2012

# Weather and Growing Season Summary

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**Abstract**
Precipitation for 2011 was less than the longterm climate average. Early in the year, precipitation lagged behind normal, but then tracked close to the normal accumulation rate from mid-April through mid-August. After that time, precipitation amounts greatly lagged behind normal, and the year ended almost 7 in. behind the long-term average. (Figure 1). Overall, 2011 will be remembered for good moisture early, but ending the season with almost no rainfall.

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# Weather and Growing Season Summary

**RFR-A1165**

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## Introduction

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Growing degree accumulation for the year tracked with the normal accumulation rate for much of the growing season (Figure 2), with the exception during the month of July. July was much warmer than normal, and most of the total excess growing degree accumulation for the year came during that month. The crop season came to an abrupt end for many producers on September 15, when temperatures at the Western Research Farm reached a recorded low of 34 degrees. A lot of fields showed significant frost damage from that event, with crops in some low-lying areas killed by the frost.

## Growing Season

The growing season began with very little field activity in April due to above normal precipitation and below normal temperatures during the month. Soil moisture levels were at field capacity for almost all sites in northwest and west central Iowa at the beginning of the growing season. Planting proceeded at a record pace in early May, and most fields were planted on a timely basis. Rainfall was near the long-term climate average for much of the summer, until mid-August when precipitation nearly ended for the year (Figure 3).

Crop stress degree day accumulation was more than normal in May and June, but that had little impact on the crop because moisture was plentiful. Crop stress was greater than normal during July during the corn pollination season, but very few stress degree days accumulated during August (Figure 3). Corn maturity progress from silking to dent was as much as a week earlier than normal, but corn crop maturity occurred near normal.

With almost no rainfall in September, October, or November, harvest proceeded with almost no delays once the crop reached maturity.

## Crop Yield and Quality

Corn and soybean yields were better than many expected in 2011, despite hot weather in July and little rainfall after August 15. Yields averaged near the long-term trend line. Grain molds were minimal this fall. Reports of soybeans harvested with moistures as low as 7 percent were common. Most corn left the field without needing additional drying.

Fall anhydrous fertilizer application was not limited by soil wetness, instead some producers chose not to apply anhydrous because soil conditions were too dry and anhydrous was not sealing well in the soil in some fields.

Fall subsoil moisture samples taken at the Western Research and Demonstration Farm showed there was no water in the 5-ft soil profile. Crops were sustained in 2011 by the water stored in the soil, but all reserves were used. Significant recharge is needed by the time corn and soybeans are planted in 2012.

**Table 1. Monthly precipitation, average monthly temperature, and departure from normal for 2011.**

| | Precipitation | | Temperature | | Days 90°F | Nights 28°F |
|---|---|---|---|---|---|---|
| | Total | Departure* | Mean | Departure* | or above | or below |
| January | 1.02 | 0.40 | 14 | -7 | | 31 |
| February | 1.06 | 0.39 | 23 | -3 | | 23 |
| March | 0.81 | -1.19 | 35 | -2 | | 22 |
| April | 4.22 | 0.83 | 48 | -2 | | |
| May | 4.95 | 0.71 | 60 | -1 | 2 | |
| June | 4.16 | -0.77 | 70 | 0 | 3 | |
| July | 3.24 | -0.99 | 78 | 3 | 9 | |
| August | 2.88 | -0.63 | 72 | 0 | 1 | |
| September | 0.46 | -2.58 | 61 | -3 | | |
| October | 0.27 | -2.05 | 55 | 3 | | 1 |
| November | 0.00 | -1.48 | 39 | 2 | | 13 |
| December | 1.11 | 0.26 | 26 | 2 | | 29 |
| Total | 24.18 | -6.94 | 48 | -1 | n/a | n/a |

*Departure from 30-yr average as recorded at the ISU Western Research Farm weather station. When inaccurate data was available from the ISU Western Research Farm weather station, data was retrieved from Iowa Department of Agriculture and Land Stewardship, Climatology Bureau and National Agricultural Statistics Service, Crop and Weather reports.

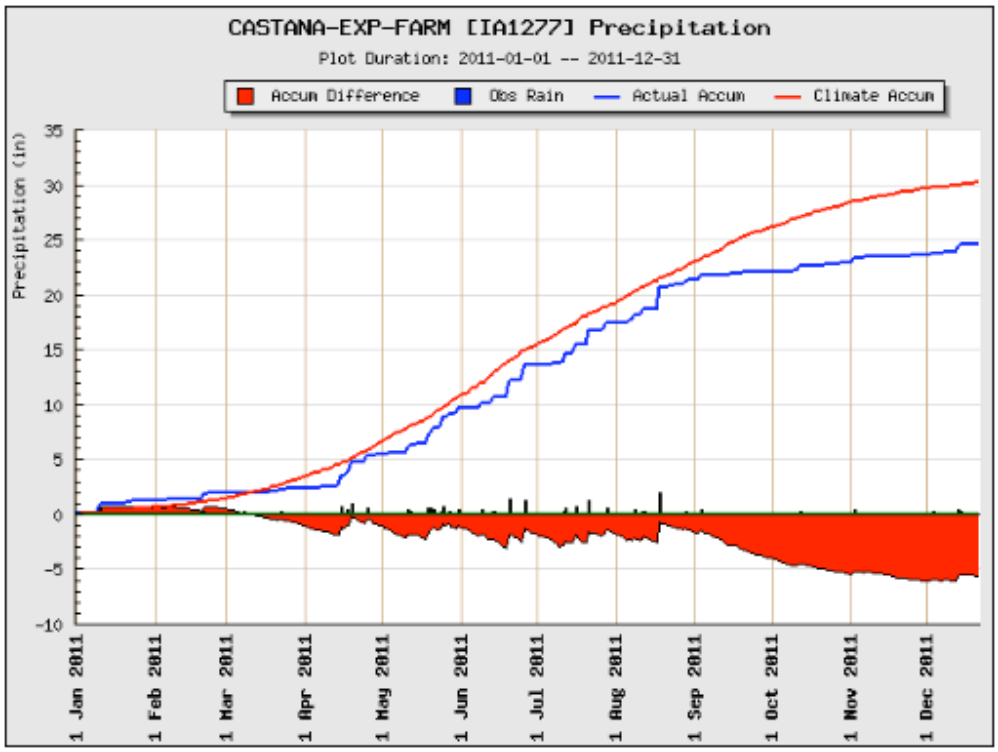


**Figure 1. The 2011 precipitation compared the long-term climate precipitation history recorded at the ISU Western Research Farm weather station.**

