

KENTUCKY
Agricultural Experiment Station

OF THE
STATE COLLEGE OF KENTUCKY.

BULLETIN NO. 99.

OATS.

1. Test of Varieties.
2. Treatment for Smut.
3. Test of Fertilizers.
4. Relative Value of the Varieties
for Feeding.

LEXINGTON, KENTUCKY.

APRIL, 1902.

KENTUCKY

AGRICULTURAL EXPERIMENT STATION

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KENTUCKY AGRICULTURAL EXPERIMENT STATION,
LEXINGTON, KY.

BULLETIN NO. 99.

OATS.

1. Test of Varieties.

By J. N. HARPER, AGRICULTURIST.

The soil of the Blue-grass Region of Kentucky is not ideal for the production of oats. However by the application of potash fertilizers with good tillage and proper rotation, a fair yield can be had.

The value of the oat crop as food for animals is recognized by all. Its superiority to corn as a food for work animals is quite generally, if not universally, admitted. But in this section of the State, where land is held at such a high value, it does not pay to raise oats as a grain crop, except in proper rotation. It is getting to be quite a common practice with many farmers of this section to harvest their oats before the grain is mature and cure them for hay. This is a very profitable way to treat the oat crop. The only difficulty is that the oat plant is not ideal for making hay as it is difficult to cure.

Oats, when not sown too thickly, is considered one of the best crops to give bluegrass a start, the advantage over other crops being that the oat crop matures early enough to allow the young grass to get a good start in the fall.

For the test of varieties last season, as for several years past, the seed was planted in drills eight inches apart and at the rate of six pecks per acre. Eleven of the plots were 1-20 acre each, the rest being 1-40 acre, and they were all planted March 19th. They were harvested on July 13th and 16th, the earlier ripening varieties on the former date.

Table 1 gives the yield of grain and straw, calculated to the acre, the former in bushels of 32 pounds; also the character of grain and straw and the time when the grain was fully ripe. In table 2 have been collected the yields of these same varieties for four years. The seed planted each year was saved from the crop of the year before. The oats were not grown year after year upon the same plots, but were changed each year to a different acre. In 1898 the varieties were planted on Acre S. April 29, and were harvested July 22. Acre S had been in potatoes in 1897 and corn in 1896. In 1899 they were planted on Acre I, April 11, and harvested July 12. Acre I had been in wheat in 1898 and 1897, and in clover in 1896. In 1900 the only available place for the oats, unfortunately, was Acre O., the two halves of which had received different treatment in past years, rendering them unequal in fertility. This difference in fertility is very apparent from the larger yield of the first nine varieties in 1900. The oats were planted this year on April 7 and harvested July 11. Acre O was in clover in 1899 and sorghum in 1898. The first half was in potatoes in 1897 and 1896 and the last half was in sorghum in 1897 and corn in 1896. In 1901 the varieties were planted on Acre B March 19 and harvested on July 13 and 16. This acre had been in timothy continuously for five years, and its soil was much better than that of any other acres upon which the oats have been planted; a circumstance which will in great measure account for the much better yields obtained last year than in previous years.

Table 3 gives the weight of a measured bushel of each variety as observed for three years past, and the average of the three determinations.

Two tables, giving rainfall, temperature and some other meteorological data, have been included in the last part of this bulletin and will be found interesting in connection with the tables of yields.

Winter Oats.

In the fall of 1900 the Station received some black winter oat seed from Texas, which were planted October 19th of that year. They stood the winter well, only a very small percentage being winter killed. They were harvested June 24th and

TABLE 1.—YIELD OF GRAIN AND STRAW IN 1901, ETC.

