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# 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**

Ag Engineering and Agronomy Farm Farm and Weather Summary, Project List, Central Iowa Farms Farm and Weather Summary

## **Keywords**

RFR A12133

## **Disciplines**

Agricultural Science | Agriculture

# Ag Engineering and Agronomy Farm and Central Iowa Research Farms Summary

RFR-A12133

## Farms Staff

### Ag Engineering/Agronomy Farm

Manager, Agronomy Farm..... Mike Fiscus  
Manager, Ag Engineering Farm ..... Richard VanDePol  
Manager, Operations..... Will Emley  
Manager, GPS technologies..... Nathan Meyers  
Ag Specialist, FARM program ..... Zachary Koopman

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

### Central Iowa Farms

Superintendent and Isolation Plots Manager ..... Kent Berns  
Farm Equipment Operator ..... John Reinhart

### BioCentury Research Farm

Manager ..... Andrew Suby  
Field Manager ..... Nathan Meyers

Research Farms Coordinator..... Mark Honeyman  
Farms Manager ..... Dennis Shannon (retired 12/31/12)  
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 665 visitors at the farm in 2012. Events included an Agronomy Club hosted tour with club groups from Purdue, Kansas State, Missouri, and Nebraska universities. The AGCO Corporation hosted a combine clinic at the farm, with an attendance of 100 farmers from various regions of the United States and Canada. Practical Farmers of Iowa also hosted a field day in June with 35 attendees. The Ames Convention and Visitor's Bureau organized AEA farm tours with groups from France, Brazil, Argentina, Africa, and other European and South American countries. The majority of the tours were held in association with the Farm Progress Show during the last week of August, with 380 visitors touring the farm throughout the week. ACVB also organized other tour groups throughout the year.

*Developments.* Zachary Koopman was added to the staff as the ISU FARM specialist for Central Iowa to help coordinate field trials for farmers interested in learning about various crop production practices on their farms. He also helps with the day-to-day operations of the AEA Farm and assists with private pesticide applicator training sessions throughout the year.

The AEA Farm staff continues to support the work of the BioCentury Farm in its efforts to conduct biofuel research by providing assistance with farm equipment and shop needs.

*Facilities.* A fiber optic line was installed in the main headquarters building, allowing direct phone and Internet communication capabilities to the ISU campus.

A corn pallet dryer was donated by Dow Chemical Company and installed at the AEA Farm to be used for drying of seed corn, field corn, biomass crops, and other crops as needed.

*New projects.* Mark Hanna, ABE Department, conducted a research trial evaluating various press wheel configurations in corn production.

Andrew Lensen, Agronomy Department, conducted a soybean research trial evaluating performance of soybeans in a no-till vs. tillage environment.

Mark Licht, ISU field extension agronomist, started a three-year study researching five different plant populations of corn at three central Iowa locations, one at the AEA Farm.

### Crop Season Comments

Oat seeding was completed March 19 with the majority of acres planted on March 16. Harvest was completed by July 9, with yields ranging from 80 to 129 bushels/acre.

Corn planting started April 9 and was completed by May 24. Harvest began September 5, and was completed by October 17. Yields were variable with a range of 110–222 bushels/acre.

Soybean planting began May 10 and was completed May 30. Harvest began September 18 and was completed November 1. Average yields were 32–51 bushels/acre.

### Weather Comments

*Winter.* Total snowfall of 8 in. was recorded with a total moisture equivalent of 3.35 in., including rainfall and snowfall events.

*Spring.* A total of 10.25 in. of rainfall was recorded. The last frost date was April 12, with the last hard freeze on April 11. Soil temperatures at the 4-in. depth began to average 50°F on March 15. March was warmer than normal, encouraging early spring field work, and early blooming of fruit trees. The freeze on April 11 killed many blossoms on fruit trees in the Ames area.

*Summer.* A total of 7.61 in. of rain fell during the summer months of June thru September. Rainfall for July was 1.47 in. There were a total of 39 days with temperatures above 90°F., with July recording 19 of those days.

*Fall.* A total of 4.21 in. of rain was recorded with the first measurable snowfall of nine inches falling on December 20.

A total of 25.24 in. of rain was recorded for 2012, 6.61 in. below normal.