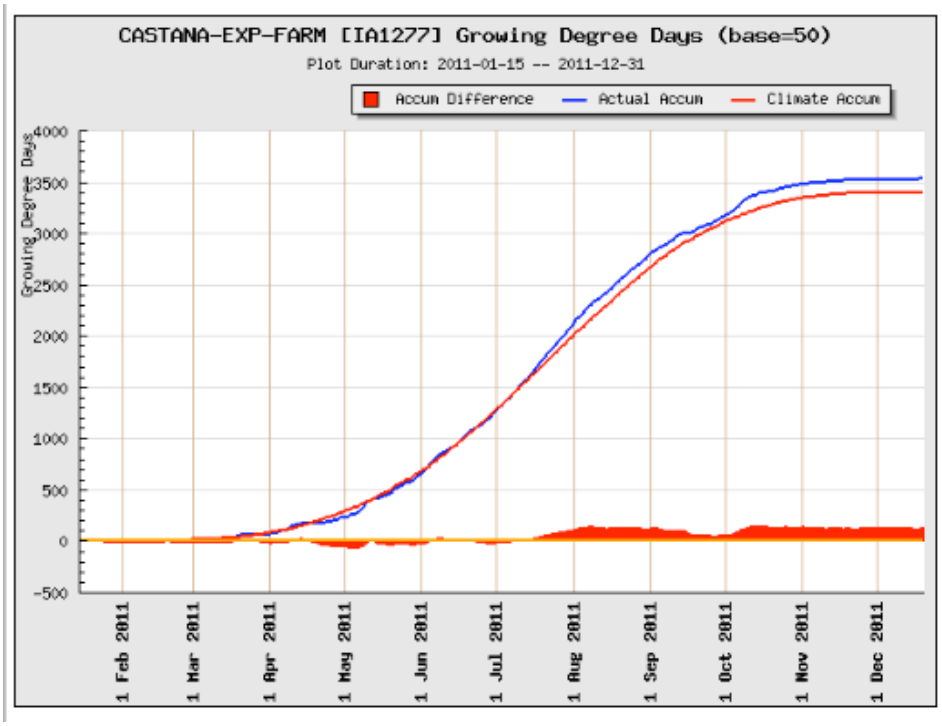


**Figure 2. Daily growing degree day accumulation (GDD base 50) for the 2011 growing season from April 1 to September 30 and historic climate growing degree day (GDD base 50) accumulation based on ISU Western Research Farm weather station high and low temperatures.**

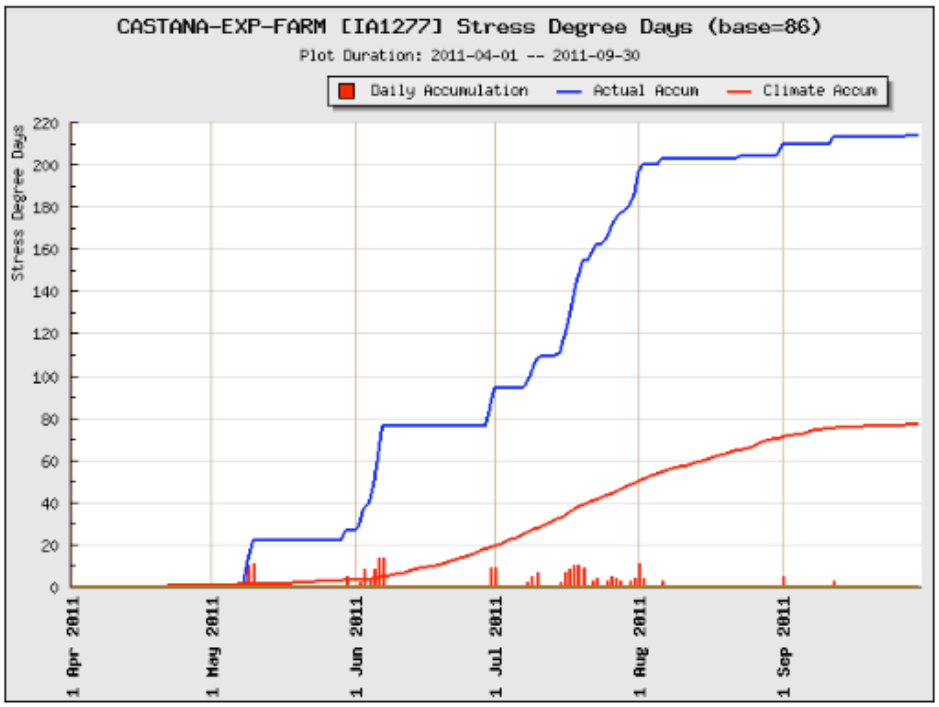


**Figure 3. Stress degree day accumulation (base = 86) for the 2011 growing season from April 1 to September 30 and the historic climate stress degree (base = 86) accumulation based on ISU Western Research Farm weather station high and low temperatures.**