



# Annual Weather Book

RECORDED BY NW RESEARCH & OUTREACH CTR.

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## 2018 Annual Summary

Warmest Month	-----	July 68.4°
Coldest Month	-----	Feb 3.9°
Hottest Day	-----	Aug 12th 95°
Coldest Day	-----	Jan 1st & 13th -24°
Annual Mean	-----	38.9°
Total Precip	-----	22.37 inches
Wettest month	-----	June 7.82 inches
Dryest month	-----	Nov 0.31 inches
Snowiest Month	-----	March 11.3 inches
Total Snowfall	-----	36 inches
Number of days with rain greater than 1.0 inch	-----	4
First frost	-----	Sept 28th
Last frost	-----	May 11th

How does that stack up against the 129 year average?

Warmest Month	-----	July 69.5°
Coldest Month	-----	January 4.6°
Annual Mean	-----	39.7°
Total Precip	-----	20.81 inches
Wettest month	-----	June 3.65 inches
Dryest month	-----	February .537 inches
Snowiest Month	-----	January 9.4 inches
Total Snowfall	-----	40 inches
Number of days with rain greater than 1.0 inch	-----	4
First frost	-----	Sep 22nd
Last frost	-----	May 11th

## SEASONAL EXTREMES AT CROOKSTON

Extremes in temperature and precipitation are of great interest to a wide variety of people and also the news media and many organizations involved with water and flood prediction. The following list of weather extremes are extracted and calculated from the 1890-2018 weather records at Crookston

