



## Northwest Farm and Weather Summary

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### Farm Comments

**Field days and tours.** After a year of social distancing and cancelation of events at the farm due to the COVID pandemic, it was great to get back to a more normal slate of events held at the farm. There were 15 field days/meetings held at the Northwest Research Farm (NWRF) in 2021. A total of 985 visitors attended field days or other events at the research farm. The events ranged from private industry field days and trainings to educational meetings and tours open to everyone. Events at the NWRF included Northwest Iowa Experimental Association's Annual Meeting, Hog Ventilation Workshop, NWRF Summer Field Day, four Seed Industry company trainings, three Precision Ag Animal Science Field Days for high school youth, Morningside Soils Class tour, Cherokee County 5<sup>th</sup> grade farm tour, Cherokee preschool pumpkin patch tour, and NRCS Training. All were held in compliance with Iowa State University guidelines.

**Developments.** Equipment purchases new to the farm consisted of a replacement Donahue trailer that was converted to a people mover for use at field days and tours at the farm. Also 12 drop nozzles were purchased from Fennig Equipment, LLC, which are designed for spreading cover crop seed in standing crops. These nozzles will be used in conjunction with the Hagie equipped with a Gandy "Air-Spred" seeder to broadcast cover crop seed in a variety of trials. This year the equipment was used to plant cereal rye plots in standing corn for comparison of three different seeding rates per acre and three different seeding dates.

Two long-term studies that have been part of the landscape for many years have changed hands or been discontinued following the 2021 harvest. Following the retirement of Mahdi Al-Kaisi, the long-term tillage study will continue under the guidance of Mark Licht, while Antonio Mallarino's runoff water quality study will be discontinued.

A total of 43 research projects were conducted at the farm. Two of these projects were new to the farm. The research farm planted and harvested over 4,200 individual plots this past season. Also, 22 on-farm trials were conducted on cooperating farmers' fields in the area.

The demonstration garden in Rock Rapids, supported by Lyon County ISU Extension and Outreach, Northwest Iowa Experimental Association (monetary donation), and the Northwest Research Farm continues to be an attraction at the Lyon County fairgrounds. Along with produce donations from the demonstration garden in Lyon County, 410 lbs of asparagus and 1,110 lbs of assorted squash varieties harvested at the research farm were donated to area nursing homes and food pantries along with pumpkins donated to Head Start, 4-H and FFA.

**New projects.** Research projects new to the farm were soybean N-fixation, Mark Licht, Fernando Mauri Marcos; and xyway corn fungicide, A. Robertson, J. Shriver.

### Crop Season Comments

For the second year in a row, corn planting scheduled to begin in April was actually started in April. Our first corn planting occurred April 22 with corn planting complete May 12. Corn harvest began October 6 and ended October 18. The overall farm corn yield came in at 194 bushels per acre with continuous corn acres yielding 163 bushels per acre.

Soybean planting also began April 22 and was complete May 12. Soybean harvest began September 27 and drew to a close November 5. The overall farm soybean yield averaged 72 bushels per acre.

## Weather Comments

**Spring 2021.** Following a year that was 12.11 in. of precipitation behind normal growing season rainfall, according to soil moisture survey sampling performed in April, we headed into the 2021 crop production season with a nearly full soil moisture profile of 10.1 in. of plant-available water. This would play an important part in early crop development carrying the crop through the months of April, May, and June, where once again we were 5.2 in. behind the 30-year average for precipitation. The months of July, August, and September brought nearly average rainfall to the NWRF. For the total crop production season April through October, the farm received 20.4 in. of precipitation, 4.80 in. below average, yet 7.2 in. ahead of 2020. Between April 9 and May 7, the farm received only .2 in. of rain. These 29 days of virtually zero precipitation contributed to dry topsoil conditions allowing fieldwork and planting to progress rapidly, but delaying germination and emergence of some crops. May 8 through May 31 brought nearly average rainfall along with slightly warmer temperatures. April and May temperatures remained cooler than the 30-year average. At the beginning of corn planting in April. Growing Degree Days (GDD) averaged only 7.36 per day. GDDs in May averaged 10.9 per day with one day gaining 0. On April 26, the 4 in. soil temperature climbed to 56.01°F and stayed above 50°F until October 21. For the second year, dry topsoil and lower-than-average temperatures early in the growing season had crop emergence and development progressing slowly. June provided needed warmth, but only 1.16 in. of precipitation, 3 in. below average. The first 10 days of June came in with an average high temperature of 89.7°F, which boosted GDDs to a 23.3 per day average for the month, and gave the slow growing crops a boost.