**Table 1. Monthly rainfall and average temperatures during the 2012 growing season at the Ag Engineering/Agronomy Research Farm, Boone, IA.**

Month	Rainfall (in.)		Temperature (°F)		Days 90°F or above
	2012	Deviation from normal	2012	Deviation from normal	
March	2.49	0.42	52	16	0
April	4.79	1.63	54	4	0
May	2.46	-2.03	66	5	2
June	2.94	-2.83	72	2	4
July	1.47	-1.96	79	5	19
August	2.98	-0.65	70	-2	11
September	1.85	-1.43	62	-2	3
October	2.34	0.15	49	-3	0
Totals	21.32	-6.70			39

**Table 2. Ag Engineering/Agronomy Research Farm 11-yr summary of monthly precipitation.**

Mo.	NR <sup>1</sup>	ANR <sup>2</sup>	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Jan	0.81	0.88	0.26	0.25	0.71	0.50	0.62	0.56	0.24	0.95	1.17	0.70	0.26
Feb	0.93	1.74	1.00	0.47	1.41	1.83	0.41	1.77	0.71	0.25	0.75	1.06	1.74
Mar	1.81	3.81	0.36	1.11	3.52	1.38	2.63	3.09	2.71	4.07	2.07	0.79	2.49
Apr	3.21	6.97	3.71	4.42	2.40	3.29	4.30	5.99	5.22	4.56	3.66	4.41	4.79
May	4.39	11.46	5.13	4.81	8.18	4.38	2.15	6.67	8.49	3.78	3.64	4.62	2.46
Jun	4.80	17.23	3.17	5.90	3.59	4.89	0.81	2.03	10.68	4.11	11.17	5.05	2.94
July	3.70	20.66	5.90	6.60	1.96	4.10	5.56	2.95	9.28	2.75	6.74	3.90	1.47
Aug	3.92	24.29	8.21	1.00	5.19	6.76	6.16	7.89	2.10	4.84	11.21	3.58	2.98
Sept	3.57	27.57	1.48	3.93	1.34	4.36	7.51	1.90	3.09	0.96	6.57	2.02	1.85
Oct	2.39	29.76	3.14	0.94	1.79	0.35	2.53	5.41	3.63	7.33	0.38	0.86	2.34
Nov	1.55	30.90	0.18	4.31	3.01	1.89	1.56	0.14	2.59	1.38	2.23	2.72	0.90
Dec	1.03	31.85	0.00	1.05	0.46	0.94	2.67	1.90	1.20	1.96	0.80	2.23	1.02
Tot.	31.86		32.54	34.79	33.56	34.67	36.91	40.30	49.94	36.94	50.39	31.94	25.24
Departure from Normal			0.68	2.93	1.70	2.81	5.05	8.44	18.08	5.08	18.53	0.08	-6.62

<sup>1</sup>NR = normal rainfall.

<sup>2</sup>ANR = accumulated normal rainfall

## Project List

<b><u>Project-Agronomy Farm</u></b>	<b><u>Department</u></b>	<b><u>Project Leader</u></b>
Canola sustainable cropping rotation	Agronomy	M. Wiedenhoeft
Corn breeding	Agronomy	K. Lamkey
Corn breeding	Agronomy	M. Lee
Corn breeding	Agronomy	J. Edwards
Corn breeding	Agronomy	P. Scott
Corn breeding	Agronomy	T. Lubberstedt
Corn cob residue study	Agronomy	M. Al-Kaisi
Corn nitrogen use research trial	Agronomy	J. Sawyer
Corn residue removal study	Agronomy	M. Al-Kaisi
Corn rootworm research	USDA	P. Weber
Corn rootworm/plant pathology trials	Plant Pathology	N. Lauter
Corn stover/biomass research trials	Ag/Biosystems Eng	S. Birrell
Corn/soybean cover crop research	Agronomy	J. Sawyer
Cover crop variety trial	PFI	S. Carlson
Forage and biomass production systems	Agronomy	K. Moore
Global maize production study	Agronomy	J. Sawyer/R. Elmore
ISU Extension-corn production	Agronomy	R. Elmore
Long-term continuous corn tillage study	Agronomy	M. Al-Kaisi
Long-term nitrogen trial	Agronomy	J. Sawyer
Long-term tillage study	Agronomy	M. Al-Kaisi
Maize genetics breeding	Agronomy	P. Peterson
Organic corn breeding	Agronomy	J. Edwards
Organic cover crop research	Agronomy	K. Delate
Soil fertility research	Agronomy	A. Mallarino
Sorghum breeding	Agronomy	M. Salas-Fernandez
Soybean and corn emergence trials	Seed Science	S. Goggi
Soybean and corn Plant Pathology trials	Plant Pathology	A. Robertson
Soybean breeding	Agronomy	W. Fehr
Soybean breeding	USDA	R. Palmer
Soybean cyst nematode trials	Plant Pathology	G. Tylka/S. Cianzio
Soybean disease research	Plant Pathology	L. Leandro
Soybean Extension	Agronomy	A. Lenssen
Soybean iron chlorosis plots	ICIA	J. Rouse
Soybean yield trials	ICIA	J. Rouse
Soybean/corn disease research	Seed Science	G. Munkvold
Sustainable ag cropping systems	Agronomy	M. Liebman
Switchgrass/miscanthus research	Agronomy	E. Heaton

