

HAWAII EXPERIMENT STATION.

Bulletin No. 13.

1898.

UNIVERSITY OF IDAHO AGRICULTURAL EXPERIMENT STATION.

MOSCOW, IDAHO.

DEPARTMENT OF PHYSICS.

Meteorology.

By J. E. BONEBRIGHT.

LEWISTON
TRIBUNE JOB ROOMS
1898

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BULLETINS.

The regular bulletins of the Station are sent free to all who request them.
Bulletins issued since the close of the fiscal year, June 30, 1897:

11. Smuts and Rusts of Grain in Idaho, and the Most Approved Methods of Dealing With Them.
12. Sugar Beets in Idaho.
13. Meteorology.

IDAHO METEOROLOGY.

J. E. BONEBRIGHT.

In this bulletin will be found the monthly and yearly summaries of the more important meteorological records taken by the Experiment Station of the University of Idaho, at Moscow for 1894, '95, '96, '97, at Grangeville for 1894, '95, '96, and at Nampa for 1894, '95, '97. We are indebted to Mr. E. G. Nettleton for the Nampa records for 1897.

In addition to the summaries given in this bulletin the meteorologist has records of storms, soil, temperature, and the direction and velocity of the wind.

The records of the three Stations given cover fairly well the different climatic conditions of Idaho, but in order to answer questions more in detail the Department has secured records from the U. S. Government Meteorological Stations of Idaho. The meteorologist would consider it a favor to furnish information to any one wishing a more detailed statement of Idaho weather.

EXPLANATION OF TABLES.

During the year 1894 the daily readings were taken at 7 A. M., 2 P. M. and 9 P. M. Since 1894 the daily readings were taken at 7 A. M. and 7 P. M. All temperatures are given in Fahrenheit degrees. The first mean temperatures are computed from the maximum and minimum temperatures, and the second mean temperatures are taken from the daily readings of the dry bulb. The snowfall in inches can be determined by multiplying the record of melted snow by ten. The barometric pressure is given in inches of mercury. Relative humidity is given as a per cent. of full saturation. The growing season covers the months from April to September.

The instruments used were all of U. S. Government standard and the averages were computed according to Government methods.

Moscow, Idaho.

Year	Temperature				Precipitation in inches			Barometer	Condition of Weather			
	Max	Min.	First Mean.	Second Mean.	Rainfall	Melted Snow	Total			Days Clear	Days Fair	Days Cl'dy
1894												
Jan.	45	-3	27.3	21.0	1.78	4.23	6.01	27.154	1.010	2	2	27
Feb.	45	-8	25.6	52.2	....	2.98	2.98	27.273	1.132	11	9	8
Mar.	58	12	37.3	39.0	1.42	1.01	2.43	27.207	1.052	13	5	13
April	76	25	46.5	47.4	1.38	....	1.38	27.261	.699	7	8	15
May	86	30	54.5	57.4	1.53	....	1.53	27.207	.560	15	7	9
June	84	32	57.3	62.0	1.23	....	1.23	27.166	1.661	19	3	8
July	93	40	71.7	78.0	.12	....	.12	27.332	.517	29	2	0
Aug.	96	34	67.5	70.5	.25	....	.25	27.269	.346	26	3	2
Sept.	85	32	53.8	58.8	.89	....	.89	27.233	.602	25	2	3
Oct.	74	28	46.2	40.4	3.70	....	3.70	27.255	.614	9	9	13
Nov.	57	20	41.0	42.7	1.48	.73	2.21	27.425	.739	12	6	12
Dec.	48	3	29.3	25.6	1.07	.08	1.15	27.380	.910	13	3	15
Sum.	847	245	558.0	595.0	14.85	9.03	23.88	327.162	9.842	181	59	125
M'n.	70.5	20.4	46.5	49.5	1.35	....	1.99	27.263	.820	....	....	....

Moscow, Idaho.

