

2001 Crop Season

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2001 proved to be reasonably dry year, more so than 2000 and with no comparison to 1999, when severe flooding occurred. Near-record snowfall occurred in the fall of 2000, with five inches in November and 27.5 inches in December. Only 12.25 inches of snowfall were recorded in January and February of 2001, with no measurable snowfall occurring in March. The last snow of spring occurred April 16.

Only May and September of 2001 had above-average precipitation. June through August were 6.24 inches below normal for the three months combined, with mild crop stress symptoms occurring from June 25 through July 16. From April through November 2001, 24.88 inches of rainfall were recorded at the Northeast Research and Demonstration Farm, this being 5.25 inches below the prior 30-year average and 3.95 inches below the prior 50-year average. The first snow of fall 2001 occurred December 13, with only 0.5 inches of snow recorded in December 2001 and only 2.5 inches in January 2002.

The frost was out of the top five feet of soil beginning April 7, 44 days later than in 2000 but about the same time as in 1999. April precipitation was 0.83 inches below the 30-year average, allowing application of nitrogen and manure, seed oats and alfalfa and to start planting corn and soybean planting date plots by the week of April 16. Some corn stand loss occurred after April 30, when 4.11 inches of rain fell in the eight days that followed. Corn planting was completed May 18, 2001. Soybean planting began May 19, was delayed seven days when another 2.29 inches of rain fell, and was finished May 30.

Four-inch soil temperature averaged above 50°F beginning April 20; April and May air temperatures were, respectively, 5.09°F and

1.19°F above the 30-year average, resulting in most plantings emerging in 7–9 days, except during extended rain periods, where the emergence period increased to 12 days. Air temperatures for all months of the growing season, except September, were above the 30-year longterm average. September was 1.39°F below the 30-year average and September precipitation was 2.48 inches above the 30-year average. The combination of cooler September air temperatures and above-normal precipitation resulted in a slower corn–grain fill period, which may have produced the surprisingly high corn yields of 2001, despite the dry summer conditions. Heat unit accumulation from May through September totaled 2620 GDU's (22 GDU's lower than 2000). Corn pollination began July 19, approximately eight days later than in 2000, due to delayed corn plantings and low topsoil moisture for the month prior to pollination. The first hard frost occurred on October 6, two days after the average frost date for northeast Iowa, and the four-inch soil temperature remained below 50°F beginning November 19.

If spring 2002 precipitation becomes excessive, fall-applied nitrogen losses may be a concern due to the prolonged warm soil temperatures that occurred in the fall of 2001. November and December 2001 air temperatures were respectively 13.73 °F and 10°F above the 30-year average, producing one of the most mild winters on record.

Harvesting of soybeans began September 28 and corn began October 11, each about two weeks later than in 2000; this was due to the cool September temperatures that delayed crop maturity. Corn had average-to-above-average yields this year, despite minimal water availability in the soil profile throughout the growing season. Corn after soybeans averaged 170 bushels/acre and continuous corn 159

bushels/acre. Soybean averaged 47 bushels/acre, about 13 bushels/acre less than in 2000. Oats yielded approximately 70 bushels/acre, and alfalfa about 2.76 tons/acre on a dry matter basis averaged from all plots; this was due to limited rainfall and heat stress in June, July, and

August. Crop yields would not have been as high if 8.75 inches of rain had not fallen in August and September; there was very limited soil moisture reserves in the top 5 feet of soil after July 31 (Figure 1).

Table 1. Monthly rainfall and average temperature during the 2001 growing season.

Month	Rainfall (in.)		Temperature (°F)*				
	NERF	Departure from normal	No. days of rain	ISU NERF	Departure from normal	Growing Degree Days	Days 90°F+
April	2.47	-0.83	8 (2 trace)	51.92	+5.09	210	0
May	5.82	+1.54	17 (0 trace)	60.37	+1.19	352	2
June	2.50	-2.56	7 (1 trace)	68.65	+0.13	546	7
July	2.76	-1.86	8 (0 trace)	74.39	+2.40	726	7
August	2.88	-1.82	8 (0 trace)	71.00	+1.15	631	5
September	5.87	+2.48	8 (1 trace)	60.25	-1.39	365	0
October	1.56	-1.17	6 (2 trace)	49.73	+0.09	178	0
November	1.02	-1.03	10 (0 trace)	47.37	+13.73		0
Total	24.88	-5.25	78			Freeze – Oct. 6, 2001	21

*171 frost-free days.

