

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU AND
BUREAU OF AGRICULTURAL ECONOMICS

In Cooperation with the

Iowa Weather and Crop Bureau

Annual Report for 1926

Reprint Part XVI of the Twenty-Seventh Annual Iowa
Year Book of Agriculture

CHARLES D. REED, M. Sc. Agr.

Published by
THE STATE OF IOWA
Des Moines

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Printed by the Iowa State Printing Plant, Des Moines, Iowa.
This book is available

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ANNUAL REPORT 1926

The Iowa Weather and Crop Bureau was organized in 1900 and since that time has been engaged in a systematic study of the weather and its influence upon the crops of the State. The Bureau has been fortunate in securing the cooperation of the Iowa Department of Agriculture and the Bureau of Agricultural Economics, both of which have furnished the Bureau with the necessary funds for the year 1926. The Bureau has also been fortunate in securing the cooperation of the Weather and Crop Bureau, which has furnished the Bureau with the necessary funds for the year 1926. The Bureau has also been fortunate in securing the cooperation of the Iowa Department of Agriculture and the Bureau of Agricultural Economics, both of which have furnished the Bureau with the necessary funds for the year 1926.

LETTER OF TRANSMITTAL

HON. JOHN HAMMILL, *Governor.*

Sir: I have the honor to submit herewith the thirty-seventh annual report of the Iowa Weather and Crop Bureau for the year 1926.

MARK G. THORNBURG,
Secretary of Agriculture.

Des Moines, Iowa, January 15, 1927.

The Iowa Weather and Crop Bureau was organized in 1900 and since that time has been engaged in a systematic study of the weather and its influence upon the crops of the State. The Bureau has been fortunate in securing the cooperation of the Iowa Department of Agriculture and the Bureau of Agricultural Economics, both of which have furnished the Bureau with the necessary funds for the year 1926. The Bureau has also been fortunate in securing the cooperation of the Weather and Crop Bureau, which has furnished the Bureau with the necessary funds for the year 1926. The Bureau has also been fortunate in securing the cooperation of the Iowa Department of Agriculture and the Bureau of Agricultural Economics, both of which have furnished the Bureau with the necessary funds for the year 1926.

ANNUAL REPORT, 1926

For convenient reference and comparison with past and future years, this report contains summaries of the weekly, monthly and annual bulletins of the Weather and Crop Bureau of the Iowa Department of Agriculture in cooperation with the Weather Bureau and the Bureau of Agricultural Economics, both of the United States Department of Agriculture for the year, 1926. Parts XVI, XVII and XVIII of the Year Book were prepared by the Weather and Crop Bureau as usual. Part XVII, presenting in extensive tables and maps the agricultural statistics gathered by assessors under the direction of the weather and Crop Bureau, is not published as a separate, for it is already available in the "Iowa Monthly Crop Report" for May, 1926. Part XVIII of the Year Book, summarizing the statistics of the main crops of Iowa for all years of record, is revised and brought up to date.

Crop acreages within the counties have become quite stable. There is no great need for county estimates in advance of the returns from assessors, so advance county estimates will be abandoned till further need arises. Livestock estimates by counties as of date of January 1, 1927 will be published in the "Iowa Monthly Crop Report" of July, 1927. The data on which these estimates are based will not become available in time to publish in the 1926 Year Book. Livestock marketed from Iowa and livestock shipped into Iowa during the year, 1926, published in the "Iowa Monthly Crop Report" for January, 1927, appears elsewhere in the 1926 Year Book.

Wealth Produced on Iowa Farms

Under pressure from many interests for an annual statement of farm wealth produced considering livestock and livestock products as well as crops, such a statement for the year 1926 has been prepared and appears in Part XVII of the Year Book. No great accuracy is claimed for this yet it is far better than the wild statements made by some persons, placing the annual returns from Iowa agriculture considerably above \$1,000,000,000. It harmonizes fairly well with the estimates of private statistical organizations of high standing. For the year 1926 it shows the gross agricultural income of the state to be \$724,440,000. No attempt is made to solve the complex problems of agricultural

HISTORICAL

The Iowa Weather and Crop Service was established by an Act passed by the Twenty-third General Assembly, and approved by the Governor April 25, 1890. On July 1, 1923, it became a bureau of the State Department of Agriculture by act of the 40th General Assembly.

The object of the Service is to co-operate with Government Bureaus in collecting crop statistics and meteorological data, and more widely disseminate weather forecasts and storms and frost warnings for the producers and shippers of perishable products, and to promote general knowledge of meteorological science and the climatology of the State.

In accordance with the Act, on the recommendation of the directors of the State Agricultural Society, J. R. Sage was duly commissioned as director by Governor Boies on June 3, 1890, and General Greeley, then Chief Signal Officer, U. S. Army detailed Dr. George M. Chappel to serve as assistant director of the State Service. Mr. J. R. Sage resigned as director December 31, 1907, and Dr. George M. Chappel was commissioned on January 1, 1908, as director, and served in that capacity until March 31, 1918, when he resigned and was succeeded by Charles D. Reed. Toward the close of the year, 1919, co-operation in estimating acreage and production of crops was begun with the U. S. Bureau of Markets and Crop Estimates now known as the U. S. Bureau of Agricultural Economics, of which Mr. Leslie M. Carl is Agricultural Statistician for Iowa.

OFFICE FORCE DECEMBER 31, 1926

Charles D. Reed, M. Sc. Agr., Meteorologist and Director.
J. Earl Cook, Statistician.
Nina Sumption, Stenographer and Clerk.
Mildred T. Cannon, Clerk.

CO-OPERATING ORGANIZATIONS

U. S. Weather Bureau

Fred L. Disterdiek, Assistant Meteorologist.
Arthur H. Christensen, Observer.
Warren J. Rice, Ass't Observer.
Ralph M. Aldrich, Minor Observer.

U. S. Bureau of Agricultural Economics Division of Crop and Livestock Estimates

Leslie M. Carl, Agricultural Statistician for Iowa.
Mabel E. Atwood, Chief Clerk.
Mildred S. Baldrige, Junior Clerk.

economics that determine whether or not this wealth was produced at a profit or a loss to the farmers. It can be stated that this is a close approximation to the amount Iowa farmers contributed to the nation's wealth.

Weather Forecasts and Warnings

Weather forecasts were distributed daily and special weather bulletins and warnings whenever necessary by radio and newspapers. On September 23 a special seed corn frost warning was broadcast by radio and widely distributed by the daily press, announcing that on the morning of September 25 a general killing frost would seriously damage the rather immature corn for seed purposes. The Iowa Farm Bureau Federation assisted in disseminating the warning. On the 24th, thousands of farmers throughout the State were seen in the fields busily engaged in selecting seed, and the seed corn situation for the spring of 1927 is much better than in the spring of 1926. The frost came as predicted with temperatures considerably below freezing everywhere except in some of the Mississippi River counties in the southeast portion of the State. While 72 per cent of the corn escaped damage for commercial purposes, only a little upland corn was safe for seed after the frost.

The climatological work was kept up to the usual high standard. A few new stations and a few suspended stations reinstated in the last few years are bringing to the climatological work some of the things it lost during and immediately following the World War. The third consecutive drouthy crop season in northwest Iowa and the widespread and unprecedentedly heavy rains with floods in most of the State in September are interesting climatological features of the year, 1926. Well digging had become a serious occupation for many farmers, but the September rains raised the ground water level materially.

OLD TEMPERATURE RECORDS

Herewith appears for the first time a table of monthly mean temperatures for the State of Iowa for the period 1873 to 1890 in a form fairly comparable with those published since 1890.

In computing these State-wide means for the earlier years, great care has been exercised to correct for faulty distribution of stations, and hours and methods of observation so that the means have been reduced very nearly to what they would have

been if a station had reported regularly from each county, with observations taken each of the 24 hours of the day.

Necessarily the main reliance was placed in the records at the regular Signal Corps offices in and near Iowa. Records for these stations in various combinations were compared with the State-wide records of the same years to determine corrections for distribution of stations.

During the period August, 1878, to December, 1890, temperatures are available on the "homogeneous 24-hour mean" basis in U. S. Weather Bureau Bulletin S, for the stations at Davenport, Des Moines, Dubuque, Omaha, and Yankton. Excellent records of temperature were maintained on a farm near Cresco, Iowa, by Gregory Marshall from October, 1872, to September, 1901, and by others until October, 1905.

Fortunately, Mr. Marshall continued to take readings of the temperature at 7 A. M., 2 P. M. and 9 P. M. from the beginning until the close of 1900, from which monthly mean temperatures were computed by adding together the means of each of these hours and dividing by three. Parallel with these he took daily readings of maximum and minimum thermometers from which monthly means were computed and comparisons made for the seven years, 1894 to 1900. From U. S. Weather Bureau Bulletin S, corrections were interpolated between Charles City and La Cross to reduce the maximum plus minimum divided by 2 series to the 24-hour mean. These corrections are shown in the table, Series I. They amount to nothing in March, May, June, July and for the year; and the greatest is only -0.3° in October. The means for the period 1894-1900, thus converted into 24-hour means, were compared with means of 7 A. M., 2 P. M. and 9 P. M. readings for the same period to determine the corrections to reduce the entire record to the 24-hour system. These corrections are numbered II in the table.

The monthly means of these six stations for the years 1894 to 1900 were compared with the means of all available stations approximating one in each county and corrections, Series III, were determined to correct the means of the six stations for geographical position or distribution. For convenience, this correction is called the "area correction." Keokuk data were omitted for the reason that they increased all corrections without apparently increasing the accuracy of the work.

From January, 1874, to July, 1878, no temperature records

were made at Des Moines, so another set of "area corrections" for the five remaining stations was determined. These are Series IV in the table. For the year 1873 Dubuque records are not available, so a set of corrections for the remaining stations—Cresco, Davenport, Omaha and Yankton—was used and these appear in the table as Series V.

Means for the year 1890 were recomputed and revised. Those heretofore published were based on a limited number of stations not well distributed, during the early organization period of the Iowa Weather and Crop Service cooperating with the U. S. Weather Bureau.

Monthly means since 1890, also published herewith, are the same as have appeared in "Climatological Data" in the table of "Comparative Data for the State" except in a few cases where typographical errors have crept in through frequent repetition. The figures here published have been compared with the originals and in two or three cases the originals have been recomputed.

Since 1890, the means are based on daily readings of maximum and minimum thermometers which are closely comparable with the means of the period 1873-1890 reduced to the 24-hourly reading basis. The corrections needed, though not here applied, to reduce the later series to the earlier is shown in the table of "Miscellaneous Corrections," Series VI. It will be observed that these corrections are small, being zero in the months of May, June, July and December, and averaging only -0.1° for the year. The greatest correction is only -0.3° .

Several temperature records other than those used are available during the period 1873 to 1890, but the unknown, and therefore unmeasurable, differences in exposure and kind of instruments and hours and methods of observation made it doubtful if greater accuracy could have been attained by using these other records. The purpose of this study was to place the temperature of the State on a comparable, area basis rather than on a station basis. So far as known, data for other States have not been carried back so far or with such care. Still older records are available in Iowa the oldest known beginning in October, 1819, at Council Bluffs. It is hoped that some time State means on an area basis can be carried back that far.

Hereafter, from month to month, the table of "Comparative Data for the State" on the first page of Climatological Data will include the mean temperature in the table herewith and, also, the

extremes of temperature derived from all available records. Heretofore, these data have not been readily available. This table will, also, show comparable precipitation data back to 1873.

Other Useful Corrections

At the present time, seven Weather Bureau Offices, Charles City, Davenport, Des Moines, Dubuque, Keokuk, Sioux City and Omaha, report weekly mean temperatures by telegraph each Tuesday morning from which it is possible to compute a fairly accurate weekly mean temperature for the State of Iowa. The straight means of these seven stations should be corrected as shown by Series VII in the table to give means approximating those of the 100 or more stations at which records are maintained. This is based on a comparison of the normals of the whole number of stations with the normals of the seven stations. These normals have in each case been reduced to the "homogeneous 46-year" system.

Because of its nearly central location in the State, the Des Moines temperature record gives a quick means of approximating State-wide mean temperatures before records of the 100 or even the seven stations can become available. The possible error is, of course, relatively large, yet the means thus obtained often serves a useful temporary purpose. The average corrections to reduce Des Moines mean temperatures to State-wide means appear in the table as Series VIII. These are simply a comparison of normals for the 46-year period to which all Iowa normals have been reduced.

MONTHLY AND ANNUAL MEAN TEMPERATURES FOR THE STATE OF IOWA

Based on the records of the stations at Cresco, Davenport, Des Moines, Dubuque, Omaha, and Yankton, or such combinations of these records as are available, reduced to a 24-hour homogeneous system and corrected for geographical position of the several combinations of the stations.

See U. S. Weather Bulletin, 8.

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1873	22.0	19.2	34.0	43.2	56.5	74.5	74.0	75.7	59.1	46.0	36.2	22.6	66.1
1874	19.6	21.2	31.7	31.7	41.9	64.1	71.4	77.8	74.3	62.8	51.2	32.9	64.7
1875	23.5	25.5	37.2	45.1	61.1	67.6	74.2	73.2	60.4	47.6	31.8	11.9	65.9
1876	13.7	24.0	37.3	47.5	60.3	66.9	74.0	71.9	65.4	49.6	33.3	25.8	48.4
1877	25.4	34.4	45.6	52.1	56.7	66.7	76.5	74.4	62.9	48.9	39.7	17.2	50.6
1878	15.1	21.6	37.2	50.3	62.9	69.4	76.0	72.6	59.3	58.2	36.3	16.1	48.0
1881	22.0	27.4	33.6	47.9	60.2	71.0	73.8	72.5	61.1	47.6	25.3	16.1	47.9
1881	9.6	17.0	27.1	42.5	60.7	70.4	75.9	76.5	64.5	52.1	34.4	32.8	47.5
1882	23.4	33.5	39.3	48.8	54.3	68.1	69.1	71.5	63.4	54.4	37.5	21.0	48.4
1883	8.0	17.7	30.6	40.9	54.6	67.6	72.9	69.2	58.5	47.2	36.8	24.8	44.8
1884	13.3	18.3	32.0	46.8	59.6	70.2	71.0	68.5	66.5	54.2	35.6	16.2	65.0
1885	9.4	12.5	31.3	47.5	57.4	67.9	74.6	69.9	61.7	46.7	39.4	24.6	44.7
1886	8.1	21.7	30.6	50.3	62.5	69.3	76.2	74.2	63.6	35.9	22.1	14.4	46.4
1887	8.8	17.1	32.5	51.1	64.0	72.1	77.0	70.8	62.1	46.4	35.1	30.3	46.6
1888	5.4	20.2	36.4	48.8	58.8	69.4	75.8	70.4	59.9	47.7	37.1	28.6	45.3
1889	21.6	17.8	39.7	50.3	59.2	66.7	72.6	71.3	60.7	47.5	32.0	35.8	48.0
1890	18.0	25.1	28.1	51.2	56.8	72.2	76.2	68.1	59.5	46.2	38.9	28.5	47.5
Means	15.2	21.7	32.2	47.9	59.8	69.4	74.4	71.7	61.7	49.8	34.6	23.5	46.8
1891	26.6	19.4	26.8	50.6	58.3	69.1	68.5	69.1	67.3	50.6	30.5	32.3	47.3
1892	15.3	28.1	31.9	45.4	54.0	69.2	73.0	71.4	64.7	54.2	33.3	18.9	46.6
1893	9.3	16.0	31.8	45.3	60.6	71.2	75.0	69.4	64.7	52.4	34.0	22.6	45.7
1894	19.3	19.7	41.0	51.7	61.1	73.2	76.4	74.6	63.1	51.7	32.7	39.1	49.7
1895	13.6	16.4	34.4	54.2	61.7	69.7	72.1	71.9	66.8	46.9	34.8	35.4	47.3
1896	23.4	27.4	30.9	54.5	65.5	69.1	73.0	71.7	58.5	47.8	29.6	30.8	48.6
1897	17.2	24.7	32.0	47.9	58.5	69.1	75.6	69.9	70.9	56.8	34.3	18.0	47.8
1898	25.4	24.2	37.5	48.1	59.6	71.4	73.4	71.2	63.3	47.5	32.2	18.1	47.7
1899	19.8	12.2	29.0	48.9	60.5	70.7	73.3	74.4	62.3	36.7	45.9	22.6	47.3
1900	25.6	14.8	33.7	52.3	62.3	69.2	73.4	77.4	64.4	59.3	33.3	26.9	46.2
1901	23.7	17.5	34.2	49.9	69.7	72.3	82.4	73.8	63.3	51.2	35.8	30.5	49.0
1902	22.4	17.0	39.1	48.2	61.8	65.2	73.1	69.1	59.1	53.5	41.2	20.1	47.7
1903	23.0	10.8	38.8	49.8	61.6	64.6	72.9	69.1	69.8	52.2	34.2	19.6	47.2
1904	14.9	14.8	34.8	44.1	59.6	67.1	70.6	69.1	64.0	53.1	41.0	22.4	46.3
1905	11.2	12.8	41.5	47.5	58.3	69.9	70.6	74.3	65.8	49.2	34.4	37.6	47.2
1906	24.0	23.6	27.1	52.5	60.8	67.9	70.9	74.1	67.3	50.5	35.4	25.4	48.4
1907	18.8	25.0	40.6	41.5	53.3	66.5	73.7	71.1	62.8	50.4	36.7	28.8	47.4
1908	24.9	24.3	37.9	50.5	59.4	67.1	73.0	70.6	67.9	51.1	39.3	27.2	49.4
1909	21.3	26.2	32.5	43.8	57.9	69.1	72.3	79.1	62.4	49.7	42.4	15.1	47.4
1910	18.1	17.8	48.9	56.5	65.4	69.4	74.5	71.9	62.5	55.3	33.4	23.4	48.6
1911	29.2	27.3	39.4	46.8	64.9	75.7	75.5	71.7	65.8	48.7	29.9	27.0	49.5
1912	4.2	18.1	24.9	49.9	62.7	66.2	74.6	71.0	62.1	52.2	40.1	29.2	46.3
1913	20.9	20.2	31.9	50.2	59.4	71.9	76.1	76.6	64.5	49.2	44.1	32.0	49.7
1914	27.8	16.8	34.7	48.6	62.2	72.2	76.6	73.7	64.5	55.9	41.0	15.7	49.1
1915	17.5	29.1	29.3	37.2	55.1	65.1	69.2	65.9	63.7	54.4	40.2	25.6	47.2
1916	17.8	19.6	35.2	47.1	56.9	64.5	79.4	74.0	62.3	56.5	37.3	18.7	47.2
1917	17.0	15.2	34.6	45.5	55.1	66.0	74.3	69.4	62.6	42.9	40.7	14.5	41.8
1918	8.4	23.0	42.9	44.8	64.9	70.8	73.1	76.0	58.6	55.1	39.9	22.7	49.2
1919	25.8	24.0	37.5	48.4	56.2	71.9	77.4	71.5	65.7	50.7	38.6	15.0	48.6
1920	16.7	24.0	38.0	42.4	59.4	70.7	72.3	80.3	66.5	57.7	35.4	26.4	48.2
1921	28.4	31.0	42.8	52.4	63.3	74.7	77.9	72.1	67.3	54.9	33.6	29.2	52.2
1922	19.8	23.7	38.3	49.9	63.4	72.2	71.5	73.8	67.1	56.1	42.2	24.0	50.2
1923	26.7	20.1	29.4	48.4	59.6	70.9	76.5	70.6	64.2	48.5	40.1	33.1	49.0
1924	13.9	25.8	31.9	50.5	54.1	68.8	70.2	71.7	59.1	58.1	38.9	15.4	46.4
Means	19.4	21.2	34.9	48.9	59.9	69.4	73.9	71.0	64.2	52.3	36.9	23.9	48.1

TEMPERATURE CORRECTIONS (F°)

Series	January	February	March	April	May	June	July	August	September	October	November	December	Year
I.....	+0.1	+0.1	0.0	-0.1	0.0	0.0	0.0	-0.1	-0.2	-0.3	-0.2	+0.1	0.0
II.....	-0.3	-0.1	-0.1	-0.2	-0.2	-0.2	-0.7	-0.1	+0.2	0.0	0.0	-0.3	-0.3
III.....	-0.6	-0.5	-0.3	-0.4	-0.3	-0.2	-0.4	-0.7	-0.9	-0.7	-0.4	-1.0	-0.6
IV.....	-0.3	-0.1	+0.1	-0.2	-0.4	-0.1	-0.3	-0.6	-0.7	-0.4	-0.1	-0.9	-0.3
V.....	-0.2	-0.1	+0.4	-0.2	-0.3	0.0	-0.3	-0.7	-0.7	-0.3	+0.2	-0.8	-0.2
VI.....	-0.1	-0.1	-0.2	-0.2	0.0	0.0	0.0	-0.1	0.0	0.0	-0.2	0.0	-0.1
VII.....	-1.4	-0.6	-0.3	-0.0	-0.8	-0.8	-1.2	-0.9	-0.5	-0.7	-0.9	-1.2	-0.8
VIII.....	-1.6	-1.1	-1.2	-1.2	-1.1	-1.3	-1.6	-1.4	-1.3	-1.5	-1.8	-1.9	-1.1

IOWA PRECIPITATION

53 Years, 1873-1925, inclusive

In the years 1873 and 1874 reliable precipitation records were maintained at only 15 places in Iowa. Upon the organization of the Iowa Weather Service in 1875, under Dr. Gustavus Hinrichs of the State University at Iowa City, the number of stations quickly expanded to 76 and by 1879 to 103. Later, the number decreased somewhat to 55 in 1889.

During all this time the stations were much more numerous in the more thickly populated eastern counties where the rainfall is considerably greater, so it is obvious that a straight average of all reports received would not be a fair average for the area of Iowa.

To correct this difficulty, the State has been divided into nine nearly equal districts of about 11 counties to the district, viz: northwest, north-central, northeast, west-central, central, east-central, southwest, south-central and southeast. All available records for each month of each year were retabulated by districts, questionable records eliminated and district averages computed. Then the nine district averages were brought together to make a State average for each month of each year. In this way a single station, if it was the only one in some dry western district, might have as much weight in the State average as 10 stations all in some normally wetter eastern district. In cases where a district average could be improved by considering a record near the border in an adjacent district this was done. The State averages thus obtained for the earlier years are believed to be comparable with the averages from approximately one station in each county after 1890. The averages for 1890

heretofore published have been revised on account of faulty distribution of records.

For the years 1873 and 1874 the State was divided in fourths and it was necessary to consider the rainfall at Yankton, S. D., in approximating averages for the northwest one-fourth of the State.

These values are presented on a comparable State-wide area basis for the first time in the accompanying table. It will be observed that the wettest year was 1881 with 44.16 inches and the next wettest, 1902, 43.82 inches. The driest was 1910, 19.89 inches; next driest, 1894, 21.94 inches.

