Northern Research Farm Weather Summary

RFR-A2077

North Central Iowa Research Association

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103 Curtiss Hall, 513 Farm House Lane, ISU

Farm and Weather Summary

Matthew Schnabel, farm superintendent

Farm Comments

Field days and tours. The annual meeting of the North Central Iowa Research Association was held March 4 with 65 in attendance. Due to the COVID-19 pandemic, no field days were hosted at the farm in 2020.

New projects. Physoderma in corn, A. Robertson; Mung bean dentinal plots, D. Mueller; and SDS in soybeans, D. Mueller.

Crop Season Comments

Oats were drilled April 7 to 17, including the long-term nitrogen rotation study and oat variety trials. Oats were harvested July 24 to 25. Yields averaged between 90 to 140 bushels/acre with above average test weight.

Corn planting started April 19 and was completed June 1. Harvest began September 25 and finished November 2 with average yields of 140 to 180 bushels/acre. Grain moistures were low compared with past years. Grain test weight was average.

Soybean planting started April 9 and was completed June 1. Harvest was October 3 to 16 with average yields of 60 to 70 bushels/acre.

Farm yields were slightly above average for crops, except corn, with below normal moisture and average test weights this year.

Weather Comments

Winter. At the start of 2020, the groundwater level was above normal. The winter started warmer than usual as January averaged 18^{o}F, February 19^{o}F, and March 38^{o}F, with January and March being above long-term trends. In January, February, and March, precipitation was above normal. Frost penetrated to 6 in. below the soil surface, which is much shallower than usual.

Spring. April temperatures were below normal averaging 44.3^{o}F compared with the long-term normal of 48.1^{o}F. The average temperature for May was 56.6^{o}F, which is about 3.5^{o}F below the long-term normal. Precipitation was below normal in April with 0.81 in. received compared with the normal 4 in. May precipitation was right at the long-term average of 4.1 in. Most of the corn and soybean were planted late April to early May as conditions were dry.

Summer. June was warmer than normal, July was slightly above average, and August was at the long-term normal. Precipitation was slightly above average in June. July and August received below normal amounts of precipitation totaling 3.68 in. less than average.

Fall. The first hard frost was October 23 when the temperature dropped to 21^{o}F. Cover crops were drilled October 7 and November 4. Most of the corn had reached maturity in mid-September or early October. Fertilizer application ended December 2. Tillage was completed December 2.

Overall, 31.3 in. of precipitation was measured for the year, making 2020 the driest year at the Northern Research Farm since 2013. The previous year total was 45.1 in. The 5- and 30-yr average at the farm are 42.0 in. and 35.1 in., respectively.

During the growing season (March-October), every month had below-normal precipitation except March and June (Table 1). Deviation from normal temperatures varied depending on the month, with six months being above normal and six months below (Table 1). Total growing degree days (GDD) for 2020 was between the 30- and 5-yr average (Figure 1).

Acknowledgements

Calcium Products, Inc.
Gold-Eagle Cooperative
MaxYield Cooperative
First Citizens National Bank
K.C. Nielsen Ltd., Kanawha
Albert Lea Seed
Bayer–Climate Field View
Beck's Hybrids
Wyffels Hybrids
Potash Corporation
Syngenta
NuTech Seed
Pioneer Hi-Bred International, Inc.

Table 1. Northern Research and Demonstration Farm, Kanawha, Iowa, monthly rainfall and average temperatures for 2020.

	Rainfall (in.)		Temperature (°F)		Days
Month	2020	Deviation from normal*	2020	Deviation from normal*	90° or above
March	3.30	1.44	38.0	3.6	0
April	0.81	-2.46	44.2	-3.6	0
May	4.09	0.01	56.6	-3.4	0
June	5.49	0.42	72.9	3.4	5
July	1.72	-2.33	73.4	0.6	5
August	2.51	-1.35	70.2	-0.4	5
September	3.11	-0.13	60.6	-2.1	0
October	1.86	-0.36	43.3	-7.0	0
Totals	22.89	-4.76			15

*Rainfall and temperature normal are calculated based on data from 1949–2019.