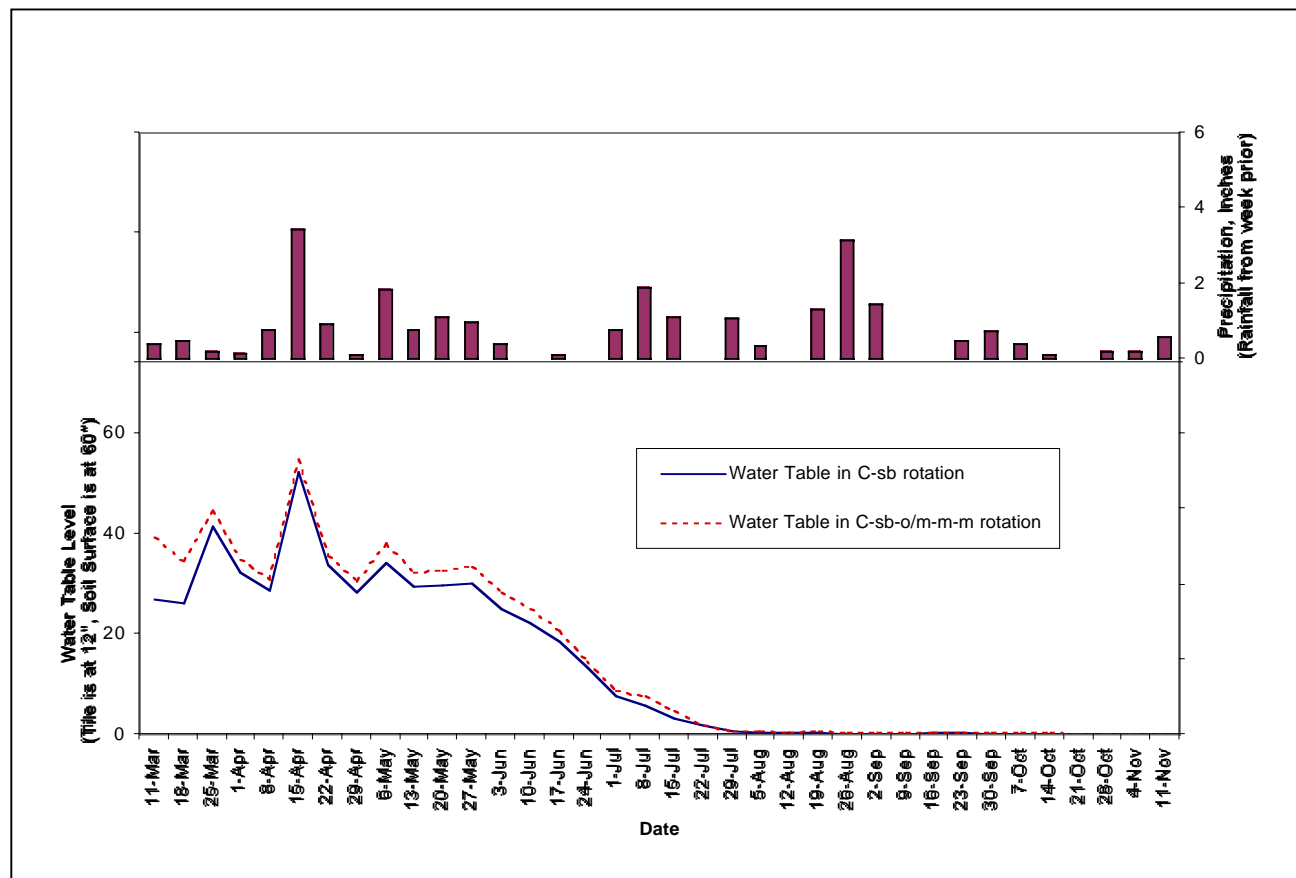


Figure 1. Water tables in two tile-drained crop rotations during the 2001 growing season.