Northwest Farm Summary

RFR-A1532

Northwest Iowa Experimental Association

2015–2016

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Superintendent, Northwest.....Josh Sievers
Agricultural Specialist, Northwest.....Chad Huffman
Agricultural Specialist, Northwest.....Terry Tuttle
Superintendent, Allee.....Lyle Rossiter
Manager, Research Farms.....Tim Goode
103 Curtiss
Coordinator, Research Farms.....Mark Honeyman
103 Curtiss
Iowa State University
Ames, IA 50011

Northwest Research Farm Summary

Josh Sievers, farm superintendent

Farm Comments

Developments. Terry Tuttle was hired as an agricultural specialist to assist with water quality studies and day-to-day operations. A new 10,000 bushel grain bin was donated in part by GSI of Assumption, Illinois. C-S Agrow, Calumet, Iowa, donated equipment and labor to erect the bin. The bin features a dryer, centrifugal fan, stirrator and vertical unloading auger. A new Valmar air spreader was purchased to help with fertilizer applications and potential cover crop seedings. A Kinze 3500, 8 row, 30 in. row planter was purchased to replace an existing planter on the farm. A research anhydrous applicator was built this year. The applicator features a 500-gallon anhydrous tank that is mounted with scale pads. The metering system allows anhydrous to flow through a Continental metering system or valves can be turned and anhydrous will flow through a Raven Fast Valve system. Regardless of the metering system, anhydrous first flows through Raven's Cold Flow System. Finally, anhydrous is dispersed by an impellicone before it reaches individual rows. The applicator was outfitted with Blue Jet's MaxPac AR700 row units.

A total of 44 research farm projects were conducted at the farm in 2015. Six projects were new to the farm. Also, 40 on-farm trial projects were conducted on cooperating farmer's fields during 2015. This project continues with the name Farmer Cooperator Trials.

The ISU Demonstration Garden, in Rock Rapids, was rebuilt during the spring of 2015 with funds from the Lyon County Riverboat Foundation, ISU Lyon County Extension, and the Northwest Iowa Experimental Association. A new garden shed, gardening tools, garden tillers, hoses, sprinklers, two raised bed gardens, and new vinyl fencing were a part of the rebuild. The garden featured a children's pizza garden and "America's Garden."

Field days and tours. There were 21 field days held by the Northwest Research Farm. A total of 2,105 visitors attended field days or other events at the research farm.

New projects. Yield forecasting (corn and soybean), M. Licht and S. Archontoulis; Cover crop species in corn, A. Lenssen; Soybean seed treatment trial, E. Hodgson; Herbicide demonstration, J. DeJong and P. Kassel.

Crop Season Comments

Corn planting began on April 27 and was completed by May 13. Harvest began on September 29 and ended October 22. Corn yields averaged 209.1 bushels/acre and continuous corn yielded 197.3 bushels/acre.

Soybean planting started on May 22 and ended on May 28. Harvest began on October 5 and ended on October 14. Soybean yields averaged 69.6 bushels/acre.

Weather Comments

Spring 2015. The soil moisture profile started nearly full (10.9 in. of available water of 11 in.). Soil conditions offered ideal planting conditions. Most of the research farm corn was planted before a 10-day stretch of precipitation occurring in late April through early May.

Summer 2015. For the first time in two years, a major rainfall occurrence (> 5.0 in.) did not occur in May or June at the research farm. Northern Corn Leaf Blight was noted in some plots early in the season. There were only two days this year with temperatures reaching over

90°F. Soybean aphids were sprayed, as some plots had reached threshold. Goss's Wilt and Northern Corn Leaf Blight were noted in many cornfields. Moderate rainfall in July and August, along with moderate temperatures, allowed for a longer grain fill in corn and pod fill in soybeans.

Fall 2015. There was no killing frost noted until October 16. At that point, both the corn and soybeans were past physiological maturity. The research farm did not receive any rainfall or precipitation during corn or soybean harvest. However, once harvest was finished, the farm received almost two inches of rainfall to finish October. Rainfall continued into November and December providing a full soil profile for 2016. Drainage tiles continued to run into the last week of December before finally freezing up.

