

# Southeast Research Farm Summary 2020

RFR-A2065

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103 Curtiss Hall  
513 Farm House Lane, ISU

## Southeast Farm and Weather Summary

Cody Schneider, Dominic Snyder,  
and Myron Rees, farm co-managers

### Farm Comments

“Unprecedented” was the word of the year for 2020. As the Covid-19 pandemic took hold in early March, there was much uncertainty in how research would take place on the research farms. Plans were implemented to safely enable research on ISU Research Farms in 2020.

*Field days and tours.* With no in-person events on the research farms, connecting with producers, agribusinesses and others interested in the work conducted on ISU research farms, had to be innovative. The first virtual Southeast Research Farm (SERF) spring field days were held June 23-26. The event hosted 208 participants. Topics included Research Farm and Crop Update, Utilizing Tile Drainage to Better Manage Nitrogen and Improve Corn Yields, Late-Season Field Scouting with UAVs, and Multi-tactic Approaches to Manage Herbicide Resistance. Recordings from the event can be found on the ISU Extension and Outreach – Crops Team YouTube channel.

<https://www.youtube.com/channel/UCpBCq1iQV6r9R-XOutOH4ig>

Changes also were made to our annual Youth Ag Exploration Day, normally held late summer at SERF. To connect with high school youth, “Ag Exploration in a Box” was created. The goals of the event were to engage students in hands-on learning, get students excited to enter careers in agriculture, teach students skills they can use at home, and provide networking opportunities. Twenty-five schools signed up to receive a box that included lesson plans and resources on the following topics: crops, animal science, farm management, horticulture, and ag engineering.

Additionally, students were invited to participate in a virtual career mixer, made up of local agribusiness leaders and a virtual college fair.

SERF and Muscatine Island Research Farm (MIRF) grew an abundance of pumpkins this year in a variety trial. With the excess pumpkins, the farms were able to donate over 200 pumpkins to local elementary schools to use in classrooms. The staff hopes to build on this opportunity and use it as a way to build awareness of the farms.

With the success of SERF’s virtual spring field day, a virtual fall field day was organized to include the entire ISU Research Farm network. Full details on the fall field day can be found in this progress report.

*Developments.* 2019 kicked off major plans for a new Research and Learning Center to be constructed at SERF. The 2020 winter months were spent planning and fundraising. Groundbreaking was projected for late 2020 or early 2021. Progress was brought to a standstill early in the year with the pandemic limiting in-person contact and the availability of funds. Grants that were applied for were put on hold or canceled all together. Even with a tough fundraising year, year-end funding was at 51.6 percent of the goal, with fundraising picking back up the latter half of 2020. Optimistically, groundbreaking is projected for late 2021 into 2022. Donations can be made by contacting the Johnson County Extension office or one of the Southeast Research Farm staff members.

*Equipment.* SERF had several equipment upgrades in 2020. ISU College Shop constructed a people mover for SERF that can safely fit 45 adults. A Valmar 5500 air spreader was purchased from the AEA Farm.

A Brent 657 wagon was purchased from J.J. Nichting Company.

*New projects.* Pelleted lime study in corn and soybean, A. Mallarino; Corn fungicide timing, C. Schneider; Corn Disease Working Group (CDWG) fungicide trial, A. Robertson; National prediction tool monitoring initiative, A. Robertson; Soybean date of planting by fungicide, Iowa Soybean Association; Envita foliar application, M. Witt; Soybean seed treatment, M. Witt.

### **Crop Season Comments**

Organic barley and red clover were seeded April 2. With good rye growth around 6 in. and with uncertainty of the pandemic, bulk rye cover crop termination started April 7. Anhydrous was applied April 10. On April 15, the farm received over 2 in. of snow.

Corn planting began April 19 at MIRF and finished with MIRF soybean April 20. Equipment was moved back to SERF April 21 and two soybean trials were planted. Corn planting started the following day. Favorable weather allowed fieldwork for two weeks and both crops were 90 percent planted by May 4.

Freezing temperatures May 9 damaged emerging soybean planted April 21. Temperatures fell below 32°F for 3 to 4 hours with a low of 27.6°F.

Harvest started with some early soybean September 23. Soybean yields were positive, given only 0.1 in. of rain in August. Bulk acres yielded between 65 and 70 bushels/acre. Corn harvest started October 1. Corn yields were 10 percent lower than normal due to excess spring rains causing N loss. Bulk corn in soybean rotation yielded 215 bushels/acre

and continuous corn yields were 180 bushels/acre. Harvest was completed October 21 and fall tillage work was completed the second week of November.