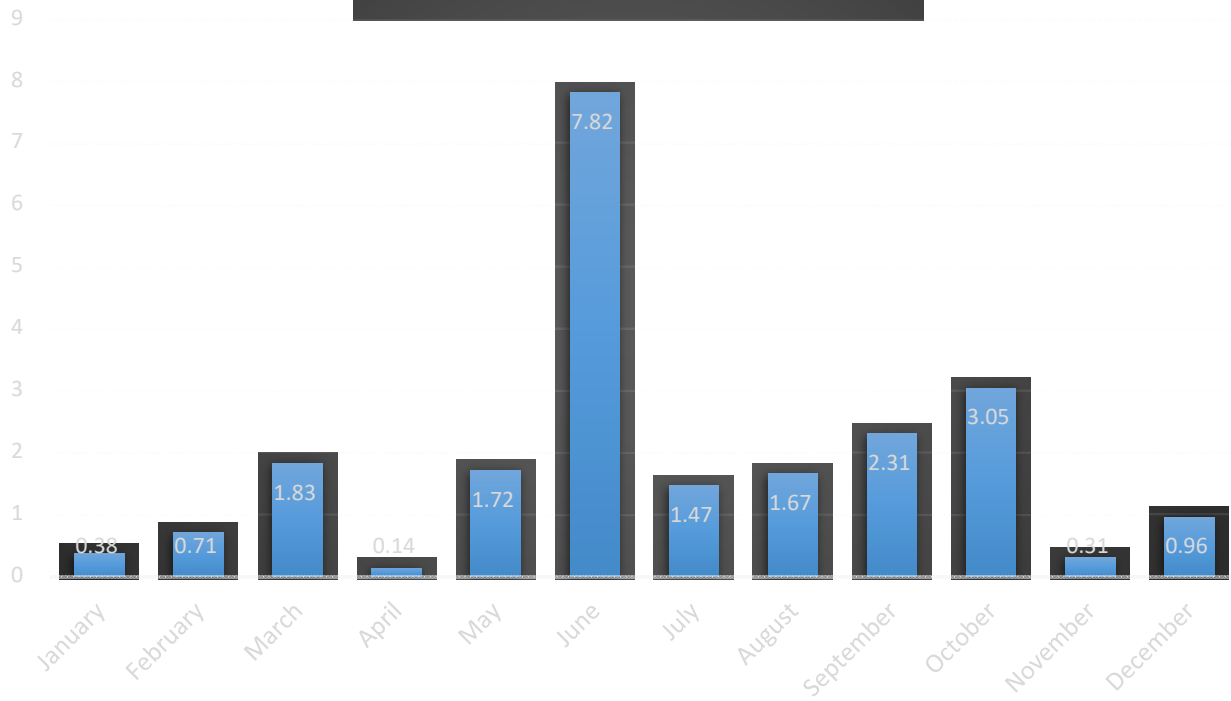
### Precipitation

Highest annual	32.87	1941
Lowest annual	9.97	1936
Highest May-July	18.37	1968
Lowest May-July	2.46	1910
Highest May-September	26.01	1941
Lowest May-September	6.06	1936
Highest May 15-October 14	22.29	1968
Lowest May 15-October 14	5.51	1936
Highest Total per Month	9.66	June 1895
Highest Total per Day	5.85	31st Aug 1908
Longest Period of No Precipitation	59	1980
Longest Period of Precipitation	10	1930

### Temperature

Coldest year, mean	33.5 F. (1893)
Warmest year, mean	45 F. (1931)
Coldest December-February	-4.2 F. (1935-1936)
Warmest December-February	19.8 F. (1930-1931)
Coldest June-August	62.7 F. (1915)
Warmest June-August	71.6 F. (1988)
Coldest month	-14 F. (February 1936)
Warmest month	78.6 F. (July 1936)
Coldest day	-51 F. (February 15, 1936)
Warmest day	106 F. (July 28, 1917)
Last spring low temperature of 32 F.	(June 20, 1940)
First fall low temperature of 32 F.	(August 13, 1964)
Longest period free of 32 F. or lower temperature	(167 days 1922)
Shortest period free of 32 F. or lower temperature	(69 days 1964)

## Monthly Rainfall 2018



## 2018 Precipitation Compared to 5 yr, 10 yr & 30 Yr Average

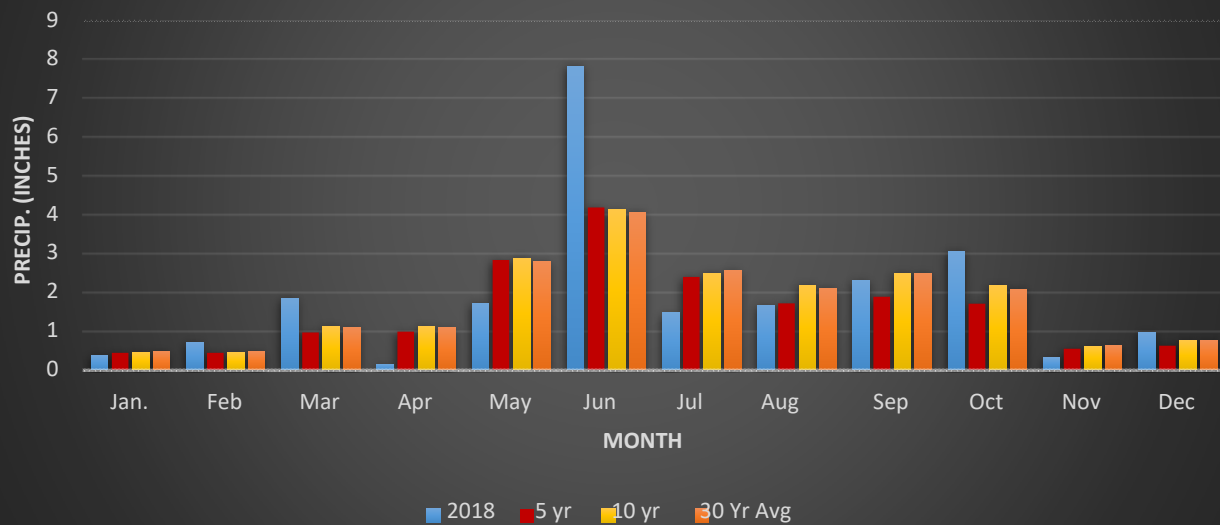


Table 1: Daily precipitation (inches) for each month in 2018, with 30 yr and 129 yr average.