**Projects on site, Ag Engineering**

Ag drainage well  
Biomass harvest systems  
Biomass harvesting  
COBS project-South Reynoldson Farm  
Manure/water quality  
Teaching (GPS technology)  
Soil nutrient/biomass harvest  
Wetlands  
L.E.B.R.C. Lab  
  
USDA plots  
USDA/plant physiology

**Project Leader**

M. Helmers  
M. Darr  
S. Birrell/John Deere  
M. Helmers/M. Thompson/M. Liebman  
M. Helmers  
M. Darr  
S. Birrell/D. Karlin/USDA  
M. Helmers  
Ag Engineering and Biosystems  
Engineering/VanDePol  
USDA researchers and Syngenta  
T. Kaspar

## 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 2,262 crop acres under Central Farms management with 370 acres devoted to intensive small plot research. The additional acres are used for large-scale research, equipment testing, silage production, and manure application. The student-managed Ag 450 Farm rented 285 acres, of which 103 acres were 50/50 sharecropped. The Ag 450 Farm also performs custom farm work on a portion of the Central Iowa Farms acres.

A larger tractor, larger field cultivator, and disk ripper were purchased for use primarily in plot areas. A small self-propelled sprayer was also purchased for plot use. Excess equipment was sold on a farm auction held in November 2011. We continue to make numerous tile repairs and improvements at many farms. Two new waterways were shaped and seeded on the dairy farm. Two buildings were repainted at the Curtiss Farm.

*Projects.* A project list is available in this report.

### Crop Season Comments

The 2012 season was very unique. Winter and spring were extremely warm and mild. A seed treatment study was planted on March 16. This corn emerged prior to April 1. Normal bulk planting began on April 8. The summer

continued with below normal precipitation and above normal temperatures. Japanese beetle populations were extremely high at many farms.

Corn silage yield started on July 30, approximately three weeks ahead of typical. Yields averaged 21 tons/acre at 69 percent moisture and 275 acres were harvested. A cover crop of oats and tillage radishes were seeded as a cover crop on the silage acres. Corn lodged during a large late July wind event. Corn grain yields averaged 160 bushels/acre and individual fields ranged from 90 to 204 bushels/acre. The corn following corn yielded approximately 60 bushels/acre less than the corn following soybeans. The later planted corn also yielded better than the early planted corn due to the timing of late summer rains and milder temperatures during pollination.

Soybean planting began on May 3 and was completed on May 20 in dry soil conditions. Soybean aphid levels remained low during the growing season. Yields averaged 52 bushels/acre. Fall harvesting of corn and soybeans began on September 26 and was completed on October 16.

### Weather Comments

The Ag Engineering/Agronomy Farm weather summary (page 3) represents the weather data for all of the farms in central Iowa covered by this report.