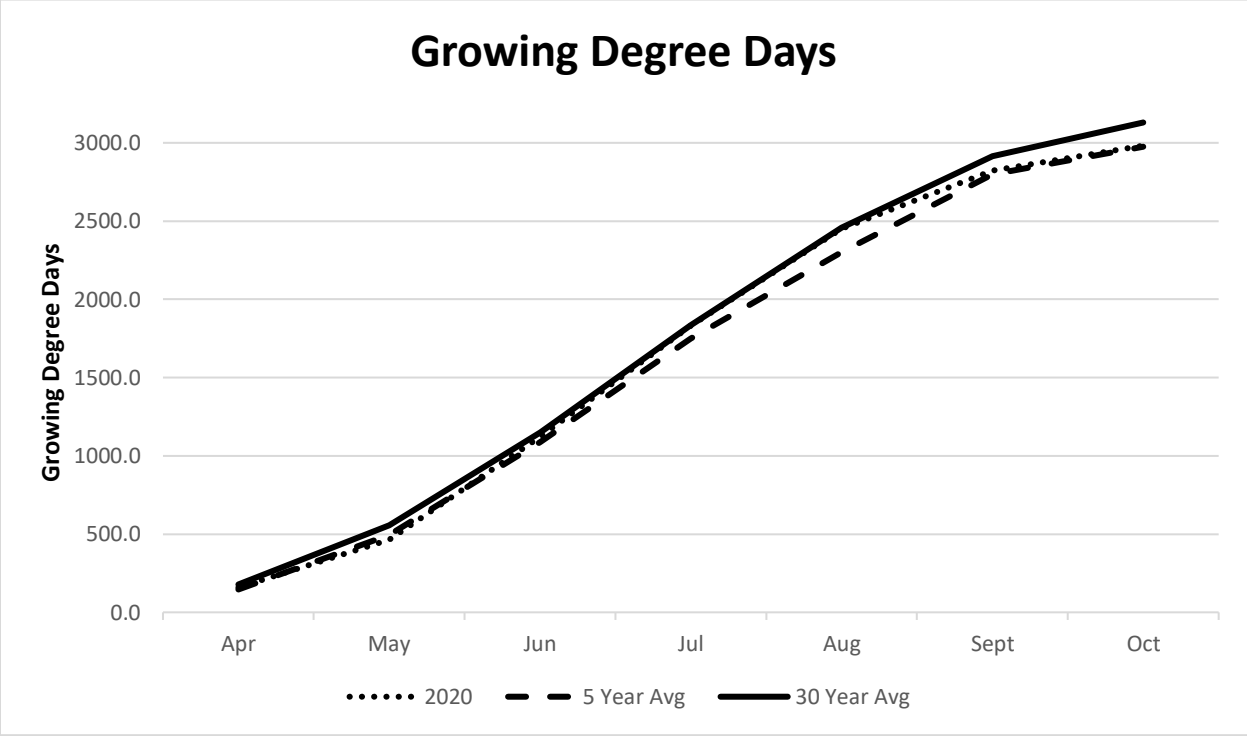

Figure 1. Growing degree days for 2020 at the ISU Northern Research and Demonstration Farm, Kanawha, IA.

Information on Experiments in Previous Annual Progress Reports

Research Farm Projects

Research Projects	Project Leader
Aphid suction trap	E. Hodgson
Application timing of fungicide on corn	A. Robertson
Automated weather station	D. Herzmann
Cereal rye for seed and nitrogen rate	J. Sawyer
Cereal rye variety trial	PFI*
Corn rootworm trait and insecticide	NRF**
Cover crop and N application timing in corn	M. Licht
Cover crop mixes on corn and soybean	E. (Juchems) Ripley
Crop rotation and N rates	A. Mallarino
Demonstration shrub row	C. Haynes
Forecast and assessment of cropping systems	M. Licht
Fungicide and insecticide applications on soybean	D. Mueller
Harvest timing in corn	NRF**
Long-term cover crop and tillage for corn and soybean	M. Al-Kaisi
Long-term K fertilizer for corn and soybean	A. Mallarino
Milkweed demonstration garden	R. Hellmich
Mung bean dentinal plots	D. Mueller
Oat variety trial	PFI*
Placement methods for K for corn and soybean	A. Mallarino
Placement methods for P for corn and soybean	A. Mallarino
Planting date and hybrid maturity in soybean	ISA***
Planting date for corn and soybean	NRF**
Planting population in corn	NRF**
SDS in soybean	D. Mueller
Seasonal and rotational influence on corn N requirements	S. Archontoulis
Soybean and cover crop IDC	J. Viggers
Soybean and cover crop SDS	J. Viggers
Soybean date of planting and population	NRF**
Soybean seed treatment	NRF**
Weed identification garden	NRF**
White mold in soybean	D. Mueller

*Practical Farmers of Iowa
**Northern Research Farm
***Iowa Soybean Association