

Northwest Farm Summary

RFR-A1432

Northwest Iowa Experimental Association

2014–2015

Executive Board

President..... Brian Waldstein, Buena Vista County
 Vice President..... William Foell, Sac County
 Secretary Joel DeJong, ISU Field Agronomist
 Treasurer Chad Schwartz, O’Brien County
 Executive Committee..... Rodney Mogler, Lyon County
 Executive Committee..... Don Belson, Ida County
 Executive Committee..... Jerry Crew, Clay County

Directors

Buena Vista..... Brian Waldstein, Jim Hultgren
 Cherokee Kent Jurgensen, Tom Bindner
 Clay Jerry Crew, Bob McCarty
 Ida Don Belson, Dale Friedrichsen
 Lyon Rodney Mogler, Bob Ladd
 O’Brien Kirk Struve, Chad Schwartz
 Osceola..... Dave Rossman, Gary Trei
 Plymouth..... Jeff Jonas, Luke Homan
 Sac..... William Foell, Holly Sandhoff
 Sioux Marvin Van’t Hul, Mike Schouten

Research and Demonstration Farms

Superintendent, Northwest..... Josh Sievers
 Agricultural Specialist, Northwest..... Chad Huffman
 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. A Louks detasseler was purchased and converted to a plot sprayer. This sprayer can spray up to 10 treatments without having to rinse out between treatments. Each treatment has its own boom and is pressured by carbon dioxide. It is able to spray pre-emerge herbicides up to tasseled corn treatments. A John Deere 6125R with a loader was added to the fleet of tractors to assist with day-to-day operations of the farm.

Final stages of the new tile study were installed in the summer of 2014. These installations include the water meters, sump pumps, and data recording devices. When this project is fully operating, the water meter will send readings wirelessly back to the research farm on a 15-minute basis.

A total of 44 research projects were conducted at the research farm in 2014. Twenty-four of those projects were new. The research farm had over 2006 individual plots. Fifty-six on-farm trial projects were conducted on cooperating farmer's fields during 2014 as well. The acronym FARM has been retired and replaced with the name Farmer Cooperator Trials.

Field days and tours. The ISU Northwest Research Farm hosted 16 field days. A total of 2,552 visitors attended field days and other events. One notable event was hosting a Precision Ag Week with over 500 high school students from 10 counties and 20 schools attending where they learned how technology is a large part of production agriculture. DuPont and Pioneer Hi-Bred sponsored a three-day event where growers and agribusinesses were able to view

demonstrations in different hybrids and herbicide chemistries.

New projects. ISU soybean variety test, Jim Rouse; Grain set foliar feeding, US Feeds; Herbicide demonstration, DuPont; Multiple planting demonstrations, DuPont Pioneer; Corn and soybean planting date, Mark Licht; Insecticide comparison on CRW hybrids, AMVAC; Fungicide comparisons and timings, Alison Robertson; Corn row width × hybrid, Jim Rouse; Soybean maturity × cover crop planting date, Craig Lamourex Monsanto; Tile water study, Matt Helmers and John Sawyer.

Crop Season Comments

Corn planting began on May 5 and was completed by May 16. Harvest began on October 20 and was completed October 29. Corn yields averaged 186.3 bushels/acre and continuous corn yielded 160.1 bushels/acre.

Soybean planting started on May 17 and ended on May 22. Harvest began on October 6 and ended on October 16. Soybean yields averaged around 62.5 bushels/acre.

Weather Comments

Spring 2014. The soil moisture profile started less than half full (5.9 in. of available water of almost 11 in.). Some growers began planting the week of April 21, when soil temperature at 4 in. reached 52°F. We postponed planting because of a cold spell predicted for the following week. The 4 in. soil temperature fell to 38.8°F on May 2, but rebounded above 50°F on May 6. Although rainfall was below normal, there were 17 days of rainfall between April and May that extended the planting season longer than in previous years. Pre-emerge herbicides did an excellent job of weed control during the planting season. Some residual ALS carryover was noted in spots due to the dry growing season and winter of 2013,

and the below normal rainfall in the spring of 2014.