MONTHLY AND ANNUAL AVERAGE PRECIPITATION—STATE OF IOWA

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
1873	2.53	1.17	1.42	3.13	5.90	4.68	2.78	4.17	2.18	2.04	0.72	2.51	33.02
1874	1.67	1.28	1.43	1.90	1.88	5.83	3.04	3.12	6.04	1.92	2.21	6.04	30.76
1875	0.82	1.72	1.62	2.30	2.94	7.81	6.01	4.04	5.02	1.56	0.15	2.00	35.83
1876	1.49	1.11	3.24	3.06	2.81	4.09	6.15	5.15	6.52	1.19	1.70	0.31	35.65
1877	1.00	2.21	2.28	3.06	4.84	6.80	2.35	3.26	1.62	1.86	2.18	35.16	
1878	0.48	0.59	3.96	3.14	5.01	0.94	5.18	3.22	3.13	2.73	0.63	0.77	34.53
1879	0.48	0.06	1.16	1.13	4.34	5.10	2.21	2.73	2.72	2.18	4.01	1.38	28.15
1880	1.36	0.64	1.30	2.08	4.06	4.40	4.16	4.77	4.18	1.90	1.29	0.83	30.55
1881	0.94	3.10	1.91	2.20	3.73	7.37	5.33	2.71	7.14	6.42	2.01	1.24	44.16
1882	0.45	0.91	1.83	2.73	5.42	7.48	3.69	1.01	9.57	3.97	1.71	1.55	34.49
1883	1.31	1.80	0.55	2.25	0.25	6.09	5.14	2.58	2.04	3.97	1.44	1.03	34.54
1884	0.32	1.32	2.57	2.54	1.15	3.65	5.43	4.01	5.39	4.50	0.79	2.15	35.59
1885	1.22	0.82	0.21	2.94	3.44	5.08	4.73	5.50	3.01	2.02	0.37	1.46	23.23
1886	2.56	0.59	1.72	2.70	3.38	1.73	0.34	2.02	4.68	2.51	1.49	0.89	24.71
1887	1.13	2.14	0.93	1.38	1.55	2.90	2.85	2.70	6.17	1.46	0.83	1.17	26.31
1888	1.39	1.01	3.04	2.65	0.38	3.60	4.21	4.37	1.97	1.16	1.59	1.46	35.14
1889	1.22	0.47	0.27	3.35	4.69	4.75	4.00	1.56	2.85	3.58	1.21	1.22	24.79
1890	1.79	0.83	1.49	1.75	3.61	6.07	2.04	3.23	3.71	3.44	1.31	0.58	23.48
Means, 18 yrs.	1.20	1.14	1.70	2.47	4.68	5.24	3.88	3.41	3.74	2.46	1.44	1.30	35.57
1891	1.75	1.10	2.00	2.15	3.18	5.39	4.22	4.24	1.25	2.77	1.70	2.21	31.90
1892	1.03	1.20	2.22	4.75	8.77	5.19	5.29	2.24	1.53	1.55	1.90	1.64	35.52
1893	0.74	1.39	2.14	4.21	3.45	3.91	3.33	3.38	2.34	1.28	1.17	1.31	27.59
1894	1.00	0.80	0.63	3.07	1.87	2.67	0.63	1.58	3.57	2.07	0.62	0.9	21.91
1895	0.85	0.49	0.30	2.02	3.39	4.30	3.40	4.43	3.63	3.47	1.51	1.63	26.77
1896	0.48	0.71	1.16	5.02	6.09	5.11	6.00	3.52	4.09	3.13	1.83	0.65	37.23
1897	0.84	0.84	2.30	2.82	3.30	4.22	3.20	3.20	4.22	1.11	0.96	1.65	26.18
1898	1.60	1.26	1.94	2.56	4.67	4.72	2.08	3.44	2.56	3.56	1.59	0.85	31.34
1899	0.38	0.89	1.62	2.40	6.23	5.04	2.07	3.00	0.58	1.73	2.10	1.61	28.68
1900	0.53	1.33	2.00	2.07	3.31	3.08	6.15	4.65	4.98	3.91	1.06	0.45	45.07
1901	0.74	1.01	2.64	1.79	2.83	3.71	2.34	1.29	4.77	1.98	0.88	0.68	24.41
1902	0.88	0.78	1.45	1.71	3.39	7.16	6.67	6.58	4.35	2.54	2.13	2	45.82
1903	0.28	1.18	1.38	2.98	8.55	2.80	4.33	6.64	3.81	1.55	0.32	0.41	35.33
1904	1.28	0.41	2.18	3.63	3.78	3.45	4.41	3.41	2.78	1.67	0.15	1.44	28.51
1905	0.91	1.07	2.04	3.66	6.06	5.36	2.91	4.00	3.81	3.40	2.84	0.36	36.56
1906	1.52	1.29	2.34	2.42	3.54	3.92	3.04	3.90	4.10	1.96	2.03	1.43	31.01
1907	1.56	0.71	1.32	1.32	3.88	5.33	1.27	4.30	2.75	1.50	1.03	1.00	31.01
1908	0.8	1.0	1.5	2.2	3.1	5.0	3.0	4.7	1.2	3.8	1.5	0.7	35.00
1909	1.60	1.54	1.53	4.58	4.34	6.41	4.77	1.81	3.58	2.22	5.29	2.15	40.01
1910	1.57	0.40	0.17	1.48	3.41	1.90	1.86	3.8	3.50	0.77	0.31	0.37	19.89
1911	0.97	2.70	0.60	3.60	3.70	1.82	2.27	3.32	6.12	3.34	1.42	2.37	31.37
1912	0.53	1.21	2.01	2.60	3.21	2.74	3.71	3.79	5.28	2.36	0.98	0.74	28.65
1913	0.77	0.82	2.48	3.39	6.24	3.31	1.83	2.65	3.91	3.03	1.18	1.01	26.95
1914	0.88	0.87	1.69	3.52	3.31	3.67	2.27	2.19	8.88	3.23	2.27	1.35	31.52
1915	1.63	2.96	0.90	1.41	7.34	4.16	8.32	2.81	6.06	1.21	1.91	6.09	39.51
1916	2.62	0.55	1.57	2.62	4.93	3.71	1.78	2.58	3.89	2.40	1.61	1.04	28.70
1917	0.83	0.30	1.84	4.55	0.87	6.01	2.27	2.29	2.90	1.41	0.28	0.67	31.81
1918	1.02	0.93	0.63	3.32	6.37	5.29	3.17	3.61	1.87	3.64	2.11	1.30	32.78
1919	0.24	2.42	2.35	3.78	3.11	6.13	2.86	4.50	5.84	3.02	2.46	0.51	36.76
1920	0.42	0.56	0.92	4.59	3.26	3.90	4.22	3.36	3.89	2.13	1.18	1.16	31.75
1921	0.51	0.77	1.57	3.34	4.23	3.70	2.65	5.01	6.72	1.96	0.58	1.00	26.03
1922	0.89	1.59	1.91	3.09	3.36	1.89	3.31	3.00	3.00	1.91	3.54	0.3	29.18
1923	0.86	0.40	2.87	2.09	2.84	4.60	1.75	5.42	5.79	1.22	0.18	0.70	29.50
1924	0.89	1.27	2.62	1.38	1.71	8.30	3.67	5.35	2.13	0.67	0.58	1.70	31.39
1925	0.45	0.82	0.65	2.30	1.35	6.64	2.66	3.47	5.00	3.91	0.71	1.33	28.24
Means, 35 yrs.	0.99	1.11	1.80	2.97	4.34	4.47	3.78	3.56	3.63	2.74	1.45	1.11	31.49
Means, 53 yrs.	1.08	1.02	1.77	2.80	4.23	4.75	3.82	3.52	3.08	2.30	1.45	1.21	35.79

IOWA PRECIPITATION
 53 Years (1873-1925) inclusive
 The above table shows the monthly and annual average precipitation for each year from 1873 to 1925. The annual averages are shown at the bottom of the table. The monthly averages are shown in the columns headed by the months of the year. The annual averages are shown in the column headed by "Annual". The monthly averages are shown in the columns headed by the months of the year. The annual averages are shown in the column headed by "Annual". The monthly averages are shown in the columns headed by the months of the year. The annual averages are shown in the column headed by "Annual".

CLIMATOLOGY OF THE YEAR 1926

The mean temperature of the year, 1926, for Iowa, 48.0° is 0.3° above normal. Stations in the north central and eastern portions mostly report deficiencies while those in the western and south central portions report excesses. January, February, May, July and August were warmer than normal and the other months colder. February was exceptionally warm. The growing season averaged 144 days or 12 days less than normal.

Precipitation averaged 33.07 inches, 0.85 inch above normal. It was generally deficient till August. September was the wettest month of any name in 54 years. Large areas were flooded. Drouth was serious in the northwest counties till September. Sunshine was deficient except in April, May and June. Northwest wind was unusually prevalent.

Corn and oats yields were below normal particularly in the northwest counties where this was the third year of drouth. Hay was a poor crop because of the spring drouth. Potatoes made a fair crop and fruit a good crop.

BAROMETER: (Reduced to sea-level.) The average pressure of the atmosphere for the year was 30.00 inches. The highest pressure was 30.79 inches at Omaha, Neb., on January 22. The lowest pressure was 29.15 inches at Sioux City on December 12. The range of the State was 1.64 inches.

TEMPERATURE: The mean temperature for the State was 48.3° or 0.3° above normal. The highest annual mean was 52.1° at Thurman in Fremont county. The lowest annual mean was 43.1° near Postville in Clayton county. The highest temperature reported was 109° at Inwood in Lyon county on July 19th and 20th. The lowest temperature reported was -22° near Postville in Clayton county on January 28. The range for the State was 131°.

PRECIPITATION: The average amount of rainfall and melted snow for the year was 33.07 inches, or 0.85 inch more than normal, and 4.83 inches more than the average for 1925. The greatest amount at any station was 48.36 inches at Corydon in Wayne county, and the least amount was 22.35 inches at Cumberland in Cass county. The greatest monthly precipitation was 18.57 inches at Corydon in Wayne county in September. The least amount was 0.04 inch at Inwood in Lyon county, in February. The greatest amount in any 24 consecutive hours was 11.66

inches at Sioux Center in Sioux county, on September 17-18. Measurable precipitation occurred on an average of 90 days, 9 days more than in 1925 and 5 days more than normal.

SNOWFALL: The average amount of snowfall was 27.8 inches. The greatest amount reported from any station was 62.0 inches at Northwood in Worth county, and the least amount was 6.5 inches at Corning in Adams county. The greatest monthly snowfall was 24.2 inches at Forest City in Winnebago county, in December.

WIND: The prevailing direction of the wind was from the northwest. The highest velocity reported was 54 miles per hour from the South at Sioux City in Woodbury county, on May 28.

SUNSHINE AND CLOUDINESS: The average number of clear days was 150; partly cloudy, 101; cloudy, 114; as against 179 clear, 100 partly cloudy and 86 cloudy days in 1925. The average percentage of the possible amount of sunshine was 54 per cent, or about 5 per cent less than the normal.

SYNOPSIS BY MONTHS

January was generally mild but with numerous sudden fluctuations in temperature. There were no severe storms but on the 11th and 27th drifted snow interfered with traffic. On the 3d and 4th rain changed to sleet or snow which caused considerable skidding of automobiles and on the 30th-31st there was a glaze storm over the western portion of the State. At Rock Rapids this storm was the worst of its kind in recent years. Outdoor work suffered little interruption. The ice harvest was completed; quality good; thickness satisfactory.

February was unusually mild. Zero weather occurred at only a few stations and the lowest reported, -2°, is the highest minimum in 54 Februaries. Snowfall was light, most of the precipitation occurring in four well distributed rains. Almost daily thawing made dirt and many gravel roads very soft so that they were badly cut up. Outdoor work went forward steadily.

Protracted periods of disagreeable weather prevailed in March. Temperatures were generally below normal though there was a mild period from the 17th to 24th but in this period there was considerable precipitation and wind. There was a notable rain, snow and wind storm on the 5th. Huge snowdrifts interfered with traffic. Passages had to be cut through the drifts. During the latter part of the month several wind storms without pre-

precipitation dried the soil rapidly so that on the 24th and 25th dirt storms developed over large areas in the western portion of the State causing the soil to drift and the sun to appear red. The severest storm of the month and winter occurred on the 30th-31st in the south central and eastern districts of the State. Trolley service in the cities was paralyzed and drifts 15 feet deep in the country districts delayed rail traffic and stopped automobile traffic. There was a little plowing and seeding in the northwest portion of the State toward the close of the month, otherwise very little farm work was accomplished and conditions were not favorable for lambs and young pigs. Frost left the ground from the 17th to 24th but the ground froze again toward the end of the month.

April was the driest of the 54 Aprils of record and the number of days with .01 inch or more precipitation was, also, the least of record. Only twice in 54 years was there less precipitation from January 1 to April 30. Humidity was low and dirt storms frequent from the 13th to 27th. That of the 27th covered practically the entire State and is said to be the worst known. The sun was totally obscured. Ditches along the highways were filled with dirt and drifts as deep as 2 feet across the highways impeded automobile traffic. Grain and other growing vegetation suffered from having the soil blown away from the roots and some fields were covered with drifts. Previous heavy snowfalls delayed farm work in the eastern portion of the State where oats were seeded in the mud. Good progress in farm work was made elsewhere. Corn planting was started and the earlier fields showed rows. Drouth delayed germination of oats and injured meadows and pastures. An unusual aurora occurred during the night of the 14th-15th.

May was warm and as in preceding months the Western portion of the State was the warmest; however, frosts on the 14th and 15th damaged tender vegetation including strawberries. Cabbage and tomato plants were destroyed in great numbers. The last killing frost of the spring occurred over the northern two-thirds of the State from May 13th to 15th; in the southern third from April 26th to 28th. The average for the State was May 4, two days later than normal. Drouth became severe over much of the State, causing dust storms that obscured the sun, exposed the roots of plants in places or covered large areas with dirt in other places. Corn planting and germination made good

progress but pastures, meadows, and spring grains suffered from the drouth. Fruits bloomed under favorable circumstances.

June was cool except from the 6th to the 12th and the last three days of the month. For the 3d consecutive month temperatures were relatively higher in the western than in the eastern portion of the State. Frost sufficient to blacken the corn and slightly damage beans and tomatoes on the lowlands occurred in scattered localities in the northern portion of the State on the 3d and 27th but there was no permanent damage. The drouth which had prevailed since the first of the year was completely broken during the second week in June. At some stations record heavy rainfalls occurred on the 12th-13th but the rain was mostly absorbed by the thirsty soil. However, there were a few railway washouts. Hailstorms were frequent from the 10th to the 13th, the most severe being in Hancock County. Tornadoes occurred in Page and Ringgold Counties on the 16th and in Pottawattamie County on the 20th. The rains came too late to be of most benefit to hay and small grain and the weather was too cool for the best development of corn, particularly in the southeast portion.

July temperatures averaged above normal but were quite extreme ranging from 109° at Inwood on the 19th and 20th to 38° at Decorah on the 14th. Heat, drouth and hot winds seriously injured corn in northwest Iowa from the 16th to 20th. An unusually destructive hailstorm covered portions of Calhoun and Webster Counties during the night of the 27th. General rains toward the close of the month came too late for corn in the northwest portion of the State.

From an agricultural standpoint generally favorable weather prevailed during August. There was a general excess in temperature; precipitation was somewhat above normal and more evenly distributed over all divisions than usual; sunshine was ample and storms of a destructive nature were of limited extent. A tornado occurred in Plymouth and Cherokee Counties on the 17th. The soil was in unusually good condition for plowing which progressed satisfactorily. Threshing was delayed by frequent rains. A large acreage of alfalfa was seeded under favorable conditions for germination. Corn which had been backward made good progress in August.

September was not only the wettest September of record in 54 years but exceeded by nearly one inch the amount of pre-

precipitation in any month in any year of the 54 years. Heretofore May, 1892, with 8.77 inches, has been the wettest month of record. The previous September record was exceeded by nearly two inches. There were three more rainy days, four more cloudy and three less clear days than in any other September. Temperatures were above normal most of the month but there was a decided change to colder during the last week which brought the average down below normal. Killing frosts were general on the 25th and 27th except in the extreme southeast. Corn was somewhat belated and only 72 per cent escaped frost damage. The average date of first killing frost was September 25, which is 10 days earlier than normal. Corn fields were too soft for machines in cutting for fodder and silage and most of this work had to be done by hand. The soil was too wet for winter wheat seeding which was delayed and much intended acreage was not seeded. Large areas in all but the north central and northeast portions of the State were flooded at different times during the month. It is estimated that the total damage was probably between \$4,000,000 and \$5,000,000.

October averaged slightly colder than normal and as in most of the previous months of the year the temperature was relatively higher in the western than in the eastern portion of the State. Precipitation was considerably below normal. Several local storms occurred at Humboldt on the 1st and near Lake Okoboji during the night of September 30-October 1. After the first week farm work was pushed but corn did not dry rapidly till toward the close of the month and then only a start in husking was made. Plowing was resumed as rapidly as the soil saturated by the September rains became dry enough but there was some bottom land in the southern portion still too wet to plow at the close of the month. Winter wheat seeding continued till near the close of the month. Early seeded wheat was up and in good condition. The September rains made pastures unusually good throughout the fall. Because of the hay shortage and the wet fields in September much corn was cut for fodder and silage after the leaves became dry and dead. A large crop of apples was gathered under favorable conditions.

November was cool and disagreeable—the coldest since 1911; sunshine was decidedly deficient especially in the extreme east portion. At Dubuque there were 23 cloudy days, the cloudiest in 50 years. A cold wave spread over the State on the last day

of the month in which the temperature fell 50° at a number of stations. Precipitation was generally above normal, most of it occurring on the 13th-14th. There was considerable snow, the heaviest being 12.3 inches at Independence and a number of other stations reported the greatest November snowfall of record. Snow drifts blocked highways for several days. Corn husking was greatly delayed except in the drier western counties. Machine picking was attempted on a larger scale than usual but soft fields interfered.

December averaged colder than normal. Zero or lower was reported in all portions of the State. Precipitation was deficient and unevenly distributed. The greatest snowfall was 24.2 inches at Forest City. Glaze storms were frequent in various portions of the State, being most general on the 4th and 7th, and causing some damage to overhead wires, but the greatest damage was to skidding automobiles. Snow drifts blocked the highways in northern Iowa and interfered with railway traffic on the 7th, 13th and 23d. Ice became thick enough to harvest after the middle of the month.

MONTHLY SUMMARIES

JANUARY

Mild winter weather prevailed during most of January, with a mean temperature of more than four degrees above the normal. Temperature fluctuations were numerous and sudden, but the periods that were above normal were more protracted than those below; in fact, there was but a single cold period that continued for more than two days in the whole State, that from the 19th to 25th, inclusive, and during this period there were several days in all portions of the State that were just normal or slightly above. Sudden changes were common and at a few stations the warmest day followed the coldest, and over a large portion of the State the warmest and coldest occurred within three days of each other. Thawing weather occurred frequently, beginning during the first week, which caused the snow cover to diminish rapidly and to disappear entirely over a large portion of the State. In level fields and some north slopes the melted snow covered the ground with a solid sheet of ice in many localities and this condition is thought to have injured winter grain and clover and alfalfa fields.

There were no severe storms, but there was considerable wind on the 11th and 27th that caused the snow to drift somewhat but not enough to interfere with traffic. There were four periods of precipitation that were general over most of the State. The first storm, on the 3rd and 4th, began as rain over most of the State and changed to sleet or snow, which caused considerable damage to automobiles from skidding. The storm that occurred over most of the western half of the State on the

30th and 31st was in the form of rain that fell with the temperature near the freezing point. This condition caused a glaze storm over a large area. At Rock Rapids the storm was the worst in recent years, resulting in numerous injuries from falling and many automobiles were damaged in skidding. Trees and wires suffered very little as there was very little wind accompanying and the ice soon melted. While the average precipitation was above normal, over most of the State it was deficient, the excess being due to rather marked excesses at stations in the western and extreme northeastern portions.

Conditions were favorable for out door work almost all of the month, the usual farm activities being carried on with little inconvenience. Building operations continued with very little interruption, though there was very little in progress. Some corn was gathered in the southeastern portion. The ice harvest was completed in all sections of the State, and, as a rule, a good quality of the desired thickness was secured, but in localities the snow prevented it from freezing and much of the top had to be cut away, leaving in some cases not more than 5 inches of good ice.

Stock wintered well and much rough feed was conserved, which is becoming scarce in localities in the northwest portion. The frequent freezing and thawing kept the surface of all unpaved roads soft most of the time, but they were fair and passable during the entire month, except some dirt roads in the southern portion were impassable for a few days after the rain of the 3rd and during the last week.

Temperature. The mean temperature for the State, as shown by the records of 103 stations, was 22.7°, or 4.2° higher than the normal. By division, approximately three tiers of counties to the division, the means were as follows: Northern, 18.8°, or 3.4° higher than the normal; Central, 23.1°, or 4.3° higher than the normal; Southern, 26.1°, or 4.7° higher than the normal. The highest monthly mean was 28.8°, at Keokuk, and the lowest was 16.0°, at New Hampton and Postville. The highest temperature reported was 58°, at Corydon and Mt. Pleasant, on the 30th, and the lowest was -22°, at Postville on the 28th. The temperature range for the State was 80°.

Precipitation. The average precipitation for the State, as shown by the records of 107 stations, was 1.09 inches, or 0.01 inch more than the normal. By divisions, the averages were as follows: Northern, 1.15 inches, or 0.21 inch more than the normal; Central, 0.94 inch, or 0.18 inch less than the normal; Southern, 1.17 inches, or exactly normal. The greatest amount, 2.68 inches occurred at Sanborn, and the least, 0.31 inch, occurred at Hampton. The greatest amount in any 24 consecutive hours, 1.35 inches, occurred at Olin on the 3d and Sanborn on the 31st.

Snowfall. The average snowfall for the State was 5.9 inches, or 1.7 inches less than the normal. The greatest amount, 14.9 inches, occurred at Oelwein, Postville and Sioux Center, and the least, 0.9 inch, occurred at Mt. Pleasant. Most of the northern division was snow covered the entire month, but in small areas in the west-central, east-central and along the southern border the snow cover remained less than 10 days.

Miscellaneous Phenomena. Aurora: 13th, 26th. Fog: 1st, 2nd, 4th,

5th, 9th, 17th, 18th, 19th, 30th, 31st. Halos (lunar and solar): 1st, 2d, 6th, 7th, 8th, 10th, 11th, 16th, 21st, 24th, 25th, 28th, 30th. Haze: 1st. Parhelia: 11th, 25th. Sleet: 3d, 5th, 12th, 19th, 30th, 31st. Thunderstorms: 31st. (Two stations.) Winds (strong): 11th, 23d, 27th.

Rivers. Low stages prevailed on all rivers bordering the State with very little fluctuation. The Mississippi was frozen the entire month and also the Missouri except there were some open spaces south of Omaha during the last week. The interior rivers were low and remained frozen most of the month, but the warm weather during the latter part of the month in connection with rather heavy rainfall over the western portion of the State caused rapid rises and streams went out of banks, the Nishnabotna, Boyer and East Boyer Rivers being affected most. Heavy gorges appeared on many streams in the western half of the State. The Boyer and East Boyer Rivers in the vicinity of Denison reached the highest stage ever known at this time of the year.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)			Relative Humidity, %			Wind			Sunshine				
	Mean	Highest	Date	Lowest	Date	Mean	Total movement	Maximum		% possible				
								From	Date					
	7 a. m.	12 Noon	7 p. m.	7 a. m.	12 Noon	7 p. m.	Average hourly velocity	Miles	Direction	Departure from normal				
Charles City.....	31.0	30.67	22	29.53	14 91	77 96	58	21	5,977	7.1	27	nw	5	53 + 5
Davenport.....	32.0	30.7	22	29.26	14 96	71 76	88	116	5,747	7.5	25	nw	23	40 + 8
Des Moines.....	31.74	30.78	22	29.62	14 82	70 75	48	124	5,540	7.4	31	sw	42	42 + 13
Dubuque.....	31.6	30.61	22	29.51	14 86	72 75	58	123	5,318	7.1	35	nw	44	44 + 5
Keokuk.....	30.78	30.70	22	29.06	18 79	64 89	35	123	6,781	9.0	32	nw	44	44 + 7
Sioux City.....	30.08	30.78	22	29.62	15 87	72 8	46	128	8,768	11.8	44	nw	12	42 - 10
Omaha, Neb.....	30.0	30.79	22	29.57	16 81	74 75	47	128	6,467	8.6	27	n	12	51 - 4
Means and extremes.....	31.06	30.79	22	29.51	14	73 76	33	122	8.4	44	nw	12	47	47 - 8
Normals and records.....	31.14	30.78	22	29.50	14	76	33	122	8.7	44	nw	12	50	50
	591.00	1900	138.71	1906						5.2	nw	1903		

*Sioux City. †Dubuque. *Omaha. †Local mean time. †And other dates.

