

2000 Crop Season

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Monthly rainfall and average temperatures for the Northeast Research Farm are shown in Table 1. Water tables for soybean and alfalfa fields and weekly rainfall are shown in Figure 1.

The year 2000 proved to be moderately dry compared with the severe flooding that occurred in 1999. Severe flooding did occur just north and northeast of the Iowa border in 2000. Excessive rainfall occurred from May through July of 1999 at the research farm, followed by below normal precipitation for the rest of the year, including most of 2000. Only June and November of 2000 had above average precipitation. The Northeast Research and Demonstration Farm recorded 27.6 inches of rainfall from April through November, 2.67 inches below the past 30-year average and 17 inches below 1999. The last snow of spring occurred on April 7 and the first snow in the fall occurred on November 13, with a total yearly accumulation of 57.0 inches, 20.67 inches more than in 1999.

The frost was out of the top 5 feet of soil starting on February 22, 43 days earlier than in 1999. April and May precipitation combined was 1.38 inches below the 30 year average, allowing us to apply nitrogen, seed oats/alfalfa in late March/early April and finish the majority of corn and soybean plantings in late April/early May. The 4 inch soil temperature averaged above 50°F starting on April 23, and the average low and high air temperatures for the first 7 days of May, averaged 53.3°F and 83.7°F, respectively, resulting in late April plantings emerging in 7-9 days after planting. Air temperatures for all months, except June and July were above the 30-year long-term average. Bean leaf beetles were at high populations this growing season due to the mild winter, but did not exceed economic thresholds except for early

soybean plantings. Heat unit accumulation from May through September totaled 2,642 growing degree units (GDU), 15 more than 1999, but monthly accumulations were lower in June and July compared with 1999 and were higher for the rest of the months, as reflected in the 2000 air temperature data.

Corn pollination started on July 11, about seven days earlier than 1999, due to early plant emergence in May. The first hard frost occurred on October 7, three days after the average frost date for northeast Iowa, and the 4 inch soil temperature remained below 50 degrees F starting on November 7. Very little fall nitrogen had been applied due to the above average soil temperatures in October, which resulted from the October air temperature averaging almost 4.5°F above the 30 year long-term average, followed by higher than average November rainfall.

We started harvesting soybeans and corn on September 18 and 22, respectively, two weeks earlier than 1999, due to earlier plant emergence and above average air temperatures in August and September, compared with 1999. Corn had average to above average yields this year, despite minimal water availability in the soil profile throughout the growing season, with corn after soybeans and continuous corn averaging 170 and 160 bushels/acre, respectively. Soybean averaged 60 bushels/acre, about 7 bushels per acre more than 1999. Oats yields were approximately 75 bu/ac, and alfalfa surprisingly yielded about 4 tons/ac on a dry matter basis averaged from all plots due to timely rains and no heat stress in June and July despite a low water table throughout the growing season in the top five feet of soil (Figure 1).