Plot No.	NAME OF VARIETY.	YIELD PER ACRE.		Color of Grain.	Charac-ter of Straw.	When fully ripe.
		Grain, bu.	Straw, lbs.			
24	White Russian.....	49.	3300	White	Strong	July 9
13	Improved Welcome.....	47.6	3400	"	Weak	" 14
16	Negro Wonder.....	46.9	3600	Black	Strong	" 13
22	White Belgian (see No. 27).....	46.9	3600	White	"	" 9
17	New American.....	46.2	3000	"	"	" 9
21	White Baltic	45.9	3400	"	"	" 9
27	White Belgian (see No. 22).....	45.9	3300	"	Medi'm	" 10
20	Wideawake.....	45.5	3550	"	"	" 13
23	White Maine.....	45.5	3600	"	Strong	" 9
28	Mixed Oats.....	45.5	3650	"	Medi'm	" 13
15	Mammoth Cluster....	44.8	2700	"	Weak	" 5
26	"	44.2	3600	"	Medi'm	" 10
4	American White.....	43.4	3900	"	Strong	" 13
18	Pringle's Progress...	42.7	3500	"	"	" 7
29	American Banner (see No. 1.).....	42.4	3200	"	"	" 13
14	Lincoln.....	42.0	3200	Black	Medi'm	" 14
7	Badger Queen.....	41.3	3400	White	"	" 12
11	Hopetown.....	40.3	3400	"	V'ry s'g	" 13
12	Imported Black Tartarian.....	39.9	3300	Black	Weak	" 16
3	American Triumph...	39.6	2900	White	Strong	" 6
25	Yellow German.. . .	39.6	3100	"	"	" 9
19	Probsteir	38.8	3050	"	Medi'm	" 10
5	Australian.....	38.5	3200	"	Strong	" 12
8	Giant Yellow French	38.5	3200	"	Medi'm	" 16
6	Banner	37.8	3200	"	Strong	" 12
1	American Banner (see No. 29.).....	37.4	2800	"	Strong	" 13
2	American Beauty.....	35.0	3200	"	"	" 10
9	Golden Giant Side....	33.6	3300	"	"	" 16
10	Green Mountain.....	29.4	2700	"	"	" 16

TABLE 2.—YIELDS OF GRAIN AND STRAW FOR FOUR YEARS.

NAME OF VARIETY.	1898		1899		1900		1901	
	Grain, Bushels.	Straw, Pounds.	Grain, Bushels.	Straw, Pounds.	Grain, Bushels.	Straw, Pounds.	Grain, Bushels.	Straw, Pounds.
American Banner	9 5	1090	18.9	800	35 7	2000	37.4	2800
American Beauty.....	17.5	1320	17.9	1050	36.1	2190	35.	3200
American Triumph	12.6	1100	23.8	1080	38.9	1690	39.6	2900
American White	18.3	1600	19.6	1120	43.1	2270	43.4	3900
Australian	11.9	1100	18.9	1000	37.5	1780	38.5	3200
Banner.....	10.9	1250	17.9	930	38.9	1990	37.8	3200
Badger Queen.....	16.5	1330	20.7	810	39.2	1580	41.3	3400
Giant Yellow French.....	10.9	1350	15 1	770	30.5	2030	38.5	3200
Golden Giant Side.....	12.6	1520	11.6	710	32.6	1690	33.6	3300
Green Mountain.....	9.1	1280	10.2	970	18.2	1380	29.4	2700
Hopetown.....	11.9	1240	22.4	1120	29.4	1060	40.3	3400
Imported Black Tartarian.....	10.9	1270	18.2	640	21.7	2360	39.9	3300
Imported Welcome	9.8	1000	18.9	940	27.3	1820	47.6	3400
Lincoln.....	9.1	1100	13.3	820	23.1	1480	42.	3200
Mammoth Cluster.....	12.6	1080	22.4	920	31.2	1340	44.8	2700
Negro Wonder	7.	960	14.7	1140	30.1	1260	46.9	3600
New American.....	9 1	980	14.7	780	28.7	1780	46.2	3000
Pringle's Progress	15	1120	16.8	880	28.7	1300	42.7	3500
Probsteir	13.3	940	18.2	920	28.7	1220	38.8	3050
Wideawake	8	1040	15.4	760	29.4	1560	45.5	3550
White Baltic.....	11.2	1080	14.7	700	20.3	1460	45.9	3400
White Belgian.....	9.1	880	14	640	24.5	1220	46.9	3600
White Maine.....	11.9	1020	10.5	580	27.3	1100	45.5	3600
White Russian.....	11.9	1040	13.3	620	28.	1320	49.	3300
Yellow German	12.6	960	9.8	600	27.3	1360	39.6	3100
Mammoth Cluster.....	12.6	1040	12.6	720	24.9	1140	44.2	3600
White Belgian.....	7	920	13.3	580	23.8	1120	45.9	3300
Mixed Oats	8	920	14.7	620	19.6	920	45.5	3650
American Banner	7.7	1580	13.0	640	19.6	1320	42.4	3200