COMPARATIVE DATA FOR THE STATE—JANUARY

Year	Temperature			Precipitation				Number of Days					
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snow fall	With prec. of in. or more	Clear	Partly cloudy	Cloudy
1872	12.0	-6.5	55	-36	2.53	+1.45	3.56	0.50					
1874	19.6	+1.1	64	-24	1.07	+0.59	4.72	0.22					
1875	4.9	-13.0	48	-80	0.82	-0.39	1.01	0.38					
1876	23.5	+5.0	62	-16	1.49	+0.41	3.96	0.00					
1877	13.7	-4.8	58	-31	1.09	+0.01	3.04	0.37					
1878	25.4	+6.9	55	-13	0.48	-0.60	5.00	0.00					
1879	16.1	-2.4	58	-30	0.83	-0.69	1.48	0.00					
1880	32.0	+13.5	68	-6	1.39	+0.28	4.52	0.20					
1881	9.6	-8.9	48	-40	0.94	-0.14	3.10	0.04					
1882	23.4	+4.9	60	-17	0.65	-0.43	1.80	0.09					
1883	8.0	-10.5	46	-38	1.31	+0.23	2.85	0.35					
1884	13.3	-5.2	52	-28	0.52	-0.56	1.50	0.08					
1885	9.4	-9.1	51	-42	1.23	+0.20	3.72	0.18					
1886	8.1	-10.4	52	-32	2.59	+1.51	4.85	0.68					
1887	8.8	-9.7	55	-34	1.13	+0.05	2.92	0.04					
1888	5.4	-13.1	58	-43	1.80	+0.22	4.00	0.40					
1889	21.6	+8.1	62	-25	1.22	+0.14	2.90	0.50					
1890	18.9	-0.5	63	-27	1.29	+0.71	3.46	0.35					
1891	26.0	+7.5	58	-4	1.75	+0.67	3.99	0.61			13	7	11
1892	15.3	-3.2	76	-38	1.00	+0.01	3.13	0.10	6.9	5	16	9	6
1893	9.3	-9.2	54	-34	0.74	-0.34	3.20	0.13	6.9	6	11	9	11
1894	19.3	+0.8	69	-37	1.69	+0.01	2.24	0.31	6.0	5	14	9	8
1895	13.6	-4.9	68	-31	0.85	-0.23	2.65	0.09	8.7	4	15	7	9
1896	22.4	+4.0	63	-30	0.48	-0.00	2.10	T.	2.8	2	10	10	11
1897	17.2	-1.3	60	-30	2.01	+0.93	6.16	0.15	8.2	7	12	7	12
1898	23.4	+4.9	52	-11	1.00	+0.62	5.32	T.	12.6	5	15	6	10
1899	19.8	+1.3	68	-34	0.28	-0.80	1.15	T.	1.5	3	15	10	6
1900	25.6	+7.1	60	-30	0.53	-0.55	2.47	T.	3.3	3	16	7	8
1901	23.7	+5.2	60	-31	0.74	-0.34	3.34	0.64	6.2	4	14	9	8
1902	22.4	+3.9	63	-31	0.88	-0.20	2.83	0.19	5.4	4	17	8	6
1903	23.0	+4.5	60	-12	0.28	-0.80	1.46	T.	2.0	4	13	7	11
1904	14.9	-4.5	57	-32	1.39	+0.10	3.68	0.92	6.1	6	12	8	11
1905	11.2	-7.3	50	-30	0.91	-0.17	1.82	0.12	11.1	7	14	7	10
1906	24.6	+6.1	69	-19	1.62	+0.44	4.71	0.28	11.3	5	14	6	11
1907	18.8	+0.3	68	-22	1.52	+0.44	5.30	0.10	6.0	7	8	7	16
1908	24.9	+6.4	60	-18	0.44	-0.64	1.50	0.06	4.8	2	17	8	6
1909	21.2	+2.7	72	-25	1.06	+0.58	3.74	0.41	7.8	6	9	6	16
1910	18.1	-0.4	56	-35	1.57	+0.49	3.15	0.55	12.6	6	13	7	11
1911	20.2	+1.7	63	-36	0.97	-0.11	3.73	0.11	7.3	5	9	8	14
1912	4.2	-14.3	49	-47	0.53	-0.55	1.90	T.	5.5	5	14	7	10
1913	20.9	+2.4	62	-25	0.77	-0.31	2.05	0.04	7.2	5	14	9	8
1914	27.8	+9.3	54	-10	0.88	-0.20	3.34	0.27	5.1	5	11	8	12
1915	17.5	-1.0	59	-32	1.03	+0.55	3.15	0.10	7.3	8	13	8	10
1916	17.8	-0.7	63	-34	2.02	+1.54	6.07	0.85	7.2	10	12	6	13
1917	17.0	-1.5	60	-38	0.83	-0.25	2.07	0.17	7.2	4	17	8	6
1918	8.6	-9.9	53	-35	1.02	-0.66	2.79	0.26	11.2	7	12	8	10
1919	26.8	+8.3	61	-32	0.24	-0.84	0.80	T.	2.8	2	20	5	6
1920	16.7	-1.8	58	-36	0.42	-0.66	1.65	T.	4.6	4	12	8	11
1921	28.4	+9.9	67	-9	0.51	-0.37	1.92	0.10	4.1	4	11	7	13
1922	19.8	+1.3	57	-29	0.89	-0.19	2.39	0.32	5.3	4	17	6	8
1923	26.7	+8.2	58	-10	0.85	-0.23	2.84	T.	6.5	6	10	7	14
1924	13.9	-4.6	59	-36	0.80	-0.19	2.47	0.06	5.5	5	17	7	7
1925	19.4	+0.9	55	-24	0.40	-0.68	1.23	0.05	4.2	3	17	7	7
1926	22.7	+4.2	58	-21	1.09	+0.01	2.68	0.31	5.0	7	11	8	12

T. Indicates an amount too small to measure, or less than .05 inch precipitation and less than .05 inch snowfall.

FEBRUARY

Unusually mild weather prevailed during the entire month of February and from a comparison with all available records the mean temperature for the State was the highest since 1882, when the mean was considerably higher at all stations from which records are available. However, at several stations in the eastern portion of the State, this February was not as warm as in 1915 and 1921. A rather unusual feature in connection with the mild condition was the uniformity of temperature. At stations along the Missouri River there was not a single day during the entire month on which the temperature was below normal and the greatest number of days on which the temperature was below normal was three, in the extreme eastern portion. Zero weather occurred at only a few stations, and the minimum for the State, -2° , was the highest of record for February. The excess was uniform over all divisions, but it was least over the eastern portion, where it amounted to less than 7° , and increased gradually to the Missouri River where it amounted to more than 10° .

The precipitation was unevenly distributed, varying from less than 0.10 inch at several stations in the northern division, to slightly more than 2.00 inches in the extreme eastern portion. The deficiency was general over all divisions, no station reporting an excess of more than 0.20 inch, and the number reporting slight excesses was small. All stations in the northern division were deficient. Most of the precipitation was in the form of rain, occurring in four well distributed periods. In the northern division, the precipitation was nearly all snow, but in the central division more than half was rain and in the southern division more than 75 per cent. There were no heavy falls except a locally heavy fall of 10.0 inches at Fort Dodge. There was very little drifting except during the storm of the 17th-18th, which was accompanied by considerable wind. But, as warm weather immediately followed, no serious delays resulted. The worst feature in connection with the weather was thawing that occurred almost daily. Dirt roads and many graveled roads became very soft and over most of the southern division and limited areas in other sections they were badly cut up, making travel very difficult, and, in some cases, impossible by automobile. Rural mail carriers had to resort to the use of horses to carry mail in Henry county.

Frost was leaving the soil rapidly in most of the State but at the end of the month conditions were generally unfavorable for any extensive farm operations. Weather conditions were favorable for stock and the mild conditions were welcomed in the northwest portion where there has been a shortage of hay. Building operations were carried on with practically no interruption on account of weather.

Temperature. The mean temperature for the State, as shown by the records of 103 stations, was 31.2° , or 8.6° higher than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 28.1° , or 9.0° higher than the normal; Central, 31.3° , or 8.4° higher than the normal; Southern, 34.1° , or 8.3° higher than the normal. The highest monthly mean was 36.5° , at

Thurman, and the lowest was 24.8°, at Postville. The highest temperature reported was 67°, at Washington, on the 28th, and the lowest was -2° at Boone on the 19th. The temperature range for the State was 69°, the least ever recorded for the month of February.

Precipitation. The average precipitation for the State, as shown by the records of 106 stations, was 0.76 inch, or 0.44 inch less than the normal. By divisions, the averages were as follows: Northern, 0.43 inch, or 0.63 inch less than the normal; Central, 0.90 inch, or 0.36 inch less than the normal; Southern, 0.95 inch, or 0.34 inch less than the normal. The greatest amount, 2.13 inches, occurred at Clinton, and the least, 0.04 inch, occurred at Inwood. The greatest amount in 24 consecutive hours, 1.24 inches, occurred at Clinton, on the 17th and 18th.

Snowfall. The average snowfall for the State was 3.3 inches, or 3.7 inches less than the normal. The heaviest snowfall reported was 10.0 inches at Fort Dodge, and the least was a trace at Chariton, Corning and Ottumwa. The longest time that the snow remained on the ground was 25 days in a small area in the northeast portion; and at several stations in the southern division the period was less than one day. Over most of the State snow cover lasted less than a week.

Miscellaneous Phenomena. Aurora: 23d. Fog: 1st, 2d, 3d, 7th, 11th, 13th, 17th, 20th, 21st, 24th, 25th. Hail: 8th, 13th, 25th. Halos (lunar and solar): 4th, 5th, 6th, 8th, 11th, 16th, 18th, 20th, 25th, 27th. Haze: 13th, 20th. Sleet: 1st, 2d, 3d, 7th, 11th, 12th, 17th, 18th, 24th, 25th 26th. Thunderstorms: 13th (two stations), 17th (1 station). Winds (strong): 5th, 8th, 9th, 11th, 14th, 16th, 25th, 28th.

Rivers. Low stages prevailed on the Mississippi River throughout the entire month with very little fluctuation. The range at Dubuque was only 0.5 foot, but due to ice conditions in the lower course the range was greater with numerous fluctuations. Above Dubuque the river was frozen the entire month, but opposite that city an opening appeared on the night of the 27th-28th. Moderate stages prevailed on the Missouri River with a general falling tendency though there were numerous slight fluctuations due to ice gorges. It was frozen most of the month at Sioux City. The flood conditions that prevailed on the smaller streams in the extreme western portion of the State the last of January continued into early February, after which rapidly falling stages occurred. On all other interior rivers the highest stages occurred generally at the first of the month and a falling tendency prevailed thereafter. Menacing ice situations developed on interior rivers but the mild weather caused a rapid melting and softening of the ice and the gorges did very little damage when they went out.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)			Relative Humidity, %			Wind			Sunshine							
	Mean	Highest	Date	Lowest	Mean		Date	Total movement	Average hourly velocity		Maximum						
					7 a. m. to 12 Noon	12 Noon to 7 p. m.				Miles	Direction	% possible	Departure from normal				
Charles City	29.97	31.23	27	29.31	25.30	72	71	23	18	5,356	7.8	24	se.	10	41	-7	
Davenport	29.98	30.35	28	29.21	25.47	73	73	42	28	5,385	8.0	20	s.	10	37	-17	
Des Moines	29.97	30.35	27	29.40	25.82	67	68	37	16	5,293	7.9	34	sw.	5	54	-12	
Dubuque	29.96	30.31	28	29.17	25.85	72	74	34	19	5,149	7.7	26	nw.	25	34	-19	
Keokuk	29.96	30.35	28	29.29	25.78	61	60	37	116	6,038	9.0	35	w.	25	48	-7	
Sioux City	30.09	30.34	27	29.48	12.85	67	47	47	28	8,671	12.9	46	nw.	18	53	-4	
Omaha, Neb.	29.98	30.31	27	29.52	24.77	61	68	46	16	6,404	9.7	36	n.	8	73	+16	
Means and extremes	29.96	30.35	23 ¹	29.17	25	88	72	25	-----	9.0	-----	-----	-----	-----	49	-----	6
Normals and records	30.11	31.07	21 ¹	28.60	24.9	84	76	22 ¹	-----	9.3	-----	-----	-----	4 th	56	-----	-----
			1916	28.60	1902	-----	51	1880	-----	300	nw.	1917	-----	-----	-----	-----	-----

{Sioux City. *Davenport. †Des Moines. ‡Local mean time. †And other dates.

COMPARATIVE DATA FOR THE STATE—FEBRUARY

Year	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre. in. or more	Clear	Partly cloudy	Cloudy
1873	19.2	- 2.4	49	-25	1.17	- 0.03	2.32	0.30					
1874	21.2	- 1.4	50	-20	1.28	- 0.08	2.38	0.16					
1875	6.4	-16.2	48	-31	3.72	+ 0.32	6.75	0.82					
1876	25.5	+ 2.9	68	-16	1.11	- 0.09	3.68	0.18					
1877	34.0	+11.4	63	- 5	0.21	- 0.09	0.65	0.00					
1878	34.4	+11.8	60	- 3	0.59	- 0.61	2.95	0.00					
1879	21.5	- 1.0	57	-20	0.68	- 0.22	1.90	0.10					
1880	27.4	+ 4.8	68	-12	0.64	- 0.55	2.15	0.02					
1881	17.0	- 5.6	57	-24	3.10	+ 1.90	6.35	0.97					
1882	33.5	+10.9	72	-15	0.91	- 0.29	1.85	0.10					
1883	17.7	- 4.9	62	-33	1.89	+ 0.69	6.13	0.00					
1884	18.3	- 4.3	56	-32	1.32	+ 0.12	3.59	0.30					
1885	23.5	-10.1	54	-20	0.83	- 0.37	2.50	0.10					
1886	21.3	- 1.4	56	-34	0.59	- 0.61	1.96	0.24					
1887	17.1	- 5.5	60	-25	2.14	+ 0.94	5.04	0.12					
1888	20.2	- 2.4	64	-34	1.91	- 0.19	3.10	0.15					
1889	17.8	- 4.8	62	-29	0.47	- 0.72	1.79	0.00					
1890	25.1	+ 2.5	68	-24	0.88	- 0.37	2.18	0.35					
1891	19.4	- 3.2	70	-31	1.16	- 0.04	2.41	0.55		3	13	7	8
1892	28.1	+ 5.5	68	-20	1.20	+ 0.19	2.01	0.12	5.0	6	7	16	
1893	16.0	- 6.6	60	-28	1.39	+ 0.19	2.01	0.09	8.1	6	10	8	10
1894	19.7	- 2.9	60	-19	0.89	- 0.31	2.41	T	8.4	3	16	8	4
1895	16.4	- 6.2	73	-32	0.49	- 0.71	1.34	0.62	3.3	4	13	9	6
1896	27.4	+ 4.8	78	-13	0.71	- 0.49	2.40	0.04	5.4	4	12	9	12
1897	24.7	+ 2.1	61	-24	0.89	- 0.31	1.81	0.22	8.0	5	6	10	12
1898	24.2	+ 1.6	62	-18	1.30	- 0.09	3.05	0.10	7.8	5	10	9	9
1899	15.2	- 10.4	75	-40	0.89	- 0.31	4.32	0.19	7.1	6	11	10	7
1900	14.8	- 7.8	69	-27	1.30	+ 0.10	4.57	0.18	9.9	6	10	8	10
1901	17.5	- 5.1	69	-21	1.01	- 0.19	3.06	0.12	9.7	4	13	7	6
1902	17.6	- 5.0	62	-21	0.73	- 0.47	2.39	0.02	2.6	4	13	8	7
1903	19.8	- 2.8	56	-21	1.18	- 0.02	3.25	0.30	7.9	4	13	7	8
1904	14.8	- 7.8	70	-26	0.43	- 0.79	1.90	T	4.3	4	10	9	10
1905	15.3	- 9.8	69	-41	1.57	+ 0.27	2.97	0.44	3.5	7	14	6	8
1906	22.6	+ 1.0	60	-32	1.29	+ 0.09	2.91	0.20	6.1	5	14	7	7
1907	25.0	+ 2.4	65	-31	0.71	- 0.49	1.95	0.06	4.6	4	14	6	8
1908	24.3	+ 1.7	59	-16	1.69	- 0.49	3.05	0.23	8.9	6	12	6	11
1909	26.2	+ 2.6	62	-26	1.54	+ 0.34	4.72	0.30	7.7	5	11	6	11
1910	17.8	- 4.8	78	-31	0.49	- 0.74	2.69	T	4.0	8	12	8	6
1911	27.3	+ 4.7	71	-15	2.76	+ 1.56	5.46	0.65	7.0	12	16	10	10
1912	18.1	- 4.5	57	-30	1.21	+ 0.01	3.25	0.04	11.2	5	10	9	10
1913	20.2	- 2.4	70	-24	0.82	- 0.38	2.39	0.07	7.3	4	14	7	7
1914	16.8	- 5.8	59	-29	0.87	- 0.33	1.99	0.32	9.2	6	10	9	9
1915	20.1	+ 0.5	68	- 8	2.03	+ 1.73	5.39	0.43	9.4	9	9	5	14
1916	19.0	- 3.6	62	-32	0.53	- 0.65	1.38	0.05	6.0	4	14	8	7
1917	15.2	- 7.4	68	-37	0.36	- 0.84	1.19	T	3.5	3	14	8	9
1918	23.0	+ 0.4	70	-30	0.95	- 0.25	2.10	0.06	6.0	5	14	7	7
1919	24.9	+ 2.3	69	-16	2.42	+ 1.22	4.12	1.32	9.9	8	11	5	15
1920	24.0	+ 1.4	59	-22	0.58	- 0.64	1.75	0.04	4.1	5	9	6	14
1921	31.0	+ 8.4	76	- 5	0.77	- 0.43	2.00	T	6.5	5	13	7	8
1922	23.7	+ 1.1	70	-29	1.59	+ 0.39	4.59	0.40	1.3	4	14	7	7
1923	20.1	- 2.5	61	-22	0.49	- 0.80	1.71	0.00	3.2	3	13	8	7
1924	25.8	+ 3.2	70	-18	1.27	+ 0.07	4.00	0.30	11.2	7	15	5	9
1925	28.4	+ 5.2	80	-16	0.82	- 0.38	2.69	T	2.5	4	11	7	10
1926	31.2	+ 8.6	87	- 2	0.76	- 0.44	2.18	0.04	3.3	4	10	7	11

T, indicates an amount too small to measure, or less than .005 inch rainfall and less than .06 inch snowfall.

The Winter of 1925-1926. The mean temperature for the three winter months was 25.0°, which is 3.3° higher than the normal for the State, and 3.9° higher than the mean of 1924-1925. The winter was the warmest since the winter of 1920-1921, which had a mean temperature of 28.6°. The highest temperature reported was 67°, at Washington on February 28th, and the lowest was -29°, at Waverly on December 29th.

The average monthly precipitation for the State was 1.05 inches, and the average total precipitation was 3.15 inches, or 0.27 inch less than the normal. The average total snowfall was 19.9 inches, or 0.2 inch more than the normal.

The average number of days with 0.01 inch or more of precipitation was 16, or 1 more than the winter of 1924-1925. The average number of clear days was 32, partly cloudy 24 and cloudy 34, as compared with 40 clear days, 20 partly cloudy days, and 30 cloudy days during the winter of 1924-1925.

Fifty-three Iowa Winters. More than a half century of winter records are now available in comparable form in Iowa on a State-wide area basis.

In the fifty-three winters beginning with 1873-74, the coldest was 1874-75, when the mean temperature of the three winter months—December, January and February—was 11.5°; next stands 1884-85 with 12.7°; and 1880-1881 with 14.2°.

The warmest winter was 1877-78 with a mean temperature of 32.2°; next stands 1881-82 with 30.2°; and 1920-21 with 28.6°.

In the last three decades the winters have not been as extremely warm or as extremely cold as in the preceding two decades. From 1874 to 1905 there was a general tendency for the winters to grow colder, but since then the tendency has been to grow warmer. Such long period variations have probably been going on for centuries.

There is slight evidence of a periodicity of twelve to fourteen years from one outstanding warm winter to the next or from one extremely cold winter to the next. After an exceptionally warm winter there is, of course, more or less of fluctuation but a fairly well marked downward tendency, reaching an outstanding cold winter about the eighth or ninth winter, followed by a rather outstanding warm winter again about the twelfth to thirteenth.

If the periodicity of the past is maintained, the tendency of the next few winters will be to colder, reaching an outstanding cold winter in 1928-29 or 1929-30. As such periodicities often suddenly disappear, no positive prediction can be based on them.

Forty-seven below zero is the lowest official reading with a standard thermometer recorded in Iowa in the last fifty-three years. This was at Washta, Cherokee County, on January 12, 1912. The month of January, 1912, with a State mean of 4.2° is the coldest month of record; January, 1875, stands next with a mean of 4.9°. The warmest January was in 1880 when the State mean temperature was 32.0°.

The wettest winter was 1914-15 when the average for the State for the three winter months combined was 5.86 inches of rain and melted snow. The driest winter was 1919-20 with 1.52 inches of rain and melted snow.

The greatest snowfall was in 1897-98, 36.3 inches, but snowfall records extend back to 1892-93, only.

Notable blizzards occurred January 7th-9th, 1873; January 7th-8th, 1886; January 12th, 1888; December 26th-28th, 1904; November 21st-22nd, 1898; January 28th-30th, 1908; February 9th, 1908; and March 18th, 1923.

IOWA WINTERS
DECEMBER, JANUARY AND FEBRUARY FOR FIFTY-THREE YEARS

Winter	Temperature				Precipitation			Number of Days			
	Mean	Departure	Highest	Lowest	Total	Departure	Snowfall	With less than 1/2 in. or more	Clear	Partly cloudy	Cloudy
1873-74	21.1	- 0.6	65	-24	5.46	+2.01					
1874-75	11.8	- 9.9	60	-31	3.38	-0.04					
1875-76	26.3	+ 4.6	68	-18	4.95	+3.24					
1876-77	19.9	- 1.8	63	-31	1.54	-1.88					
1877-78	22.2	-10.5	65	-33	3.25	-0.17					
1878-79	18.3	- 3.4	59	-30	1.93	-1.49					
1879-80	25.2	+ 3.5	68	-35	3.38	-0.04					
1880-81	14.2	- 7.5	57	-40	4.89	+1.17					
1881-82	30.2	+ 8.5	72	-17	2.89	-0.02					
1882-83	25.6	- 2.3	62	-32	4.77	+1.35					
1883-84	18.8	- 5.0	63	-37	1.87	-0.23					
1884-85	12.7	- 9.0	59	-42	4.23	+0.83					
1885-86	18.0	- 3.7	56	-34	4.63	+1.21					
1886-87	13.4	- 8.3	60	-34	4.07	+0.65					
1887-88	15.3	- 0.4	64	-34	4.48	+1.66					
1888-89	22.7	+ 1.0	65	-28	3.15	-0.37					
1889-90	26.3	+ 4.0	69	-27	3.68	+0.20					
1890-91	24.8	+ 3.1	72	-31	3.35	-0.06	10	43	21	26	
1891-92	23.2	+ 3.5	70	-38	4.70	+1.28	17	36	25	29	
1892-93	14.9	- 5.8	63	-34	3.78	+0.39	25	20	25	30	
1893-94	22.9	+ 1.2	70	-32	2.29	-0.13	22	15	40	36	14
1894-95	20.0	- 1.7	73	-33	2.39	-1.13	13.3	11	43	22	25
1895-96	25.4	+ 3.7	78	-26	2.82	-0.69	12.3	12	33	28	50
1896-97	24.2	+ 2.5	70	-30	3.55	+0.13	17.8	16	28	25	27
1897-98	21.9	+ 2.2	62	-35	4.45	+1.03	35.3	16	36	22	32
1898-99	16.7	- 5.0	63	-40	1.67	-1.77	12.5	11	41	28	21
1899-00	21.0	- 0.7	75	-27	3.44	+0.02	16.5	14	32	24	28
1900-01	22.7	+ 1.0	63	-37	3.30	-1.23	18.3	12	42	22	26
1901-02	20.2	- 1.5	64	-31	2.54	-0.88	17.4	14	40	25	25
1902-03	21.0	- 0.7	60	-31	3.69	+0.27	22.8	16	35	20	35
1903-04	16.1	- 5.6	73	-32	2.00	-1.42	14.3	14	33	26	32
1904-05	15.8	- 5.9	69	-41	3.22	+0.50	38.9	19	40	20	20
1905-06	25.1	+ 3.4	69	-32	3.33	-0.09	21.6	13	47	19	24
1906-07	23.2	+ 1.5	68	-31	3.63	+0.24	12.9	17	33	20	37
1907-08	20.0	+ 4.2	62	-18	3.13	-0.29	18.2	13	39	21	31
1908-09	24.9	+ 3.2	70	-32	6.77	+0.33	19.7	14	35	20	35
1909-10	17.0	- 4.7	60	-35	4.21	+0.79	30.2	20	37	20	32
1910-11	23.6	+ 1.9	71	-35	4.10	+0.68	17.3	14	36	21	33
1911-12	16.7	- 5.0	60	-47	4.31	+0.89	29.3	17	37	22	32
1912-13	23.4	+ 1.7	70	-25	2.37	-1.09	15.6	12	46	23	21
1913-14	23.5	+ 3.8	65	-28	2.77	-0.85	15.6	13	36	22	32
1914-15	30.8	- 0.9	63	-32	3.82	+ 2.44	27.8	22	12	19	39
1915-16	20.6	- 1.1	63	-34	3.86	+0.44	17.8	39	27	22	32
1916-17	17.0	- 4.7	68	-37	2.23	-1.19	17.4	13	46	24	29
1917-18	15.4	- 6.3	70	-40	2.53	- 0.39	23.9	18	37	24	29
1918-19	28.1	+ 5.4	78	-22	3.95	+0.53	17.9	38	40	18	32
1919-20	18.6	- 3.1	59	-32	3.32	- 1.90	14.5	13	35	21	28
1920-21	26.6	+ 0.9	76	-26	2.44	+0.98	18.0	14	34	22	34
1921-22	23.9	+ 2.2	70	-29	3.50	+0.08	9.5	13	45	22	23
1922-23	23.6	+ 1.9	65	-25	1.62	-1.80	11.9	12	39	22	29
1923-24	24.4	+ 2.7	70	-26	2.92	-0.50	21.1	16	45	18	27
1924-25	21.1	- 0.4	61	-33	3.01	-0.41	14.9	13	40	20	30
1925-26	25.0	+ 3.3	67	-20	3.15	-0.27	19.9	16	32	24	34

MARCH

The principal feature of the weather during March was the protracted periods of disagreeable weather that prevailed during most of the month. Conditions were more favorable over the extreme western portion of the State, but at many stations in the eastern half of the State the temperature did not go above normal during the first 16 days and during the last week cold, stormy weather prevailed over the entire State. The only mild period extended from the 17th to 24th, but during this period there was some precipitation and considerable wind.

