1-1-2015

Ag Engineering and Agronomy Farm and Central Iowa Research Farms Summary

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Ag Engineering and Agronomy Farm and Central Iowa Research Farms

Summary

Abstract
Contains "Farm and Weather Summary" for Ag Engineering and Agronomy Farm and Central Iowa Farms. "Ag Engineering and Agronomy Farm" includes "Farm Comments", "Crop Season Comments", and "Weather Comments". "Central Iowa Farms" includes "Farm Comments", "Crop Season Comments", and "Weather Comments".

Keywords
Agronomy

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences | Meteorology | Natural Resources and Conservation

This ag engineering/agronomy, central iowa and biocentury research farms is available at Iowa State University Digital Repository:
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Ag Engineering and Agronomy Farm 
and Central Iowa Research Farms Summary

RFR-A14112

Farms Staff

Ag Engineering/Agronomy Farm
Manager, Agronomy Farm ................................................................. Mike Fiscus
Manager, Ag Engineering Farm ........................................................... Richard VanDePol
Manager, Operations ........................................................................ Will Emley
Ag Specialist, GPS Technologies ........................................................... Nathan Meyers
Ag Specialist, On-Farm Cooperator Trials ............................................ Zachary Koopman

Farm Equipment Mechanic ................................................................. Jeff Erb
Farm Equipment Operator ................................................................. Dan Crosman
Farm Equipment Operator ................................................................. Dale Niedermann

Central Iowa Farms
Superintendent ................................................................................ Kent Berns
Farm Equipment Operator ................................................................. John Reinhart

BioCentury Research Farm
Manager ............................................................................................ Andrew Suby
Ag Specialist ..................................................................................... Nathan Meyers

Research Farms Coordinator .............................................................. Mark Honeyman
Farms Manager ............................................................................... Tim Goode
103 Curtiss Hall
Iowa State University

Ag Engineering/Agronomy Research Farm
1308 U Avenue
Boone, IA 50036
515-296-4081 Ag Engineering office phone
515-296-4082 Agronomy office phone
Location: West of Ames on Highway 30, across from the United Community School

Central Iowa Research Farms
in Story and Boone counties
ISU Curtiss Farm
2219 State Avenue
Iowa State University
Ames, IA 50014
515-290-1498
Ag Engineering and Agronomy Farm
Farm and Weather Summary

Mike Fiscus, ag specialist
Richard VanDePol, ag specialist

Farm Comments
Field days and tours. The Ag Engineering and Agronomy (AEA) Farm hosted a total of 535 visitors at the farm in 2014. Visitors included a group of 8th grade students from the West Delaware School District and a group of agronomists from China. We also hosted 331 visitors from the countries of Brazil, Argentina, Russia, Cambodia, Niger, and India in association with the Farm Progress Show during the last week of August. On September 10, we hosted the 50th anniversary celebration of the Ag Engineering and Agronomy Farm, celebrating its history and research activities at the current Boone County location. The farm was established in 1964. Many former faculty members, research associates, students, and employees attended a mid-day event that included a slide show of past events, a machinery display of current and past equipment used at the farm, and a lunch with grilling provided by the ISU Agronomy Club. There were 150 visitors in attendance for the celebration.

Developments. Installation of a new weather station was completed as part of the ISU statewide system. The new station records air temperature, rainfall, soil temperature depths from 4 to 50 in. deep, wind speed and direction, solar radiation, and soil moisture levels from 12 to 50 in. Data from this station can be accessed via the ISU Mesonet Site.

Facilities and equipment. A new boiler was installed in the main building to replace the original boiler that was installed in 1964. A new shop ventilation system was installed to remove exhaust fumes from inside the shop. An 11,000-bushel grain drying bin was erected at the Marsden Farm and used to dry a portion of the 2014 harvest.

Two John Deere 9450 combines were converted to utilize a Harvest Master weigh system for collection of plot weights in corn, soybean, and small grains. A total of 5,033 plots were harvested with the two machines for several ISU research projects from the Agronomy, Ag Engineering, Plant Pathology, and Entomology departments.

New projects. A new water quality study was initiated in the Field 5 area. Nine concrete bunker style containers (bioreactors) were installed to be filled with wood chips as a medium to run tile water through. This will study the effects of microbial removal of nutrients from the tile water. Actual operation will begin in 2015.

The ISU Hermann Farm will be the site of a water quality, cover crop, and fertility study. This study was initiated in 2014 and will be the responsibility of the AEA Farm. The study has several flumes to measure and sample runoff.

The LEBRC (Livestock Environment Building Research Center) facility on the east side of the farm was remodeled in order to receive live birds (chickens) for an upcoming study.

Crop Season Comments
Oat seeding was completed April 9. The oats were harvested in mid-July, with average yields of 75 bushel/acre.

Corn planting started April 23 and was completed by June 25. Harvest began September 29 and was completed by
November 10. Yields were variable with a range of 135–220 bushels/acre.

Soybean planting began May 6 and was completed June 16. Harvest began October 10 and was completed October 28. Yields ranged from 35–68 bushels/acre.