TABLE 3.—WEIGHT OF A MEASURED BUSHEL FOR THREE YEARS.

Plot No.	NAME OF VARIETY.	1899	1900	1901	AVER AGE.
1	American Banner	27	24	27	26
2	American Beauty	27	27	28	27.3
3	American Triumph.....	27½	27½	29½	28.1
4	American White.....	26	26	27	26.3
5	Australian.....	27	28	28½	27.8
6	Banner	30	29	30½	29.8
7	Badger Queen.....	25	24	27½	25.5
8	Giant Yellow French.....	24	23	26	24.3
9	Golden Giant Side	24	24	26½	24.8
10	Green Mountain.....	22	23½	24	23.1
11	Hopetown.....	30	30	32½	30.8
12	Imported Black Tartarian.....	26	26	27½	26.5
13	Imported Welcome.....	28	3½	32½	30.3
14	Lincoln	22	26	26½	24.8
15	Mammoth Cluster	28	29½	29½	29
16	Negro Wonder.....	24	23	26	24.3
17	New American.....	25	25	27	25.6
18	Pringle's Progress	32	32½	33	32.5
19	Probsteir.....	31	31	31½	31.1
20	Wideawake.....	25	27	27½	26.5
21	White Baltic	25	26	27	26
22	White Belgian.....	28	29	30	29
23	White Maine.....	28	29½	29½	29
24	White Russian.....	28	28	29½	28.5
25	Yellow German	29	30	30½	29.8
26	Mammoth Cluster.....	26	27½	28	27.1
27	White Belgian	29½	29½	29½	29.5
28	Mixed Oats.....	26	27	27½	26.8
29	American Bauner	26	25½	29½	27

yielded 50.8 bushels per acre. Seed from this crop were planted October 29th, 1901, and were up growing well November 20th, but when examined March 11th not one sprig could be seen. They were completely winter killed. This result may have been due to the very severe cold weather in the middle of December, the temperature having fallen to eight degrees below zero on the 15th of that month.

2. Treatment for Smut.

The varieties of oats have been free from any smut since 1897. They were given the hot water treatment the spring of that year and the seed have since been kept in clean boxes and sacks. The hot water treatment recommended is to immerse the seed oats in hot water at a temperature of 134°F. for 15 minutes. The method is the same as recommended for wheat in Bulletin No. 69 by Prof. Garman, whose description is quoted below from that Bulletin:

“Careful comparative tests of bluestone solutions and of hot water as preventives of smut show that hot water is quite as effective in checking the disease and has the advantage of not injuring the sound seed. When treating seed with hot water it is well to be provided with the following: A good Fahrenheit thermometer. A large kettle in which water can be heated. Three barrels.

“The water in the kettle is kept near the boiling point, and the supply in it must be replenished as fast as it is used. In the first barrel keep ordinary water, and the other two should be about two-thirds full of water kept at a temperature of 131 degrees Fahrenheit.