The temperature averaged 2.6° below normal and was quite uniform over all divisions, but there was a decided contrast between the eastern and western portions; at several stations along the Mississippi River the deficiency averaged more than 5° daily, while at several stations in the extreme western portion there was an excess, the greatest being at Sioux City, where it amounted to 1.2° daily.

Stormy weather occurred at frequent intervals during the month, beginning on the 1st, but as this storm was accompanied by very little precipitation the only damage resulting was due to wind alone. The first storm of more than ordinary severity began as rain on the 5th in the western portion of the State and spreading over the State, ended as a snow storm accompanied by very strong wind. The attending damage and inconvenience was greatest in the northern half of the State. Huge drifts were formed that retarded rail traffic, made general automobile travel impossible and caused a temporary suspension of motor traffic. No highway travel was possible until passages could be cut through the drifts. The storm was generally referred to as a "Blizzard" in most of the northern half of the State. During the rest of the month there were several wind storms but very little precipitation. This caused the soil to dry rapidly and on the 24th and 25th dust storms developed over large areas in the western portion of the State, causing the soil to drift and causing the soil to appear red over sections farther east.

By far the worst storm of the month, and one of the most severe in the history of the State, occurred on the 30th-31st. This storm was due to an energetic barometric depression, the center of which passed north-eastward from Texas across southern Illinois. The storm was most severe over the eastern portion of the State, but the entire State was affected by strong winds and all but about one-fifth by snow that gradually diminished from the southeast corner northward. Stations in the eastern portion reported the greatest March snowfall of record. The storm raged for from 24 to 36 hours and during its progress, and after, caused great inconvenience to every phase of life. The greatest damage and inconvenience resulted to counties along the Mississippi River and a number of counties in the southeastern and south central sections. Conditions were particularly bad in Dubuque. The snowfall, which began on the morning of the 30th, lasting 36 hours and amounting to 8.6 inches, was the greatest amount ever recorded during a single storm in March. The high wind that accompanied the snow caused it to drift badly and completely blocked country roads and city streets. Street car service

was abandoned throughout the city on the 31st. One line resumed operation at 4:00 p. m., but complete service was not resumed until noon of April 1st. Somewhat similar conditions prevailed in all river cities, and in the rural sections enormous drifts were reported, as high as 15 feet, that stopped all transportation temporarily. All railway traffic was delayed from 1 to 12 hours in the eastern portion of the State and travel by automobile was almost entirely abandoned.

Very little farm work was accomplished except there was some plowing and seeding in the northwestern portion. Conditions were not favorable for lambs and young pigs, the loss to both being considerable. During the mild weather, from the 17th to 24th, the frost left the ground rapidly but the cold weather during the last week caused it to freeze except where it was protected by snow.

Temperature. The mean temperature for the State, as shown by the records of 102 stations, was 32.1°, or 2.6° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 29.8°, or 2.3° lower than the normal; Central, 32.0°, or 3.1° lower than the normal; Southern, 34.5°, or 2.3° lower than the normal. The highest monthly mean was 38.2°, at Clarinda, and the lowest was 25.8°, at Postville. The highest temperature reported was 78°, at Little Sioux on the 23d, and the lowest was -4°, at Decorah, Osage and Postville on the 13th. The temperature range for the State was 82°.

Precipitation. The average precipitation for the State, as shown by the records of 109 stations, was 1.06 inches, or 0.69 inch less than the normal. By divisions, the averages were as follows: Northern, 0.72 inch, or 0.84 inch less than the normal; Central 1.07 inches, or 0.75 inch less than the normal; Southern, 1.38 inches, or 0.50 inch less than the normal. The greatest amount, 2.62 inches, occurred at Wescott, and the least, 0.20 inch, occurred at Harlan. The greatest amount in 24 consecutive hours, 1.36 inches, occurred at Davenport on the 30th-31st.

Snowfall. The average snowfall for the State was 8.1 inches, or 2.7 inches more than the normal. The greatest amount, 21.3 inches occurred at Oskaloosa, and the least 1.2 inches occurred at Sioux City. The snowfall was heaviest in southeastern Iowa. Keokuk reported the greatest March snowfall of record, 17.9 inches, and with the exception of February, 1900, when 18.6 inches fell, the greatest for any month. Much of the snow that fell on the 30th-31st, fell with the temperature considerably below freezing, consequently it settled or melted very little, and over many places in the eastern part of the State the amount on the ground at the end of the month was the greatest ever experienced so late in the season.

Miscellaneous Phenomena. Aurora: 9th, 10th, 17th, 18th, 19th. Birds (migration of): Earlham, blue birds, 9th, meadow larks and blackbirds, 18th; Little Sioux, meadow larks, 19th; Oskaloosa, robins, 13th, meadow larks, 17th; Postville, robins, 18th. Dust storms: 24th, 25th, 31st. Fog: 18th, 19th, 20th, 21st, 22d, 23d, 29th. Halos (lunar and solar): 2d, 8th, 19th, 20th, 21st, 27th, 29th, 30th, 31st. Haze: 20th, 21st, 22d.

24th, 25th. Parhelia: 2d, 8th. Sleet, 3d, 5th, 6th, 7th, 8th, 10th, 11th, 14th, 24th, 25th, 30th. Thunderstorms: 11th, 18th, 19th. Winds (strong): 1st, 2d, 3d, 5th, 6th, 7th, 15th, 16th, 17th, 24th, 25th, 26th, 31st.

Rivers. Low and nearly stationary stages prevailed on all rivers generally though there were some sharp fluctuations on the Missouri River, and moderate fluctuations on the other rivers due to ice conditions. A general movement of the ice in the Mississippi River began on the 19th at Dubuque but the channel was not entirely clear till the 24th. All the interior rivers were clear of ice before the end of the third week with very little damage, the principal gorges having moved out during February.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)					Relative Humidity, %			Wind				Sunshine				
	Mean	Highest	Date	Lowest	Date	Mean	7 a. m.	12 Noon	Lowest	Total movement	Average hourly velocity	Maximum		% possible	Departure from normal		
												Miles	From			Date	
Charles City.....	30.08	30.57	18	29.29	24	80	61	68	39	29	6.50 ¹	8.9	20	nw.	1	51	- 5
Davenport.....	30.07	30.54	18	29.33	24	83	66	67	38	29	6.988	9.4	22	nw.	1	46	- 11
Des Moines.....	30.08	30.55	18	29.35	24	81	67	66	39	30	6.543	8.8	20	s.	17	53	- 7
Dubuque.....	30.05	30.53	18	29.35	24	79	64	65	38	28	6.306	8.3	19	nw.	1	42	- 11
Keokuk.....	30.09	30.58	18	29.38	24	79	62	63	38	28	7.447	10.0	36	nw.	1	48	- 12
Sioux City.....	30.13	30.59	18	29.38	24	80	62	66	38	28	10.840	14.6	52	nw.	2	62	+ 5
Omaha, Neb.....	30.10	30.58	18	29.38	24	79	67	73	38	30	8.229	11.1	42	nw.	2	61	+ 8
Means and extremes.....	30.00				24	79	60	62			10.2					53	- 4
		30.59	18	29.25	24							02	nw.	24			
Normals and records.....	30.0		29 ¹		29 ¹	80		67			9.6				10 ¹		07
		30.88	1921	28.79	1921			75			101.5			105	w.	1020	

¹Sioux City. ²Des Moines. ³Local mean time. ⁴And other dates.

COMPARATIVE DATA FOR THE STATE—MARCH

APRIL

Year	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With Precip. of 1/10 in. or more	Clear	Partly cloudy	Cloudy
1873	34.0	-0.7	72	-18	1.42	-0.33	3.70	0.33					
1874	31.7	-3.0	68	-4	1.43	-0.32	2.80	0.17					
1875	36.9	7.3	50	16	1.62	-0.13	3.80	0.43					
1876	35.2	-1.5	75	-6	3.24	+1.49	5.78	1.36					
1877	27.3	-7.4	72	-14	2.28	+0.53	6.54	0.29					
1878	45.6	+10.9	80	20	3.99	+1.61	6.70	0.35					
1879	37.2	+2.5	80	-2	1.18	-0.57	4.50	0.20					
1880	33.6	-1.1	80	-21	1.26	-0.69	3.50	0.15					
1881	27.1	-7.6	56	-9	1.91	+0.16	4.50	0.75					
1882	30.3	+1.6	78	4	1.82	+0.07	4.52	0.50					
1883	30.6	4.1	72	-13	0.56	-1.20	1.40	0.00					
1884	32.0	2.7	72	-16	2.37	+0.82	5.90	0.70					
1885	31.3	2.4	65	-19	0.24	-1.51	1.25	0.00					
1886	30.6	4.1	74	-9	1.72	-0.63	4.47	0.40					
1887	33.5	1.2	76	-8	0.93	-0.82	2.50	0.00					
1888	30.4	8.3	78	-12	3.04	+1.29	6.20	0.29					
1889	30.7	+5.9	80	-8	0.47	-1.28	2.40	0.00					
1890	38.1	-0.6	75	-24	1.49	-0.26	3.77	0.52					
1891	30.8	-7.9	66	-19	2.00	+0.85	4.58	1.33		10	6	8	17
1892	31.9	-2.8	84	-6	2.22	-0.47	4.58	0.07		3.9	6	11	8
1893	31.8	-2.9	84	-8	2.14	-0.50	4.40	0.64		4.0	8	9	11
1894	41.0	+6.5	84	5	2.08	+0.28	4.52	0.56		2.7	6	13	10
1895	34.4	-0.5	84	-13	0.83	-0.92	2.93	0.22		2.9	9	16	7
1896	30.9	-3.8	81	-12	1.19	-0.65	3.00	0.16		5.4	5	12	9
1897	32.0	-2.7	72	-22	2.39	+0.64	6.10	0.29		5.5	8	9	14
1898	37.5	+2.8	72	-2	1.04	-0.19	6.21	0.83		3.7	6	12	9
1899	35.0	-1.7	75	-16	1.63	-0.13	5.90	0.37		8.0	6	7	12
1900	30.7	-4.0	81	-13	2.06	+0.31	5.15	0.45		6.6	5	12	9
1901	34.2	-0.5	76	-8	3.64	+0.89	5.25	0.70		12.6	7	10	8
1902	39.1	+4.4	79	-12	1.45	-0.36	4.33	0.13		1.3	7	9	11
1903	36.8	+4.1	82	-6	1.88	-0.37	3.90	0.16		3.9	7	11	7
1904	34.8	-0.1	78	-5	2.78	+0.43	4.57	0.50		4.4	7	8	15
1905	41.5	+6.8	81	1	2.04	+0.29	3.70	0.89		4.1	7	8	15
1906	27.1	-7.6	65	-14	2.34	+0.59	4.55	0.98		8.9	10	8	7
1907	40.6	+5.9	92	-7	1.35	-0.40	5.05	0.23		4.1	6	14	7
1908	37.9	+3.2	85	-8	1.58	-0.17	3.74	0.45		1.1	6	13	7
1909	35.5	-2.3	71	-15	1.58	-0.23	5.03	0.58		9.8	6	12	10
1910	48.9	+14.2	92	-30	0.12	-1.58	1.37	0.90		T	1	23	6
1911	39.4	+4.7	88	-2	0.90	-0.82	4.84	T		1.9	5	16	9
1912	24.9	-9.8	70	-19	2.01	+0.26	5.25	0.60		19.1	7	15	6
1913	31.9	-2.8	78	-20	2.48	+0.73	5.88	0.74		5.3	9	11	10
1914	34.7	0.0	78	-5	1.60	-0.66	3.84	0.38		1.8	7	12	8
1915	29.3	-5.4	61	-15	0.90	-0.79	2.12	0.17		8.8	5	8	14
1916	35.2	+0.5	80	-18	1.57	-0.38	5.80	0.23		2.9	6	11	9
1917	34.6	-0.1	85	-12	1.84	+0.09	4.35	0.57		6.2	6	14	8
1918	42.9	+8.2	85	0	0.65	-1.12	2.12	0.63		2.6	3	19	7
1919	37.5	+2.8	78	-11	2.25	+0.58	5.49	0.81		1.1	6	15	8
1920	38.0	+3.3	80	-21	3.02	+1.27	5.70	0.47		2.4	7	16	7
1921	42.8	+8.1	86	4	1.57	-0.18	6.02	0.77		0.2	7	14	8
1922	38.3	+3.6	74	-5	1.97	+0.22	3.73	0.76		8.4	7	12	6
1923	39.4	+5.3	78	-21	2.37	+1.12	5.06	0.71		18.5	7	12	9
1924	31.9	-2.8	72	-3	2.65	+0.90	4.76	1.36		10.5	8	8	15
1925	40.1	+5.4	82	-6	0.93	-0.82	2.34	0.10		2.9	4	17	9
1926	32.1	-2.6	78	-4	1.09	-0.69	2.02	0.30		8.1	6	12	9

T. Indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

The principal feature of the weather during April was the extreme dryness that prevailed throughout the State. Every station reported a deficiency in precipitation, and the average for the State, 0.91 inch, shows that this month broke all records for April, the least previous to this year, since State-wide records became available in 1873, being 1.13 inches in 1879. The number of days on which 0.01 inch or more of precipitation occurred was the least of record for April; the greatest monthly amount for any station was also the least of record; and the number of clear days equalled the April record. The average total precipitation in the State since January 1, is 3.82 inches. Only twice in 54 years has there been a less amount in a similar period for the State as a whole, while in the western portion of the State the total for this period is the least of record, several stations reporting a total of less than two inches.

The lack of precipitation showed its effects by unusually low humidity and the development of dust storms at frequent intervals from the 13th to 27th. While the dust storms were confined mainly to the western portion of the State, and in that section are not uncommon, the storm that occurred on the 27th covered practically the entire State and was pronounced the worst in the history of the State. There was considerable drifting of soil in every storm but the earlier storms were more local in character and in a mild form are frequently experienced. The dust was driven by a strong northwest wind on the 27th and during most of the day was sufficient to entirely obscure the sun. A heavy deposit of brown dust was deposited on all objects and sprinkles of rain in the late afternoon in some localities left a distinct deposit of mud where each raindrop struck. In the western portion of the State the soil drifted sufficiently to fill ditches along highways and drifts as deep as two feet impeded automobile travel. Grain and other growing vegetation suffered from having the soil blown away from the roots and some fields were damaged by being covered with drifts.

Temperature conditions were similar to those in March. The deficiency was about the same, being greatest in the eastern portion and gradually diminishing to the west where a small area in the northwest portion showed a slight excess. There were no unusually low temperatures but temperatures below freezing occurred on an unusually large number of days. The longest period on which the temperature was above normal ranges from five days in the western portion to four in the eastern portion, while there were three periods, ranging from five to nine days, on which the temperature was below normal. This condition retarded the development of all vegetation. Fruit bloom was beneficially retarded so that at the end of the month only the earliest fruits were showing bloom in the south central, southwest and west central districts.

The heavy snowfall delayed farm work over the eastern portion of the State and in this section some oats were seeded in mud. Over the rest of the State conditions were favorable for all farm work and fine progress was made but on account of the extreme dryness a rather large

amount of oats failed to germinate that will either result in a very poor stand or cause other crops to be planted instead. Corn planting made a good start and some of the earlier planted fields had begun to show rows. The dry weather was seriously injuring meadows and pastures, and over much of the State the prospect for hay was bad. Early truck crops made very poor progress except where irrigation was practicable.

An unusual auroral display occurred during the night of the 14th-15th. The phenomenon was generally observed throughout the State but the brilliancy apparently varied as well as the time of visibility. Telegraph companies experienced difficulty in maintaining service during the time of the most intense display and at times the use of some batteries was dispensed with.

Roads were good throughout the month except in the eastern portion of the State where the heavy March snowfall, followed by the heavy hail at the first of the month caused many roads to be impassable for several days and dirt roads remained in bad condition till near the middle of the month.

Temperature. The mean temperature for the State, as shown by the records of 101 stations was 46.1° , or 2.8° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 45.0° , or 2.1° lower than the normal; Central, 46.4° , or 2.8° lower than the normal; Southern, 46.8° , or 3.7° lower than the normal. The highest monthly mean was 50.4° , at Little Sioux, and the lowest was 41.4° , at Decorah. The highest temperature reported was 95° at Alta, Little Sioux and Ottumwa, on the 30th, and the lowest was 9° , at Osage, on the 5th. The temperature range for the State was 86° .

Precipitation. The average precipitation for the State, as shown by the records of 107 stations, was 0.91 inch, or 2.08 inches less than the normal. By divisions, the means were as follows: Northern, 0.94 inch, or 1.83 inches less than the normal; Central, 0.93 inch, or 2.10 inches less than the normal; Southern, 0.86 inch, or 2.32 inches less than the normal. The greatest amount, 2.29 inches occurred at Clinton, and the least, 0.06 inch, occurred at Harlan. The greatest amount in any 24 consecutive hours, 1.38 inches, occurred at Dubuque on the 23rd-24th.

Snowfall. The average snowfall for the State was 1.5 inches, or 0.4 inch less than the normal. The snowfall was the heaviest in the north-east and southeast corners and over most of the State the average was less than 0.5 inch. The heaviest fall reported was 11.5 inches at Decorah. About one-half of the State had a trace or none.

Miscellaneous Phenomena. Aurora: 11th, 14th, 15th, 16th, 17th. Dust Storms: 13th, 17th, 20th, 21st, 22d, 24th, 26th, 27th. Fog: 6th, 22d, 23d. Hail: 23d. Halos (lunar and solar): 1st, 2d, 8th, 11th, 17th, 20th, 22d, 23d, 24th, 26th, 28th. Haze: 6th, 20th. Parhelia: 26th. Rainbow: 25th. Sleet: 4th, 5th, 6th, 17th. Thunderstorms: 17th, 23d, 24th, 25th.

Rivers. Moderate stages prevailed on the Mississippi River with very little fluctuation with the average somewhat below the April normal. The extreme stages did not exceed two feet except at Dubuque. Low stages

prevailed on the Missouri River with only slight fluctuations, the extreme fluctuation for the month being 1.6 feet. Low stages also prevailed on the interior rivers, except melting snow at the beginning of the month caused moderate rises in the lower courses of all streams emptying into the Mississippi. During the rest of the month nearly stationary stages prevailed.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)				Relative Humidity, %				Wind				Sun- shine				
	Mean	Highest	Date	Lowest	Date	Mean		Lowest	Date	Total movement	Maximum		% possible departure from normal				
						7 a. m. to Noon	7 p. m.				Miles From	Date					
Charles City.....	30.00	30.46	19	29.55	24	70	41	47	15	13	5,380	7.8	39	nw	21	74	+16
Davenport.....	31.9	31.49	19	29.52	24	76	52	54	26	16	5,790	8.1	31	sw	24	61	+6
Des Moines.....	31.6	31.48	19	29.65	23	65	49	44	17	12	6,015	8.4	33	sw	20	66	+6
Dubuque.....	30.62	30.47	19	29.11	24	70	67	53	24	12	5,382	7.5	39	nw	23	70	+12
Keokuk.....	30.5	30.46	19	29.61	23	71	47	33	16	11	5,382	8.1	38	nw	24	61	+4
Sioux City.....	30.07	30.46	19	29.70	17	64	23	33	16	12	8,068	12.0	50	nw	24	70	+16
Omaha, Neb.....	30.07	30.47	19	29.92	17	61	40	36	12	12	6,574	9.1	48	nw	21	65	+10
Means and extremes.....	30.67	30.45	19	29.41	24	68	43	46	10	22	8.9	8.1	50	nw	24	68	+10
Normals and records.....	29.98	30.78	1918	28.90	30.10	76	57	57	25th	1902	9.0	8.1	50	nw	24	68	+10

§Dubuque. *Davenport. §Sioux City. †Local mean time. ‡And other dates.

