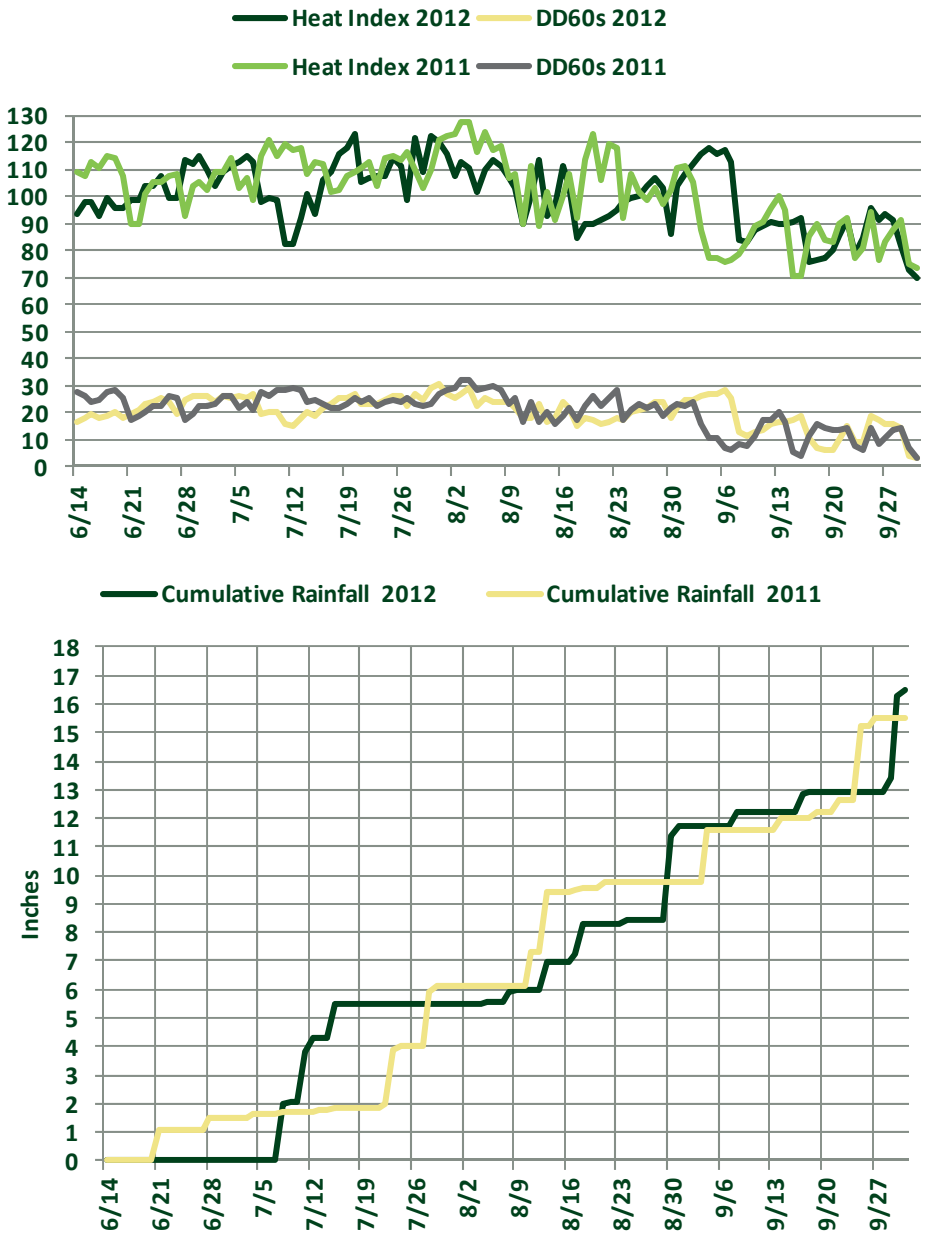


Figure 5. Heat index, heat unit (DD60s), and accumulated rainfall comparisons of the 2011 and 2012 seasons over the time period from June 14 to October 1.

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