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
Syngenta
DuPont
DuPont Pioneer
Monsanto
Security State Bank
Farm Bureau, Sioux County
Farm Bureau, Lyon County
BASF
Ag Partners
Mycogen Seed
Farmers Coop Society
Calcium Products
CS Agrow
Bayer Crop Science
GSI
Concrete Guys
Titan Machinery
Sorensen Equipment
Stine Seed

Table 1. Northwest Research and Demonstration Farm, Sutherland, monthly rainfall and average temperatures for 2015.

	Rainfall (in.)		Temperature (°F)		Days
Month	2015	Deviation from normal*	2015	Deviation from normal	90° or above
April	3.10	0.51	49.9	3.0	0
May	3.51	-0.31	57.9	-1.2	0
June	2.58	-2.07	69.2	0.4	1
July	6.78	3.22	70.4	-1.6	1
August	6.05	2.11	67.0	-2.9	0
September	2.77	-0.48	66.6	5.0	0
October	1.85	-0.24	52.6	3.6	0
Totals	26.64	2.74			2

*Rainfall averages recalculated based on data from 1957-2014.
**Temperature averages recalculated based on data from 1988-2014.

Research Projects at Sutherland

Research Project	Project Leader
Asparagus variety trial	NWRF Staff
Corn aphid threshold study	E. Hodgson
Corn burner as primary shop heat	NWRF Staff
Corn fungicide efficacy × timing	A. Robertson
Corn fungicide efficacy trial	A. Robertson
Corn planting date comparison	M. Licht
Corn rootworm trap crop	A. Gassmann
Corn seed treatment trial	E. Hodgson
Cover crop × nitrogen rate	J. Sawyer
Cover crop seeding trial, corn and soybean	Iowa Learning Farms
Cover crop variety trial	A. Lenssen
Demonstration garden, Rock Rapids	C. Haynes
Demonstration windbreak	J. Randall
Herbicide comparison demonstration	NWRF Staff
Host plant resistance trial-soybean aphid	E. Hodgson
Iowa Crop soybean variety test	J. Rouse
Late season herbicide application demonstration	J. Rouse
Lime source × application rate	A. Mallarino
Long-term nitrogen rate study	J. Sawyer
Long-term rotation study	NWRF Staff
Long-term tillage and carbon sequestration	M. Al-Kaisi
Miscanthus establishment evaluation	E. Heaton
Soybean aphid efficacy trial	E. Hodgson
Soybean aphid suction trap	E. Hodgson
Soybean fungicide comparison	D. Mueller
Soybean planting date comparison	M. Licht
Soybean seed treatment trial	E. Hodgson
Soybean thrips monitoring project	M. Irizarry
Surface runoff study	A. Mallarino and M. Helmers
Tile water quality study	M. Helmers and J. Sawyer
Tillage × fertilizer placement study	A. Mallarino
Water table monitoring	NRCS
Weather station	NWRF Staff
Weed herbicide demonstration	P. Kassel and J. DeJong

Allee Demonstration Farm Summary

Lyle Rossiter, farm superintendent

Farm Comments

Developments. Nitrogen management is a high priority on the ISU Allee Research Farm partly due to the farm's location in the Raccoon River Basin. Fall strip trials of cover crops with cereal rye and oats have been implemented without yield losses. Sidedressing liquid nitrogen in June on corn has decreased total nitrogen on corn by 50 percent without reducing yield.

The implementation of cooperator on-farm trials continues in Buena Vista, Sac, Pocahontas, Carroll, Calhoun, Ida, Cherokee, and Clay counties. ISU staff assisted individual farmers in setting up field-length strip trials and collecting data for statistical analysis. Extension crop specialist Paul Kassel and Allee Farm superintendent Lyle Rossiter assisted four farmers with nine field projects.