COMPARATIVE DATA FOR THE STATE—APRIL

Year	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre. in. or more	Clear	Partly cloudy	Cloudy
1872	43.2	-5.7	83	24	3.13	+ 9.14	5.65	1.24					
1874	41.9	-7.0	76	16	1.90	- 1.09	3.15	0.65					
1875	43.0	-5.9	77	10	2.29	- 0.79	4.00	0.89					
1876	48.1	-0.7	78	24	3.06	+ 9.07	6.80	0.85					
1877	47.5	-1.4	91	14	3.33	+ 0.34	8.61	1.10					
1878	52.4	+ 3.3	82	20	3.14	+ 0.15	5.87	1.22					
1879	50.3	+ 1.4	88	12	1.13	- 1.85	3.70	0.60					
1880	47.9	-1.0	92	15	2.08	- 0.91	5.65	0.35					
1881	42.5	-6.4	84	10	2.26	- 0.73	5.40	0.45					
1882	48.8	-0.1	91	30	3.73	+ 0.74	8.06	1.60					
1883	49.9	+ 1.0	90	24	2.25	- 0.74	5.90	0.38					
1884	46.8	-2.1	86	19	3.54	+ 0.45	5.40	0.82					
1885	47.5	-1.4	80	16	2.94	- 0.05	7.82	0.73					
1886	50.3	+ 1.4	88	4	2.70	- 0.29	6.90	0.70					
1887	51.1	+ 2.2	94	9	1.38	- 1.61	2.65	0.10					
1888	48.8	-0.1	90	23	2.65	- 0.34	7.87	0.40					
1889	50.3	+ 1.4	86	10	2.37	- 0.64	6.06	0.25					
1890	51.2	+ 2.3	88	2	1.78	- 0.36	5.15	0.25					
1891	50.0	+ 1.7	92	15	2.15	- 0.84	5.00	0.59	8	14	7	9	
1892	46.4	-3.5	88	14	4.75	+ 1.76	8.28	2.43	5.7	9	8	9	13
1893	45.5	-3.4	90	15	4.21	+ 1.22	8.51	1.24	0.0	10	8	9	13
1894	51.7	+ 3.8	93	12	3.07	+ 0.08	6.55	0.22	2	9	11	11	8
1895	54.2	+ 5.3	98	8	2.62	- 0.37	5.88	0.28	2.1	5	14	8	8
1896	54.5	+ 5.6	94	10	5.02	+ 2.03	9.07	2.35	4.5	11	11	10	9
1897	47.9	-1.0	89	19	5.35	+ 2.36	9.86	2.22	T.	11	9	9	12
1898	48.1	-0.8	91	14	2.56	- 0.45	4.82	0.27	T.	8	18	9	8
1899	48.9	-0.0	89	1	2.40	- 0.29	5.76	0.56	2.0	7	12	11	7
1900	52.2	+ 3.3	89	19	2.67	- 0.32	6.02	0.43	0.9	6	12	9	9
1901	49.9	+ 1.0	92	15	1.79	- 1.30	3.47	0.66	2.0	5	14	8	8
1902	48.2	-0.7	90	9	1.71	- 1.28	4.15	0.40	T.	5	14	11	5
1903	49.8	+ 0.9	86	17	2.08	- 0.61	6.00	0.74	0.8	9	11	9	10
1904	44.1	-4.8	80	13	3.63	+ 0.64	8.07	1.62	1.4	7	15	6	9
1905	47.5	-1.4	90	19	3.03	+ 0.04	5.49	0.63	1.2	8	12	8	10
1906	52.5	+ 3.6	94	22	2.42	- 0.57	5.55	0.53	0.6	8	14	9	7
1907	41.5	-7.4	80	10	1.32	- 1.67	3.22	0.94	2.7	6	12	8	10
1908	50.5	+ 1.6	91	8	3.74	+ 0.75	4.39	0.67	0.3	8	14	8	10
1908	43.8	-5.1	86	14	4.58	+ 1.59	9.43	0.83	2.1	12	9	10	13
1910	52.5	+ 3.6	99	15	1.48	- 1.51	4.80	0.10	3.0	7	14	7	9
1911	46.7	-2.2	86	3	3.09	+ 0.10	6.04	1.33	3.6	9	11	8	11
1912	49.9	+ 1.0	84	20	2.66	- 0.33	5.66	0.78	1.1	8	13	8	9
1913	50.2	+ 1.3	88	16	3.28	+ 0.29	7.43	1.12	2.7	9	15	5	10
1914	48.6	-0.3	88	11	2.52	- 0.47	8.53	0.25	0.7	8	19	8	12
1914	37.2	+ 8.3	95	19	1.41	- 1.68	4.02	0.65	T.	7	15	10	5
1915	47.1	-1.8	90	11	2.62	- 0.37	5.92	1.13	1.1	10	10	9	11
1916	45.5	-3.4	88	17	4.55	+ 1.50	7.84	2.05	3.8	11	9	7	14
1917	44.8	-4.1	79	12	2.32	- 0.67	4.39	1.01	3.5	9	12	8	10
1918	48.4	-0.5	81	20	4.78	+ 1.79	9.00	1.94	0.7	14	8	8	8
1919	43.4	-6.5	78	22	4.59	+ 1.00	7.38	1.93	2.0	12	8	9	13
1920	52.4	+ 3.5	88	14	3.34	+ 0.35	8.00	0.99	3.6	10	13	7	10
1921	49.9	+ 1.0	87	21	3.06	+ 0.07	6.70	1.04	1.0	9	11	9	16
1922	48.4	-0.5	83	11	2.09	- 0.90	4.36	0.47	0.3	8	15	7	8
1923	50.5	+ 1.6	90	8	1.28	- 1.61	4.53	0.38	1.4	16	8	8	8
1924	56.5	+ 7.6	95	21	2.20	- 0.79	5.34	0.71	T.	8	14	9	7
1925	46.1	-2.8	95	9	0.91	- 2.08	2.29	0.06	1.5	4	16	7	7
1926	49.2	+ 0.3	91	15	4.84	+ 1.85	9.06	2.09	2.6	14	9	7	14

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

MAY

There was a marked excess in temperature during May, the average excess for the State being 4.3° and as was the case in the two preceding months, the western portion of the State was the warmest. There were numerous fluctuations in temperature, being most frequent over the eastern portion of the State, where the longest period above normal was six days, while in the western portion there was a period of six days above normal during the first and second weeks and another nine days at the end of the month. The temperature was below normal for only short periods. The date of the last frost was the 22d but the damage was not severe. A rather hard freeze occurred on the 3d but crops had not developed to a point where there could be much damage and truck crops were generally protected. The frosts that occurred on the 14th and 15th damaged tender vegetation considerably and strawberries were damaged somewhat. The greatest damage to truck crops was due to cut worms. Cabbage and tomato plants were destroyed in great numbers and replanting was necessary to such an extent that surplus stock was exhausted and the destruction was continuing at the end of the month.

There were no destructive storms but there was minor damage from straight winds, lightning and hail in small areas in all portions of the State. Lightning killed a number of cattle and horses, the total damage from hail amounted to a few thousand dollars and wind destroyed property valued at less than \$20,000. While the precipitation averaged more than twice that of May, 1925, the total for the two preceding months was more than an inch less than the same period last year, and at the end of the month there was a rather severe drouth over a large portion of the State, the only large area where this was not true was in the north-central portion. The drouth was aggravated by the prevalence of strong winds on a large number of days and an average relative humidity 10 per cent below the normal. This condition caused the soil to become dry and dusty and in sections to drift badly. Dust storms again developed and in some areas in the western and central portions the dust was sufficiently dense to obscure the sun. Crops suffered both from being covered with dust and having the soil blown from the roots. There was considerable damage to corn from cut worms and much replanting was necessary. However, the general condition of the corn crop was better than the adverse weather conditions would indicate. Pastures and meadows suffered most from the dry weather. In some of the drier sections pastures were brown and bare and hay was making very poor progress. Small streams were unusually low and some wells were beginning to fail. Farm work made good progress though there were still some corn fields unplanted and some replanting was unfinished at the end of the month. Some early planted corn was being cultivated the second time and fields were generally free from weeds. The prospect for tree fruit was unusually good but the hot weather during the last week reduced the probable yield of strawberries; and raspberries were not very promising on account of being winter killed. Winter wheat was heading short in

some of the drier localities and spring wheat and oats were showing a few yellow spots.

Temperature. The mean temperature for the State, as shown by the records of 103 stations, was 64.5°, or 4.3° higher than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 63.3°, or 4.7° higher than the normal; Central, 64.7° or 4.3° higher than the normal; Southern, 65.6°, or 4.1° higher than the normal. The highest monthly mean was 67.6°, at Thurman, and the lowest was 60.0° at Postville. The highest temperature reported was 97° at Fort Dodge on the 24th, and at Afton, Audubon, Carroll and Little Sioux on the 26th, and the lowest was 25°, at Milford, on the 2d. The temperature range for the State was 72°.

Precipitation. The average precipitation for the State, as shown by the records of 111 stations, was 2.76 inches, or 1.85 inches less than the normal. By divisions, the averages were as follows: Northern, 3.31 inches, or 1.29 inches less than the normal; Central, 2.29 inches, or 2.32 inches less than the normal; Southern, 2.69 inches, or 1.93 inches less than the normal. The greatest amount, 6.83 inches, occurred at Britt, and the least, 0.52 inch, occurred at Harlan. The greatest amount in any 24 consecutive hours, 2.63 inches, occurred at Britt, on the 25th.

Miscellaneous Phenomena. Aurora: 3d, 4th, 5th. Fog: 18th, 22d. Frost: 3d, 14th, 15th, 22d. Hall: 1st, 8th, 9th, 16th, 17th, 20th, 22d, 24th, 25th, 26th, 27th, 29th, 31st. Halos (lunar and solar): 4th, 9th, 12th, 16th, 25th, 28th, 29th, 30th. Haze: 6th. Rainbows: 24th, 25th. Thunderstorms: 1st, 2d, 4th, 7th, 8th, 9th, 13th, 16th, 17th, 18th, 20th, 21st, 23d, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st. Dust Storms: 4th, 5th, 6th, 7th, 15th, 21st.

Rivers. Low stages prevailed on the Mississippi River with a general falling tendency. At almost all stations the highest stage occurred on the 1st and the lowest on the last day of the month. There was a rather sharp rise on the Missouri River during the first week after which moderate and nearly stationary stages prevailed. Low stages prevailed on all interior rivers but there were several slight rises in the rivers in the eastern and central portions. Unusually low stages prevailed in the northwestern portion of the State.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)			Relative Humidity, %			Wind				Sun- shine Departure from normal						
	Mean	Highest	Date	Lowest	Date	Mean		Total movement	Average hourly velocity	Maximum							
						7 a. m. to 12 Noon	1 p. m. to Lowest			Miles From		Date					
Charles City.....	29.90	30.31	3	29.41	26	69	45	59	15	5,938	8	30	sw.	30	72	+11	
Davenport.....	29.57	30.29	4	29.54	25	71	45	18	23	6	5,943	8	25	na.	30	60	+
Des Moines.....	29.87	30.30	3	29.51	9	68	44	14	15	6,806	9	32	sw.	27	72	+11	
Dubuque.....	29.88	30.22	3	29.46	21	67	30	20	6	5,328	7.1	21	n.	29	66	+7	
Keokuk.....	29.91	30.27	3	29.52	9	63	45	53	2	6,139	8	24	s.	29	74	+9	
Sioux City.....	29.86	30.31	3	29.39	20	73	41	18	14	10,281	12.8	51	s.	27	72	+9	
Omaha, Neb.....	29.86	30.27	3	29.50	27	67	45	18	17	6,326	8.3	32	ne.	18	70	+9	
Means and extremes.....	29.88	30.32	3	29.35	20	69	45	47	15	9.0	8.7	54	s.	29	68	+7	
Normals and records.....	29.97	30.78	4th	29.02	1875	7th	77	39	39	8.7	58	1st	1894	61	61	---	

*Dubuque. †Omaha. ‡Sioux City. ††Local mean time. †††And other dates.

COMPARATIVE DATA FOR THE STATE—MAY

Year	Temperature				Precipitation				Number of Days			
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre. of less. of an inch	Clear	Partly cloudy
1873	56.5	+ 3.7	86	28	5.00	+ 1.33	9.10	3.42				
1874	64.1	+ 2.9	94	41	1.88	+ 2.73	4.89	0.50				
1875	61.5	0.3	91	36	2.94	+ 1.67	5.70	1.63				
1876	61.1	0.9	90	32	2.84	+ 1.77	7.38	1.09				
1877	61.3	0.1	92	39	4.30	+ 3.31	11.00	1.00				
1878	55.7	4.5	82	23	5.01	+ 0.40	11.95	2.14				
1879	62.9	+ 2.7	93	38	4.38	+ 2.22	8.70	1.49				
1880	66.2	+ 6.1	96	37	4.06	+ 8.55	8.45	1.47				
1881	66.7	+ 6.6	98	33	3.73	+ 7.92	9.29	0.49				
1882	54.3	+ 5.9	83	24	5.42	+ 0.81	12.55	1.56				
1883	54.6	+ 5.6	90	31	6.25	+ 1.64	11.08	1.39				
1884	56.6	+ 6.6	88	33	5.15	+ 1.46	6.36	1.09				
1885	57.4	+ 2.8	86	37	4.44	+ 1.17	9.33	1.05				
1886	51.5	+ 2.3	86	30	3.38	+ 1.23	7.03	1.30				
1887	61.6	+ 4.4	96	34	1.55	+ 5.96	5.84	0				
1888	57.8	+ 6.4	88	22	6.58	+ 1.97	10.85	2.00				
1889	50.2	+ 1.0	92	22	4.06	+ 0.55	8.54	1.40				
1890	56.5	+ 3.7	96	36	3.64	+ 0.97	6.44	1.07				
1891	78.3	+ 1.9	94	21	3.18	+ 3.43	7.10	1.46				
1892	54.9	+ 0.2	88	39	8.77	+ 4.16	12.64	4.87				
1893	56.6	+ 3.6	96	36	3.45	+ 1.36	5.82	1.65				
1894	61.1	+ 0.9	96	22	1.87	+ 2.74	4.77	0.33				
1895	61.7	+ 1.5	104	24	3.19	+ 1.42	5.79	0.84				
1896	65.5	+ 3.3	103	34	6.69	+ 2.68	11.79	3.49				
1897	58.5	+ 1.7	96	39	1.92	+ 4.09	3.59	0.21				
1898	59.6	+ 0.6	92	35	4.67	+ 0.96	7.82	2.23				
1899	61.2	+ 0.6	90	27	6.28	+ 0.92	11.47	3.95				
1900	61.2	+ 3.0	102	33	3.31	+ 1.30	6.98	0.96				
1901	69.7	+ 0.5	95	38	3.35	+ 2.30	4.57	0.72				
1902	63.8	+ 3.6	97	25	6.39	+ 0.78	15.01	0.87				
1903	61.4	+ 1.4	91	34	5.55	+ 3.91	15.45	3.95				
1904	59.6	+ 0.6	93	27	3.78	+ 0.83	8.15	1.50				
1905	58.2	+ 1.9	88	28	5.05	+ 1.34	10.83	2.57				
1906	59.8	+ 0.5	95	24	3.54	+ 1.07	10.72	0.89				
1907	53.5	+ 6.7	96	14	6.48	+ 1.31	7.68	0.71				
1908	59.8	+ 0.8	98	15	3.38	+ 1.73	34.32	1.33				
1909	57.9	+ 2.3	97	18	4.38	+ 2.27	7.36	1.86				
1910	54.4	+ 4.8	98	28	4.41	+ 1.32	6.51	1.39				
1911	64.9	+ 4.7	98	33	7.76	+ 0.85	8.73	0.42				
1912	59.7	+ 2.5	97	39	3.32	+ 1.37	6.41	0.72				
1913	59.4	+ 0.8	102	39	6.24	+ 1.63	10.25	3.14				
1914	61.3	+ 2.1	98	25	3.31	+ 1.30	5.90	0.30				
1915	56.1	+ 4.1	90	25	7.34	+ 2.73	13.21	3.82				
1916	59.9	+ 0.3	94	27	4.93	+ 0.32	10.44	2.14				
1917	55.1	+ 5.1	96	18	3.97	+ 0.74	7.33	1.09				
1918	61.9	+ 4.7	98	25	6.87	+ 2.90	11.98	2.73				
1919	58.2	+ 2.0	90	30	3.11	+ 1.59	7.14	0.73				
1920	59.4	+ 0.8	89	29	3.26	+ 1.35	5.73	0.62				
1921	61.3	+ 3.1	94	25	4.23	+ 0.38	9.41	1.32				
1922	62.4	+ 3.2	94	25	3.33	+ 1.58	9.41	0.47				
1923	59.6	+ 0.6	90	39	3.84	+ 1.77	6.35	1.97				
1924	54.1	+ 6.1	94	36	1.71	+ 1.59	3.52	0.78				
1925	59	+ 2.4	85	30	2.80	+ 1.26	4.00	0.30				
1926	64.5	+ 4.3	97	35	2.76	+ 1.85	6.82	0.92				

T. Indicates an amount too small to measure, or less than .003 inch rainfall and less than .05 inch snowfall.

IOWA STORMS DURING MAY, 1936

Date	County	Township	Nature of Storm	Time	Storm Moved From	Width of path in miles	Length of path in miles	Area square miles	Size of hailstones	Damage	Persons Injured	Persons Killed
17	Richland	Richland	Hail	5:33 P.	SW to SE	1	6	6	1 1/2	None except 800		
18	Washington	Irington	Hail	2:30 P.	W to E	1	0	18	Sparrow eggs Hickory nuts	None except 800		
19	Buchanan	Middlefield	Hail	2:50 P.	SE to NW	1	1	1	Robin eggs	Slight		
20	Madison	Madison	Hail	2:00 P.	SW to NE	1	7	21	Largest 1"	Edges \$10,000 Edges \$7,000 None elsewhere		
21	Carroll	Carroll	Hail	1:00 A.	SW to NE	1	6	12	Walnuts	Edges \$1,000		
22	Monroe	Carroll	Hail	1:30 A.	SW to NE	1	6	12	W to N"	Edges \$1,000		
23	Worth	Dear Creek	Hail	3:30 P.	SW to NE	1	5	5	Largest 3/4"	Edges 800 Crop \$1,000 Ined 800		
24	Worth	Linton	Hail	2:00 P.	SW to NE	1	7	14	1/2"	Edges \$ 200 Edges \$1,500		
25	Bremser	Manlynd	Hail, Flood.	1:00 A.	W to SW SW to SE	6	6	36	N"	None None		
26	Floyd	Rockford	Wined	Night	W to SW	0	0	0	1/2"	Edges: steel \$1,000		
27	Linn	Warrren	Wined	5:30 P.	SW to SE	0	0	0	1/2"	Edges: blown down		
28	Linn	Warrren	Hail	5:30 P.	SW to SE	0	0	0	1/2"	Crops several thousand dollars		
29	Linn	Warrren	Hail	5:30 P.	SW to SE	0	0	0	1/2"	Very little		
30	Linn	Warrren	Hail	5:30 P.	SW to SE	0	0	0	1/2"			
31	Warrren	Warrren	Hail	4:00 P.	SW to SE	0	0	0	1/2"			
32	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
33	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
34	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
35	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
36	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
37	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
38	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
39	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
40	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
41	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
42	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
43	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
44	Warrren	Warrren	Hail	4:30 P.	SW to SE	0	0	0	1/2"			
45	Jasper	Clear Creek	Hail	2:00 P.	SW to SE	0	0	0	1/2"			

JUNE

During the greater part of the month, June was persistently and disagreeably cool. The only warm periods were from the 6th to the 12th and on the last three days of the month, while there was a continuous cool period of 14 days, 14th-27th. There were stations in the eastern portion of the State in each division where the temperature failed to reach 90 degrees while there were several stations in the extreme western portion that recorded 100 degrees or higher. The greatest deficiency occurred over the eastern portion of the State gradually diminishing to the Missouri River, this being the third consecutive month that this condition has obtained. Light frost occurred in low lands on the 3rd, with a minimum temperature of 32 degrees at Decorah, and again on the 28th many fields of corn in low lands were blackened; beans and tomatoes also were injured in localities, but there was no permanent damage.

The drouth that had prevailed over much of the State was completely broken during the 2nd week, starting on the 10th. Unusually heavy rains occurred over much of the central and southern divisions. For the State as a whole there was a deficiency of only 0.01 inch of precipitation, the average for the central division being practically normal, and the deficiency of 1.73 inches in the northern division was exactly offset by the same excess in the southern division. There was considerable damage, amounting to probably more than \$1,000,000 from wind, hail and floods, but this was but a small per cent of the benefit that accrued to many counties in sections of the State where the drouth had persisted. In Dallas and the western portion of Polk Counties there was considerable damage due to excessive rainfall on the 12th-13th, where small streams that are normally dry became raging torrents. At Perry, 7.57 inches of rain fell in 19½ hours. Cultivated land with a slight slope was badly eroded and hundreds of acres of bottom land was covered with water for periods ranging from a few hours to more than two days. There was also considerable damage in the south-central portion of the State from floods due to excessive rainfall in that section. At Lacona a rainfall of 7.75 inches occurred in 17 hours on the 13th. Much bottom land in this section was flooded and a number of washouts occurred on the main line of the Burlington Railroad in the vicinity of Melrose. The total length of track washed out amounted to more than one mile, and as soon as the damage was repaired a second washout in the same track occurred from heavy rains farther up stream. It was necessary to detour trains over other lines for several days. Hail storms occurred on numerous days but they were not unusually destructive. During the storm period from the 10th to 13th hail storms occurred daily in some part of the State. The worst reported occurred in Hancock County, where stones as large as goose eggs were reported, causing damage to buildings of about \$10,000 and \$50,000 to crops. A destructive tornado occurred in Page County on the afternoon of the 16th and passed over the extreme southern portion of the city of Clarinda, causing a property damage of \$250,000 and the loss of two lives and twenty-four people rather seriously injured. On the same afternoon another tornado occurred in Ringgold County but it

passed over a sparsely settled area and the damage was light in comparison with the Page County tornado. On the 20th a tornado touched the ground in a few places in the extreme northeast corner of Pottawattamie and the northwest township of Cass Counties.

The rains came too late to be the most benefit to hay and small grain. Over most of the State oats headed short and the hay crop was rather light. The weather was too cool for the best development of corn but at the close of the month the general condition compared favorably with the average of past years, and fields were generally clean except in small areas in the southeast portion.

Temperature. The mean temperature for the State, as shown by the records of 196 stations, was 66.2°, or 3.1° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 65.0°, or 3.0° lower than the normal; Central, 66.2°, or 3.4° lower than the normal; Southern, 67.3°, or 2.7° lower than the normal. The highest monthly mean was 70.4°, at Thurman, and the lowest was 60.6°, at Postville. The highest temperature reported was 105°, at Little Sioux, on the 28th, and the lowest was 32° at Decorah on the 3rd. The temperature range for the State was 73°.

Precipitation. The average precipitation for the State, as shown by the records of 113 stations, was 4.52 inches, or 0.01 inch less than the normal. By divisions, the averages were as follows: Northern, 2.88 inches, or 1.73 inches less than the normal; Central, 4.44 inches, or 0.02 inch less than the normal; Southern, 6.24 inches, or 1.73 inches more than the normal. The greatest amount, 12.09 inches occurred at Lacona, and the least, 1.05 inches, occurred at New Hampton. The greatest amount in 24 consecutive hours, 7.75 inches, occurred at Lacona on the 13th.

Miscellaneous Phenomena. Aurora: 1st, 2nd, 7th, 8th. Fog: 3rd, Frost: 3rd, 26th. Hail: 1st, 10th, 11th, 12th, 13th, 16th, 20th, 22nd, 24th, 25th, 29th, 30th. Ha'os: (lunar and solar): 5th, 15th, 18th, 21st. Haze: 1st, 20th. Rainbows: 11th, 17th, 24th, 30th. Storms (Dust): 1st, 5th, 6th, 7th, 8th, 17th, 21st, 22nd. Thunderstorms: 2nd, 3rd, 5th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 29th. Tornado: 16th.

Rivers. Low stages prevailed on the Mississippi River, with very little fluctuation, the heavy rains on the 11th and the 13th affecting the stage very little except in the extreme lower course. Low and nearly stationary stages also prevailed on the Missouri River, the extreme for the entire month not exceeding two feet. High stages were produced on the interior rivers following the heavy rains on the 13th over most of the central and southern divisions. High stages prevailed on the Raccoon River and most of its tributaries were out of bank flooding many thousand acres of bottom land. The Des Moines River reached flood stage southward from Ottumwa and nearly all streams in the South-central and the eastern portion of the southwestern divisions were out of banks. Small streams in Dallas and the western portions of Polk Counties were reported the highest ever known.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)				Relative Humidity, %		Wind				Sunshine % possible Departure from normal			
	Mean	Highest	Date	Lowest	Mean		Total movement	Average hourly velocity	Maximum					
					7 a. m. 12 Noon 7 p. m.	Lowest			Miles	Date				
Charles City.....	29.9	30.21	18	29.50	67.0	48.53	22	7	4,895	6.8	26	se.	20	72 + 4
Davenport.....	29.92	33.22	19	29.49	14.71	48.54	19	7	5,488	7.6	33	w.	1	65 - 6
Dos Moines.....	29.90	31.23	18	29.61	67.0	60.47	15	6	5,144	7.1	32	sw.	11	79 + 12
Dubuque.....	29.88	30.22	19	29.45	67.1	48.52	23	7	4,835	6.7	38	nw.	11	72 + 8
Keokuk.....	29.94	30.20	3	29.53	14.72	49.54	20	8	5,462	7.6	34	nw.	7	80 + 6
Sioux City.....	29.91	30.32	18	29.56	15.96	47.45	13	7	5,532	11.8	46	nw.	6	65 + 2
Omaha, Neb.....	29.9	30.27	18	29.49	30.04	44.48	16	6	5,430	7.5	34	nw.	6	77 + 9
Means and extremes.....	29.91	30.32	18	29.45	67.0	47.50	23	7	7.9		46	nw.	6	73 + 5
Normals and records.....	29.93	33.6	1913	29.46	51.7	79	00	71.5	7.6		58	w.	1917	68

*Dubuque. †Omaha. ‡Sioux City. †Local mean time. †And other dates.