### **Weather Comments**

*Winter 2019-20.* Moisture was adequate to surplus going into spring.

*Spring 2020.* March started with above normal temperatures; however low temperatures in April and May started the growing season behind in heat units. With 2 in. below normal rainfall in April, planting progress moved quickly. The last hard freeze was May 9 with temperatures dipping to 27.6°F.

*Summer 2020.* Above normal temperatures in June quickly got heat units back to average, with above normal temperatures continuing in July. With much of Iowa moving into drought late summer, SERF saw 2.4 in. above normal rainfall in June and July.

*Fall 2020.* Conditions turned dry quickly with only 0.1 in. of rainfall recorded in August. Temperatures were near average in August and September with September rain 2.3 in. above normal. October conditions were very favorable for timely harvest.

### **Acknowledgements**

Thanks to ISU Extension and Outreach, project leaders, MIRF and SERF staff, local agribusinesses, Gillam Ag Service, and Agriland FS for their great support of the Southeast Research Farm. Thanks also to Merschman Seeds for donating seed corn and seed soybean for both the Southeast and Muscatine Island Research Farms. Thanks also to the Southeast Iowa Agricultural Research Association for a strong, continuing partnership.

**Table 1. Southeast Research and Demonstration Farm, Crawfordsville, monthly rainfall and average temperatures for 2020.**

<b>Month</b>	<b>Rainfall (in.)</b>		<b>Temperature (°F)</b>		<b>Days 90° or above</b>
	<b>2020</b>	<b>Deviation from normal</b>	<b>2020</b>	<b>Deviation from normal</b>	
March	2.95	0.80	43.5	3.9	0
April	1.05	-2.29	49.6	-1.9	0
May	4.25	-0.63	60.2	-2.5	1
June	6.36	1.54	74.0	2.0	5
July	4.45	0.86	76.8	1.6	11
August	0.10	-4.09	73.1	-0.2	8
September	5.63	2.28	64.4	-1.4	1
October	<u>2.01</u>	<u>-0.68</u>	49.7	-3.5	<u>0</u>
Totals	26.80	-2.21			26

## Research Farm Projects

<b><u>Project</u></b>	<b><u>Project Leader</u></b>
Automated weather station	D. Herzmann
Carbon sequestration study	M. Al-Kaisi
Cardinal corn fungicide study	A. Robertson
Continuous corn insecticide evaluations	A. Gassmann
Corn breeding trials	J. Edwards
Corn performance testing	J. Rouse
Corn population trial	SERF Staff
Cover crop seeding rate x method	A. Robertson/M. Licht
Corn disease working group fungicide trial	A. Robertson
Corn fungicide timing in corn-soybean rotation	C. Schneider
Corn fungicide timing in continuous corn	C. Schneider
Envita foliar application on corn	SERF Staff
Forecast and assessment of cropping systems	S. Archontoulis
Kalona soil tillage study	K. Tebockhorst
Long-term nitrogen by crop rotation study	S. Archontoulis
Milkweed demonstration	R. Hellmich
Miscanthus production study	E. Heaton/N. Boersma
National prediction tool monitoring initiative	A. Robertson
Native prairie grass demonstration	SERF Staff
Nira soil tillage study	K. Tebockhorst
Nitrogen rate x crop rotation x drainage	M. Castellano
Nut tree demonstration	Iowa Nut Growers Association
Orchard demonstration	P. O'Malley
Organic barley variety trial	K. Delate
P and K placement within tillage systems	A. Mallarino
Pelleted lime study in corn and soybeans	A. Mallarino
Pollinator habitat	R. Hellmich
Singh soybean breeding	B. Scott
Sorghum biomass trial	M. Salas
Soybean date of planting x fungicide	M. Witt/SERF Staff
Soybean R3 fungicide trial	SERF Staff
Soybean seed treatment	M. Witt/SERF Staff
Soybean performance testing	J. Rouse
Science-based trials of row crops integrated with prairie strips (STRIPS)	M. Helmers
Statewide soybean fungicide trial	D. Mueller/S. Wiggs
Subsurface drainage study	M. Helmers/K. Tebockhorst
Switchgrass biomass production demo	K. Tebockhorst
Wetland demonstration for nitrate removal	K. Tebockhorst
Windbreak demonstration	SERF Staff

# Muscatine Island Research Farm Summary

## Muscatine Island Research Farm Association

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 Associate Dean for Operations..... Mark Honeyman  
 Farms Manager..... Tim Goode  
 103 Curtiss Hall  
 513 Farm House Lane, ISU

### 2020 Acknowledgements

The following companies have provided products or financial support during 2020.  
 Their cooperation and support is greatly appreciated.