Year	Temperature				Precipitation in inches			Barometer		Condition of Weather		
	Max.	Min.	First Mean	Second Mean	Rainfall	Melted Snow	Total	Mean Inches	Range Inches	Days clear	Days Fair	Days Cld'y
1895												
Jan.	46	1	28.6	29.3	.12	2.01	2.13	27.360	.808	9	6	16
Feb.	47	9	32.7	33.7	.72	.22	.94	27.410	.440	10	9	9
March	56	12	36.8	39.1	....	1.16	1.16	27.430	.560	19	3	9
April	76	26	48.6	48.1	1.14	.16	1.30	27.430	.700	12	5	13
May	81	30	51.2	51.9	2.17	....	2.17	27.410	.640	22	2	7
June	96	33	57.4	59.4	.41	....	.41	27.440	.800	...	...	..
July	92	41	65.0	72.7	.90	....	.90	27.226	.543	29	1	1
Aug.	94	33	62.2	74.5	.32	....	.32	27.280	.567	26	3	2
Sept.	84	28	48.4	49.8	3.33	....	3.33	27.369	.944	20	2	8
Oct.	74	21	45.3	46.1	....	....	....	27.390	.903	27	2	2
Nov.	67	10	37.8	41.5	1.12	.22	1.34	27.375	.790	3	1	26
Dec.	56	-1	32.2	32.2	....	1.81	1.81	27.361	.610	2	2	27
Sum.	869	243	546.2	578.3	10.23	5.58	15.81	328.481	8.377	170	36	120
M' n	72.4	20.2	45.5	48.2	1.02	....	....	27.373	.698	...	...	..

Moseow, Idaho.

Year	Temperature				Precipitation in inches			Barometer		Condition of Weather		
	Max.	Min.	First Mean.	Second Mean.	Rainfall	Melted Snow	Total	Mean. Inches	Range Inches	Days Clear	Days Fair	Days Cl'd'y
1896												
Jan.	48	20	36.0	35.4	.9	.20	.29	27.365	.806	2	0	20
Feb.	57	25	40.6	40.1	1.27	....	1.27	27.307	.666	7	2	20
Mar.	68	18	40.4	39.0	1.11	....	1.11	27.283	.684	8	5	18
April	68	26	44.9	42.5	.57	....	.57	27.324	.741	10	12	8
May	84	31	47.4	46.5	3.01	.59	3.60	27.383	.768	13	4	14
June	92	34	60.3	61.1	2.21	....	2.21	27.392	.661	30	0	0
July	97	40	69.9	70.4	.17	....	.17	27.320	.282	30	0	1
Aug.	93	38	65.0	67.1	1.33	....	1.33	27.332	.375	26	0	5
Sept.	85	30	56.1	54.6	.81	....	.81	27.338	.441	22	0	8
Oct.	76	28	50.3	46.3	1.07	....	1.07	27.338	.746	17	2	12
Nov.	56	-14	30.7	26.4	4.10	1.42	5.52	27.273	.981	5	2	23
Dec.	57	20	37.9	35.9	2.65	.45	3.10	27.224	.837	7	5	19
Sum.	881	296	579.5	565.3	18.39	2.66	21.05	327.924	7.981	177	32	157
M'n.	73.4	24.6	48.1	47.1	1.53	....	1.75	27.327	.665	....	....	....

Moscow, Idaho.

