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Field Station Weather Reports

Abstract

Summary of weather for research locations for the 2018 Field report.

The research program at the Kansas State University East Central Kansas Experiment Field is designed to keep area crop producers abreast of technological advances in agronomic agriculture. Specific objectives are to (1) identify top performing varieties and hybrids of wheat, corn, soybean, and grain sorghum; (2) establish the amount of tillage and crop residue cover needed for optimum crop production; (3) evaluate weed and disease control practices using chemical, no chemical, and combination methods; and (4) test fertilizer rates, timing, and application methods for agronomic proficiency and environmental stewardship.

The Kansas State University Kansas River Valley Experiment Field was established to study management and effective use of irrigation resources for crop production in the Kansas River Valley (KRV). The Paramore Unit consists of 80 acres located 3.5 miles east of Silver Lake on U.S. Highway 24, then 1 mile south of Kiro, and 1.5 miles east on 17th street. The Rossville Unit consists of 80 acres located 1 mile east of Rossville or 4 miles west of Silver Lake on U.S. Highway 24.

Keywords

Weather, Agronomy field report weather, 2018 field weather, ECK weather, KRV weather

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Field Station Weather Reports

East Central Kansas Experiment Field

Introduction

The research program at the Kansas State University East Central Kansas Experiment Field is designed to keep area crop producers abreast of technological advances in agronomic agriculture. Specific objectives are to (1) identify top performing varieties and hybrids of wheat, corn, soybean, and grain sorghum; (2) establish the amount of tillage and crop residue cover needed for optimum crop production; (3) evaluate weed and disease control practices using chemical, no chemical, and combination methods; and (4) test fertilizer rates, timing, and application methods for agronomic proficiency and environmental stewardship.

Soil Description

Soils on the field's 160 acres are Woodson. The terrain is upland and level to gently rolling. The surface soil is a dark gray-brown, somewhat poorly drained silt loam to silty clay loam over slowly permeable clay subsoil. The soil is derived from old alluvium. Water intake is slow, averaging less than 0.1 in./hour when saturated. This makes the soil susceptible to water runoff and sheet erosion.

2017 Weather Information

Precipitation during 2017 was above average, with only May under average during the growing season (Table 1). Overall, the 2017 growing season was similar to 2016. The summer of 2017 had 29 days exceeding 90°F and 1 exceeding 100°F, which compares to 37 and 39 days exceeding 90°F, respectively in 2015 and 2016, but none of those days exceeding 100°F. There were only 8 days with low temperatures in the single digits, compared to 14 and 4 days in 2015 and 2016, respectively. The last freezing temperature in the spring was April 7 (average, April 18), and the first killing frost in the fall was October 27 (average, October 21). There were 203 frost-free days, which is more than the long-term average of 185.

The growing conditions were favorable, other than hail storms damaging corn early in the season. The short season and the full season corn hybrid trials averaged 159 and 166 bu/a, respectively. The soybean yields were very good, with the soybean variety trial averaging 72 bu/a, compared to 79 in 2016, 59 in 2015, and 41 in 2014.

Kansas River Valley Experiment Field

Introduction

The Kansas State University Kansas River Valley Experiment Field was established to study management and effective use of irrigation resources for crop production in the Kansas River Valley (KRV). The Paramore Unit consists of 80 acres located 3.5 miles east of Silver Lake on U.S. Highway 24, then 1 mile south of Kiro, and 1.5 miles east on 17th street. The Rossville Unit consists of 80 acres located 1 mile east of Rossville or 4 miles west of Silver Lake on U.S. Highway 24.

Soil Description

Soils on the two fields are predominately in the Eudora series. Small areas of soils in the Sarpy, Kimo, and Wabash series also exist. Except for small areas of Kimo and Wabash soils in low areas, the soils are well drained. Soil texture varies from silt loam to sandy loam, and the soils are subject to wind erosion. Most soils are deep, but texture and surface drainage vary widely.

2017 Weather Information

The year was similar to last year, but not as cold as previous years, with above average rainfall during most of the growing season. The frost-free season was 203 days at the both units (average = 173 days), with 9 days in single digits at both units, with 4 and 5 days below 0 at Paramore and Rossville, respectively. This is similar to last year but compares to 19 and 18 days in single digits in 2015 at Paramore and Rossville, respectively, compared to 30 and 31 days in 2014, respectively. The last spring freeze was April 7 (average = April 21), and the first fall freeze was October 27 (average = October 11). There were 33 and 34 days above 90°F at Paramore and Rossville, respectively, and one of those days above 100°F. Precipitation was just below normal at both fields for the year (Table 1) and was above average for all the months during the growing season except July. Irrigation requirements were just over 6 inches for the corn and 1 inch for the soybeans. The corn performance trials averaged 238 bu/a for the irrigated and 203 bu/a for the dryland. The soybean performance trials averaged 70 bu/a for the irrigated and 83 bu/a for the dryland. The extremes in soil moisture from dry to saturated may have been the major yield-limiting factor early in the growing season, but the cooler August was very favorable for grain fill in both the corn and soybeans. There was very little Sudden Death Syndrome in most fields in 2017, possibly due to soil saturation several times in late April/early May.