“First put a bag of wheat in the barrel of cool water and leave it until the seeds are moist. It may be left for half an hour, or longer, but ordinarily two or three minutes is sufficient. Drain out the surplus cold water, then immerse for a minute or two in the second barrel, containing warm water. The object of this is to warm the wheat so that it will not cool the water in the third barrel. When warm, plunge quickly in the third barrel and leave it fifteen minutes. If the temperature shows a disposition to fall below 131 degrees, add a little hot water

from the kettle till it reaches the 131 mark again. It should never be allowed to fall below 130 degrees, nor to go above 134 degrees Fahrenheit. With a good supply of hot water at hand it is very easy to regulate the temperature in the barrel, much easier than would be supposed by one who has not tried it. At the end of fifteen minutes the wheat is removed from the water and spread out to dry. But it must never be spread out on a floor upon which smutted wheat has lain. The convenience, cleanliness and cheapness of this method of preventing smut will certainly commend it to farmers, and I have no doubt but that it will displace the use of bluestone in course of time."

3. Test of Fertilizers.

The oats in this experiment were planted April 15, 1899, and harvested July 10th. Plot No. 1 was one acre in area; the other plots were $\frac{1}{2}$ acre each.

The fertilizers were sown May 27th. The fertilizers used and yields obtained, both calculated to the acre, were as follows:

Plot 1. 160 lbs. Nitrate of Soda, yielded 37.1 bus. Grain; 2,007 lbs. Straw.

Plot 2. No fertilizer, 31.5 bus. Grain; 1,700 lbs. Straw.

Plot 3. 160 lbs. Muriate of Potash, 30.4 bus. Grain; 1,506 lbs. Straw.

Plot 4. No fertilizer, 23.7 bus. Grain; 1,487 lbs. Straw.

There seems to have been a material increase of yield from both the nitrate of soda and the muriate of potash. This experiment was made upon the new farm where the soil is of the kind having a red clay subsoil. Tests reported in former bulletins, made on the old farm where the subsoil is yellow, have shown the largest increase from the application of potash salts.

4. Relative Value of the Varieties for Feeding.

BY A. M. PETER CHEMIST.

In order to test this question analyses were made of two sets of samples from the oats on each plot, one taken July 5th when the earliest varieties appeared to be ripe, the other, two or three days later. The samples were weighed, dried, and the nitrogen determined in each. These analyses were made by Mr. S. D. Averitt. From the analyses of the ripest samples and the total weight of the crop harvested from each plot, the number of pounds of perfectly dry matter and of protein which would have been contained in the crop from one acre of each variety have been calculated and are presented below in tabular form. The proportion of protein in the dry matter also is stated.

As protein is the most valuable constituent of feeds, that variety of oats which produces a crop containing the largest amount as well as the largest proportion of this substance should, other things being equal, be considered the best. These results, however, must be regarded as only approximate and tentative. The main reason for this is that the samples for analysis were taken five days to a week before the oats were harvested and weighed, and the changes which took place in this time in the relative composition of some of the later sorts may have been considerable. Besides this, we must take into consideration the difficulty in obtaining fairly representative samples for analysis. The samples were carefully taken by Mr. Harper who exercised his best judgment in selecting an average, but it would evidently be a practical impossibility for any one, no matter how skillful, to go into a 1-20 acre of oats in which some plants are fully ripe while others are more or less green and select a small quantity that would in every instance correctly represent the whole crop. For these reasons, as well as because the accuracy of the calculation may be effected by other sources of error, small differences between the figures for different varieties must not be regarded as important.

TABLE 4.—AMOUNT OF PROTEIN AND DRY MATTER PRODUCED PER ACRE.