Day	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1												
2					0.04	1.54						
3							0.38			0.59		
4		0.05	0.68				0.68			0.32		
5			0.5			0.21					0.05	
6		0.04		0.03					0.38		0.04	
7	0.05				0.17				0.09	0.32	0.03	
8					0.7		0.06			0.4		
9							0.02			0.25	0.02	
10						2				0.1	0.05	
11						0.69					0.01	0.34
12	0.24			0.11								
13									0.07			0.08
14	0.08	0.05				0.06				0.06		
15												
16						0.16						
17					0.23							
18		0.1			0.17						0.11	
19		0.04	0.11				0.02	0.97				
20			0.09				0.01		1.69			
21		0.05	0.08									0.03
22		0.05					0.19					0.07
23		0.07	0.08		0.03		0.01	0.15				
24		0.26			0.1	1		0.08				
25			0.27		0.03			0.01		0.1		
26					0.07	0.02		0.19	0.08	0.16		
27								0.06				0.4
28								0.02				
29			0.02			1.81	0.1			0.55		0.04
30					0.18	0.33				0.2		
31	0.01							0.19				

**Total: 0.38 0.71 1.83 0.14 1.72 7.82 1.47 1.67 2.31 3.05 0.31 0.96**

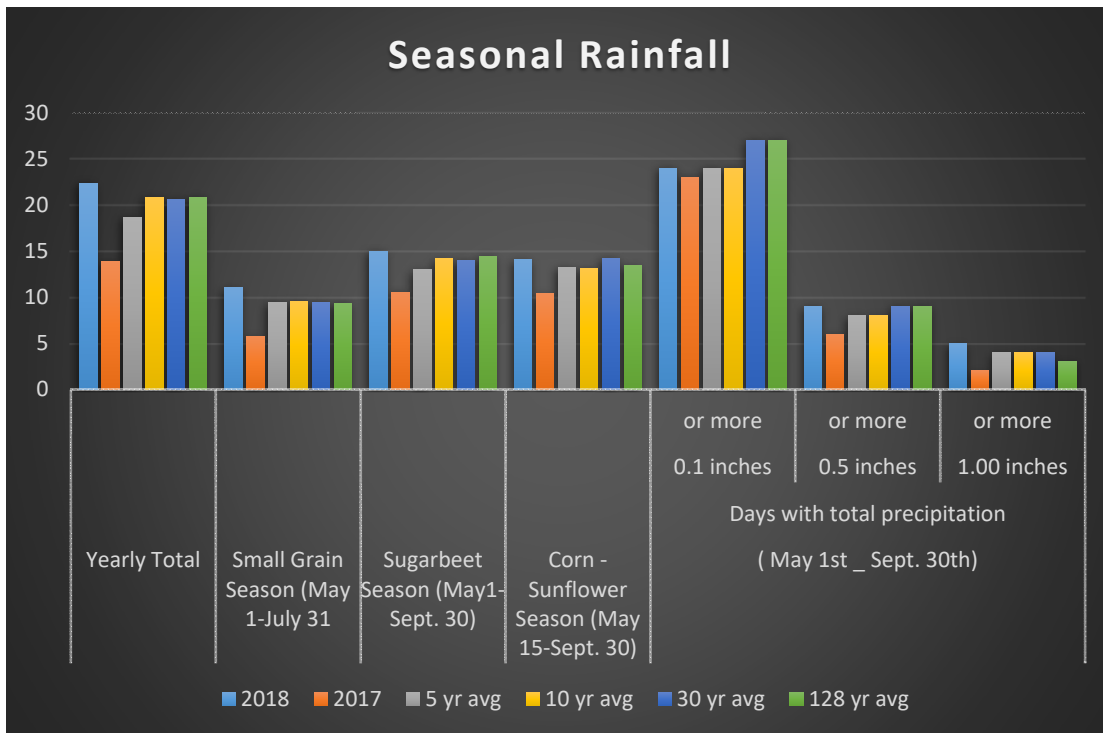
**Total for 2018: 22.37**

**Total for 2017: 13.85**

<b>5 yr</b>	0.44	0.44	0.96	0.98	2.83	4.18	2.39	1.71	1.88	1.70	0.54	0.62
<b>10 yr</b>	0.45	0.45	1.12	1.11	2.88	4.12	2.49	2.18	2.48	2.16	0.61	0.75
<b>30 yr</b>	0.47	0.46	1.08	1.09	2.80	4.06	2.55	2.10	2.47	2.08	0.62	0.76
<b>128 yr</b>	0.54	0.54	0.85	1.43	2.66	3.65	3.05	2.89	2.21	1.59	0.80	0.59