Table 1. Precipitation at Ashland Bottoms, Belleville, and Colby

Month	Ashland Bottoms		Belleville		Colby	
	2017	30-year average	2017	30-year average	2017	30-year average
	----- in. -----					
January	0.98	0.65	1.04	0.61	0.92	0.41
February	0.47	1.07	0.22	0.87	0.00	0.48
March	4.21	2.20	1.26	2.12	2.03	1.12
April	4.99	2.80	3.06	2.87	1.41	2.03
May	3.81	4.48	8.98	4.35	7.96	3.29
June	2.82	5.09	3.47	4.37	2.43	2.54
July	1.28	3.97	2.84	3.97	2.57	3.77
August	6.09	4.28	1.46	3.68	2.67	2.78
September	0.81	3.17	3.21	3.25	3.02	1.45
October	3.66	2.22	1.15	2.37	1.17	1.58
November	0.09	1.60	0.17	1.19	0.17	0.72
December	0.11	1.02	0.11	0.95	0.08	0.48
Annual	29.32	32.55	26.97	30.6	24.43	20.65
Last freeze	4/27/17		4/28/17		5/4/17	
First freeze	10/28/17		10/27/17		10/11/17	
Frost free days	184		182		160	
Days above 90°F	42		43		47	
Days above 100°F	5		10		8	
Days below 10°F	9		16		20	

Table 2. Precipitation at Conway Springs, Ellsworth, and Garden City

Month	Conway Springs ¹		Ellsworth		Garden City	
	2017	30-year average	2017	30-year average	2017	30-year average
	----- in. -----					
January	0.92	0.82	1.94	0.62	0.36	0.47
February	0.00	1.37	0.05	1.06	0.21	0.52
March	2.03	3.06	3.47	2.35	0.43	1.23
April	1.41	3.08	4.38	2.43	6.94	1.74
May	7.96	4.51	9.14	4.50	2.72	3.00
June	2.43	5.17	3.63	3.93	3.15	3.10
July	2.57	3.55	1.15	3.63	3.11	2.80
August	2.67	3.51	1.87	3.94	4.66	2.51
September	3.02	2.69	3.40	3.05	1.29	1.42
October	1.17	2.88	2.03	2.20	0.64	1.22
November	0.17	1.79	0.21	1.11	1.13	0.54
December	0.08	1.14	0.00	0.93	0.38	0.60
Annual	24.43	33.57	31.27	29.75	25.02	19.15
Last freeze			4/28/17		5/4/17	
First freeze			10/28/17		10/11/17	
Frost free days			183		164	
Days above 90°F			64		59	
Days above 100°F			12		12	
Days below 10°F			11		19	

¹Temperature data are not available for Conway Springs.

Table 3. Precipitation at Hays, Hutchinson, and Manhattan

Month	Hays		Hutchinson		Manhattan North Farm	
	2017	30-year average	2017	30-year average	2017	30-year average
	----- in. -----					
January	1.25	0.50	2.37	0.79	1.35	0.63
February	0.10	0.71	0.17	1.25	0.46	1.08
March	1.50	1.81	3.35	2.58	3.96	2.49
April	7.83	2.14	4.16	2.70	4.52	3.17
May	4.58	3.26	5.44	4.68	3.61	5.09
June	3.82	2.83	1.83	4.57	2.93	5.70
July	1.50	3.92	0.61	4.09	1.51	4.42
August	3.08	3.04	2.53	3.36	5.67	4.12
September	2.17	2.05	2.91	2.66	1.30	3.43
October	1.96	1.58	2.14	2.44	2.51	2.69
November	0.24	0.89	0.02	1.32	0.13	1.73
December	0.04	0.72	0.00	1.17	0.11	1.07
Annual	28.07	23.45	25.53	31.61	28.06	35.62
Last freeze	5/1/17		4/28/17		4/11/17	
First freeze	10/11/17		10/27/17		10/27/17	
Frost free days	163		182		199	
Days above 90°F	55		51		49	
Days above 100°F	7		9		6	
Days below 10°F	17		7		9	

Table 4. Precipitation at McPherson, Ottawa, and Scandia

Month	McPherson		Ottawa		Scandia	
	2017	30-year average	2017	30-year average	2017	30-year average
	----- in. -----					
January	1.72	0.79	0.99	1.03	1.04	0.45
February	0.08	1.19	0.03	1.32	0.18	0.74
March	3.50	2.69	2.56	2.49	1.38	2.12
April	6.77	2.87	6.16	3.50	2.33	2.96
May	3.69	4.98	4.43	5.23	5.16	4.21
June	3.83	4.95	5.48	5.21	3.13	3.81
July	1.82	3.94	3.75	3.37	2.23	4.24
August	2.42	3.60	8.09	3.59	1.88	3.26
September	1.95	2.86	3.12	3.83	2.30	2.84
October	2.13	2.45	3.78	3.43	1.32	2.14
November	0.04	1.43	0.16	2.32	0.08	1.26
December	0.14	1.04	0.31	1.45	0.05	0.79
Annual	28.09	32.79	39.43	36.78	21.08	28.82
Last freeze	4/27/17		4/7/17		4/27/17	
First freeze	10/27/17		10/27/17		10/10/17	
Frost free days	183		185		166	
Days above 90°F	52		29		39	
Days above 100°F	4		1		0	
Days below 10°F	8		8		15	

Table 5. Precipitation at the Kansas River Valley Experiment Fields

Month	Rossville Unit		Paramore Unit	
	2017	30-year average	2017	30-year average
	----- in. -----			
January	1.26	3.18	1.14	3.08
February	0.38	4.88	0.32	4.45
March	3.65	5.46	3.75	5.54
April	5.49	3.67	5.21	3.59
May	6.53	3.44	5.51	3.89
June	6.49	4.64	5.42	3.81
July	2.82	2.97	2.57	3.06
August	4.12	1.90	5.79	1.93
September	1.24	1.24	1.21	1.43
October	2.54	0.95	3.37	0.95
November	0.15	0.89	0.09	1.04
December	0.24	2.42	0.27	2.46
Annual	34.91	35.64	34.65	35.23
Last freeze	4/7/17		4/7/17	
First freeze	10/13/16		10/12/16	
Frost free days	203		203	
Days above 90°F	34		33	
Days above 100°F	1		1	
Days below 10°F	9		9	