Plot Number.	NAME OF VARIETY.	Total Weights in Pounds per Acre.			Per cent of Protein in the Water-Free Substance.	Date When Sampled.
		Crop as harvested.	Water-Free Substance.	Protein.		
1	American Banner	3997	3633	224	6.17	July 8
2	American Beauty	4320	4026	270	6.69	8
3	American Triumph	4167	3876	286	7.37	8
4	American White	5289	4940	337	6.87	8
5	Australian	4432	4116	291	7.05	7
6	Banner	4410	4092	265	6.47	7
7	Badger Queen	4722	4422	310	7.01	7
8	Giant Yellow French	4432	4162	292	6.98	8
9	Golden Giant Side	4375	4109	298	7.24	8
10	Green Mountain	3641	3430	261	7.62	8
11	Hopetown	4690	4393	284	6.46	6
12	Imported Black Tartarian	4577	4314	326	7.55	8
13	Improved Welcome	4923	4601	314	6.80	7
14	Lincoln	4544	4255	289	6.80	8
15	Mammoth Cluster	4134	3881	256	6.58	7
16	Negro Wonder	5101	4817	341	7.10	7
17	New American	4478	4200	296	7.06	7
18	Pringle's Progress	4866	4578	283	6.18	7
19	Probsteir	4292	4016	303	7.55	7
20	Wideawake	5006	4707	278	5.90	7
21	White Baltic	4869	4581	295	6.43	7
22	White Belgian	5101	4796	322	6.71	7
23	White Maine	5056	4752	322	6.79	7
24	White Russian	4868	4572	304	6.66	7
25	Yellow German	4367	4103	267	6.50	7
26	Mammoth Cluster (See No. 15) ..	5021	4703	276	5.87	7
27	White Belgian (See No. 22)	4769	4469	292	6.52	7
28	Mixed Oats	5106	4789	325	6.79	7
29	American Banner (See No. 1) ...	4559	4265	279	6.53	7
	Averages,	4624	4331	293	6.77	

The average yield of protein for all varieties, calculated to one acre, is 293 pounds and the average percentage of protein is 6.77. It should be fair, therefore, to estimate that those varieties credited with 300 pounds or more of protein per acre

and more than 7 per cent of protein in the dry matter are the best to grow for feeding. Selecting by this system, we have the Imported Black Tartarian, Negro Wonder and Probsteyer ranking first, followed closely by Badger Queen, Golden Giant Side, American Triumph, New American, Australian and Giant Yellow French. The Green Mountain, having the largest percentage of protein, ranks well, although its small yield prevents its being placed in the first rank. American White, the Mixed Oats, White Maine, White Belgian, Improved Welcome and White Russian also rank well because of their relatively large yields, though their percentages of protein are only average.

To compare the amount of protein in the oats at an earlier stage of ripeness with that at a later stage, the analyses of the set of samples taken on July 5th from each plot are presented in table No. 5 in comparison with those of the samples taken two or three days later. From the rapidity with which the oats ripened, it was evident that the first set of samples should have been taken several days earlier.

The analyses show some marked irregularities that are probably due to the difficulty in obtaining representative samples already mentioned. In a general way, however, the results show a diminution in the percentage of protein in the dry substance and an increase of dry substance, while the percentage of protein in the fresh plant was practically the same. Thus, the average per cent of protein in the water-free substance of the first set of samples was 6.96 and in the second set 6.77. The average percentage of water-free substance was 31.11 in the first and 31.87 in the second. The average percentages of protein in the fresh samples, however, were 2.16 and 2.15 respectively. This result is no doubt brought about by the formation of woody and starchy matter in the plant and the loss of water during ripening. It is apparent that if the oats had been cut July 5th instead of at the later date, the crop would have been slightly richer in protein, but the total yield would have been less. Just how much less the yield would have been, we have not the data to estimate, but we have planned an experiment for next season that will give some definite figures bearing upon this question.

TABLE 5.—ANALYSES OF OATS CUT ON DIFFERENT DATES.

