

# Northern Research Farm Summary

**RFR-A16107**

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## Farm and Weather Summary

Matthew Schnabel, farm superintendent

### Farm Comments

*Field days and tours.* Seven field day events were held in 2016 including a cover crop field day, the North Central Iowa Research Association annual meeting, a Kanawha equipment lawn mowing field day, a DuPont crop protection field day, summer field day, demonstration garden field day, and fall field day. A total of 591 people visited the farm.

*New projects.* Aphid suction trap and collection, E. Hodgson; Cover crop SCN, G. Tylka; Corn fungicide standability, A. Robertson; Corn mature kernel dry weight loss, M. Licht; Population and nitrogen in corn, M. Licht and M. Schnabel.

### Crop Season Comments

Corn planting started April 17 and was completed July 1. Harvest began October 6 and finished November 7 with average yields of 190–230 bushels/acre. Grain moistures were slightly higher on average than past years. Grain test weight was average.

Soybean planting started May 6 and was completed July 1. Harvest was September 30 through October 18 with average yields of 50–70 bushels/acre.

Oats were drilled April 6, including the long-term nitrogen rotation study and oat variety trial. Oats were harvested July 25 and 26. Yields averaged between 65–85 bushels/acre with good test weight and average moisture.

Farm yields were consistently high with average moisture and good test weights this year. Unlike a typical growing season, no drowned out spots developed or needed replanting in 2016.

### Weather Comments

*Winter.* At the start of 2016, the groundwater level was well above normal because of the large amount of rain received in December 2015. The winter started colder than normal, January averaged 15.9°F. February and March were warmer than normal with temperatures averaging 23.9°F and 39.7°F. Frost penetrated to 6 in. below the soil surface. The frost line thawed early in March.

*Spring.* March and April were dryer and warmer than average. A majority of the corn was planted in April, and most soybeans were planted the first half of May. Cornfields received slight frost damage May 15 when temperatures dropped to 29.3°F, but no replanting was necessary. All spring field operations were completed ahead of schedule.

*Summer.* June was warmer than normal, and July and August were cool. Other than a dry spell in late June, rainfall was average and evenly distributed. There was no recorded rainfall over 1.5 inches in a 24-hour period until August 24, when 1.74 in. was measured. The month with the most precipitation for 2016 was September with 10.61 in., which is 7.57 in. above normal. Because mild rain events were not extensive, field operations were completed in a timely manner.

*Fall.* The first hard frost was October 13 when the temperature dropped to 24°F. By then the soybeans were harvested. Cover crops were over-seeded September 1 and drilled October 21. A majority of the corn had reached maturity in early to mid-September. Fertilizer application ended November 14. Tillage was completed by November 17.

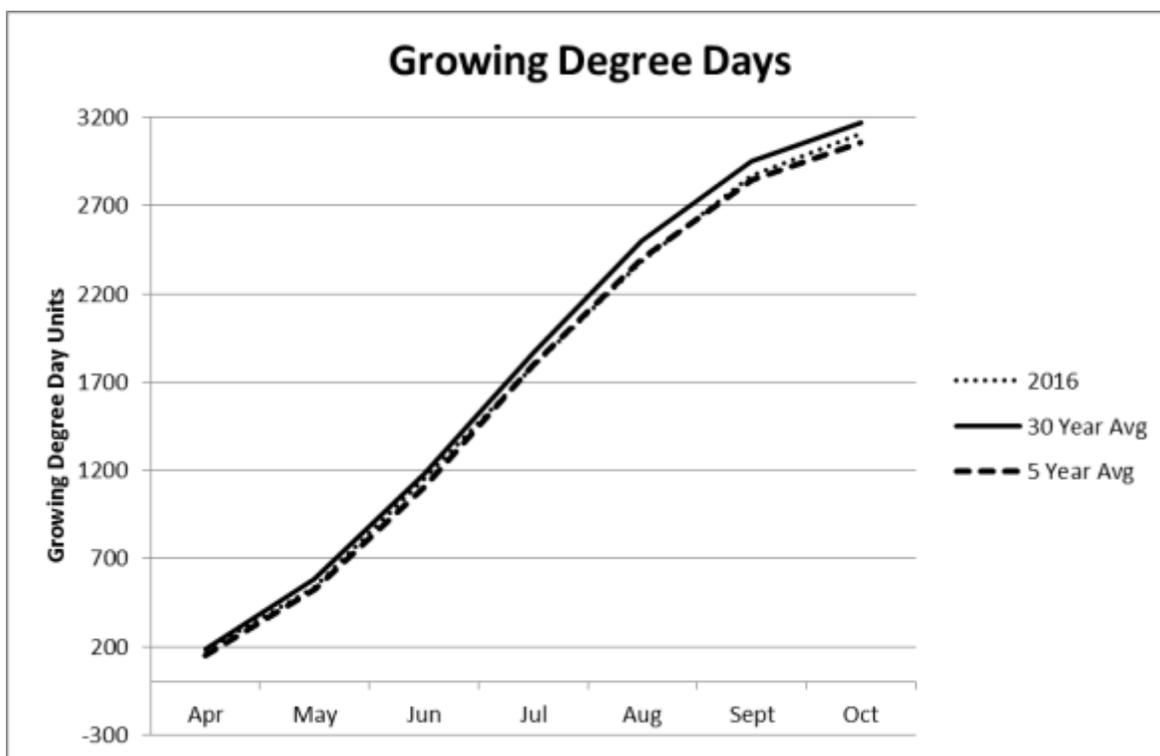
## Acknowledgements

Calcium Products, Inc.	Beck's Hybrids
Gold-Eagle Cooperative	Stine Seed Company
MaxYield Cooperative	Integrity Seeds, LLC
North Central Cooperative	Potash Corp.
First Citizens National Bank	Lester Schnabel
Kanawha Equipment	Dennis Schwab