Year	Temperature				Precipitation in inches				Barometer		Condition of Weather		
	Max.	Min.	First Mean.	Second Mean.	Rainfall	Melted Snow	Total	Mean. Inches	Range Inches	Days Clear	Days Fair	Days Cl'dy	
1897													
Jan.	48	-12	23.9	21.6	.28	.73	1.01	27.414	.879	5	3	23	
Feb.	62	10	33.5	30.3	1.00	1.19	2.19	27.278	.603	5	3	21	
Mar.	56	0	32.5	31.8	2.52	.93	3.45	27.178	.528	12	0	19	
April	78	32	49.7	49.8	.40	....	.40	27.388	.562	19	0	11
May	92	32	58.8	....	1.20	....	1.20	27.374	.539	21	0	10
June	89	36	55.8	53.8	2.72	....	2.72	27.272	.423	25	0	5
July	92	38	62.5	69.8	.85	....	.85	27.358	.461	26	0	5
Aug.	93	30	64.0	72.0	.35	....	.35	27.232	.487	29	0	2
Sept.	85	32	52.6	59.2	1.67	....	1.67	27.208	.495	22	0	8
Oct.	80	31	51.4	....	1.10	....	1.10	27.306	.657	21	3	6
Nov.	59	0	34.3	35.8	4.29	1.07	5.36	27.318	.658	5	4	21	
Dec.	48	8	28.6	30.0	2.21	.35	2.56	27.525	.938	5	2	24	
Sum	882	237	547.6	454.1	18.59	4.27	22.86	327.851	7.230	195	15	155	
M'n.	73.5	19.7	45.6	45.4	1.54	....	1.90	27.321	.603	....	....	....

Grangeville, Idaho.

Year	Temperature				Precipitation in inches			Barometer	Condition of Weather				
	Max.	Min.	First Mean.	Second Mean	Rainfall	Melted Snow	Total		Mean Inches	Range Inches	Days Clear	Days Fair	Days Cl'dy
1894													
Jan.	47	5	27.9	26.2	.52	4.34	4.86	26.231	.821	0	7	24	
Feb.	46	-2	24	24.1	.07	1.32	1.39	26.287	.875	3	13	12	
Mar.	55	15	34	33.2	1.16	2.21	3.37	26.244	1.150	1	15	15	
April	70	26	42	42.7	.75	1.10	1.85	26.341	.735	4	6	20	
May	83	29	53	52.0	2.05	.25	2.30	26.286	.610	15	7	9	
June	81	32	55	53.9	4.65	....	4.65	26.299	.485	8	9	13	
July	93	41	66	66.6	.66	....	.66	26.423	.301	25	4	2	
Aug.	95	44	69	69.0	.38	....	.38	26.392	.428	15	10	6	
Sept.	83	33	53	51.0	3.39	....	3.39	26.332	.593	11	5	14	
Oct.	71	24	46	44.9	3.58	.04	3.62	26.324	.681	5	13	13	
Nov.	62	16	42	41.0	1.05	.20	1.25	26.464	.731	3	5	22	
Dec.	45	3	27	26.0	2.04	....	2.04	26.333	1.080	9	14	8	
Sum.	831	266	538.9	530.6	20.30	9.46	29.76	315.956	8.490	99	108	158	
M'N.	69.2	22.1	44.9	44.2	1.69	....	2.48	26.329	.707	....	....	....

Grangeville, Idaho.

Year	Temperature				Precipitation in inches			Barometer		Condition of Weather		
	Max.	Min.	First Mean.	Second Mean.	Rainfall	Melted Snow	Total	Mean. Inches	Range Inches	Days Clear	Days Fair	Days Cl'd'y
1895												
Jan.	...	...	...	...	...	...	...	...	...	...	...	...
Feb.	...	...	...	...	...	...	...	...	...	...	...	...
Mar.	65	3	35.8	34.7	.35	2.44	2.79	26.248	.674	5	8	18
April	74	22	46.0	46.6	3.13	...	3.13	26.338	.739	9	12	9
May	76	31	50.0	49.1	4.76	...	4.76	26.308	.913	11	16	4
June	85	32	56.0	55.3	2.09	...	2.09	26.427	.426	13	12	5
July	90	42	63.5	61.7	1.53	...	1.53	26.389	.443	22	8	1
Aug.	92	42	66.3	66.9	1.09	...	1.09	26.371	.367	22	8	1
Sept.	83	28	51.2	49.6	2.29	.10	2.39	26.335	.625	12	7	11
Oct.	75	29	50.6	48.4	.24	...	.24	26.444	.404	20	5	6
Nov.	61	5	35.6	34.3	.76	.44	1.20	26.406	.815	3	19	8
Dec.	52	9	29.3	...	...	1.94	1.94	26.333	1.204	0	8	23
Sum.	753	243	484.3	496.6	16.24	4.92	21.16	263.599	6.610	117	103	86
M'n.	75.3	24.3	48.4	49.66	1.62	...	2.11	26.359	.661	...	...	...