- Crop Production Services, P.O. Box 209, Atalissa, IA 52720
- Hooks Point Irrigation, 3850 Xavier Avenue, Stratford, IA 50249
- Landmark Irrigation, 5112 S, US-61, Muscatine, IA 52761
- Latta Well & Pump, 1051 Taylor Avenue, Wilton, IA 52778
- Muscatine Island Cooperative, 2420 57<sup>th</sup> Street, Muscatine, IA 52761
- Rupp Seeds, Inc., 17919 Co Rd B, Wauseon, OH 43567
- Sinclair Tractor, 2253, 3309 Lucas St, Muscatine, IA 52761
- Stutsman, 121 Lassie St, Hills, IA 52235
- Syngenta Seeds, Inc., P.O. Box 959, Minneapolis, MN 55440
- TruAcre Technology 3901 IA-38, Muscatine, IA 52761

## Muscatine Island Farm and Weather Summary

Dominic Snyder, co-manager

### Farm Comments

In April, all the irrigation rigs were equipped with GPS and cellular technology. This new technology allows the irrigation equipment to be operated from a cell phone. This allows monitoring the rigs from a distance and helps irrigate more accurately.

*Field days and tours.* Several events were planned for the crop season, but all were cancelled due to the Covid-19 pandemic. The goal is to continue to maintain a good relationship with the local schools and plan events with those in the future.

### Crop Season Comments

Horticultural crops were started in the greenhouse in late March and transplanted to the field in late May. There was a variety of melons, tomatoes, peppers, and pumpkins planted this year. Many plants were donated to local community gardens. The produce from those gardens was donated to the local food pantry. Produce grown on the research farm also was donated to the local food pantry. The total amount donated from the farm was 1,700 lb. Pumpkins were donated to Muscatine Community Schools for students to use in horticultural and art projects.

Weather conditions in the spring were very favorable for planting. By April 20, the corn acres were planted with the 8-row precision planter from SERF. Soybean planting was finished April 21. Corn and soybean harvest was finished October 10. SERF brought

equipment to harvest our crop. Corn and soybean yielded 192 bushels/acre and 65 bushels/acre, respectively. Harvest progressed quickly and without any major issues.

### Weather Comments

Monthly average rainfall and temperature for the 2020 growing season are shown in Table 1. Low amounts of rain in April allowed for a timely planting season. Rain was consistent throughout the summer until August, when crops needed considerably more irrigation than usual.

The growing season, as measured by days with temperatures above freezing, was 220 days in 2020. The last freezing temperature (27°F) in the spring was recorded May 9 and the first freezing temperature (30°F) in the fall was recorded October 5.

The farm was hit with high winds August 10 from the Midwest derecho. Winds were around 70 mph and damaged many trees in the area. The crop was unharmed and the only damage to the farm was to the plastic cover on the greenhouse.

### Acknowledgements

The staff from the ISU Southeast Research Farm, Crawfordsville, helped on several occasions. Board members from the Muscatine Island Research Farm Association also provided support and guidance. Their support was much appreciated and proved essential in the gathering of information necessary to achieve the results reported in this publication.

**Table 1. Muscatine Island Research and Demonstration Farm, Fruitland, monthly rainfall and average temperatures for 2020.**

Month	Rainfall (in.)		Temperature (°F)		
	2020	Deviation from normal	2020	Deviation from normal	Days 90° or above
March	3.84	1.20	42.6	3.2	0
April	1.77	-1.97	49.1	-1.7	0
May	4.33	-0.17	59.5	-3.1	0
June	4.07	-0.33	74.1	1.4	6
July	6.03	2.23	76.9	4.0	12
August	0.47	-3.63	72.7	-0.2	7
September	6.02	2.52	63.5	0.2	2
October	<u>2.78</u>	<u>-1.19</u>	49.0	-2.5	<u>0</u>
Totals	29.31	-1.34			27

### 2020 Research Farm Projects

#### Project

Milkweed demonstration planting  
 Evaluation of SCN-resistant soybean varieties  
 SDS in soybean  
 Soybean drought study  
 Preserving a remnant sand prairie  
 Pumpkin variety trial

#### Project Leader

R. Hellmich  
 G. Tylka/C. Marett/G. Gebhart  
 S. Wiggs  
 B. Scott  
 A. Janke  
 D. Snyder