Plot No.	NAME OF VARIETY.	FIRST SAMPLING, July 5.			SECOND SAMPLING, July 6, 7 and 8.			Date of Sampling.....
		In the Fresh Sample.		Protein in the water- free substance, per cent.....	In the Fresh Sample.		Protein in the water- free substance, per cent.....	
		Waterfree sub- stance, per cent.	Protein, per cent.....		Waterfree sub- stance, per cent.	Protein, per cent.....		
1	American Banner.....	31.12	1.86	5.99	31.61	1.95	6.17	*8
2	American Beauty.....	29.11	2.04	7.01	33.01	2.21	6.69	8
3	American Triumph.....	32.75	2.25	6.87	34.60	2.55	7.37	8
4	American White.....	24.85	2.00	8.05	29.70	2.03	6.87	8
5	Australian.....	37.02	2.53	6.83	29.36	2.07	7.05	7
6	Banner.....	32.87	2.16	6.07	35.24	2.28	6.47	7
7	Badger Queen.....	33.56	1.99	5.93	33.86	2.37	7.01	7
8	Giant Yellow French.....	27.82	2.36	8.48	19.92	1.39	6.98	8
9	Golden Giant Side.....	24.66	1.71	6.93	28.04	2.03	7.24	8
10	Green Mountain.....	25.96	2.24	8.63	27.82	2.12	7.62	8
11	Hopetown.....	34.78	2.56	7.36	34.84	2.25	6.46	6
12	Imp. Black Tartarian....	24.95	2.06	8.26	29.68	2.24	7.55	8
13	Improved Welcome.....	30.30	2.09	6.90	31.75	2.16	6.80	7
14	Lincoln.....	31.60	2.10	6.65	32.20	2.19	6.80	8
15	Mammoth Cluster.....	34.57	2.48	7.17	39.18	2.58	6.58	7
16	Negro Wonder.....	33.26	2.22	6.67	33.26	2.36	7.10	7
17	New American.....	32.18	2.17	6.74	32.30	2.28	7.06	7
18	Pringle's Progress.....	32.74	2.15	6.57	35.74	2.21	6.18	7
19	Probsteir.....	35.37	2.25	6.36	32.92	2.48	7.55	7
20	Wideawake.....	32.72	2.25	6.88	32.53	1.92	5.90	7
21	White Baltic.....	32.86	2.01	6.12	30.77	1.98	6.43	7
22	White Belgian.....	31.85	2.13	6.69	31.02	2.08	6.71	7
23	White Maine.....	30.36	2.02	6.65	30.06	2.04	6.79	7
24	White Russian.....	30.86	2.14	6.93	33.50	2.23	6.66	7
25	Yellow German.....	28.80	1.89	6.56	32.47	2.11	6.50	7
26	Mammoth Cluster (see No. 15).....	29.17	2.00	6.86	29.12	1.71	5.87	7
27	White Belgian (see No. 22).....	31.21	2.06	6.60	31.89	2.08	6.52	7
28	Mixed Oats.....	32.21	2.19	6.80	30.77	2.09	6.79	7
29	American Banner (see No. 1).....	32.57	2.70	8.29	37.20	2.43	6.53	7
	Averages.....	31.11	2.16	6.96	31.87	2.15	6.77	

*July.

To show how much the young oat plant differs in composition from the same when ripe and what very nutritious hay could be made from such young plants, two analyses are presented below of samples taken at different times from a plot of oats grown in 1900 among Prof. Garman's grass plots on another part of the farm. The soil upon which these oats grew was much richer than that on which the variety test was made in 1901, which may account for the larger proportion of protein shown in the ripe plant. Sample No. 7786 was taken June 16th and No. 7791 at the time of harvesting on July 19th. The yield was not recorded.

ANALYSES OF THE FRESH SAMPLES.