Events. The Allee Farm hosted Ag-Citing Days with topics of soil science, amazing corn, Monarch butterflies and Buzzing with Bees. Also, 4-H youth presented talks on their live beef, goat, rabbit, and swine projects to 430 fourth-grade students from across Buena Vista County.

Safety Day for 356 third-grade students included topics of chemical liquids, ambulance tour, first aid, sheriff car tour, home alone, sun exposure, bicycles, electrical, and farm equipment safety.

The Buena Vista special swine class was held in June, with 39 4-H youth participating in an educational day and showing live market pigs before the fair. An educational day was held for 43 Niman Ranch swine farmers with guest speaker ISU swine specialist Dave Stender, and included topics of marketing, increasing profit margins, and feed particle size analysis.

The Allee Farm appreciates the community support and the opportunity to be an educational site for all ages and families. A total of 870 guests visited the farm, and the Allee Historical Mansion hosted 1,242 guests in 2015.

New projects. Long-term assessment of miscanthus productivity and sustainability (LAMPS) was started this spring on three ISU farms. The biomass plant will be researched to learn how to grow and maintain miscanthus at farm scale.

Grazing cattle on 40 acres of cereal rye cover crop will start in the spring of 2016. The study will look at soil health, compaction, and grazing rye as an additional forage source. Also, various nitrogen rates are being introduced on the farm to meet the Iowa Nutrient Reduction Strategy.

The automated weather station was installed in the northwest corner of the farm in fall 2014. The above-ground data collection began on wind speed, wind direction, high and low temperature, humidity, and solar radiation. Below-ground soil probes monitor soil moisture and temperature at 4, 12, 24, and 50-in. depths. Data collected is available as part of the ISU Mesonet at mesonet.agron.iastate.edu under Iowa Ag Climate Network.

Livestock. The Allee Farm custom-fed 110 head of cattle and collected research data for the purebred Angus cowherd at the ISU McNay Research Farm, Chariton, Iowa.

Crop Season Comments

Corn was planted May 2–3. Harvest was completed on November 2–3 with average yields of 201 bushels/acre.

Soybean planting was finished May 29–June 1. Harvest was completed October 10 with average yields of 62 bushels/acre.

Weather Comments

Winter. 2015 was the 51st warmest winter season in 143 years. January was warm with 17 days above normal temperatures, and a high of 47°F on January 17. February was warm until the 23rd. Then there were cold temperatures with six nights of subzero temperatures. The largest snowfall was seven inches on February 3. March was warmer than normal with a record high on March 16 of 80°F.

Spring. All of the spring months were slightly warmer than usual. April 9 was the largest rainfall for the month of 1.7 in. and the monthly total was 4.3 in. On April 12, soil temperature at 4-in. depth reached 50°F and continued above that for the rest of the growing season. The best corn planting days were the last week of April. May had 13 rainfall days, totaling 4.4 in., which slowed corn planting and delayed soybean planting into June.

Summer. July temperatures were the 29th coolest on record, with only two days reaching 90°F. July also was the seventh wettest on record. August also was cool and wet.

Fall. The crop year total moisture accumulation was 29.6 in. from April–September. September, October, and November were warm, 4.3°F above normal or the fifth warmest on record. Above normal rainfall of 10.2 in. occurred. Additional storm systems brought heavy rain and snow in November. The soil profile was fully recharged. Soil did not freeze until December 19 at the 4-in. depth.

Acknowledgements

The farm would like to thank the Newell-Fonda Community School, ISU Extension, Farm Bureau, Buena Vista Public Health, Storm Lake Police Department, Buena Vista County Sheriff Department, Iowa Lakes Electric Coop, and Iowa Corn Growers Association for their assistance with field days and events.

Research Projects at Newell

Research Project	Project Leader
Automated weather station	E. Taylor
Beef cattle feeding	J. Reecy
Butterfly habitat	R. Hellmich
Cover crop grazing	D. Loy/E. Lundy
Cover crop grazing (soils)	M. Al-Kaisi
Fuel study	M. Hanna
Milkweed demonstration	R. Hellmich
Miscanthus	E. Heaton
N rainfall sensor	L. Biederman