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# Northern Research Farm Summary

David Rueber

*Iowa State University*, [drueber@iastate.edu](mailto:drueber@iastate.edu)

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# Northern Research Farm Summary

**Abstract**

Includes Farm and Weather Summary, Information on Experiments in Previous Annual Progress Reports and Research Farm Projects.

**Keywords**

RFRA1195

**Disciplines**

Agricultural Science | Agriculture

# Northern Research Farm Summary

RFR-A1195

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## Farm and Weather Summary

David Rueber, farm superintendent

### Farm Comments

*Field Days and Tours.* Two field day events were held. A total of 930 people visited the farm in 2011. In the fall, 3,031 ft of drainage tile and 2 in-tile line control structures with movable weirs were installed on the farm to better manage drainage water.

*New Projects.* Beef manure on low testing P soils, Antonio Mallarino; Nematicide soybean seed treatments, Paul Kassel; Early application of fungicide on corn, Alison Robertson; Fungicide and insecticide applications on soybeans, Alison Robertson; Preemergence herbicides on corn and soybeans, Robert Hartzler; Soybean variety strip trial, Greg Tylka; Transplanted corn and primed corn seed study, Roger Elmore; Irrigated corn, NIRF; Red clover persistence, NIRF.

### Crop Season Comments

Corn planting started on April 29 and was completed on May 8. Harvest began October 5 and was completed October 14 with average yields of 170–180 bushels/acre and lower grain moisture than typical.

Soybean planting started May 5 and was completed May 11. Harvest ran from September 28 through October 3 with average yields of 45–55 bushels/acre.

### Weather Comments

*Winter 2010–2011.* At the start of 2011 the ground water level was above the 4-ft tile depth due to the wet 2010 November. The last measurable spring snow fell on April 20.

*Spring.* May 3 was the last hard spring frost when the temperature fell to 27°F. Warm May temperatures at planting time speeded crop

emergence. Numerous June rains saturated the soil and kept the ground water level at or above the 4-ft level until July 5.

*Summer.* Above normal July temperatures and dry August conditions hastened crop development and weakened corn stalks (Table 1).

*Fall.* A frost the morning of September 15 froze corn leaves above the ear and top half of soybeans. Strong dry winds September 29 caused ear and stalk lodging especially in earlier, drier corn hybrids. The first killing frost came on October 17 when the temperature reached 29°F. From September 27 until November 15, when field work was done, there was only a one day delay due to rain. The dry weather caused the ground water table to drop to 10.83 ft below the soil surface on November 25 and 11.17 ft below the soil surface on January 3, 2012.

*Water Table.* In the period from 1981 to 2011, by April 29 each year, the ground water table was usually at or above the tile line depth of 4 ft. Only in three years (1989, 1990, 2000) did it not reach that level, and in two of those years it rose to within 4.25 ft and 3.75 ft of the soil surface by July 29. In a median year, the water table was at its lowest, 7.13 ft below the soil surface on September 8. Then, it started rising because of less evapotranspiration. By November 25, the water table usually had risen to 5.25 ft below the soil surface. In years that it was below the tile line in the previous fall, the water table rose on average of 3.29 ft by April 29 (Figure 1).

Iowa State University professors R. H. Shaw and R. E. Carlson took monthly soil moisture samples from 1954 to 1984. On average, the soil gained 2 in. of plant available soil moisture from November 1 to May 1 when the

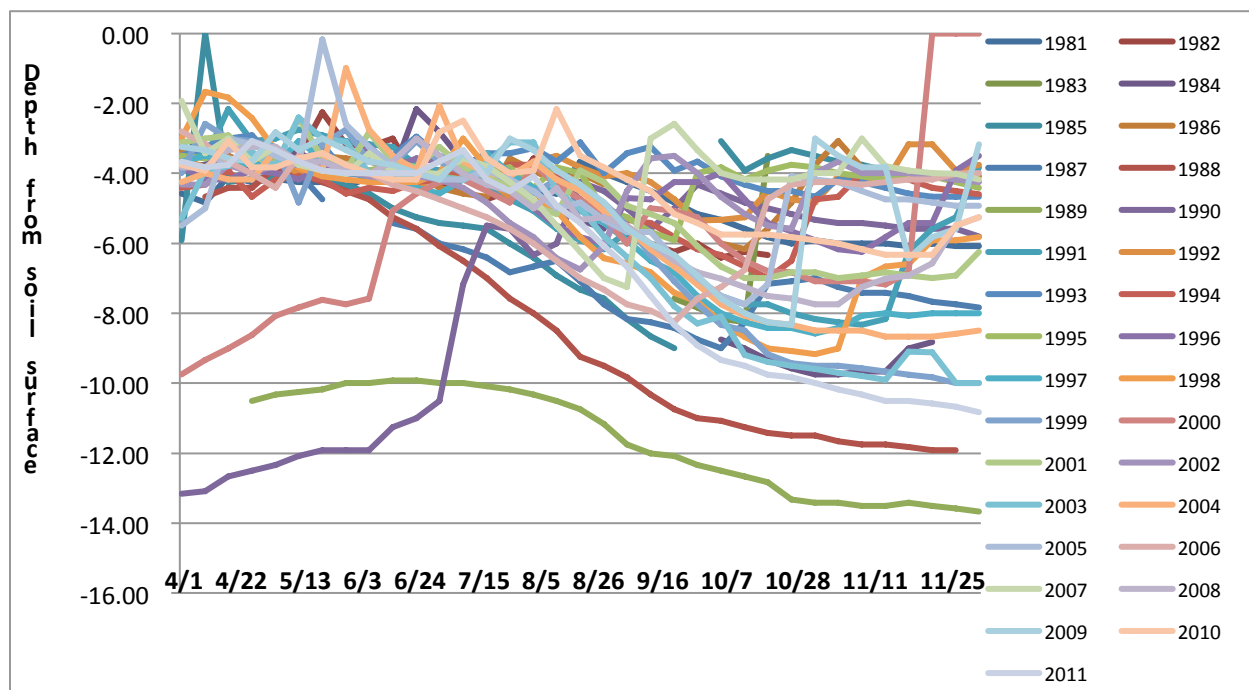
soil profile was not full on November 1. The least amount of available moisture was usually on September 1. In only three years, 1956, 1958, and 1976, was there less than 2 in. of the plant available soil moisture at any time during the growing season and in only nine years was there less than 3 inches.