Station Number	7786.	7791.
Time of Collecting,	June 16.	July 19.
		(When fully ripe.)
	Per Cent.	Per Cent.
Water.....	84.74	55.18
Ash.....	1.90	3.97
Protein.....	2.36	4.95
Fiber.....	4.10	12.65
Nitrogen-free extract.....	6.42	21.90
Fat.....	0.48	1.35
Total.....	100.00	100.00
Phosphoric acid.....	0.22	0.44
Nitrogen.....	0.38	0.79
Potash.....	0.92	1.73
Composition of the water-free substance, calculated from the above.		
Station Number.....	7786.	7791.
	Per Cent.	Per Cent.
Ash.....	12.45	8.86
Protein.....	15.45	11.04
Fiber.....	26.86	28.22
Nitrogen-free extract.....	42.09	48.87
Fat.....	3.15	3.01
Total.....	100.00	100.00
Phosphoric acid.....	1.43	0.99
Nitrogen.....	2.47	1.77
Potash.....	6.03	3.86

Meteorological Summary.

To show something of the character of the season, the following table has been compiled from the records of observations on temperature, rainfall and sunshine taken at the United States Weather Bureau Station on the College Campus:

TABLE 6.—METEOROLOGICAL SUMMARY BY MONTHS FOR THE SEASON OF 1901.

MONTHS, 1901.	Per cent. of Sunshine.	RAINFALL IN INCHES.				TEMPERATURE, DEGREES F				
		Total for each Month.	Monthly Average for 14 years	Deficiency for the month.	Accumulated deficiency since Jan 1, 1900.	Highest.	Lowest.	Mean.	Mean for 14 years.	Accumulated deficiency since Jan. 1, 1901.
January..	39.	1.49	4.10	2.61	13.04	63.	11.	34.	34.	0.
February.	47.	0.62	3.35	2.73	15.77	61.	9.	29.	34.	140.
March.....	42.	2.23	5.01	2.78	18.55	76.	4.	44.	43.	109.
April.....	45.	4.52	3.38	-1.14*	17.41	84.	30.	49.	55	289.
May.....	62.	2.67	3.81	1.14	18.55	87.	45.	63.	64.	320.
June.....	73.	3.70	4.25	0.50	19.05	94.	46.	74.	74.	320.

*More than the average.

It is noteworthy that the season of 1901 was perhaps the best for oats we have had for four years past, probably on account of the favorable rains in April. The records show that there has been a deficiency of rainfall for three years past and for two years this has been very marked in the spring months. These conditions would naturally have a bad effect upon spring crops.

TABLE 7.—MONTHLY RAINFALL AND MEAN TEMPERATURE FOR FOUR YEARS.

MONTHS	1898.		1899.		1900.		1901.		Average for 14 Years.	
	Rainfall. Inches.	Temperature Degrees F.	Rainfall. Inches.	Temperature Degrees F.	Rainfall. Inches.	Temperature Degrees F.	Rainfall. Inches.	Temperature Degrees F.	Rainfall. Inches.	Temperature Degrees F.
January	9.56	38	6.69	34	2.13	36	1.49	34	4.10	34
February.....	2.20	36	2.84	26	3.17	31	0.62	29	3.35	34
March.....	8.18	49	8.61	42	1.98	40	2.23	44	5.01	43
April.....	3.29	51	2.16	56	1.23	55	4.52	49	3.38	55
May.....	6.13	65	3.63	67	3.54	66	2.67	63	3.81	64
June.....	7.84	72	2.55	75	2.19	72	3.70	74	4.25	74
July.....	5.72	76	0.97	77	2.80	77	2.61	80	4.18	76
August.....	2.99	76	4.18	77	5.75	79	3.74	74	4.09	74
September..	3.55	72	1.90	68	1.85	73	2.18	67	2.59	69
October.....	5.27	56	2.09	61	0.79	65	1.33	58	2.11	57
November....	2.89	43	1.70	48	6.33	45	1.73	40	3.82	44
December.....	2.80	33	2.92	33	1.86	37	3.50	31	3.07	37
Total	60.52	40.24	33.67	30.32	43.76