Summer 2014. June rainfall set the tone for the growing season at the research farm. A 4.4 in. rainfall on June 16-17 saturated the soil and caused substantial runoff in places. Total rainfall from June equaled 11.28 in. The ISU Home Demonstration garden located at the Lyon County Fairgrounds was flooded with over 3.5 ft of water. Rock Rapids received over 12 in. of rain during a 4-day period. The fencing, cages, and equipment were scrapped due to the flooding. Because of funding from the Lyon County Riverboat Foundation, the garden will be rebuilt for 2015. New equipment and a garden shed will be added.

Post-emerge herbicide applications proved very challenging due to the weather patterns and wind. Post-emerge herbicide applications were finished July 3. During July, temperatures did not reach above 90°F; in fact, the only day above 90° was May 7 with 90.03° reported. Once again, the weed population of waterhemp and marehail, resistant to glyphosate, appeared across many fields in Iowa, leaving growers with options of using a Group 14 herbicide (burner), mechanical/physical removal, or leaving the weeds.

The growing season was predominantly cool, which in turn led to slower maturing crops and higher grain moisture levels at harvest. Northern corn leaf blight also made an appearance later in the growing season in many cornfields. Soybean aphids were present again. Numbers were monitored, but thresholds were not reached.

Fall 2014. Cool and wet weather prevailed during the fall. Concerns of stalk quality were noted pre-harvest, but very little stalk lodging occurred. Grain moistures were higher this year due to the cool growing season. September 12 (33°F) and September 13 (31°F) caused a light frost and seemed to halt any further crop development. The killing frost was October 11, nearly a month later. Tillage ended at the research farm on November 12 when the ground froze at the 4 in. depth.

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 success. Appreciation is extended to the following entities for their support of research projects or ideas at the research farm:

AMVAC
Syngenta
DuPont
DuPont Pioneer
Monsanto
American State Bank
Security State Bank
Farm Bureau, Sioux County
Farm Credit Services
BASF
Ag Partners
Hull Cooperative, Hull, Iowa
The Mosaic Company

Table 1. Northwest Research and Demonstration Farm, Sutherland, monthly rainfall and average temperatures for 2014.

Month	Rainfall (in.)		Temperature (°F)		Days 90° or above
	2014	Deviation from normal*	2014	Deviation from normal	
April	2.06	-0.56	45.3	-1.7	0
May	1.61	-2.39	59.5	0.4	1
June	11.28	6.68	68.3	-0.5	0
July	1.08	-2.38	67.3	-4.9	0
August	5.29	1.37	69.6	-0.3	0
September	2.35	-0.83	60.5	-1.1	0
October	1.14	-0.97	50.6	1.7	0
Totals	24.81	0.92			1

*Rainfall averages recalculated based on data from 1957–2013.

**Temperature averages recalculated based on data from 1988–2013.

Research Projects at Sutherland

<u>Research Project</u>	<u>Project Leader</u>
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. Gassman
Corn seed treatment trial	E. Hodgson
Cover crop × nitrogen rate	J. Sawyer
Cover crop seeding trial	Iowa Learning Farms
Cover crop variety trial	A. Lenssen
Demonstration Garden, Rock Rapids	C. Haynes
Demonstration windbreak	J. Randall
Goldenrod flowering × climate change	J. Eттerson
Herbicide comparison demonstration	NWRF Staff
Honeybee interaction with seed treatments	M. Harris
Host plant resistance trial-soybean aphid	M. O’Neal
Iowa Crop soybean variety test	J. Rouse
Long-term nitrogen rate study	J. Sawyer
Long-term tillage and carbon sequestration	M. Al-Kaisi
Micronutrient application, foliar applied	A. Mallarino
Micronutrient application, in-furrow applied	A. Mallarino
Miscanthus establishment evaluation	E. Heaton
Soybean aphid efficacy trial	E. Hodgson
Soybean aphid suction trap	M. O’Neal
Soybean fungicide comparison	D. Mueller
Soybean planting date comparison	M. Licht
Surface runoff study	A. Mallarino and M. Helmers
Tillage × fertilizer placement study	A. Mallarino
Tile water quality study	M. Helmers and J. Sawyer
Tree biomass and regrowth potential	J. Randall and R. Hall
Water table monitoring	NRCS
Weather station	NWRF Staff

Allee Research Farm Summary

Lyle Rossiter, farm superintendent

Farm Comments

Developments. The implementation of 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 seven farmers with six field projects.