COMPARATIVE DATA FOR THE STATE—JUNE

Year	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snow fall	With prec. of in. or more	Clear	Partly cloudy	Cloudy
1873.....	74.5	+ 5.3	90	56	4.08	+ 0.15	8.40	1.30					
1874.....	71.4	+ 2.1	98	47	5.33	+ 1.30	8.55	2.60					
1875.....	67.5	- 1.8	92	45	7.81	+ 3.28	10.89	1.63					
1876.....	67.6	- 1.7	92	41	4.90	+ 0.44	16.34	0.35					
1877.....	65.9	- 2.4	92	40	6.80	+ 2.27	13.12	3.21					
1878.....	66.7	- 2.6	94	44	6.34	+ 1.81	11.60	2.78					
1879.....	69.4	+ 0.1	92	40	5.12	+ 0.59	10.00	3.47					
1880.....	75.0	+ 1.7	96	45	4.40	+ 0.15	11.12	1.03					
1881.....	70.4	+ 1.1	100	40	7.37	+ 2.84	17.37	2.73					
1882.....	68.1	- 1.2	98	33	7.48	+ 2.95	15.41	2.92					
1883.....	67.6	- 1.7	96	38	6.69	+ 2.16	14.29	1.39					
1884.....	70.3	+ 0.9	95	35	3.65	+ 0.88	8.89	0.70					
1885.....	67.9	- 1.4	89	42	5.98	+ 0.55	11.04	1.51					
1886.....	69.3	+ 0.0	98	34	1.73	+ 2.89	3.42	0.10					
1887.....	72.1	+ 2.8	103	49	4.33	+ 1.63	7.92	0.90					
1888.....	69.4	+ 0.1	102	34	2.96	+ 1.60	6.01	0.96					
1889.....	68.7	- 2.6	98	33	4.75	+ 0.22	9.87	1.69					
1890.....	72.3	+ 2.9	106	39	6.67	+ 2.14	16.35	1.57		11	13	10	8
1891.....	69.1	+ 0.2	99	37	5.29	+ 0.86	10.88	1.68		11	8	10	12
1892.....	69.3	+ 0.1	102	42	5.19	+ 0.66	14.30	0.67		30	12	11	7
1893.....	74.2	+ 1.9	109	49	3.91	+ 0.62	7.66	1.30		8	15	11	4
1894.....	73.2	+ 3.9	104	34	3.67	+ 1.86	6.20	0.57		7	16	10	4
1895.....	69.7	+ 0.4	102	34	4.32	+ 0.21	9.26	0.98		10	11	11	8
1896.....	69.1	- 0.2	100	49	3.11	+ 1.42	7.80	0.81		9	12	10	5
1897.....	69.1	- 0.2	103	29	8.81	+ 0.72	9.88	1.03		10	10	12	8
1898.....	71.4	+ 2.1	99	42	4.72	+ 0.19	12.48	1.99		9	13	10	7
1899.....	70.7	+ 1.4	100	42	5.04	+ 0.51	11.99	1.10		10	12	13	5
1900.....	69.7	+ 0.4	102	38	3.08	+ 0.56	12.35	0.67		5	17	10	3
1901.....	72.3	+ 3.0	106	31	3.71	+ 0.82	7.84	1.06		9	15	11	4
1902.....	65.2	- 4.1	97	32	7.36	+ 2.62	16.04	3.40		14	8	11	31
1903.....	64.6	- 4.7	96	31	2.86	+ 1.67	6.04	0.75		19	13	10	7
1904.....	67.1	- 2.2	94	35	3.45	+ 1.08	8.35	0.44		7	13	10	7
1905.....	69.9	+ 0.6	100	36	5.58	+ 1.01	14.89	1.89		10	12	11	7
1906.....	67.9	- 1.4	99	37	3.92	+ 0.61	8.27	1.43		8	15	10	5
1907.....	69.5	+ 2.8	98	36	5.35	+ 0.82	9.30	2.95		11	14	9	7
1908.....	67.1	- 2.2	94	35	5.06	+ 1.13	11.88	1.77		13	12	10	8
1909.....	69.1	- 0.2	96	40	6.41	+ 1.88	13.30	2.83		13	12	10	8
1910.....	69.5	+ 0.2	103	33	1.69	+ 2.54	5.61	0.05		7	18	7	5
1911.....	75.7	+ 6.4	108	36	1.82	+ 2.71	6.28	0.90		5	20	8	2
1912.....	66.8	- 3.1	101	34	3.74	+ 1.79	5.71	0.78		7	15	9	6
1913.....	71.5	+ 2.2	102	35	3.31	+ 1.22	8.95	0.74		7	19	8	3
1914.....	72.2	+ 2.9	101	49	5.07	+ 1.04	13.24	1.17		13	12	14	4
1915.....	65.1	- 4.2	91	31	4.16	+ 0.37	9.99	1.72		11	12	12	6
1916.....	61.5	- 4.8	96	38	3.71	+ 0.82	7.96	1.41		10	13	12	6
1917.....	69.7	+ 0.5	100	32	6.63	+ 2.12	13.82	3.01		12	13	10	7
1918.....	70.8	+ 1.3	104	36	5.29	+ 0.76	10.19	1.55		11	16	10	4
1919.....	71.9	+ 2.6	98	41	6.13	+ 1.60	12.25	1.82		13	12	12	6
1920.....	70.7	+ 1.4	99	40	3.56	+ 0.97	8.48	1.25		9	16	10	4
1921.....	74.7	+ 5.4	109	40	3.76	+ 0.77	8.85	0.56		9	16	10	4
1922.....	72.3	+ 2.9	104	38	1.82	+ 2.71	7.19	0.28		8	19	8	3
1923.....	70.9	+ 1.6	100	40	4.93	+ 0.40	7.69	2.43		12	14	10	6
1924.....	66.8	- 2.5	96	35	8.10	+ 3.57	14.92	4.00		14	11	14	5
1925.....	70.4	+ 1.1	98	38	6.64	+ 2.14	13.20	2.99		12	15	9	6
1926.....	63.2	- 3.1	105	32	4.62	+ 0.61	12.09	1.05		8	16	9	5

T. Indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

EXCESSIVE RAINFALL AT PERRY AND LACONA

Perry, Iowa, on June 12th-13th and Lacona, Iowa on the 13th were centers of the most intense rainstorm that has visited the State in nearly 14 years. Beginning at 6:30 P. M., of the 12th, 7.57 inches fell at Perry in the next 19½ hours ending at 2 P. M. of the 13th. The official cooperative observer at Perry, Mr. Eugene N. Hastie, is deserving of special commendation in that he took measurements of the rainfall at frequent intervals through the night.

Details of the Storm at Perry

Date	Hour	Amount Measured	Rate per Hour	Accumulated Amounts
12th	7 P. M.	0.64	1.28	0.64
	9 P. M.	2.47	1.24	3.11
	11 P. M.	1.22	0.61	4.33
13th	1 A. M.	0.85	0.42	5.18
	5 A. M.	0.25	0.06	5.43
	10 A. M.	0.94	0.19	6.37
	2 P. M.	1.20	0.30	7.57

While there have been rainstorms of greater intensity for shorter periods of time at this station, such a large total in the same number of hours has never before been recorded in the nearly 26 years of record. In 1907, 2.24 inches fell in 1 hour on October 2; and 3.84 inches fell in 2 hours on August 28. On June 24th-25th, 1909, 6.00 inches fell in 9 hours.

If the soil had contained the normal amount of moisture just prior to June 12th, this unprecedented rain associated as it was with excessive rains throughout the drainage basin of the Raccoon River, would have caused a serious flood in the lower river. But the storage capacity of the drainage basin was at the maximum due to deficient precipitation generally for several months and the rain while unprecedented in amount was spread over a relatively large number of hours, which afforded better than the usual opportunity for it to soak and settle into the ground. Corn fields which constitute a large per cent of the drainage basin were well cultivated and unusually receptive.

At Lacona 7.75 inches of rain fell in 17 hours indicating slightly greater intensity for short periods, than at Perry. Detailed measurements are not available but the flood results indicate great intensity.

IOWA STORMS DURING JUNE, 1909

Date	County	Township	Nature of Storm	Time	Storm Moved From	Width of path, miles	Length of path, miles	Area square miles	Size of Hailstones	Damage	Persons	
											Injured	Killed
1	Kossuth	Lotis Creek	Wind	6:00 a.	NW to SE	0	6	36	Marbles	Crops, Wind, 27%		
10	Pocahontas	Grant	Hail	3:30 p.	SW to NE			66	Marbles	Crops, Wind \$300,000		
10	Pocahontas	Sherman	Hail, Wind	2:30 p.	SW to NE			66	Marbles	Crops, Wind \$300,000		
10	Pocahontas	Lincoln	Hail	2:40 p.	S to N		1	1	Marbles	Livestock, Hail \$1,000		
11	Bremser	Maxfield	Hail, Wind	3:00 p.	NW to SE	6	6	36	Peas	Crops, Hail \$1,300		
11	Buchanan	Fairbank	Hail, Wind	3:10 p.	NW to SE	6	6	36	Peas	Damage by Water		
11	Hancock	Twin Lake, Liberty	Hail	3:00 p.	NW to SE	1½	9	12	Goose Eggs	Hail, Crops, \$50,000		
11	Ia.	Galva	Hail, Wind	7:00 p.	W to E	4	6	24	Walnuts	Hail, Crops, \$10,000		
11	Pocahontas	Cummins	Hail	9:30 p.	SW to NE	4	6	24	Walnuts	Hail, Crops, slight		
11	Wright	Belmond, Norway	Hail	3:00 p.	SW to SE		2	2	Marbles	Hail, Crops, consider-		
12	Dallas	Spring Valley	Hail	8:00 p.	E to W				Marbles	able Crops \$5,000	1	
12	Greene	Jackson	Hail	7:30 p.	W to E				Walnuts	Lightning, Bldgs. \$4,000		
12	Iowa	English	Hail	10:00 p.	SE to SW	1	4	4	Walnuts	Hail, Crops, some		
12	Madison	Wilton	Hail	10:15 p.	SW to NE	2	6	12	Marbles	Hail, Crops, some		
12	Winneshiek	Lincoln, Orleans	Hail, Wind	10:15 p.	SW to NE	1	4	4	Marbles	Hail, Crops, \$1,100		
12	Hancock	Twin Lake, Avery	Hail	9:00 p.	N to S	1	4	4	Goose Eggs	Wind, Bldgs, \$275		
12	Hancock	Twin Lake, Avery	Hail	6:30 p.	SW to NE	1	7	7	Goose Eggs	Hail, Bldgs and Grain		
12	Lucas	Trenton	Flood					20		some Crops, \$8,000		
12	Lucas	Cedar	Flood			0	6	6		Flood, Bldgs, \$5,000		
12	Jefferson	Round Prairie	Hail, Wind	2:06 a.	NE to SW		5	19	Peas	Lightning, Bldgs. \$8,000		
12	Wright	Peasant	Hail	4:00 p.	SW to SE	2	5	10	Marbles	Hail, Crops \$2,000		
12	Polk	Western part	Rain, Hail	12:07 a.				50	Marbles	Winds and Roof, some		
12	Polk	Western part	Rain, Hail	12:07 a.				50	Marbles	Hail, Crops, \$90,000		

Date	County	Township	Nature of Storm	Time	Storm Moved From	Width of path miles	Length of path miles	Area square miles	Size of Hailstones	Damage	Persons	
											Injured	Killed
18	Dallas	Vicinity, Perry	Rain	a. m.	SW to NE	75 yds.	6			Flood, considerable		2
16	Agee and Hamburg	Town of Clarinda	Tornado	3:00 p.	SW to NE	3/4	7	2	Small	Tornado; Bldgs. \$300,000 Crops \$ 50,000 Tornado; Bldgs. \$5,000 Crops, \$25,000	24	0
19		Jefferson, Middlefork and Clinton	Tornado	3:30 p.	SW to NE	3/4	7	2		Wind, Bldgs. \$500 small grain, some Wind, Bldgs. and Crops, \$2,000	5	0
20	Jones	All of county	Wind	11:30 p.						Wind, Bldgs. \$500 small grain, some Wind, Bldgs. and Crops, \$2,000		
20	Kossuth	German	Wind	9:00 p.	SW to NE	1 1/2	3	4		Wind, Bldgs. \$2,000 Crops, \$500		
20	Pottawattomie and Cass	Brighton, Layton	Tornado	7:30-8:00 p.	W to E	3/4				Flood, Fences and Cul- verts, some, 40 hogs Killed Crops, some Hail Crops, some Hail Crops, some		
20	Shelby	Douglas	Flood	7:00 p.						Flood, Fences and Cul- verts, some, 40 hogs Killed Crops, some Hail Crops, some Hail Crops, some		
24	Henry	Jackson	Hail	4:00 p.	W to E				Hickory Nuts			
24	Johnson	Madison	Hail	7:30 p.	W to E		5 1/2	22	1			
24	Van Buren	Van Buren	Hail	8:30 p.	NW to SE	4	7	7	Marbles			

JULY

The mean temperature for the State averaged one degree above normal and was uniform over each division, but there was the same contrast between the eastern and western portions that has existed for several months. The western portion was decidedly the warmer with a general excess that exceeded three degrees at two stations while several stations in the eastern portion had a deficiency that exceeded one degree at two stations. Temperature extremes were quite marked. During the last 54 years only three times has the maximum been higher twice has the minimum been lower and once has the monthly range been greater in July. There were numerous fluctuations in temperature but they were more frequent over the eastern portion of the State. During the third week temperatures of 100 degrees or higher occurred over most of the State, but particularly in the northern division where the number of stations reporting 100 degrees or higher was considerably larger than the combined number in the central and southern divisions. At Inwood, Lyon County, readings of 109 degrees were recorded on the 19th and 20th.

Though for the State as a whole the precipitation averaged only slightly below normal, there was a decided deficiency over practically the entire western half. However, several stations in the western half had excesses, while over the eastern half there was a general excess but with several stations showing deficiencies. More than 75 per cent of the precipitation occurred on the first three and last four days. Only a few scattered showers occurred from the 10th to 21st and a rather severe drouth developed in areas in the western portion of the State. The drouth was aggravated by high temperatures and hot winds from the 16th to the 20th. Conditions were most severe in the southwest and extreme northwest portions. Much upland corn in these areas was permanently injured before the drouth was completely broken at the end of the month. Hail storms were numerous but there was only one that was unusually severe. This storm occurred in Calhoun and Webster Counties during the night of the 27th. About 120 square miles in seven townships were affected. Crops were damaged to the extent of \$640,000 and much window glass was destroyed. The total damage from hail exceeded \$1,000,000 to crops as well as minor damage to livestock. There was also some minor damage to livestock on account of lightning. There was some damage from floods in the northeastern portion of the State due to locally heavy rains in the Maquoketa River basin. The principal damage resulted to a huge dam that is being constructed near Delhi.

Temperature. The mean temperature for the State, as shown by the records of 103 stations, was 74.8°, or 1.0° higher than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 73.8°, or 1.1° higher than the normal; Central, 74.8°, or 0.8° higher than the normal; Southern, 75.7°, or 1.1° higher than the normal. The highest monthly mean was 77.6°, at Glenwood, and the lowest was 69.6°, at Postville. The highest temperature recorded was 109°, at Inwood, on the 19th and 20th, and the

lowest was 38°, at Decorah, on the 14th. The temperature range for the State was 71°.

Precipitation. The average precipitation for the State, as shown by the records of 113 stations, was 3.72 inches, or 0.12 inch less than the normal. By divisions, the averages were as follows: Northern, 3.90 inches, or 0.11 inch greater than the normal; Central, 3.77 inches, or 0.08 inch less than the normal; Southern, 3.48 inches, or 0.42 inch less than the normal. The greatest amount, 9.08 inches occurred at Clinton, and the least, 0.82 inch, occurred at Cumberland. The greatest amount in 24 consecutive hours, 4.88 inches, occurred at Clinton on the 29th-30th.

Miscellaneous Phenomena. Fog: 31st. Hall: 1st, 4th, 6th, 12th, 21st, 23d, 27th, 28th, 29th, 30th. Haze: 2d, 15th. Rainbows: 8th, 23d. Thunderstorms: All dates except 10th, 11th, 13th, 14th, 16th, 19th, 25th. Winds (hot): 16th, 17th, 18th, 19th, 20th.

Rivers. Unusually low stages prevailed on the Mississippi River except a moderate rise occurred during the first week after which a general falling tendency prevailed till the last week when a slight rise occurred. Low stages prevailed on all principal interior rivers and there were no rises of consequence, but there were numerous slight rises following the heaviest shower periods. There were numerous fluctuations on the Missouri River but none of consequence and during most of the month nearly stationary stages prevailed. At Omaha the extreme stages ranged from 11.4 feet to 10.0 feet. Heavy rains during the last three days of the month caused floods on the Maquoketa River and some smaller streams in the northeastern portion of the State. All lowlands in the vicinity of Delhi were flooded and the Delhi-Hopkinson road was under water.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)				Relative Humidity, %				Wind				Sun- shine		
	Mean	Highest	Date	Lowest	Date	7 a. m.	12 Noon	7 p. m.	Lowest	Date	Total movement	Average hourly velocity		Direction	
												Miles			From	Date
														Departure from normal	
													% possible		
Charles City	29.96	30.19	23	29.88	9.78	92.57	30	114	4,742	6.4	23	sw.	19	20	-0
Davenport	29.94	30.17	23	29.40	9.74	54.57	33	33	5,195	7.0	33	e.	26	55	-0
Des Moines	29.91	30.19	11	29.26	9.79	50.00	35	20	5,974	8.0	35	sw.	20	64	-0
Dubuque	29.92	30.18	23	29.38	9.76	55.57	32	11	4,258	5.7	21	nw.	21	68	-12
Keokuk	29.95	30.20	5	29.53	14.74	53.08	34	14	4,902	6.6	27	sw.	29	74	-5
Sioux City	29.94	30.23	23	29.29	9.76	52.49	17	29	7,963	10.7	42	e.	25	63	-8
Omaha, Neb.	29.90	30.18	11	29.34	9.72	50.40	19	419	3,720	5.0	23	nw.	23	78	+4
Means and extremes	29.92	30.23	23	29.29	9.76	54.55	17	30		7.1		e.	25	66	-8
Normals and records	29.97	30.47	1892	29.29	1892	57	17	30		6.7		18th	74		
									1894			64	de.	1900	

*Davenport. †Sioux City. ‡Des Moines. §Omaha. ||Local mean time. ††and other dates.

COMPARATIVE DATA FOR THE STATE—JULY

Year	Temperature				Precipitation			Number of Days				
	Mean	Departure	Highest	Lowest	Total	Greatest	Least	Snowfall	With pr. of in. or more	Clear	Partly cloudy	Cloudy
1873	74.0	+ 0.2	96	54	2.78	- 1.07	7.73	0.85				
1874	77.8	+ 4.0	101	50	3.04	+ 0.81	6.15	0.55				
1875	72.8	- 1.9	92	56	6.05	+ 2.29	9.70	1.00				
1876	74.2	+ 0.4	95	54	6.15	+ 2.39	11.92	1.88				
1877	74.0	+ 0.2	97	54	2.35	+ 1.50	7.58	1.30				
1878	76.5	+ 2.7	104	52	5.13	+ 1.28	13.20	0.90				
1879	76.0	+ 2.2	102	55	2.20	- 1.65	8.66	0.90				
1880	73.8	- 0.9	98	48	4.16	+ 0.31	16.40	2.30				
1881	75.9	+ 2.0	100	50	5.38	+ 1.48	16.31	0.28				
1882	69.1	- 4.7	94	46	3.66	+ 0.19	7.30	0.85				
1883	73.9	- 0.9	100	49	5.14	+ 1.29	13.99	1.20				
1884	71.0	- 2.8	96	50	5.41	+ 1.56	11.51	0.79				
1885	74.6	+ 0.8	102	48	4.73	+ 0.88	11.45	0.08				
1886	76.2	+ 2.4	103	48	0.50	- 3.35	2.30	0.00				
1887	77.0	+ 3.2	105	45	2.85	- 1.00	8.45	0.87				
1888	75.9	+ 2.1	103	39	4.31	+ 0.46	8.45	1.15				
1889	72.6	- 1.3	102	40	4.00	+ 0.15	8.25	1.15				
1890	75.2	+ 1.4	110	45	2.94	- 1.21	6.16	0.00				
1891	68.5	- 5.3	90	41	4.22	+ 0.37	8.30	1.07	8	13	13	5
1892	73.0	- 0.8	104	38	5.29	+ 1.44	12.86	1.71	9	16	10	6
1893	75.0	+ 1.2	102	47	3.23	- 0.52	8.84	1.49	7	19	10	2
1894	76.4	+ 2.6	109	39	0.63	- 3.22	3.50	1.1	3	22	8	1
1895	72.1	- 1.7	104	35	3.40	+ 0.15	19.10	0.45	7	15	12	4
1896	73.6	+ 0.2	104	42	6.90	+ 3.05	12.67	1.61	9	14	11	0
1897	75.6	+ 1.8	109	43	3.26	+ 0.39	7.00	1.01	6	18	10	3
1898	73.4	- 0.4	102	42	2.98	- 0.87	12.88	0.55	7	19	9	3
1899	73.1	- 0.7	101	38	3.07	- 0.78	8.03	0.42	7	16	10	5
1900	73.4	- 0.4	102	37	6.35	+ 2.39	18.45	1.80	9	16	10	5
1901	82.4	+ 8.6	113	46	2.34	- 1.51	5.97	0.27	5	21	9	1
1902	73.1	- 0.7	99	41	8.67	+ 4.82	12.57	4.82	13	14	10	7
1903	72.9	- 0.9	100	40	4.83	+ 0.98	12.72	0.94	9	17	9	5
1904	79.6	+ 5.2	109	38	4.41	+ 0.56	11.97	1.28	10	15	10	6
1905	79.0	+ 5.2	109	37	6.93	+ 0.94	7.68	0.99	9	14	10	7
1906	79.9	+ 5.2	109	42	3.04	+ 0.81	7.05	0.26	8	18	10	3
1907	73.7	- 0.1	102	41	7.57	+ 3.42	13.66	3.97	13	16	11	4
1908	72.9	- 0.8	100	42	3.66	+ 0.19	9.21	0.79	8	16	10	5
1909	72.3	- 1.3	102	46	4.77	+ 0.52	12.39	1.29	10	15	8	4
1910	74.5	+ 0.7	108	43	1.86	- 1.96	5.69	0.12	7	19	8	4
1911	72.5	- 1.7	111	33	2.57	- 1.58	6.62	0.98	7	18	10	3
1912	74.6	+ 0.8	103	38	3.71	+ 0.14	7.56	1.17	10	17	10	4
1913	76.1	+ 2.3	108	45	1.82	- 2.03	6.23	1.1	5	21	8	2
1914	76.0	+ 2.2	109	43	2.57	- 1.28	6.50	0.44	5	20	8	4
1915	69.5	- 4.3	95	40	8.82	+ 4.47	15.83	3.68	14	10	12	9
1916	79.7	+ 5.9	105	48	1.78	- 2.67	6.87	0.10	5	23	7	1
1917	74.3	+ 0.5	100	38	2.27	- 1.58	6.00	0.23	7	16	8	2
1918	72.7	- 0.7	105	49	3.17	- 0.68	8.05	0.36	6	19	8	4
1919	79.2	+ 4.9	104	43	2.86	- 0.94	7.82	0.39	6	22	8	1
1920	72.3	- 1.5	102	45	4.22	+ 0.37	7.49	1.11	9	19	9	3
1921	77.9	+ 4.1	104	41	2.53	- 1.32	7.45	0.42	7	19	9	3
1922	71.5	- 2.3	98	40	6.31	+ 2.46	11.72	3.12	11	14	12	5
1923	76.5	+ 2.7	103	47	1.76	- 2.10	5.54	0.29	5	19	9	3
1924	79.2	+ 4.9	104	43	2.67	- 0.94	7.82	0.39	6	16	11	1
1925	74.1	+ 0.3	105	40	2.06	- 1.19	7.93	0.89	8	19	10	2
1926	74.8	+ 1.0	100	38	3.72	- 0.10	9.08	0.82	10	15	10	6

T. Indicates an amount too small to measure, or less than .001 inch rainfall and less than .05 inch snowfall.

IOWA STORMS DURING JULY, 1926

Date	County	Township	Nature of Storm	Time	Storm Moved From	Width of path miles	Length of path miles	Area square miles	Size of Hailstones	Damage	Persons	
											Injured	Killed
1	Butler	Aplington	Hail	9:30 p.	NW to SE	2	5	10	Walnuts	Crops, \$50,000		
1	Butler	Washington	Hail	10:00 p.	NW to SE	1 1/2			Hen Eggs	Crops, \$15,000, some windows broken		
4	O'Brien	Carroll	Hall	8:00 p.	W to E	1 1/2	14	21	Marbles	Crops, \$50,000		
4	Sioux	Sherman	Hall	5:30 p.	W to E	1	6	6	Small	Crops, \$4,000		
4	Sioux	West Branch	Hall	10:00 p.	SW to NE	3/4				Crops, \$10,000		
6	Page	Washington	Hall	1:00 a.	NW to SE	2				Some damage to crops		
12	Fremont	Washington	Hall	6:40 p.	NE to SW	2	8	6		Severe damage to crops		
12	Fremont	Riverton	Hall	6:30 p.	NE to SW	2	3/4			Crops, \$25,000		
12	Louisa	Elm Grove	Hall	4:00 p.	NW to SE	2			Marbles	Crops, \$500		
12	Monroe	Urbana	Hall	2:25 p.	W to E	1			Hazel Nuts	Crops, \$25,000		
12	Monroe	Monroe	Hall	3:00 p.	SE to NW	1	6	6	3/4"	Crops, \$12,000, some poultry and windows		
12	Monroe	Troy, Mantuary	Hall	3:00 p.	SE to NW	2	8	16	Walnuts 1"	Crops, \$50,000		
12	Union	Highland, Sand Creek	Hall	4:00 p.	NW to SE					Some damage to corn but not serious		
21	Allamakee	Iowa	Hall	3:00 p.	W to E				1"	Some damage to small grain		
23	Plymouth	Grant	Hall	5:00 p.	W to E				3/4"	Heavy damage to crops		
23	Sioux	Buncombe	Hall	4:00 p.	NW to SE			9	1"	Crops damaged about 50%		
23	Sioux	Washington, Logan	Hall	4:30 p.	W to E	8			1"	Corn damaged 90%, some poultry and hogs drowned		
27	Boone	Grant	Hall	11:50 p.	NW to SE	2	4	8	Marbles	Crops, \$50,000		
27	Calhoun	Lincoln, Cedar and Greenfield	Hall	11:00 p.	NW to SE	5	12	60	Hen Eggs	Crops, \$640,000, some windows broken		
27	Webster	Boiland, Gowrie, Lost	Hall	11:30 p.	NW to SE	5	12	60	Hen Eggs			
27	Hamilton	Fremont, Liberty, Lynn, Hamilton and Independence	Hall									
27	Pocahontas	Lizard	Hall		S to N	2			Small	Crops, \$70,000		

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27	Webster	Newark	Hall	2:30 a.	S to N	1	6	6		Crops, \$100,000		
27	Wright	Grove and Clay	Hall	2:00 a.	SE to NW	3	3	9		Crops, \$1,500		
27	Greene	Troy	Hall	2:00 a.	SE to NW	3	6	12	Peas 1"	Crops damaged about 50%		
27	Greene	Paton	Hall	12:30 a.	NW to SE	2			3/4"	About 50% loss to crops		
28	Hamilton	Cass	Hall	1:00 a.	NW to SE	1	6	6	3/4"			
28	Keokuk	English River, Plank	Hall	1:00 p.	SE to NW	2	10	20	Hickory Nuts 3/4"	Crops, \$40,000		
28	Franklin	Geneva	Hall	8:30 p.	W to E	2	4	8		Crop loss about 50%		
30	Audubon	Douglas	Hall	1:00 p.	NW to SE	1/2			Marbles	Damage slight		

IOWA WEATHER AND CROP BUREAU

J. B. PARMALEE DIES

With much regret the death of J. B. Parmalee, Corn and Wheat Region Weather Observer at Iowa Falls, is announced. He was born at Banbridge, Ohio, March 18, 1845, and died at Iowa Falls, Iowa, July 20, 1926, aged 82.

