

## Farm and Weather Summary

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### Farm Comments

*Field Days and Tours.* A total of 1,250 people attended 34 events at the research farm in 2007. These events included field days, tours, meetings, and the annual association meeting. Field days included information on nutrient and manure management, crop pest management, weather predictions, grain markets, and discussion on the grain needs for an expanding ethanol and biofuels market.

*New Projects.* Evaluation of N, S, and Cl by-products as potential N sources for corn, Stan Henning; Evaluation of Liberty herbicide tolerant soybeans and soybean planting date growth stage monitoring, Palle Pedersen; Organic corn hybrid trial and continuous corn hybrid trial, Roger Elmore; Expanded studies on fungicide use (foliar, seed treatment, application timings) in corn and soybeans, Alison Robertson/Daren Mueller; and Evaluation of soybean insecticides and fungicides in varying row widths, Matt O'Neal/X. B. Yang. Numerous variety and cultural practices (planting dates, planting populations, row spacings, and tillage practices) studies were conducted by the Northeast Research Farm staff.

### Crop Season Comments

Oat/legume seeding occurred on April 10 followed by a snowstorm the next day. Seeding was delayed due to 2.25 in. of rain during the last 11 days of March. Spring manure injection and spring anhydrous nitrogen (N) applications were started the third week of April due to 1.14 in. rainfall and 3 in. of snow during the first two weeks of April. A cool season garden was planted April 24. Corn planting began April 30 and was completed May 13. Corn harvest began on September 29 and was completed October 25. Corn yields were above average due to no

drought or heat stress, and above normal heat unit accumulation. Corn yields on rotated acres ranged from 170 to 241 bushels/acre and averaged 195 bushels/acre. Continuous corn yields ranged from 160 to 251 bushels/acre and averaged 185 bushels/acre. European corn borer and northern corn rootworm populations were below economic thresholds in 2007 contributing to high corn yields, as compared with 2005 when economically damaging levels of both insects were high. High winds on July 16 and July 18 caused severe root lodging in select corn varieties, regardless of rootworm protection, but damage occurred in less than 2% of the total corn acres.

Soybean planting started April 29 and finished on May 18. Harvest began September 14 and was completed September 28 with average to above average yields ranging from 55 to 75 bushels/acre. Soybean yields were consistently above normal due to ample soil moisture, especially after 9.78 in. of rain fell in August (4.85 in. above 30-year average). All soybeans, except for soybean insect plots were sprayed with an insecticide on July 26 for control of aphids resulting in an average 8 bushels/acre yield increase. Soybeans bean leaf beetles were present, but levels were below economic thresholds.

### Weather Comments

*Winter 2006–2007.* The first measurable snowfall occurred October 11, 2006 and the last snow for the season was on April 11, 2007 with a total of 37.5 in. recorded (9 in. more than the previous winter). The 4-in. soil temperature remained below 50°F after November 11, 2006. A major event for the 2007 winter was the loss of electrical power due to downed power lines from 0.87 in. of freezing rain on February 24. Power was out for 8 days while electrical company crews repaired the lines.

*Spring 2007.* Soils froze mid-December 2006 and a warm spell in late-December/early-January allowed some field work on January 8, followed by frozen soils until March. The frost was out of the top 2 ft of soil after March 24. The 4-in. soil temperatures were averaging about 50°F after April 17. Fertilization and tillage work began the third week of April, with most farmers planting all corn acres during the first week of May. May precipitation measured 4.42 in. (0.01 in. above the 30-yr average).

*Summer 2007.* May through August rainfall was 3.56 in. above the long-term average, but the majority of the excess was during August when 9.78 in. of rainfall occurred. Stress on crops grown on sandy, lighter soils had yield reductions due to no rainfall from June 23 through July 16 and 16 days in July averaging 85.9°F, but crops on heavy soils were saved by timely rainfall starting July 16. Unfortunately, July 16 and 18 rainstorms included high winds from the north causing east-west planted corn to lodge. Air temperatures and heat unit accumulation was above normal for May through August providing ample time for grain in the field to reach maturity. First plant-killing freeze occurred October 28, with a recording of 27°F. A mild freeze (29°F) damaged most corn leaves and top foliage of soybeans on September 15. Soybean aphid populations were

high in 2007, similar to the past odd years of 2003 and 2005. Most soybean fields were sprayed in late July. A total of 2,920 heat units were recorded from May through September, 326 heat units above the past 13-yr average. Record rainfall occurred in southeast Minnesota, western Wisconsin, and north central Iowa during the week of August 18 with totals of 18.0+ in. in several hours causing severe flooding and soil erosion.

*Fall 2007.* Rainfall was 2.88 in. above normal for October during corn harvest, causing harvest delays and soil compaction. Above-normal May through August temperatures sped up heat unit accumulation, resulting in a corn harvest at 15–20% moisture with below-normal propane gas usage to dry corn. Soybeans were harvested at 11–13% moisture from late September to early October.

#### Acknowledgements

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**Table 1. Monthly rainfall and average temperatures during the 2007 growing season.**

Month	Rainfall (in.)			Temperature (°F)*			
	NERF	Departure from normal	Days of rain	NERF	Departure from normal	Growing degree days	Days 90°F+
April	3.67	+0.34	14	46.15	-1.43	144	2
May	4.42	+0.01	13	64.93	+5.71	486	1
June	3.98	-1.05	11	70.35	+1.92	597	4
July	4.58	-0.25	12	72.47	+0.45	678	3
August	9.78	+4.85	9	72.27	+2.67	667	4
September	2.12	-1.18	11	65.3	+3.29	492	2
October	5.38	+2.88	6	55.77	+6.64	274	0
November	0.08	-1.82	6	35.73	+1.42		0
<b>Total</b>	<b>34.01</b>	<b>+3.78</b>	<b>82</b>				<b>16</b>

\*154 frost-free days (1<sup>st</sup> Freeze, 27°F (10/28/07), 1<sup>st</sup> Mild Freeze, 29°F (9/15/07)).