Grangeville, Idaho.

Year	Temperature				Precipitation in inches			Barometer		Condition of Weather		
	Max.	Min.	First Mean	Second Mean	Rainfall	Melted Snow	Total	Mean inches	Range inches	Days clear	Days Fair	Days Cldy
1896												
Jan.	55	9	33.5	32.1	2.77	.30	3.07	26.231	.837	5	4	22
Feb.	58	13	35.4	33.7	1.17	1.01	2.18	26.391	.890	0	12	17
Mch.	64	-5	35.2	33.7	2.11	.67	2.78	26.327	.942	6	5	20
Ap'l.	61	24	40.3	38.8	2.42	.85	3.27	26.213	1.253	..	..	..
May	78	28	44.9	44.5	4.04	1.53	6.47	26.267	.579	6	15	10
June	89	37	58.9	60.1	3.24	....	3.24	26.361	.430	15	8	7
July	93	48	70.5	69.7	.92	....	.92	26.372	.279	13	8	10
Aug.	91	45	67.6	65.3	1.61	....	1.61	26.384	.306	19	6	6
Sept.	86	31	55.6	52.8	2.14	....	2.14	26.377	.561	11	10	9
Oct.	77	28	49.2	47.7	1.99	....	1.99	26.422	.550	11	7	13
Nov.	57	-11	28.3	28.6	1.94	1.27	3.21	26.283	1.446	2	3	25
Dec.	57	21	37.0	37.6	.86	.63	1.49	26.465	.736	2	7	22
Sum.	866	268	557.3	544.6	26.11	6.26	32.37	316.093	8.809	90	85	161
M' n.	72.16	22.3	46.4	45.3	2.17	....	2.69	26.341	.734	..	..	..

Nampa, Idaho.

Year	Temperature				Precipitation in inches			Barometer		Condition of Weather		
	Max.	Min.	First Mean.	Second Mean.	Rainfall	Melted Snow	Total	Mean.	Range	Days Clear	Days Fair	Days Cl'dy
1894												
Jan.	62	-1	33.0	30.9	.56	.43	.99	27.371	.773	2	14	15
Feb.	48	-7	26.7	26.6	.17	.30	.47	27.478	1.020	9	12	7
Mar.	69	20	41.5	39.5	.58	.18	.76	27.331	1.100	9	11	11
April	79	22	47.3	48.3	1.72	.12	1.84	27.398	.751	13	12	5
May	91	28	57.4	59.6	1.90	....	1.90	27.288	.711	18	7	6
June	92	32	62.2	63.3	.27	....	.27	27.283	.517	10	15	5
July	99	40	73.8	75.5	.08	....	.08	27.374	.435	17	13	1
Aug.	102	41	74.8	73.0	.02	....	.02	27.324	.336	19	9	3
Sept.	89	32	59.2	68.9	.41	....	.41	27.336	.783	13	12	5
Oct.	83	24	49.5	48.8	1.69	....	1.69	27.377	.819	14	11	6
Nov.	68	11	41.7	40.4	.06	....	.06	27.540	.771	14	10	6
Dec.	50	4	28.0	28.1	.49	.67	1.16	27.448	1.123	7	11	13
Sum.	932	246	595 1	602.9	7.95	1.70	9.65	328.548	0.139	145	137	83
M'n.	77.6	20.5	49.5	50.5	.66	....	.80	27.379	.761	....	....	...

Nampa, Idaho.