**Weather Comments**

*Winter.* Total snowfall of 29.5 in. was recorded with a total moisture equivalent of 1.95 in., including rainfall and snowfall events.

*Spring.* A rainfall total of 10.01 inches was recorded for the months of March, April, and May. The last frost date was April 17, with the last hard freeze on April 18. Soil temperatures at the 4-in. depth began to average 50°F on April 20, then cooled into the 40s again until April 28, when they returned to the 50s.

*Summer.* A total of 17.44 in. of rain fell during the summer months of June through August. Rainfall for June was 8.86 in., with 5.7 in. received in August. A total of 10.04 in. of rain came during August 1 through September 13.

*Fall.* A total of 10.01 in. of rain was recorded for September through November with the first measurable snowfall of 1 in. falling on November 15. The first hard freeze occurred on October 31 with a temperature of 25°F.

A total of 39.86 in. of rain was recorded for 2014, 7.74 in. above normal (Table 2).

**Table 1. Monthly rainfall and average temperatures during the 2014 growing season at the ISU Ag Engineering/Agronomy Research Farm, Boone, IA.**

<table>
<thead>
<tr>
<th>Month</th>
<th>Rainfall (in.)</th>
<th>Deviation from normal</th>
<th>Temperature (°F)</th>
<th>Deviation from normal</th>
<th>Days 90°F or above</th>
</tr>
</thead>
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<tr>
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<td>1.00</td>
<td>-0.80</td>
<td>36</td>
<td>-3</td>
<td>0</td>
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<tr>
<td>April</td>
<td>4.75</td>
<td>1.51</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>May</td>
<td>4.26</td>
<td>-0.15</td>
<td>61</td>
<td>+1</td>
<td>0</td>
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<tr>
<td>June</td>
<td>8.86</td>
<td>4.05</td>
<td>70</td>
<td>+1</td>
<td>0</td>
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<tr>
<td>July</td>
<td>2.88</td>
<td>-0.80</td>
<td>74</td>
<td>-4</td>
<td>0</td>
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<tr>
<td>August</td>
<td>5.70</td>
<td>1.78</td>
<td>72</td>
<td>-1</td>
<td>2</td>
</tr>
<tr>
<td>September</td>
<td>5.55</td>
<td>1.99</td>
<td>64</td>
<td>-2</td>
<td>1</td>
</tr>
<tr>
<td>October</td>
<td>3.75</td>
<td>1.34</td>
<td>52</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>36.75</td>
<td>8.92</td>
<td>52</td>
<td>-1</td>
<td>3</td>
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### Table 2. Ag Engineering/Agronomy Research Farm 11-yr summary of monthly precipitation.

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<th>Mo.</th>
<th>NR¹</th>
<th>ANR²</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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<tbody>
<tr>
<td>Jan</td>
<td>0.80</td>
<td>0.80</td>
<td>0.71</td>
<td>0.50</td>
<td>0.62</td>
<td>0.56</td>
<td>0.24</td>
<td>0.95</td>
<td>1.17</td>
<td>0.70</td>
<td>0.26</td>
<td>0.41</td>
<td>0.10</td>
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<tr>
<td>Feb</td>
<td>0.93</td>
<td>1.73</td>
<td>1.41</td>
<td>1.83</td>
<td>0.41</td>
<td>1.77</td>
<td>0.71</td>
<td>0.25</td>
<td>0.75</td>
<td>1.06</td>
<td>1.74</td>
<td>0.73</td>
<td>1.15</td>
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<tr>
<td>Mar</td>
<td>1.78</td>
<td>3.51</td>
<td>3.52</td>
<td>1.38</td>
<td>2.63</td>
<td>3.09</td>
<td>2.71</td>
<td>4.07</td>
<td>2.07</td>
<td>0.79</td>
<td>2.49</td>
<td>1.48</td>
<td>1.00</td>
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<tr>
<td>Apr</td>
<td>3.24</td>
<td>6.75</td>
<td>2.40</td>
<td>3.29</td>
<td>4.30</td>
<td>5.99</td>
<td>5.22</td>
<td>4.56</td>
<td>3.66</td>
<td>4.41</td>
<td>4.79</td>
<td>5.81</td>
<td>4.75</td>
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<tr>
<td>May</td>
<td>4.41</td>
<td>11.16</td>
<td>8.18</td>
<td>4.38</td>
<td>2.15</td>
<td>6.67</td>
<td>8.49</td>
<td>3.78</td>
<td>3.64</td>
<td>4.62</td>
<td>2.46</td>
<td>7.09</td>
<td>4.26</td>
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<tr>
<td>Jun</td>
<td>4.82</td>
<td>15.98</td>
<td>3.59</td>
<td>4.89</td>
<td>0.81</td>
<td>2.03</td>
<td>10.68</td>
<td>4.11</td>
<td>11.17</td>
<td>5.05</td>
<td>2.94</td>
<td>3.01</td>
<td>8.86</td>
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<tr>
<td>July</td>
<td>3.66</td>
<td>19.64</td>
<td>1.96</td>
<td>4.10</td>
<td>5.56</td>
<td>2.95</td>
<td>9.28</td>
<td>2.75</td>
<td>6.74</td>
<td>3.90</td>
<td>1.47</td>
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<tr>
<td>Aug</td>
<td>3.92</td>
<td>23.56</td>
<td>5.19</td>
<td>6.76</td>
<td>6.16</td>
<td>7.89</td>
<td>2.10</td>
<td>4.84</td>
<td>11.21</td>
<td>3.58</td>
<td>2.98</td>
<td>2.18</td>
<td>5.70</td>
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<td>Sept</td>
<td>3.56</td>
<td>27.12</td>
<td>1.34</td>
<td>4.36</td>
<td>7.51</td>
<td>1.90</td>
<td>3.09</td>
<td>0.96</td>
<td>6.57</td>
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<td>Oct</td>
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<td>29.53</td>
<td>1.79</td>
<td>0.35</td>
<td>2.53</td>
<td>5.41</td>
<td>3.63</td>
<td>7.33</td>
<td>0.38</td>
<td>0.86</td>
<td>2.34</td>
<td>2.50</td>
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<td>Nov</td>
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<td>1.56</td>
<td>0.14</td>
<td>2.59</td>
<td>1.38</td>
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<td>0.90</td>
<td>1.40</td>
<td>0.71</td>
<td>1.15</td>
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<tr>
<td>Dec</td>
<td>1.02</td>
<td>32.09</td>
<td>0.46</td>
<td>0.94</td>
<td>2.67</td>
<td>1.90</td>
<td>1.20</td>
<td>1.96</td>
<td>0.80</td>
<td>2.23</td>
<td>1.02</td>
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<td>Tot.</td>
<td>32.09</td>
<td>33.56</td>
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<td>36.91</td>
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<td>49.94</td>
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<td>25.24</td>
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Departure from Normal