<b><u>Project-Central Iowa Farms</u></b>	<b><u>Farm Location</u></b>	<b><u>Project Leader</u></b>
Forestry biomass	AppSci/Moore	R. Hall
Corn isolation	Beach Bottom	R. Hellmich/K. Bidne
Remote sensing	Been	B. Hornbuckle
Barley breeding	Central Iowa Farms	P. Scott
Biomass harvest systems	Central Iowa Farms	M. Darr
Corn breeding nursery	Central Iowa Farms	P. Becraft
Corn isolation	Central Iowa Farms	P. White
Corn nursery	Central Iowa Farms	J. Edwards
Corn nursery	Central Iowa Farms	A. Meyers
Corn nursery	Central Iowa Farms	P. Schnable
Corn nursery	Central Iowa Farms	T. Peterson
Corn nursery	Central Iowa Farms	E. Vollbrecht
Corn yield trial	Central Iowa Farms	J. Edwards
Harvest guidance systems	Central Iowa Farms	M. Darr
Isolation plot	Central Iowa Farms	P. Schnable
Isolation plot	Central Iowa Farms	P. Schnable
Isolation plot	Central Iowa Farms	E. Vollbrecht
Isolation plot	Central Iowa Farms	K. Warnberg
Isolation plot (3)	Central Iowa Farms	J. Edwards/M. Blanco
Isolation plots	Central Iowa Farms	T. Peterson
Moth trapping population	Central Iowa Farms	R. Ritland
Rodent population/surveys	Central Iowa Farms	B. Danielson
Soybean breeding	Central Iowa Farms	L. Li
Weed science	Central Iowa Farms	J. Lux
Corn breeding nursery	Curtiss	P. Becraft
Glyphosate × manganese	Curtiss	M. Licht
SDS study	Curtiss	L. Leandro
Soybean observation	Curtiss	K. Iverson
Soybean × traffic	Curtiss	S. Wiggs
Weather station	Dairy	F. Goodman
Soybean disease trial	Hinds	X. Li
Miscanthus production	Hinds	E. Heaton
Miscanthus nursery	Hinds	E. Heaton
Soybean disease trial	Hinds	X. Li
SDS study	Hinds	L. Leandro
Soybean disease trials	Hinds	S. Navi
Soybean disease trials	Hinds	X.B. Yang
Wetland mesocosms	Hinds	W. Crumpton
Soybean yield trial	Hinds	G. Tylka
Accomplish trial	Johnson	M. Licht
Bee population survey	Johnson	M. Wheelock
Continuous corn: tillage	Johnson	M. Licht
Corn growout	Johnson	P. Schnable
Corn rootworm trial	Johnson	P. Weber
Soybean aphid study	Johnson	C. Kuntz

<b><u>Project-Central Iowa Farms (cont'd)</u></b>	<b><u>Farm Location</u></b>	<b><u>Project Leader</u></b>
Soybean insect trials	Johnson	M. McCarville/E. Hodgson
Soybean insect trials	Johnson	G. Vannostrand
Soybean insect trials	Johnson	A. Varenhorst
Inbred corn increase	Johnson	G. Munkvold
Corn insect study	Johnson	R. Hellmich/K. Bidne
Corn insecticide	Johnson	P. Weber
LCSA Floral	Johnson	T. Henze
Nitrogen rate trial	Johnson	J. Sawyer
Nitrogen timing trial	Johnson	M. Licht
No-till seed treatment	Johnson	G. Munkvold
No-till soybean seed treatment	Johnson	G. Munkvold
Soybean micronutrient	Johnson	A. Mallarino
Seed trtmt/corn nematode	Johnson	M. Licht
Soybean fungicide trial	Johnson	S. Wiggs
Integrated soils research	Kelley	R. Hartwig
Iron chlorosis screen	Main Dairy	G. Tylka
Isolation plot	Old Dairy	P. Weber
Biomass study-switchgrass	South Woodruff	E. Heaton
Corn fungicide trial	South Woodruff	J. Shriver
ISA plot	South Woodruff	D. Mueller
Non-scN planting	South Woodruff	G. Tylka
ScN soybean breeding	South Woodruff	G. Tylka
ScN soybean study	South Woodruff	C. Marett
Switchgrass × nitrogen	South Woodruff	E. Heaton
Corn grow out	West Curtiss	K. Iverson
Seed treatment × date	West Curtiss	C. Arnold
Wasp study	West Dairy	S. Weiner