His record as a cooperative observer of the U. S. Weather Bureau is remarkable. He began at Nebraska City, Nebraska, February, 1880, where he continued 12 years to and including January, 1892. He then moved to Iowa Falls, Iowa, where he lost no time in reestablishing connections with the Weather Bureau, for he rendered a report at Iowa Falls for the month of March, 1892. From that time to and including June, 1926, he never missed making a reliable monthly report, and during most of that time made daily telegraphic reports to Des Moines during the crop season. In all he served 46 years and 5 months, with only two months, April, 1891, and February, 1892, missing, the latter month while moving from Nebraska City to Iowa Falls.

His records were at all times remarkably free from errors and inconsistencies. He also made extensive and interesting tabulations and summaries of his observations. Besides his purely meteorological records, he made interesting notes of planting and harvesting dates and other events on his farm. He was a faithful reporter for the weekly weather and crop bulletin and actively participated in many other cooperative lines with the State and Government.

Miss Mary F. Parmalee, his daughter, has consented to continue observations for a time.

FAITHFUL COOPERATIVE OBSERVER RESIGNS

After 29 years, 1½ months unbroken service as a cooperative observer of the United States Weather Bureau at Thurman, Iowa, Mr. C. R. Paul has turned the work over to H. H. Askew. Mr. Paul began June 15, 1897, and ended July 31, 1926. His precipitation record does not have a break in all that time, but due to defects that developed in the thermometers two months of temperature records were unreliable through no fault of the observer.

This is a highly commendable record, not often equaled. The Nation, State and local community are much indebted to Mr. Paul for the faithful services he has contributed.

AUGUST

From an agricultural standpoint generally favorable weather conditions prevailed during August, 1926. There was a general excess in temperature, precipitation was somewhat above normal and more evenly distributed over all divisions than usual, sunshine was ample and storms of a destructive nature were of limited extent.

There were frequent fluctuations in temperature and daily values did not vary greatly from the normal except during the last week when a very warm period prevailed. The excess for this week averaged about 9° daily along the Missouri River and gradually diminished to about 7°

daily along the Mississippi River and several stations reported temperatures of 100° or higher. High temperatures prevailed over a narrow strip in the southern portion of the State on the 9th, exceeding 100° at a number of stations, while much lower maxima prevailed over the rest of the State. This condition was caused by a trough of low pressure over the southwestern portion that moved very slowly.

The precipitation was remarkably uniform for a summer month and occurred in rather well defined periods, the principal period lasting practically all of the 2d week. There were severe local downpours at a number of stations, Fort Dodge having two such storms, Mason City one, Muscatine one, several in country districts, the worst probably occurring in Mitchell County. Most of these storms were accompanied by hail but the greatest damage occurred in cities by basements being flooded and streets washed out. The greatest damage probably occurred to industrial plants at Muscatine where basements were flooded damaging goods and machinery; and some buildings collapsed by having foundations undermined. Hailstorms occurred on numerous days but as a rule were less severe than during the previous months. Probably the greatest damage resulted from a storm that occurred in portions of Polk, Story and Boone Counties on the afternoon of the 13th. Most of the damage was sustained in a narrow strip running northward from East Des Moines that is highly developed truck farms and an estimate of the damage was impossible. Some of the crops in small areas were completely destroyed. Severe hailstorms occurred in Mitchell County on the 18th and 20th causing an estimated damage to crops of about \$50,000. A tornado was reported as having occurred on the evening of the 17th, about 8:00 p. m., starting in Staunton Township, Plymouth County, and pursued a narrow path eastward and disappeared east of Marcus, Cherokee County, leaving a trail of about a half mile wide. The tail of the funnel cloud reached the earth for only a few short distances, wrecking several farm buildings and damaging crops as much as 50% in small areas. In rural districts many small streams overflowed and numerous culverts and bridges were washed out but none of the larger streams were sufficiently high to cause damage.

Conditions were favorable for farm work. Plowing progressed satisfactorily and the soil was generally in good condition but threshing in much of the State was delayed by frequent rains and some grain in the stack was sprouting and some in shocks was washed away. A large acreage of alfalfa was seeded under conditions that were most favorable. Corn made good progress though it is behind the average in development and will require favorable weather to mature nearly an average percent of the crop if frost holds off till the average date. Pastures that had been revived by the heavy rains during the latter part of July showed steady improvement and were generally in excellent condition. While there was sufficient rainfall for crops there was still a scarcity of water in portions of Cass and Guthrie Counties and limited areas adjoining, necessitating the deepening of wells or the digging of new ones. There was an abundance of grapes and apples at low prices. Many apples rotted in orchards for lack of a market.

Temperature. The mean temperature for the State, as shown by the records of 103 stations, was 73.5°, or 1.8° higher than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 71.8°, or 1.5° higher than the normal; Central, 73.7°, or 1.8° higher than the normal; Southern, 74.9° or 1.9° higher than the normal. The highest monthly mean 76.6°, at Lenox, and the lowest was 67.8°, at Postville. The highest temperature recorded was 103°, at Lenox, on the 9th, and the lowest was 47°, at Cherokee and Washta, on the 7th. The temperature range for the State 56°.

Precipitation. The average precipitation for the State, as shown by the records of 113 stations, was 3.80 inches, or 0.36 inch more than the normal. By divisions, the averages were as follows: Northern, 3.42 inches, or 0.13 inch more than the normal; Central, 4.00 inches, or 0.47 inch more than the normal; Southern, 3.98 inches, or 0.49 inch more than the normal. The greatest amount, 7.33 inches, occurred at Fairport, and the least, 1.64 inches, occurred at Audubon. The greatest amount in 24 consecutive hours, 3.80 inches, occurred at Mason City on the 19th.

Miscellaneous Phenomena. Fog: 1st, 2d, 5th, 10th, 15th, 17th, 18th, 19th, 22d, 24th, 30th. Halos (lunar and solar): 16th, 22d. Hail: 10th, 13th, 15th, 16th, 17th, 18th, 20th, 21st, 22d, 23rd, 24th, 29th. Rainbows: 8th, 11th, 18th. Thunderstorms: All dates except 2d, 21st, 24th, 25th, 26th, 27th, 28th. Winds: (high). 27th.

Rivers. Low stages prevailed on the Mississippi River at the beginning of the month with a falling tendency till the latter part of the 2d week and nearly stationary stages prevailed till about the last of the 3d week after which there were numerous slight fluctuations with a marked rise at the end of the month. Moderate stages prevailed on the Missouri River with a general falling tendency but with numerous slight fluctuations. Low stages prevailed on most of the interior rivers with a moderate rise about the middle of the month over the eastern portion of the State and at the end of the third week on the Raccoon River.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)				Relative Humidity, %			Wind			Sun- shine % possible Departure from normal			
	Mean	Highest	Date	Lowest	Date	Mean		Total movement	Average hourly velocity	Maximum				
						7 A. M.	12 Noon			7 P. M.		Lowest	From	Date
Charles City.....	29.98	33.24	7	29.71	30.85	80	40	21	3,494	4.3	25	s.	18	72 + 1
Davenport.....	29.98	30.24	8	29.66	30.86	82	70	24	3,084	5.4	20	s.	9	52 - 19
Des Moines.....	29.96	30.23	7	29.66	30.87	88	63	33	6,173	5.6	24	w.	22	64 - 8
Dubuque.....	29.96	30.21	8	29.66	30.83	80	66	38	3,684	5.0	18	nw.	6	55 - 9
Keokuk.....	29.98	30.23	8	29.66	30.84	82	71	37	3,877	5.2	22	se.	9	66 - 8
Sioux City.....	29.96	30.35	7	29.61	19.84	54	55	32	7,028	9.5	37	s.	12	74 + 1
Omaha, Neb.....	29.96	31.52	7	29.61	30.79	82	55	24	4,466	6.0	40	nw.	22	84 + 15
Means and extremes.....	29.97	30.30	7	29.60	30.86	84	64	30	5.9	.....	.....	.....	.....	67 - 3
Normals and records.....	29.97	30.43	1900	29.40	1871	82	61	.....	5.3	.....	.....	.....	.....	70

§Sioux City. §Omaha. §Des Moines. †Local mean time

COMPARATIVE DATA FOR THE STATE—AUGUST

Year	Temperature				Precipitation				Number of Days			
	Mean	Departure		Total	Departure	Greatest	Least	Snowfall	With pre. 0.1 in. or more	Clear	Partly cloudy	Cloudy
		Highest	Lowest									
1873	75.7	+ 4.0	102	54	4.17	- 0.73	8.40	0.00				
1874	74.3	+ 2.6	99	55	3.12	- 0.22	9.16	0.85				
1875	68.9	- 2.8	92	41	4.04	+ 0.60	7.60	1.07				
1876	73.2	+ 1.5	96	46	5.15	+ 1.71	10.04	1.50				
1877	71.9	+ 0.2	100	53	4.98	- 0.02	12.65	0.19				
1878	74.4	+ 2.7	100	52	5.22	- 0.22	9.15	0.43				
1879	72.0	+ 0.3	100	42	2.70	- 0.74	7.50	0.45				
1880	72.5	+ 0.8	104	41	4.77	+ 1.31	9.88	0.77				
1881	76.5	+ 4.8	104	48	2.71	- 0.73	6.85	0.32				
1882	71.5	- 0.2	96	43	1.61	- 1.82	6.50	0.07				
1883	69.4	- 2.3	92	42	2.58	- 0.80	8.95	0.32				
1884	68.5	- 3.2	93	44	4.00	+ 0.65	8.34	1.58				
1885	66.9	- 4.8	98	40	5.90	+ 2.46	12.68	2.79				
1886	74.2	+ 2.5	103	34	2.92	- 1.42	7.13	0.30				
1887	70.8	- 0.9	103	34	2.73	- 0.69	8.85	0.51				
1888	70.4	- 1.3	119	40	4.37	+ 0.52	8.40	0.65				
1889	71.3	- 0.4	104	37	1.87	- 1.57	9.95	0.32				
1890	68.1	- 3.6	102	34	3.25	- 0.19	6.44	1.63				
1891	69.1	- 2.6	106	34	4.24	+ 0.80	13.02	1.23				
1892	71.4	- 0.3	102	40	2.24	- 1.20	4.09	0.65				
1893	69.4	- 2.3	101	30	2.92	- 1.12	6.22	0.40				
1894	74.6	+ 2.9	108	38	3.58	+ 3.82	4.50	T.				
1895	71.9	+ 0.2	103	37	4.43	+ 0.90	10.63	0.67				
1896	71.7	- 0.0	104	34	3.52	+ 0.08	12.25	0.86				
1897	68.9	- 2.8	104	35	1.86	- 1.58	4.98	0.47				
1898	71.2	- 0.5	102	40	3.44	- 0.09	10.55	0.58				
1899	74.4	+ 2.7	100	41	3.68	+ 0.24	10.45	1.12				
1900	77.4	+ 5.7	108	44	4.65	+ 1.21	10.43	1.26				
1901	73.8	+ 2.1	106	40	1.29	- 2.15	4.46	T.				
1902	69.1	- 2.6	98	37	6.58	+ 3.14	15.47	1.37				
1903	69.4	- 2.6	101	41	6.94	+ 3.29	17.74	2.55				
1904	69.1	- 2.6	97	35	3.43	- 0.01	6.73	0.66				
1905	74.3	+ 2.6	104	44	4.65	+ 0.61	8.47	1.64				
1906	74.1	+ 2.4	101	33	3.95	+ 0.51	10.51	0.92				
1907	71.1	- 0.6	99	37	4.33	+ 0.80	9.67	1.05				
1908	69.0	- 1.7	101	38	4.77	+ 1.33	10.23	1.35				
1909	76.1	+ 4.4	102	33	1.81	- 1.63	8.21	T.				
1910	71.9	+ 0.2	104	36	3.88	+ 0.44	11.29	0.37				
1911	71.7	- 0.0	107	34	3.32	- 0.12	9.47	0.44				
1912	71.6	- 0.7	101	40	3.78	+ 0.34	7.90	0.89				
1913	76.6	+ 4.9	108	40	2.68	- 0.76	7.13	0.58				
1914	73.7	+ 3.0	103	40	2.19	- 1.25	4.90	0.42				
1915	65.9	- 5.8	91	30	2.81	- 0.63	9.14	0.27				
1916	74.0	+ 2.3	106	35	2.58	- 0.80	6.23	0.49				
1917	69.4	- 2.3	102	31	2.29	- 1.15	6.31	0.79				
1918	73.0	+ 4.2	113	38	3.61	+ 0.17	8.28	0.54				
1919	71.5	- 0.2	103	38	2.59	- 0.85	5.72	0.37				
1920	69.3	- 2.4	98	39	3.35	- 0.00	8.52	0.44				
1921	72.5	+ 0.4	102	37	5.04	+ 1.00	9.94	2.29				
1922	73.8	+ 2.1	102	42	3.66	- 0.38	9.90	0.33				
1923	74.6	+ 1.1	102	38	5.42	+ 1.56	13.14	1.46				
1924	71.7	- 0.0	100	40	5.35	+ 1.91	12.38	1.50				
1925	72.4	+ 0.7	99	39	3.47	+ 0.03	8.36	0.31				
1926	73.5	+ 1.8	102	47	3.80	+ 0.36	7.33	1.64				

T. Indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

IOWA STORMS DURING AUGUST, 1926

Date	County	Township	Nature of Storm	Time	Storm Moved From	Width of path	Length of path	Area square miles	Size of Hailstones	Damage	Persons Injured	Kind
15	Story	Washington, and Palestine	Hail	5:00 p.	NW to SE	2	5	10	1/2"	Crops, 2 1/2%		
16	Van Buren	Union, Madison	Hail	8:00 p.	SE to NW	1/2	1/2	1/2	Walnuts	Crops, 99%; some buildings wrecked		
17	Plymouth	Madison, Stanton, Union and Remsen	Hail	8:00 p.	NW to SE	1/2	1/2	1/2	Walnuts	Crops, 30%; Vandalia destructive in places		
17	Cherokee	Amberst, Marcus	Tornado	8:00 p.	NW to SE	1/2	1/2	1/2	Walnuts	Crops, several thousand sand dollars		
18	MitCHELL	Jasper, Rock and Cedar	Hail	6:00 p.	NE to SW	1/2	1/2	1/2	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		
19	Appanoose	Lincoln	Hail	5:00 p.	NW to SE	1/2	1/2	1/2	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		
20	Mahaska	Pleasant Grove and Monroe	Hail	9:00 p.	NW to SE	2 to 4	2 to 4	2 to 4	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		
20	Keokuk	Prairie, Washington, and E. Lincoln	Hail	7:30 p.	NW to SE	2 1/2	2 1/2	2 1/2	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		
20	Mitchell	Liberty, Burr Oak and E. Lincoln	Hail	7:30 p.	NW to SE	2 1/2	2 1/2	2 1/2	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		
20	Wayne	Richman, Washington, Union, Wright, South Fork, Walnut and Monroe	Hail	7:00 p.	W to E	1	1	1	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		
23	Buchanan	Westburg	Hail	2:00 p.	W to E	1	1	1	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		
29	Wapello	Pleasant, Dahlonega	Wind, Hail	2:00 p.	W to E	1	1	1	Walnuts	Crops, \$5,000 to \$10,000; some to wind-down and fruit		

SEPTEMBER

The outstanding feature of the weather during September was the frequent and abnormally heavy rain over practically the entire State. While some stations in the past have reported greater amounts than the greatest this month, the average for the State was the greatest for any month, exceeding the greatest previous monthly amount, 8.77 inches in May, 1892, by almost an inch, the records covering a period of 54 years. The previous record for September was exceeded by nearly two inches. The heavy rains began on the 1st of the month and continued with remarkable persistency, and only short intermissions, till the early part of the 4th week with light to moderate amounts during the rest of the month. There were three more days with .01 inch or more of rain, four more cloudy days and three less clear days than in any other September.

The temperature was above normal most of the month but a decided change to cooler during the last week offset the excess and resulted in a deficiency at all but a few stations. While no records for low temperatures were established for the State, several stations reported on the 26th the lowest ever experienced so early in the season.

Conditions were especially bad from an agricultural standpoint. The persistent rainy weather caused almost all outdoor work to be suspended and delayed the maturity of the corn crop so that when the freezing weather occurred on the 25th and 26th there was considerable damage. Plowing and seeding of winter wheat were impossible after the first heavy rains and many fields, partly seeded, germinated and showed good growth with the balance of the fields unplanted and the drills standing where the work stopped. There was some small grain and clover to be hulled that had to be abandoned due to the excess moisture. Corn fields were so soft in portions of the State that it was impossible to cut corn for silo filling with the result that there will be many empty this year. Truck crops were in a flourishing condition when the frost came, resulting in almost complete destruction in all but a few southeastern counties. Corn in many parts of the State was beginning to mold, rot or sprout. However there was some material benefit derived from the excessive rainfall. The soil is now thoroughly saturated, wells that were dry have a good supply of water and pastures at the end of the month were better than at any time during the year. The damage to crops due to the weather was very great but there is no way to make a reliable estimate. A special report on the flood situation and the damage to property appears elsewhere in this issue.

Temperature. The mean temperature for the State, as shown by the records of 103 stations, was 63.0°, or 1.3° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows; Northern, 61.0°, or 1.9° lower than the normal; Central, 63.4°, or 1.1° lower than the normal; Southern, 64.7°, or 0.9° lower than the normal. The highest monthly mean was 66.4°, at Burlington and Ottumwa, and the lowest was 58.6°, at Postville. The highest temperature reported was 92°, at Oakland on the 1st, Belle Plaine, Little Sioux, Monroe and Mount Pleasant on the 17th, and Davenport, No. 2 on

the 17th and 18th, and the lowest was 18°, at Decorah, on the 26th. The temperature range for the State was 74°.

Precipitation. The average precipitation for the State, as shown by the records of 113 stations, was 9.76 inches, or 6.11 inches more than the normal. By divisions, the averages were as follows: Northern, 7.76 inches, or 4.33 inches more than the normal; Central, 10.19 inches, or 6.50 inches more than the normal; Southern, 11.32 inches, or 7.49 inches more than the normal. The greatest amount, 18.57 inches, occurred at Corydon, and the least, 4.75 inches, occurred at Mason City. The greatest amount in 24 consecutive hours, 11.66 inches, occurred at Sioux Center, on the 17th-18th, 11.52 inches having occurred in a period of 14 hours and 30 minutes.

Miscellaneous Phenomena. Aurora: 8th, 9th. Fog: 2d, 3d, 4th, 6th, 14th, 15th, 16th, 27th, 29th, 30th. Frost: light, 13th, 24th; heavy, 25th, 26th; killing, 25th, 26th. Hail: 1st, 2d, 7th, 8th, 9th, 15th, 16th, 17th, 30th. Halos (lunar and solar): 7th, 26th. Rainbows: 2d, 3d, 18th. Sleet: 24th. Thunderstorms: All dates except 9th, 13th, 20th, 26th, 28th.

Rivers. Nearly stationary stages, but with a falling tendency, prevailed on the Mississippi River till the latter part of the 2d week, after which there was a gradual rise with the mean stage for the month considerably above the normal. There was considerable fluctuation on the Missouri River with rather high stages during the 3d week but the flood stage was not reached on either of the principal rivers. Destructive floods occurred on most of the smaller streams in the western, southern and east-central portions of the State. Following the heavy rains on the 17th-18th, the highest stages ever experienced occurred on the Big Sioux, Floyd and Raccoon Rivers.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)				Relative Humidity, %			Wind				Sun- shine		
	Mean	Highest	Date	Lowest	Date	Mean		Total movement	Average hourly velocity	Maximum			% possible departure from normal	
						7 a. m. 12 Noon; 7 p. m.	Lowest			Miles	From			Date
Charles City.....	30.00	30.54	27	29.66	23	80	78	34	9	4,395	6.8	s.	21	46-10
Davenport.....	30.00	30.52	26	29.63	23	80	77	40	20	4,679	6.5	sw.	8	35-30
Des Moines.....	29.50	30.56	28	29.56	23	88	77	38	33	5,245	7.3	sw.	21	39-25
Dubuque.....	31.01	30.51	26	29.30	8	57	69	37	26	4,319	6.0	sw.	21	39-30
Keokuk.....	30.00	30.53	26	29.68	23	86	71	37	26	4,430	6.0	sw.	3	45-26
Sioux City.....	29.98	30.67	27	29.45	30	87	65	68	27	5,837	12.8	sw.	17	61-13
Omaha, Neb.....	29.98	30.64	27	29.58	23	86	66	72	34	5,236	7.8	sw.	12	53-12
Means and extremes.....	30.01	30.07	25	29.45	20	87	60	75	.....	7.5	.....	.....	.....	42-21
Normals and records.....	30.02	30.67	25th	29.27	1878	80	64	.....	.....	7.2	.....	7th	.....	60
			1920	29.27	1878	80	64	.....	.....	7.2	w.	1879	.....	.....

*Sioux City. †Omaha. ‡Davenport. †Local mean time. †Other dates.