**Summer 2021.** The NWRF received no major rainfall events (> 5.0 in.) in any month. June was again warm and dry (86.6 °F average daily high and 1.16 in. rain -3.50”), with 11 days reaching 90°F +. July found average temperatures normal and precipitation near normal. The average high temperature for the month was 83.2°F with three days with a high of 90°F+ and total rainfall of 3.13 in. These conditions provided an environment for corn and beans to make strides in crop growth and development. Insect pressure found in the crops growing at the farm was once again light to moderate, not reaching economic threshold or requiring an overall insecticide treatment. Disease pressure was low again this year with no major problems noted. For the fourth year, soybean gall midge larvae were infesting bean plants across the farm, and could be found in every soybean plot. The majority of bean plots did not suffer from a significant, yield-reducing population, however, this pest will continue to be monitored and researched at the NWRF in an effort to learn more about the life cycle and culture of the insect and to formulate control and prevention measures. Near normal rainfall (4.12”, .02” above average), combined with moderately warm temperatures, especially during the second half of August gave crops a great opportunity to progress toward maturity and their full yield potential.

**Fall 2021.** The first killing frost was received October 16. At that point, all of the soybean and corn had reached physiological maturity. Once soybean harvest began September 27, the research farm had eight days with measurable precipitation, receiving 4.98 in. during the harvest season, which also saw above average temperatures in the area. November brought below normal precipitation amounts and moderate temperatures. The staff were able to finish soil sampling, fertilization, lime application, and the fieldwork goal. Due to lower-than-normal rainfall early in the season and near normal rainfall later in the season, drainage in the tile water quality study ceased to flow June 11, with no samples taken until October 26, then stopping again November 26.

**Table 1. Monthly rainfall and average temperatures.**

Month	Rainfall, in.		Temperature °F		Days 90° or above
	2021	Deviation from 30 year average	2021	Deviation from 30 year average	
April	1.65	-1.21	47.2	0.7	0
May	3.85	-.51	57.7	-1.0	1
June	1.16	-3.50	73.0	3.9	11
July	3.13	-.42	71.5	-0.4	3
August	4.12	.02	70.7	1.3	0
September	4.24	.74	64.6	2.4	0
October	2.30	.02	52.7	3.7	0
Totals	20.45	-4.86			15

Rainfall and temperature averages based on data from 1992-2021.

## **Acknowledgements**

The Northwest Iowa Experimental Association and ISU Extension and Outreach are commended for their support of the Northwest Research Farm. Support of field days, speakers, and new ideas are vital to the research farm's successes. Appreciation also is extended to the following entities for their support of research projects or ideas at the research farm:

**AMVAC**

**Wyffel's Seed**

**Corteva Crop Protection**

**Corteva-Pioneer Seed**

**Asgrow/DeKalb Seed–Craig Lamoureux**

**Bayer Crop Protection**

**Security State Bank**

**O'Brien County, ISU Extension and Outreach**

**Cherokee County, ISU Extension and Outreach**

**Iowa Nutrient Research Center**

**O'Brien County Ag**

**Ag Partners**

**5<sup>th</sup> Gen Ag**

**Farmers Coop Society**

**Heinsohn Digging & Tiling**

**CS Agrow**

**Cooperative Farmers Elevator**

**Ken's Feed–Sutherland, Iowa**