Year	Temperature				Precipitation in inches			Barometer		Condition of Weather		
	Max.	Min.	First Mean.	Second Mean.	Rainfall	Melted Snow	Total	Mean Inches	Range Inches	Days Clear	Days Fair	Days Cl'dy
1895												
Jan.	51	2	28.7	28.5	.06	.53	.59	27.316	1.049	8	8	15
Feb.	57	3	29.7	30.2	.10	.09	.19	27.344	.804	10	11	7
Mar.	78	12	44.7	39.8	.04	.05	.09	27.352	.780	18	5	8
April	85	25	55.0	51.4	1.03	....	1.03	27.399	.871	18	8	4
May	85	27	56.0	56.8	1.29	....	1.29	27.304	.895	13	13	5
June	92	30	61.2	63.3	.04	....	.04	27.391	6.13	23	7	0
July	102	40	71.0	71.5	.31	....	.31	27.324	.544	25	5	1
Aug.	98	41	69.7	70.7	.11	....	.11	27.324	.654	19	11	1
Sept.	87	24	56.7	57.1	.61	....	.61	27.349	.801	14	11	5
Oct.	84	21	52.7	50.5	....	....	....	27.450	.439	26	5	0
Nov.	64	7	36.7	35.9	.50	.02	.52	27.468	.931	9	10	11
Dec.	50	3	29.9	29.1	.08	.47	.55	27.514	.020	4	16	11
Sum.	933.0	235.0	592.0	584.8	4.17	1.16	5.33	328.735	9.401	187	110	68
M'n.	77.8	19.5	49.3	48.7	.34	.23	.44	27.394	.783	....	....	....

Nampa, Idaho.

Year	Temperature				Precipitation in inches			Barometer		Condition of Weather		
	Max.	Min.	First Mean.	Second Mean	Rainfall	Melted Snow	Total	Mean. Inches	Range Inches	Days Clear	Days Fair	Days Cl'dy
897												
Jan.	...	...	...	...	...	...	...	...	...	...	...	...
Feb.	57	19	34	29.5	.46	...	.46	27.604	.681	7	13	8
Mar.	63	10	36.3	33.8	.70	.76	1.46	27.344	.802	2	23	6
April	87	27	50.7	49.6	.96	...	.96	27.493	.763	16	10	4
May	98	28	63.5	63.1	.49	...	.49	27.389	.562	18	13	0
June	96	34	63.8	65.6	.60	...	.60	27.486	.609	11	17	2
July	107	39	69.3	68.3	.23	...	.23	27.393	.588	23	8	0
Aug.	106	42	75.6	75.4	.12	...	.12	27.376	.458	25	6	0
Sept.	93	33	62.3	59.1	.61	...	.61	27.417	.620	15	13	2
Oct.	84	21	49.7	44.	1.11	...	1.11	27.469	.654	20	6	5
Nov.	72	14	40.4	35.6	.96	.04	1.00	27.476	.691	6	12	12
Dec.	49	9	30.5	27.2	1.72	.62	2.34	27.608	.896	7	8	16
Sum.	912	276	576.1	551.2	7.96	1.42	9.38	302.055	7.324	150	129	55
M'n.	82.9	25	52.4	50.1	72.4	...	.85	27.459	.666	...	...	...

MISCELLANEOUS DATA.

	Latest Killing Spring	Frosts		Relative Humidity for Growing Season		Mean Dew Point for Growing Season	
		Earliest Killing Fall	Mean	Lowest			
Moscow.....1894	June 11	Sep. 22	74.25 p. ct.	43.30 p. ct.		42.6	
".....1895	May 30	Sep. 6	68.50	"	41.00	"	39.3
".....1896	May 12	Sep. 17	68.50	"	41.80	"	45.7
".....1897	May 27	Sep. 30	67.20	"	39.60	"	45.1
Grangeville.....1894	June 10	Sep. 29	68.30	"	44.00	"	38.0
".....1895	June 16	Sep. 19	64.60	"	28.90	"	39.3
".....1896	May 17	Sep. 9	67.89	"	37.93	"	39.7
Nampa.....1894	June 11	Sep. 14	71.10	"	39.30	"	47.8
".....1895	June 17	Sep. 22	74.50	"	41.80	"	42.4
".....1896	May 20	Sep. 26	73.15	"	35.27	"	47.3
".....1897	May 8	Sep. 4	53.90	"	33.00	"	47.0

