

Allee Demonstration Farm and Weather Summary

Lyle Rossiter—farm superintendent, Allee Demonstration Farm

Farm Comments

Developments. Cover crops are flown on by plane in August or drilled after harvest every year on 95% of the Allee Demonstration Farm acres. Planting “green” into live cover crops in the spring with zero till has been successful with corn and soybean. Composting cattle manure on site has become the main nutrient for the soil microbes and crops. Fall strip trials of cover crops with cereal rye and oats have been implemented comparing weed control and nitrogen needs for corn. Spreading cattle compost with a vertical spreader provides even distribution of nutrients and allows cover crops to grow through the residue. Side-dressing liquid nitrogen on corn in June has decreased total nitrogen on corn by 50% without reducing yield.

Paul Kassel retired this year. Gentry Sorenson is the new extension field agronomist for the Newell, Storm Lake, and Spencer area. Gentry will assist Lyle Rossiter in the implementation of cooperator on-farm trials that continue in Buena Vista, Sac, Pocahontas, Carroll, Calhoun, Ida, Cherokee, and Clay counties. Iowa State University staff assisted individual farmers in setting up field-length strip trials and collecting data for statistical analysis.

Events. The Allee Demonstration Farm hosted Ag-Citing Days on September 22. Topics covered amazing corn, dairy, biofuels, grains, eggs, and buzzing with bees. Additionally, FFA youth presented talks on their live beef, goat, rabbit, and swine projects to 280 fourth-grade students from across Buena Vista County. Lena Gripp is the new Buena Vista County youth coordinator with ISU Extension and Outreach.

On September 19, the farm hosted the Buena Vista County Ag Safety Day for 180 third-grade students. Topics included: chemical liquids, home safety, first aid, sheriff car tour, home alone (911), sun exposure, electrical, lawn equipment (mower) and farm equipment, and horse safety.

The Allee Farm appreciates the community support and the opportunity to be an educational site for all ages and families. A total of 727 guests visited the farm, and the Allee Historical Mansion hosted 490 visitors in 2021.

Projects. The seventh year of the long-term assessment of miscanthus productivity and sustainability (LAMPS) is in full production on 10 acres on three ISU farms. The biomass plantings will be researched to learn how to grow and maintain miscanthus at a farm scale. A new venture for the use of the biomass includes grinding the bales for turkey bedding. The shredded miscanthus bedding will replace the use of wood shavings for some producers in the future.

Aerial and drill seeding cover crops in the fall of oats, cereal rye, radishes and turnips provides various opportunities for research with corn and soybean. These research projects are published in this report.

Livestock. The farm custom-fed 105 head of cattle and collected research data for the purebred Angus cowherd at the McNay Research Farm, Chariton, Iowa.

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 Environmental Mesonet](https://mesonet.agron.iastate.edu) at mesonet.agron.iastate.edu under Iowa Ag Climate Network.

Crop Season Comments

Corn planting started April 27 and finished May 1. Harvest was completed November 8, with average yields of 185 bushels per acre.

Soybean planting was finished May 13. Harvest was completed October 19 with average yields of 58 bushels per acre.

Weather Comments

Winter. January was the warmest in the last nine years with an average high temperature of 23.74°F. February was the coldest in nine years with an average high of 10.72°F. March average temperature was the warmest in nine years; average daily high of 52.55°F and the highest moisture of 3.28 in.

Spring. April's first week was warm, five days above 70°F. Cooler temperatures the second and third week with seven days below 32°F. Only .73 in. of rain in April provided dry planting conditions. May rains were frequent, totaling 4.92 in. May 1 was the warmest day with a high of 92°F. The planting season was dry and warm so all the corn and soybean were planted earlier than normal. Drought concerns was a frequent topic in the news.

Summer. June was hot the first two weeks with 13 days above 90°F. The warmest day was June 17, 100°F. Corn and soybean were showing drought symptoms in northwest Iowa. The Newell area received more moisture with 6.05 in. in June. Cooler temperatures the last week of June assisted corn and soybean growth. July started off with warmer temperatures the first week. Relief from drought conditions came with cooler than normal temperatures the rest of July and total moisture of 1.86 in. Corn and soybean rooted deep in the soil profile to find moisture the last week of July. August was cooler than normal and the second wettest month in the growing season with 4.36 in. of rain. Crop conditions improved and the hint of high yields started to develop in the fields. Cover crops were seeded in August with airplanes when soybean leaves started to yellow. Ground application of cover crops with converted sprayers is a common practice in corn fields.

Fall. September was warmer than average allowing soybean to develop and increase yields. Many area farmers were harvesting higher than average soybean yields. Combining soybean with green stems was common. Corn dry-down was fast the last two weeks of September with 10 days above normal temperatures. October was dry and warm, drying corn in the field to 14-16% moisture and above average corn yields. Harvest was fast with dry soil conditions. Corn stalk lodging in some areas created harvest difficulties. Tillage started after combining and completed in November.

Acknowledgements

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Table 1. Allee Demonstration Farm, Newell, monthly rainfall and degree days above 90°F.

Month	Rain, in.	Days above 90°F
April	.73	0
May	3.22	1
June	6.05	14
July	3.48	5
August	4.63	2
September	2.21	4
October	4.06	0
Totals	24.38	26

Rainfall and temperature averages based on data from 1992-2021.