Events. The Allee Farm hosted Ag-Citing Days with topics of soil science, wind turbines, amazing corn, global positioning satellite, and Buzzing with Bees. Also, 4-H youth presented talks on their live beef, goat, rabbit, and swine projects to 376 fourth grade Buena Vista County students. The Corn Growers Association and Farm Bureau provided funding, plus cooked and served food for the event. A corn maze, with the words “eat, beef, swine, turkey, and pork,” was carved out of a 5-acre cornfield. This was a tribute to the livestock producers of Iowa.

The Buena Vista special swine class was cancelled this year for biosecurity concerns in the swine industry related to control of Porcine Epidemic Diarrhea Virus (PEDV).

The Allee Farm appreciates the community support and the opportunity to be an educational site for all ages and families. A total of 945 guests visited the farm, and the Allee Historical Mansion entertained 802 guests in 2014.

New projects. A cover crop of stripped and bulk rye was seeded with a drill this fall to study nitrate and phosphorus retention. Various practices are being introduced to meet the Iowa Nutrient Reduction Strategy.

Two honeybee hives were placed on the farm for the last two years. Small plastic square grids were placed in front of the beehive entrance. As the bees entered the hive, pollen was scraped onto the grid. Mary Harris, Natural Resource Ecology and Management assistant professor, and staff changed the grids weekly and examined the pollen in the lab. Honeybees are an important industry for honey production and efficient pollinators for many plant species. One-third of the food we eat relies on insect pollination. Fifty pounds of honey were produced this year from the two hives.

A new advanced automated weather station was installed in the northwest corner of the farm in the fall of 2014. This spring, above ground data collection began on wind speed, wind direction, hi 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 106 head of cattle and collected research data for the purebred Angus cowherd at the ISU McNay Research Farm, Chariton, Iowa. The fourth farrowing in the yurt completed the alternative swine farrowing study. A complete written analysis is included in this year's report.

Crop Season Comments

Corn was planted May 8-9. Harvest was completed on November 4 with average yields of 197 bushels/acre.

Soybean planting was finished May 19. Harvest was completed October 10 with average yields of 57 bushels/acre.

Weather Comments

Winter. 2014 was the coldest winter season in 35 years. January was bitterly cold with frequent windy conditions. The fifth day of January wind chill was -50°F . There were 15 days in January with night temperatures below zero. February was cold and dry soils allowed the ground to freeze below five feet, which caused frozen waterlines. No measureable moisture occurred from January to the end of March.

Spring. The soil remained frozen through the second week of April. Dry topsoil allowed spring tillage and corn planting. Field operations stopped during the last two weeks in April with 2.74 in. of rain. Eight days in May with scattered rain showers totaled 2.6 in., and made it difficult to till and progress with planting. A hard freeze on May 16 in northwest Iowa killed early emerged corn and soybean plants. Replanting crops were required in the region.

Summer. June temperatures were below normal. Dry subsoil was recharged with record rain and flooding. The Allee Farm's June rain total of 10.28 in. soaked into the ground with no ponding of water in the fields.

The statewide average precipitation for June was 9.92 in. and was the fourth highest calendar month total moisture in 141 years. Rain subsided in July and the replenished subsoil moisture ended drought concerns. Moderate temperatures ranked July as the fifth coolest on record. The wet weather pattern returned in the last two weeks of August. Cool temperatures stayed below 90°F , with total moisture accumulations of 9.49 in.

Fall. September presented cooler temperatures, and limited GDU's for maximum yield potential. An early frost on September 13 slowed soybean development in northern Iowa. Fourteen rain events occurred, totaling 3.19 in. Light rains persisted into October and November, prolonging the harvest season. Freezing soil stopped fall tillage and anhydrous applications during the third week of November.

Acknowledgements

The farm would like to thank the Newell-Fonda Community School, Newell Cooperative, ISU Extension, Farm Bureau, and Iowa Corn Growers Association for their assistance with field days and events.