**Acknowledgements**

Thanks to Allied Seed L. L. C.; Paul Christians; Custom Made Products, Co.; Farm Credit Services of America; Farmers Trust and Savings Bank; Gold-Eagle Cooperative; Golden Harvest Seeds; MaxYield Cooperative; and North Central Cooperative for support of work at the farm.

**Table 1. Northern Research and Demonstration Farm, Kanawha, Iowa, monthly rainfall and average temperatures for 2011.**

Month	2011	Rainfall (in.)	Temperature (°F)		Days 90° or above
		Deviation from normal	2011	Deviation from normal	
March	1.49	-.56	32.5	-2.7	0
April	3.92	.24	46.5	-2.4	0
May	3.65	-.70	59.2	-1.5	0
June	5.63	.43	70.2	0.0	4
July	2.16	-2.06	77.4	4.1	7
August	1.45	-2.54	71.5	0.5	3
September	.83	-2.26	60.7	-2.8	3
October	.67	-1.61	53.3	2.4	0
Totals	19.80	-9.06			17



**Figure 1. Depth from surface to ground water table at Northern Research Farm from 1981 to 2011.**

### Information on Experiments in Previous Annual Progress Reports

	Year
Yield of Corn, Soybean, and Oats as Affected by Long-term Crop Rotation and Nitrogen Fertilization of Corn RFR-A10107 .....	10
Timing of Land Rolling for Soybeans RFR-A1097 .....	10
Pathotype Structure of <i>Phytophthora sojae</i> with Cultivar Rotation in Soybeans RFR-A1068 .....	10
Effects of Soybean Cyst Nematode Infestation and Resistance on Fusarium Root Rot on Soybeans RFR-A1098 .....	10
Comparing Yields of Soybean Varieties with Different Sources of SCN Resistance in Strip Trials RFR-A1066 .....	10
Use of Ground Eggshells as a Liming Source RFR-A9113 .....	09
Phosphorus Fertilization Strategies for Alfalfa Hay Production followed by Corn Harvested for Grain RFR-A9108.....	09
Long-term Tillage and Crop Rotation Effects on Yield and Soil Carbon RFR-A9110.....	09
Soybean Rust Reaches Iowa RFR-A9028 .....	09
Effect of Potassium Fertilizer and New Corn Hybrids on Yield and Potassium Uptake in Continuous Corn .....	08
Influence of Date of Planting on Corn Hybrids with/without Bt Corn Rootworm Protection ...	08
Early-Season Weed Competition in Corn.....	08
Soybean Sudden Death Syndrome Field Screening.....	08
Fungicide-Insecticide Study on Soybean.....	08
Strawberry Demonstration .....	08
Soybean Planting Date and Growth and Development Study .....	07
Low Linolenic Acid Soybean Variety Trial.....	07
Grain Yield, Phosphorus Removal, and Soil Phosphorus Long-term Trends as Affected by Fertilization and Placement Methods in Corn-Soybean Rotations .....	07
Corn and Soil Responses to N, P, K, and Lime in Continuous Corn Production.....	07
Seasonal and Rotational Influences on Corn Nitrogen Requirements.....	07
Comparison of ESN and Aqua Ammonia as Sources of Fall- And Spring Applied N Fertilizer for Corn Production.....	07

## Research Farm Projects

Research Projects	Project Leader
Alternative grass variety trial	S. Barnhart
Beef manure on low testing P soils	A. Mallarino
Crop residue and K release	A. Mallarino
Crop rotation and N rates	A. Mallarino
Demonstration shrub row	C. Haynes
Early application of fungicide on corn	A. Robertson
Fungicide and insecticide applications on soybean	A. Robertson
Home demonstration garden	C. Haynes
Irrigated corn	NIRF*
Land rolling of soybean and water infiltration	J. Holmes
Long-term K fertilizer for corn and soybean	A. Mallarino
Long-term P fertilizer for corn and soybean	NIRF*
Long-term tillage and crop rotation	M. Al-Kaisi
Nematicide soybean seed treatments	P. Kassel
P fertilizer for corn-alfalfa rotation	A. Mallarino
Placement methods for K for corn and soybean	A. Mallarino
Placement methods for P for corn and soybean	A. Mallarino
Populus breeding	R. Hall
Pre-emergence herbicides on corn and soybean	R. Hartzler
Red clover persistence	NIRF*
Seasonal and rotational influence on corn N requirements	J. Sawyer
Soybean disease resistance breeding	S. Cianzio
Soybean SDS breeding	S. Cianzio
Soybean variety strip trial	G. Tylka
Specialty soybean test	W. Fehr
Transplanted corn and primed corn seed study	R. Elmore
Tree biomass production	J. Randall
USA national phenology network	M. Schwartz
Use of ground eggshells as a liming source	J. Holmes
Weed identification garden	NIRF*

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\*Northern Iowa Research Farm