Table 2:

	Seasonal Rainfall (Inches)						
	Yearly Total	Small Grain Season (May 1-July 31)	Sugarbeet Season (May1- Sept. 30)	Corn - Sunflower Season (May 15-Sept. 30)	( May 1st _ Sept. 30th)		
					Days with total precipitation		
				0.1 inches or more	0.5 inches or more	1.00 inches or more	
<b>2018</b>	22.37	11.01	14.99	14.08	24	9	5
<b>2017</b>	13.85	5.77	10.55	10.37	23	6	2
<b>5 yr avg</b>	18.67	9.40	12.99	13.24	24	8	4
<b>10 yr avg</b>	20.81	9.50	14.16	13.13	24	8	4
<b>30 yr avg</b>	20.55	9.41	13.98	14.21	27	9	4
<b>128 yr avg</b>	20.81	9.36	14.47	13.38	27	9	3



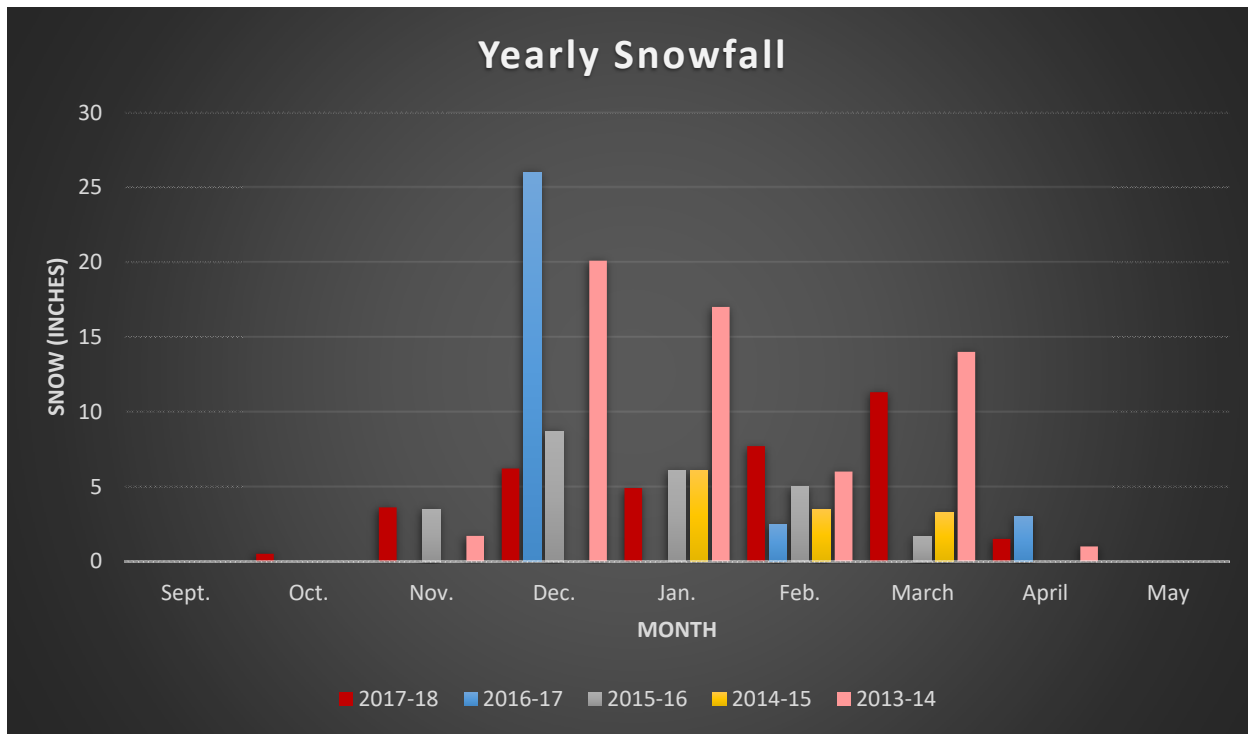


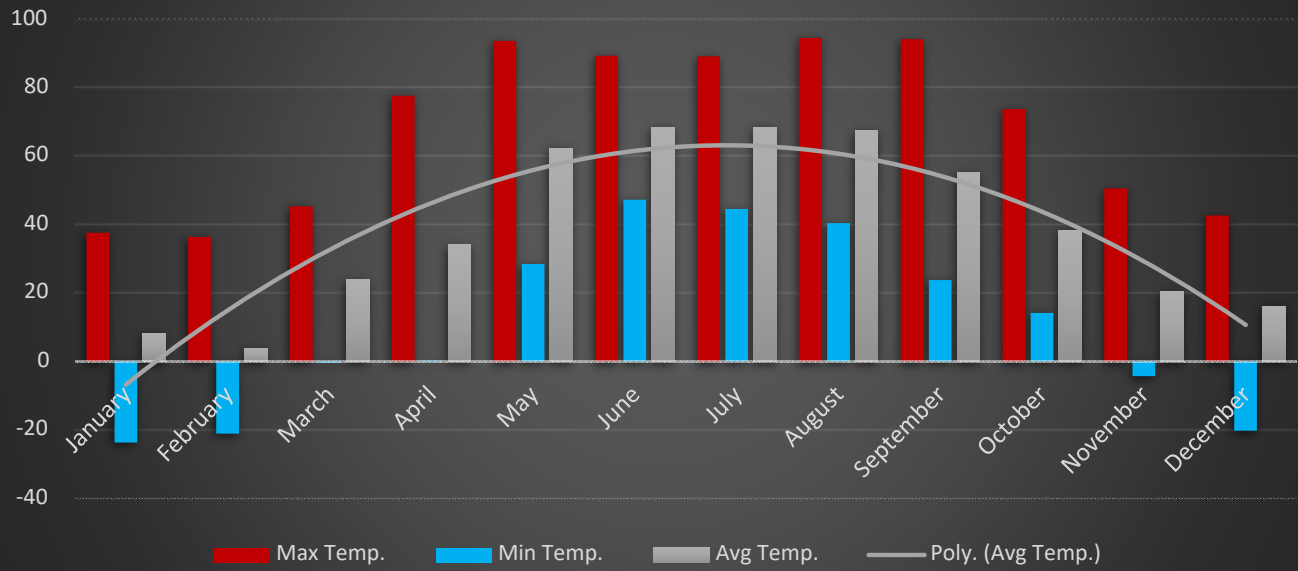
Table 3 :

### Yearly Snowfall

Year	Total	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May
<b>2017-18</b>	36	0	1	4	6	5	8	11	2	0
<b>2016-17</b>	32	0	0	0	26	0	3	0	3	0
<b>2015-16</b>	25	0	0	4	9	6	5	2	0	0
<b>2014-15</b>	13	0	0	0	0	6	4	3	0	0
<b>2013-14</b>	60	0	0	2	20	17	6	14	1	0
<b>5 Yr. Avg</b>	33	0	0	2	12	7	5	6	1	0
<b>10 Yr. Avg</b>	42	0	0	4	14	8	6	8	2	0
<b>30 Yr Avg</b>	41	0	1	5	11	9	7	7	2	0