**Table 1. Northern Research and Demonstration Farm, Kanawha, Iowa, monthly rainfall and average temperatures for 2016.**

Month	Rainfall (in.)		Temperature (°F)		Days 90° or above
	2016	Deviation from normal*	2016	Deviation from normal*	
March	2.66	0.81	39.7	5.2	0
April	1.79	-1.49	48.3	0.3	0
May	5.66	1.70	58.5	-1.5	0
June	3.32	-1.67	71.0	1.6	4
July	5.44	1.44	71.0	-1.9	1
August	4.16	0.40	69.1	-1.3	0
September	10.64	7.57	65.8	3.3	1
October	<u>1.44</u>	<u>-0.64</u>	52.9	2.5	<u>0</u>
Totals	35.11	8.12			6

\*Rainfall and temperature normal is calculated based on data from 1949–2015.



**Figure 1. Growing degree days for 2016 at the ISU Northern Research and Demonstration Farm, Kanawha, IA.**

### Information on Experiments in Previous Annual Progress Reports

	Year
Crop Yields of Long-Term Rotations and Nitrogen Fertilization of Corn in Northern Iowa RFR-A1598.....	15
Demonstrating Cover Crop Mixtures on Iowa Farmland: Management, Soil Health, and Water Quality Benefits RFR-A1590.....	15
Effectiveness of Foliar Fungicides by Timing on Northern Leaf Blight on Hybrid Corn in Northern Iowa RFR-A1566.....	15
Evaluation of Foliar Fungicides on Soybeans in Northern Iowa RFR-A1577.....	15
Increasing Agronomic Skills for Women Farmers and Landowners RFR-A1547.....	15
Iowa Soils RFR-A1507.....	15
Long-Term Tillage and Crop Rotation Effect on Yield and Soil Carbon RFR-A1549.....	15
Monarch Oviposition and Larval Survival on Nine Native Milkweed Species RFR-A1508.....	15
Oat Variety Trial RFR-A1585.....	15
Soybean Date of Planting and Maturity in Northern Iowa RFR-A1586.....	15
Corn Date of Planting and Maturity RFR-A1587.....	15
2015 Home Demonstration Garden RFR-A1558.....	15
Bernie Havlovic: A Career of Leadership and Service to Iowa's Agricultural Research RFR-A1525.....	15
ISU On-Farm Cooperator Trials: Relationships and Partnerships–2015 RFR-A1516.....	15
On-Farm Corn and Soybean Fungicide Trials RFR-A1541.....	15
In-season N Fertilization Strategies using Active Sensor RFR-A1467.....	14
Corn and Soybean Yield Response to Micronutrients in Northern Iowa RFR-A1462.....	14
Effectiveness of Foliar Fungicides by Timing on Northern Leaf Blight on Hybrid Corn in North Iowa RFR-A1464.....	14
Long-term Tillage and Crop Rotation Effect on Yield and Soil Carbon RFR-A14105 .....	14

## Research Farm Projects

### Research Projects

### Project Leader

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Automated weather station	E. Taylor
Aphid suction trap	E. Hodgson
Corn hybrids by N and K fertility	A. Mallarino
Corn maturity and kernel dry weight loss	M. Licht
Cover crop mixes on corn and soybean	E. Juchems
Cover crop SCN in corn and soybeans	G. Tylka
Crop residue and K release	A. Mallarino
Crop rotation and N rates	A. Mallarino
Demonstration shrub row	C. Haynes
Early and late application of fungicide on corn	A. Robertson
Fungicide and insecticide applications on soybean	D. Mueller
Fungicide application and standability in corn	A. Robertson
Hail by fungicide on corn and soybean	D. Mueller
Home demonstration garden	C. Haynes
Long-term K fertilizer for corn and soybean	A. Mallarino
Long-term tillage and crop rotation	M. Al-Kaisi
Methods of seeding cover crops	S. Gailans
Milkweed demonstration garden	R. Hellmich
Neonicotinoid seed treatment soybeans	D. Mueller
Oat variety trial	PFI*
Perennial biomass in corn and soybeans	R. Hinz
Placement methods for K for corn and soybean	A. Mallarino
Placement methods for P for corn and soybean	A. Mallarino
Planting date for corn and soybean	M. Licht
Seasonal and rotational influence on corn N requirements	J. Sawyer
Seed treatment soybean	A. Robertson
Seeding population and nitrogen rate in corn	M. Licht/NRF**
Soybean disease resistance breeding	S. Cianzio
Soybean SDS breeding	S. Cianzio
USA national phenology network	M. Schwartz
Weed identification garden	NRF**

\*Practical Farmers of Iowa

\*\*Northern Research Farm