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<th>Mo.</th>
<th>NR¹</th>
<th>ANR²</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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<th>2011</th>
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<th>2014</th>
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<tbody>
<tr>
<td>Jan</td>
<td>1.45</td>
<td>2.56</td>
<td>4.80</td>
<td>8.19</td>
<td>17.83</td>
<td>4.83</td>
<td>18.28</td>
<td>-0.17</td>
<td>-6.84</td>
<td>-4.98</td>
<td>7.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb</td>
<td>1.45</td>
<td>2.56</td>
<td>4.80</td>
<td>8.19</td>
<td>17.83</td>
<td>4.83</td>
<td>18.28</td>
<td>-0.17</td>
<td>-6.84</td>
<td>-4.98</td>
<td>7.77</td>
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¹NR = normal rainfall.
²ANR = accumulated normal rainfall.

### Project List

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<td>Alternative biomass cropping research</td>
<td>Agronomy/NREM</td>
<td>E. Heaton/L. Schulte-Moore</td>
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<td>Switchgrass/miscanthus research</td>
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<td>E. Heaton</td>
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### Projects on site, Ag Engineering

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<td>M. Soupir</td>
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Central Iowa Farms

Farm and Weather Summary

Kent Berns, superintendent

Farm Comments
The ISU Central Iowa Farms consist of farmland in Story and Boone counties. There were 2,261 crop acres under Central Farms management with 370 acres devoted to intensive small plot research. The additional acres were used for large-scale research, equipment testing, silage production, and manure application. The student-managed Ag 450 Farm rented 433 acres, of which 59 acres were 50/50 sharecropped. The Ag 450 Farm also was hired to perform custom farm work on a portion of the Central Iowa Farm acres.

We continued to make numerous tile and waterway repairs and improvements at many farms. Construction was completed on a 60 ft x 128 ft machine shed. A 105 horsepower tractor was purchased to replace a similar sized 20-yr old tractor. A 16-row electric drive planter was purchased to replace the 12-row planter. A bulk box seed tender also was purchased.

Projects. A project list is available in this report.

Crop Season Comments
The 2014 season again was extremely challenging with cool temperatures and excessive precipitation. Our planting start and progression was delayed numerous times while waiting for software updates for the new planter. June had very few days for spraying or nitrogen side dressing. An airplane was hired to complete nitrogen application. Japanese beetle populations crashed and were not a problem during the 2014 season. A few soybean plots at the Curtiss Farm required treatment for soybean aphid. Northern leaf blight and other diseases were evident in certain hybrids. 2014 was the 100th year for the continuous corn plot.

Corn planting began on May 4 and was completed on May 19. Corn silage yields averaged 22 tons/acre at a 16-in. cut height and at 67 percent moisture. 375 corn acres were harvested for silage. Bulk corn grain yields averaged 194 bushels/acre. Harvest primarily occurred in November.

Soybean planting began on June 8 and was completed on June 24. Soybean aphid levels remained low during the growing season. Yields averaged 48 bushels/acre. Fall harvesting of corn and soybeans began on October 3 and was completed on November 21.

Weather Comments
The Ag Engineering/Agronomy Farm weather summary (Table 1, page 3) represents the weather data for all of the farms in central Iowa covered by this report.
## Project List

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