## Max, Min, and Average for 2018



## Max, Min, and Average for 2017

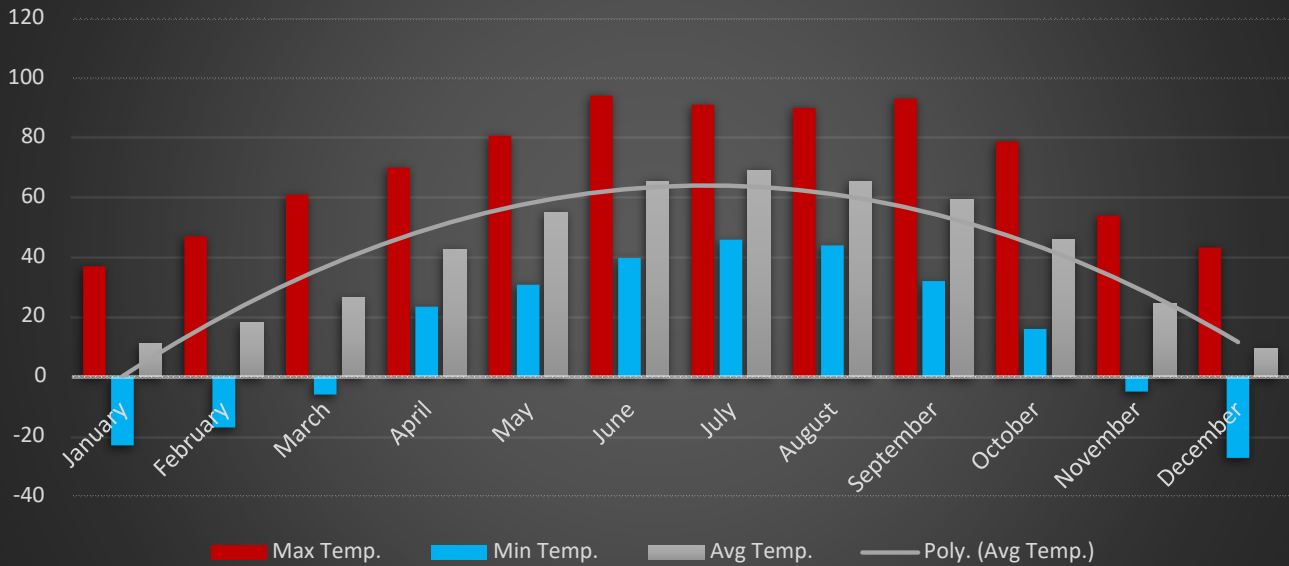


Table 4:

**Daily Average Temperature (F) for 2018 with Monthly Averages**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-16	-6	11	16	40	64	68	55	63	45	33	26
2	0	-2	17	17	50	57	67	57	62	49	35	24
3	-7	-5	32	10	54	61	72	70	62	41	37	21
4	-6	-9	36	18	58	63	71	75	68	35	39	24
5	-11	-3	30	18	60	67	66	69	56	36	33	14
6	1	-6	15	12	61	65	66	64	55	35	30	3
7	22	-5	8	13	65	63	78	69	61	40	21	15
8	23	-10	12	20	55	68	72	74	65	41	15	17
9	27	-7	19	24	51	76	69	71	68	42	12	13
10	16	-4	28	31	41	74	73	75	67	35	9	17
11	-10	0	22	31	47	60	78	75	70	25	15	18
12	-14	-9	16	32	55	60	71	80	60	29	9	26
13	-15	13	16	28	63	65	73	75	65	37	8	26
14	3	25	20	30	64	70	75	60	61	32	26	23
15	-10	9	18	29	62	74	68	62	67	33	29	35
16	-8	8	22	28	71	70	62	68	73	35	17	23
17	16	14	21	34	59	67	62	68	51	35	8	16
18	24	10	36	39	49	66	68	69	53	54	14	22
19	32	4	33	42	53	69	69	63	54	46	9	31
20	26	4	31	43	55	71	69	64	49	32	17	18
21	18	-1	31	46	61	73	67	64	50	44	16	17
22	24	7	34	49	67	74	72	65	52	35	27	25
23	20	9	32	50	72	72	68	69	48	32	30	15
24	22	7	29	41	78	71	65	70	47	40	23	6
25	24	16	32	46	76	69	65	70	45	47	13	3
26	27	20	33	48	74	73	62	65	46	46	8	4
27	12	11	30	43	73	73	62	58	43	40	7	14
28	-3	12	29	43	74	72	65	56	34	39	19	-3
29	-3		21	57	78	70	67	59	35	40	27	0
30	12		11	57	72	69	69	69	38	44	30	16
31	7		11		70		74	72		35		-2

2018 Avg	8	4	24	33	62	68	69	67	56	39	21	16
2017 Avg	11	18	26	43	55	65	69	65	59	46	24	10
30 Yr Avg	7	11	26	42	56	66	69	68	58	43	27	13
128 Yr Avg	5	9	24	42	55	65	70	67	57	45	27	12

Table 5:

## Daily Maximum Temperature (F) for 2018

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-8	0	27	25	44	74	79	64	79	55	43	30
2	12	10	35	23	69	64	82	73	75	57	46	27
3	-2	6	40	18	73	72	81	83	80	51	45	24
4	1	2	39	30	76	77	83	86	79	45	51	31
5	-2	6	35	27	75	84	77	82	71	41	42	22
6	14	7	27	23	83	76	79	77	73	38	36	16
7	32	4	17	24	89	77	89	87	69	45	26	21
8	29	0	24	31	62	81	81	88	76	43	19	25
9	35	4	34	30	64	88	82	87	78	46	17	22
10	34	5	35	36	54	85	83	91	81	40	18	27
11	-1	10	30	41	65	69	89	93	87	31	20	28
12	-5	2	27	37	70	73	83	95	74	44	15	28
13	-6	24	28	34	79	79	89	89	75	43	19	33
14	12	36	30	37	80	84	88	72	74	37	38	31
15	-5	26	29	34	85	81	77	82	79	46	36	43
16	4	23	34	37	84	79	74	89	94	41	23	33
17	29	22	34	43	69	76	78	85	60	47	14	27
18	32	15	45	49	54	81	84	84	68	74	21	32
19	38	7	35	55	67	82	76	72	68	58	17	37
20	34	11	34	56	75	86	75	76	55	39	28	26
21	25	9	34	59	79	89	78	77	61	58	23	24
22	27	21	41	62	81	85	84	84	63	49	32	31
23	22	18	38	61	87	86	79	82	55	47	32	21
24	24	20	35	52	92	82	79	78	52	57	29	16
25	28	28	34	63	94	79	76	82	53	51	17	12
26	31	30	37	60	93	82	74	75	59	51	13	19
27	24	25	38	50	85	86	79	65	50	46	15	22
28	1	25	38	59	87	86	81	61	45	44	27	7
29	4		28	74	93	80	84	74	46	47	30	12
30	32		16	78	81	79	86	81	47	53	33	21
31	19		16		78		89	81		41		16

Table 6:

## Daily Minimum Temperature (F) for 2018

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	-24	-12	-4	7	35	55	58	45	48	36	24	22
2	-13	-14	0	11	31	51	53	40	49	40	25	20
3	-12	-15	24	2	34	50	63	57	44	31	29	19
4	-14	-20	33	7	40	48	59	63	57	25	27	17
5	-19	-12	25	9	44	50	56	56	41	32	25	5
6	-12	-18	3	0	39	54	54	50	38	32	25	-10
7	13	-15	0	2	41	50	67	52	54	35	17	10
8	18	-19	1	10	48	56	64	60	55	39	11	8
9	19	-18	5	17	38	63	56	55	57	38	7	5
10	-2	-14	21	26	28	64	62	59	53	30	0	7
11	-19	-11	13	22	29	50	67	56	53	18	10	7
12	-23	-21	5	28	39	47	60	66	46	14	3	25
13	-24	2	4	22	48	50	56	61	56	32	-4	20
14	-6	14	10	24	48	56	62	49	48	28	14	15
15	-15	-8	7	23	39	67	58	43	55	19	21	28
16	-20	-8	11	19	58	61	51	46	52	30	10	12
17	3	7	8	24	48	57	46	50	42	24	1	5
18	17	6	28	30	43	51	51	55	38	35	7	12
19	27	0	30	29	39	57	61	55	40	33	0	25
20	19	-3	27	31	36	55	62	51	43	24	5	10
21	11	-11	28	33	43	57	56	50	40	29	10	10
22	21	-8	28	36	52	63	61	46	40	22	22	20
23	17	1	25	39	56	58	58	56	41	18	29	9
24	20	-7	24	30	65	60	51	61	42	23	17	-4
25	20	4	30	29	59	58	54	58	38	43	9	-5
26	23	10	29	36	56	63	50	55	33	41	3	-10
27	-1	-4	22	36	62	60	45	51	36	34	0	6
28	-7	-1	20	27	61	59	48	50	24	34	10	-14
29	-10		13	41	63	61	50	45	24	33	25	-12
30	-7		6	37	63	59	52	57	29	36	27	12
31	-5		7		61		59	63		28		-20

Table 11: Growing Degree Days, Cooling Degree Days, Heating Degree Days, and Days Max Temperature was greater than or equal to 90°.

<b>GDD 2018</b>									
Days	Wheat	Sugarbeets	Potatoes	Sunflower	Dry-Bean	Corn	Heating	Cooling	
>= 90 (F)	32 (F)	40 (F)	45 (F)	50 (F)	55 (F)	50-86 (F)	65 (F)	65 (F)	
Jan							1761		
Feb							1718		
Mar							1276		
Apr		219	132	97	65	65	952	0	
May	4	882	663	548	464	429	198	86	
Jun		1086	846	696	549	546	27	124	
Jul		1141	893	738	589	559	12	131	
Aug	3	1087	839	688	547	510	53	117	
Sep	1	721	502	388	291	286	303	24	
Oct		266	121	63	32	32	817	0	
Nov							1334		
Dec							1506		
<b>Total</b>	<b>8</b>	<b>5402</b>	<b>3996</b>	<b>3218</b>	<b>2537</b>	<b>2427</b>	<b>2471</b>	<b>9957</b>	<b>482</b>

<b>GDD 2017</b>									
Days	Wheat	Sugarbeets	Potatoes	Sunflower	Dry-Bean	Corn	Heating	Cooling	
>= 90 (F)	32 (F)	40 (F)	45 (F)	50 (F)	55 (F)	50-86 (F)	65 (F)	65 (F)	
Jan							1674		
Feb							1315		
Mar							1197		
Apr		352	212	145	91	48	666		
May		714	484	363	271	196	309	2	
Jun	1	1005	765	620	483	360	62	77	
Jul	1	1150	902	747	596	459	17	145	
Aug	1	1037	789	635	489	376	30	43	
Sep	2	824	593	466	355	349	200	35	
Oct		477	318	236	165	107	586		
Nov							1218		
Dec							1636		
<b>Total</b>	<b>5</b>	<b>5560</b>	<b>4063</b>	<b>3211</b>	<b>2450</b>	<b>1893</b>	<b>2382</b>	<b>8910</b>	<b>301</b>

<b>Avg.</b>									
5 Yr	5	5691	3824	3053	2369	1887	2331	8990	388
10 Yr	7	5714	3677	3017	2350	1825	2311	9099	425
30 Yr	7	5630	3689	2900	2235	1667	2248	9261	442
129 Yr	11	5582	3600	2815	2102	1468	2220	9443	433

Table 8: Date of last spring and first fall occurrence of 32° F and 28° F, length of period free of 32° F or lower and 28° F and lower. And Number of days minimum and maximum temperatures were < 32° F or < 0° F.

Year	Low Temperatures						Total No. of Day Minimum Temp.		Longest Consecutive Days	
	<= 32 F			<= 28 F			<=32 F	<=0 F	Max Temp <=32	Max Temp <=0 F
	Last Spring Occurrence	First Fall Occurrence	Days Between	Last Spring Occurrence	First Fall Occurrence	Days Between				
2018	11-May	28-Sep	140	10-May	28-Sep	141	195	50	24	3
2017	11-May	6-Sep	118	29-Apr	9-Oct	163	179	41	31	4
2016	14-May	8-Oct	147	15-May	9-Oct	147	157	31	26	4
2015	29-May	29-Sep	123	18-May	30-Sep	135	176	45	15	2
2014	16-May	7-Oct	144	15-May	8-Oct	146	186	80	29	4
2013	11-May	13-Oct	155	11-May	15-Oct	157	199	73	52	3
2012	25-Apr	12-Sep	140	26-Apr	17-Sep	144	175	38	26	2
2011	2-May	14-Sep	135	2-May	14-Sep	135	184	48	21	1
2010	8-May	14-Oct	159	10-Apr	14-Oct	187	162	57	38	2
2009	22-May	28-Sep	129	24-Apr	8-Oct	167	180	68	30	3
5 Yr Avg	16-May	30-Sep	137	11-May	8-Oct	150	179	54	31	3
10 Yr Avg	12-May	27-Sep	139	3-May	3-Oct	153	178	53	30	3
30 Yr Avg	10-May	25-Sep	138	27-Apr	5-Oct	160	180	53	30	3
128 Yr Avg	11-May	22-Sep	128	5-May	2-Oct	150	184	59	38	5