COMPARATIVE DATA FOR THE STATE—SEPTEMBER

Year	Temperature				Precipitation			Number of Days					
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pr. .01 in. or more	Clear	Partly cloudy	Cloudy
1873	59.1	-	5.2	80	33	2.18	-	1.47	5.40	0.81			
1874	62.8	-	1.3	90	40	6.04	+	2.39	9.50	4.50			
1875	59.6	-	3.7	92	37	5.02	+	1.37	9.38	1.33			
1876	60.4	-	4.7	88	32	4.82	+	2.77	12.00	4.2			
1877	65.4	+	1.1	96	40	1.95	-	1.70	5.20	0.65			
1878	62.9	+	1.4	92	38	3.13	-	0.62	19.85	0.70			
1879	56.3	-	5.0	90	24	2.70	0	0.05	9.45	0.57			
1880	61.7	+	2.5	99	32	3.18	0	0.59	19.94	0.70			
1881	64.4	+	3.2	103	37	3.18	+	3.49	19.85	2.64			
1882	63.4	-	0.9	97	31	0.87	-	2.78	3.71	0.00			
1883	58.5	-	5.8	93	30	2.04	+	1.61	6.20	0.06			
1884	66.5	+	2.2	96	30	5.20	+	1.55	11.00	2.20			
1885	61.4	-	2.5	92	22	5.04	0	0.61	5.39	0.65			
1886	61.9	+	1.3	97	30	4.58	+	1.60	7.83	0.39			
1887	62.1	-	2.2	98	30	6.17	+	2.93	12.87	1.49			
1888	59.9	-	4.4	96	29	1.07	-	2.58	3.44	0.10			
1889	67.7	+	3.6	99	23	2.80	0	0.85	7.19	0.70			
1890	65.5	+	4.8	96	23	2.71	0	0.94	1.85	0.39			
1891	67.2	+	3.0	104	28	1.88	-	2.35	8.00	0.13			
1902	64.7	+	0.4	99	29	1.53	-	2.12	4.15	0.16			
1893	64.7	+	0.4	102	18	2.34	-	1.31	5.49	0.74			
1894	65.1	+	0.8	100	29	3.57	0	0.98	7.43	0.67			
1895	69.8	+	2.5	103	22	3.03	0	0.62	7.43	0.85			
1896	58.5	-	5.8	93	22	1.09	0	0.44	9.96	1.22			
1897	70.9	+	0.6	106	26	2.04	1	1.68	5.88	0.60			
1898	65.3	+	1.0	99	29	3.69	0	0.96	8.45	0.41			
1899	62.5	-	1.8	104	16	0.03	-	3.72	4.32	0.1			
1900	64.4	+	0.1	99	26	4.98	+	1.33	8.22	2.48			
1901	63.3	+	1.0	102	29	4.77	+	1.12	13.02	1.71			
1902	59.1	-	5.2	88	23	4.85	+	0.70	10.41	1.63			
1903	69.8	+	3.5	94	28	3.81	+	0.16	8.79	1.42			
1904	64.0	-	0.2	94	30	2.78	0	0.87	8.33	0.99			
1905	65.5	+	1.3	96	26	3.81	0	0.16	15.18	0.50			
1906	67.2	+	2.9	100	27	4.07	+	0.31	11.49	0.64			
1907	62.8	-	1.5	98	25	2.75	0	0.90	6.00	1.38			
1908	67.9	+	3.6	98	20	1.20	-	2.45	3.40	0.25			
1909	62.4	-	1.9	94	30	3.58	-	0.97	7.34	1.29			
1910	62.3	-	1.1	99	30	6.03	-	0.66	7.43	1.38			
1911	65.3	+	1.5	103	32	5.12	+	1.47	13.13	1.39			
1912	62.1	-	2.2	104	24	5.98	+	0.33	10.12	0.28			
1913	64.5	+	0.2	107	19	3.31	0	0.34	7.44	0.45			
1914	64.5	+	0.2	99	30	7.88	+	4.23	16.34	2.48			
1915	62.7	-	0.6	91	30	6.03	-	2.38	13.45	2.88			
1916	62.5	-	1.2	98	21	3.69	0	0.24	9.71	1.45			
1917	62.6	-	1.7	97	28	2.90	0	0.75	8.68	0.39			
1918	58.6	-	5.7	93	20	1.87	-	1.78	4.62	0.48			
1919	67.5	+	3.2	99	33	5.34	+	1.60	11.22	1.49			
1920	65.5	+	2.2	98	24	3.50	0	0.35	7.21	0.69			
1921	67.3	+	3.0	99	31	6.72	+	3.07	11.95	1.72			
1922	67.1	+	2.8	103	31	2.03	-	1.62	4.34	0.31			
1923	61.2	-	0.1	92	28	5.79	+	2.14	12.14	1.88			
1924	59.1	-	5.2	91	25	3.13	0	0.63	5.68	1.01			
1925	61.9	+	4.7	105	32	5.04	+	1.30	9.13	3.54			
1926	61.0	+	1.3	95	38	9.76	+	6.11	18.27	4.78			

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

IOWA STORMS DURING SEPTEMBER, 1906

Date	County	Township	Nature of Storm	Time	Storm Moved From	Width of path miles	Length of path miles	Area square miles	Size of Hailstones	Damage	Persons	
											Injured	Killed
7	Taylor	Dallas	Hail	8:00 p.	NW to SE	4	20	7	8			
7	Taylor	Dallas	Hail	11:30 p.	W to E	8	15	10	4			
7	Cerro Gordo	Dallas	Hail	11:30 p.	SW to NE	10	11	9	10			
7	Hancock	Ell	Tornado	10:30 p.	SW to NE	4	16	8	6			
7	Kossuth	Harrison	Wind	11:00 p.	W to E	20 rds.	7	16	9			
7	Kossuth	Ledyard	Wind	11:00 p.	W to E	30 rds.	5	19	8			
7	Winnebago	Norway	Wind	11:00 p.	W to E	10	11	9	10			
7	Winnebago	Buffalo	Wind	11:00 p.	W to E	10	11	9	10			
8	Adair	Richland	Wind	2:45 a.	W to E	10	11	9	10			
8	Harrison	Jefferson	Hail	2:00 a.	N to S	10	11	9	10			
8	Hancock	Concord	Wind	11:30 p.	W to E	10	11	9	10			
15	Emmet	Ellsworth	Hail	Neon	SW to NE	10	11	9	10			

Date

Floods in Iowa During September, 1926 (Arthur H. Christensen, observer.) Unprecedented rains in September caused floods over a large part of Iowa, the heaviest being in the southern, eastern, northwestern and the central sections. Many small streams in various parts of the State left their banks at different times during the month and caused more or less damage. The following summaries of the principal flooded areas have been prepared from various reports and newspaper clippings and cover the sections where the most destruction occurred.

Floods in Southwest Iowa. Beginning September 1, heavy rains fell in the southern portion of the State and by the 2nd and 3d, floods were prevalent in much of that section. At the station known as Red Oak (near) in the extreme southwest portion of Montgomery County in the Nishnabotna drainage basin, 5.75 inches of rain fell in 19 hours and 3.25 inches of this fell in the 2 hours ending 10 a. m. of the 2d, with 1.12 inches the following night. Near Riverton the rains were nearly as heavy. Creeks and rivers became swollen and left their banks in places. Overflows soon occurred in the lower reaches of the Nodaway River in the vicinity of Clarinda and the Nishnabotna River in Fremont county. Considerable damage occurred in this vicinity, much property being flooded and about 1,400 feet of track of the Chicago, Burlington & Quincy R. R. were washed out, causing a suspension of railway traffic for about one day. No estimate of the damage in dollars is available. No persons were injured.

At Centerville, 4.56 inches of rain fell in about 18 hours ending 5:45 a. m. of the 4th. The Chariton River near Centerville overflowed its banks about 8:30 a. m. of the 3d and continued to rise until the morning of the 5th (Sunday) when it was from a half mile to a mile wide in places, flooding much farm land and causing considerable damage, although no estimate of the amount is available. The Chariton River then receded to some extent but remained high and again overflowed on September 16 when it reached the highest stage during the month, and within 8 inches of the high water mark of 32 years ago, according to "old-timers" in the vicinity. During this latter high water much damage occurred in Appanoose county, being the worst near Sedan and Dean where railway lines were washed out in several places and trains delayed and some entirely cancelled for a few days on the C. B. & Q., the K. & W. and the I. & St. L.

Floods in Central Iowa. The heavy rains of September 1 and subsequent dates caused flood conditions over a large area throughout the central portion of the State, especially in the vicinity of Carroll where several hundred feet of railway track were washed out, on the C. & N. W. R. R. Minor damage occurred at the time in various places, including Cherokee, and Belle Plaine, although no serious inundations occurred and no persons were injured at these places. Two bridges were swept from their foundations near Carroll, on the Raccoon River, but while the river was high it did not inundate a large area. On the evening of the 7th further heavy rains in Crawford county paralyzed train service on the Illinois Central and the Boyer Valley branch of the Chicago and North-

western. About a mile of the Illinois Central track was washed out and this seems to have been the most serious damage.

Flood Near Fort Madison. On September 15, the Skunk River near Augusta, Iowa, 12 miles south of Burlington, overflowed its banks after a rise of 8 feet during the night. The stage on the 15th was 17 feet which was within a few inches of the high mark reached about a week previous when streets were flooded and a large farm area was under water. The waters continued to rise on the 15th and the farmers in the vicinity realizing the danger of an overflow worked continuously to strengthen the levee to prevent flooding of the Green Bay Bottoms north of Fort Madison. They were later assisted by about thirty convicts from the penitentiary at Fort Madison, but in spite of their efforts the river rose to such an extent that it broke the levee on the 16th and began overflowing the bottom lands, covering about 10,000 acres by the 17th. Many homes were overflowed but some property was saved while the levee held back the water, and much livestock was driven to high ground, but the loss to crops and property was large, probably close to \$1,000,000. After the 17th the river began to recede.

Floods in Northwest Iowa. The following is quoted from the Hawarden Independent:

"Following the most torrential rainfall ever known in this section of the country, (when 7.30 inches of rain fell here in 5 hours, 30 minutes, and 10.19 inches in less than 30 hours). Dry Creek overflowed its banks last Friday (17th) evening and engulfed the city of Hawarden in the most far-reaching catastrophe of its history. Never before has such widespread destruction and desolation been wrought here and those citizens who went through the flood of March 1897, are agreed that the flood of that year was in no way comparable to last Friday night's disaster.

"In addition to levying a property toll running into hundreds of thousands of dollars, the flood claimed the life of Chas. M. Fleschman, one of Hawarden's oldest and best known citizens. . . . The flood came with startling suddenness. It had rained almost incessantly all afternoon but practically no one anticipated the danger until the creek went out of its banks east of the ball park and sent a veritable wall of water surging across the lower levels on both sides of the stream. The creek went out of its banks a few minutes after six o'clock and within a quarter of an hour water was running three to four feet deep in many of the streets of the city, including the down-town business section."

The water rose to a depth of three to four feet in the business section and much of the residence section, causing severe damage, probably amounting to several hundred thousand dollars. The Chicago and North-western Railway also suffered severe damage to their yards amounting to about \$50,000 and 4 of their bridges were also washed out. About 204 homes were flooded to a depth of from one to five feet, exclusive of the business section. From a detailed survey made by the Hawarden Independent the damage in the business section was about \$75,000. In the section north of Sioux City five persons lost their lives; they are: Nina Brunsting, 11 years old of Hull, Mr. Pertstitch and 4 year-old son of

Hospers, Dick Devries of Ireton and C. M. Fleshman of Hawarden. At Sioux Center in the Floyd River drainage basin the rain came in a succession of tremendous downpours. Beginning at 2:30 p. m. of the 17th, 3.82 inches fell by 6 p. m.; 5.98 inches by 7 p. m.; 9.75 inches by 9 p. m.; 11.52 inches by 5 a. m. of the 18th, and 11.66 inches by 11 a. m. of the 18th. The Floyd River overflowed and flooded thousands of acres of land and swept away about 80 or 90 bridges. The high water of the Floyd reached Sioux City Saturday, (Sept. 18) and caused hundreds of people to leave their homes for higher ground. Many city blocks were covered by water, extending from the north limits of the city to the stockyards near the mouth of the river. Telephone, telegraph and electric light wires were down in much of this section and several hundred thousand dollars damage was sustained in Sioux City. Much relief was given the flood victims of northwest Iowa by the Red Cross and the Salvation Army.

Later Floods in Central Iowa. Heavy rains during the night of the 18th and 19th over the central part of the State caused a rapid rise in the Raccoon and Des Moines rivers. The rains amounted to as much as 5 inches at several stations, from Perry and Carroll eastward to Marshalltown and southward. At Des Moines 2.51 inches fell. The Raccoon river rose rapidly and overflowed its banks almost the entire distance from Perry to Des Moines, causing severe damage to crops, live stock, residences and in some places flooding railway tracks and delaying trains. Several washouts were reported in the central parts of the State—on the C. G. W. at Mingo, the C. M. & St. P. at Clive, Granger and Fonda, the Rock Island at Kellogg between Des Moines and Grinnell and on the Wabash. Many thousands of acres of land were inundated in the Raccoon Valley and in Polk county several thousands of acres were flooded from the Raccoon river, Walnut Creek and Four Mile Creek, all of which rose out of their channels and caused much loss of property. While it is impossible to make an accurate estimate of the damage it would probably run near \$2,000,000 in the central part of the State exclusive of damage sustained by railroad companies to their rights of way. The highest river stage on the Raccoon at Van Meter was 18.8 feet at 2 p. m. on September 20 which exceeded the previous high water mark by 0.4 foot. In the lower reaches of the Raccoon at Des Moines, about 2,000 people were forced from their homes because of the high water and police did much to warn residents of the danger and to help them to safety. Many bridges and culverts were washed out through the central part of the State, some on the Skunk river, and others on the Raccoon river and on the smaller creeks. Damage along the Des Moines river north of Des Moines was slight since it did not reach a flood stage, its highest stage at Des Moines being 13.2 feet. Below Des Moines the Des Moines river at Tracy reached a stage of 16.3 feet or 1.3 feet above flood stage on the 24th and at Ottumwa 12.3 feet or 2.3 feet above flood stage on the 25th. The damage along the Des Moines river below Des Moines to crops, roads and bridges is conservatively placed at \$100,000.

Flood in Eastern Iowa. In eastern Iowa the Maquoketa river went out

of its banks about September 20 and flooded thousands of acres of land, it also swept out 450 feet of the coffer dam, and numerous small streams in that vicinity also left their channels and caused considerable damage.

The total flood damage in Iowa during September, 1926, is probably between \$4,000,000 and \$5,000,000.

OCTOBER

The wet weather that prevailed during September continued during most of the first week of October, after which conditions showed a decided improvement. The temperature averaged nearly normal, the mean for the State being slightly deficient. The greatest deficiency occurred over the eastern section, gradually diminishing to the west, with a general excess over most of the Missouri Valley. A similar condition has prevailed over practically the entire year. The principal warm period extended from the 8th to 11th, and the principal cool period from the 13th to the 26th, though in the extreme western portion of the State the period from the 15th to 18th was considerably above normal. Over most of the State there was very little freezing weather till the middle of the fourth week and at localities along the Mississippi river in the east-central and southeast sections a killing frost did not occur till the 24th.

The precipitation was considerably below normal, though there were stations in all divisions that showed a slight excess, the most being in the southern division. The greatest deficiency occurred in the west-central section and over limited areas adjoining. There were no damaging storms reported except a severe local storm that occurred at 1:00 a. m., October 1st, at Humboldt, causing damage amounting to several thousand dollars, to dwellings, garages, plate glass windows and windows in houses; another severe local storm, also on the 1st, occurred in the vicinity of Lake Okoboji, near Milford from 11:00 p. m., September 30th, till about 1:00 a. m. October 1st, causing a property damage of about \$75,000. Both of these storms were reported to be small tornadoes. Most of the precipitation occurred during the first five days, and rather well defined periods occurred on the 9th, 12th, 19th and 23d, the amounts being generally light to moderate. After the first week conditions improved rapidly and farm work was pushed, but the excessive moisture did not permit corn to dry rapidly and when husking got well started at the close of the month it was not sufficiently dry to permit cribbing, except over small areas in the northeast portion and there was considerable moldy corn in all sections of the State.

Plowing was resumed as soon as the condition of the soil permitted, but there was some bottom land in the southern portion that was still too wet to plow at the close of the month. A small amount of winter wheat was seeded which quickly germinated and all that was up was in good condition, though the acreage seeded was less than the usual amount. Considerable clover and small grain that could not be threshed on account of wet weather rotted in the stack or was in such bad condition that it had to be abandoned. Sugar beet harvest was nearly

completed at the close of the month, and while the yield per acre was heavy, the sugar content was reported to be generally disappointing. Pastures were good most of the month but over most of the northern half of the State were eaten down before the end; over the southern half of the State pastures were generally green and still supporting a large amount of stock. More fodder was being cut and shredded than usual on account of the general shortage of hay. A large crop of apples was gathered under favorable conditions, though there was some loss on account of freezing on the 24th. Roads were in good condition after the first week in all parts of the State.

Temperature. The mean temperature for the State, as shown by the records of 102 stations, was 51.2°, or 0.7° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 49.1°, or 1.2° lower than the normal; Central, 51.6°, or 0.5° lower than the normal; Southern 52.9°, or 0.5° lower than the normal. The highest monthly mean was 54.6°, at Thurman, and the lowest was 46.6° at Northwood. The highest temperature reported was 91°, at Mt. Pleasant, on the 8th, and the lowest was 14°, at Inwood, on the 30th. The temperature range for the State was 77°.

Precipitation. The average precipitation for the state, as shown by the records of 111 stations, was 1.53 inches or 0.89 inch less than the normal. By divisions, the averages were as follows: Northern, 1.45 inches, or 0.87 inch less than the normal; Central 1.35 inches, or 1.13 inches less than the normal; Southern, 1.80 inches, or 0.66 inch less than the normal. The greatest amount, 3.91 inches, occurred at Lamont, and the least, 0.11 inch, occurred at Little Sioux. The greatest amount in any 24 consecutive hours, 2.00 inches, occurred at Lenox on the 3d.

Snowfall. The average snowfall for the State was a trace. Only four stations, all in the extreme northeastern portion, reported more than a trace and only one station in the southern division reported a trace.

Miscellaneous Phenomena. Aurora: 14th, 15th, 16th. Fog: 6th, 7th, 10th, 11th, 13th, 23d, 31st. Hall: 1st, 5th, 11th. Halos (lunar and solar): 17th, 18th, 30th. Sleet: 22d, 23d. Thunderstorms: 1st, 2d, 3d, 4th, 5th, 9th, 11th, 12th, 23d. Tornado: 1st. Winds (strong): 8th, 21st.

Rivers. The Mississippi river continued to rise until the beginning of the 2d week in the upper course and till near the middle of the 2d week in the lower course, after which there was an almost continuous fall; the average stage was much above normal. On the Missouri river moderate and nearly stationary stages prevailed; the extremes were less than one foot. There was a slight rise on nearly all interior rivers during the first week and a gradual fall thereafter, the mean being considerably above normal.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)			Relative Humidity, %		Wind			Sunshine								
	Mean	Highest	Date	Lowest	Date	Total movement	Maximum			% possible							
							Miles	From	Date		Departure from normal						
Charles City	29.94	30.35	30	29.47	4	84	38	72	34	18	4,850	6.5	26	sw.	4	48	-11
Davenport	29.95	30.27	30	29.52	17	83	67	70	43	28	4,458	6.0	25	s.	3	29	-31
Des Moines	29.97	30.32	30	29.52	4	78	55	62	34	29	5,067	6.8	31	sw.	4	53	-10
Dubuque	29.95	30.25	30	29.46	17	84	56	67	38	24	4,915	6.1	24	nw.	16	30	-19
Keokuk	29.96	30.29	30	29.57	17	80	58	66	33	22	4,520	6.5	28	s.	3	50	-11
Sioux City	29.96	30.26	29	29.36	4	77	50	50	30	1	8,222	11.9	31	n.	13	59	-3
Omaha, Neb.	29.95	30.29	30	29.46	4	78	51	53	30	14	4,540	6.1	27	n.	11	64	+3
Means and extremes	29.95	30.35	30	29.36	4	80	56	63	30	14	7.1	37	s.	15	48	-12	
Normals and records	30.00	31.11	30	28.86	81	102	251	1800	8.1	160	160	160	sw.	1880			

*Davenport. †Omaha. ‡Sioux City. ††Local mean time. †††And other dates.

COMPARATIVE DATA FOR THE STATE—OCTOBER

Year	Temperature				Precipitation				Number of Days				
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre-.01 in. or more	Clear	Partly cloudy	Cloudy
1873	46.0	-5.9	76	15	2.64	+0.22	4.80	1.25					
1874	53.2	-0.7	84	25	1.52	-0.90	2.70	0.65					
1875	47.8	-4.1	77	22	1.59	-1.00	2.71	0.28					
1876	47.9	-4.9	78	18	1.35	-1.26	2.31	0.18					
1877	49.6	-2.3	83	28	4.45	+2.03	8.08	1.90					
1878	48.9	-3.0	85	10	2.73	+0.31	5.32	0.40					
1879	58.3	+6.4	90	11	2.19	-0.23	6.28	0.28					
1880	47.6	-4.3	83	13	1.69	-0.53	6.90	0.35					
1881	52.1	+0.2	89	35	6.42	+4.00	14.63	3.19					
1882	54.4	+2.5	89	23	3.97	+1.55	6.50	0.55					
1883	47.2	-4.7	89	30	3.37	+0.95	6.95	0.40					
1884	54.1	+2.3	86	17	4.30	+1.38	9.00	2.00					
1885	49.7	-5.2	89	20	2.42	+0.39	4.30	0.52					
1886	53.9	+2.1	89	18	2.51	+0.69	8.15	0.45					
1887	46.4	-5.5	85	-	1.46	-0.96	3.41	0.65					
1888	47.7	-4.2	84	22	1.16	-1.39	2.81	0.10					
1889	47.5	-4.4	94	12	0.58	-1.84	2.88	0.00					
1890	49.2	-2.7	84	15	3.44	+1.02	6.43	1.59					
1891	59.0	+1.9	92	39	2.77	+0.35	6.83	0.85					
1892	54.5	+2.6	96	14	1.55	-0.87	2.58	0.00	0.0	4	21	6	4
1893	52.4	+0.5	94	10	1.28	-1.14	4.50	0.02	0.0	4	16	9	6
1894	51.7	-0.2	90	30	2.67	+0.35	5.25	0.08	0.2	8	14	8	4
1895	46.0	-5.9	88	4	0.47	-1.03	1.38	0.00	T.	2	30	8	4
1896	47.8	-4.1	88	12	3.13	+0.71	6.05	1.51	T.	5	18	6	7
1897	56.8	+4.9	97	12	1.14	-1.28	3.30	0.02	0.0	4	17	8	6
1898	47.5	-4.4	89	17	3.90	+1.14	0.75	1.27	3.6	8	7	9	15
1899	56.7	+4.8	95	17	1.73	-0.69	4.64	0.15	0.0	5	17	8	6
1900	59.2	+7.4	90	21	3.91	+1.49	8.00	1.29	0.0	7	16	7	5
1901	54.2	+2.3	88	30	1.88	-0.44	4.23	0.45	T.	6	17	7	7
1902	53.3	+1.6	88	30	2.54	+0.12	6.03	0.28	T.	5	19	8	7
1903	52.2	+0.3	90	16	1.95	-0.47	4.59	0.32	0.0	5	19	6	6
1904	53.1	+1.2	96	16	1.67	-0.75	4.43	0.14	T.	6	15	8	8
1905	49.2	-2.7	85	16	3.49	+0.38	5.33	1.29	1.6	8	16	6	9
1906	50.5	-1.5	87	7	4.25	+0.46	4.25	0.50	0.1	6	14	10	10
1907	50.4	-1.5	85	10	1.50	-0.92	3.71	0.30	0.0	5	20	5	6
1908	51.1	-0.8	89	17	3.88	+0.96	8.88	0.58	2.6	8	16	6	9
1909	49.7	-2.2	97	10	2.22	-0.39	4.70	0.48	T.	6	16	6	9
1910	55.2	+3.3	92	39	0.77	-1.65	1.73	T.	0.1	4	21	4	6
1911	48.7	-3.2	87	14	3.84	+0.92	7.02	0.73	0.6	10	12	8	11
1912	52.2	+0.3	92	16	2.98	+0.56	5.77	1.03	T.	6	21	3	7
1913	49.2	-2.7	89	-	3.65	+0.61	7.29	0.35	1.2	9	15	8	8
1914	55.9	+4.0	88	14	2.25	+0.81	6.64	0.74	T.	9	16	6	9
1915	54.4	+2.5	86	13	1.31	-1.11	3.25	T.	5	19	6	9	
1916	50.9	-1.9	92	6	3.09	-0.42	4.33	0.29	2.0	8	16	7	8
1917	42.9	-9.0	85	0	1.41	-1.01	4.00	0.15	2.2	6	10	11	10
1918	55.1	+3.2	93	21	3.64	+1.22	7.56	1.96	0.8	7	13	7	11
1919	59.7	+1.2	89	8	3.02	+0.00	8.45	0.45	T.	10	11	8	12
1920	57.7	+5.2	99	11	1.13	-0.29	4.64	0.48	T.	6	19	6	6
1921	54.6	+2.7	90	11	1.06	-0.46	2.81	0.21	T.	6	17	8	6
1922	56.1	+4.2	96	14	1.81	-0.61	3.93	0.06	T.	5	21	4	6
1923	48.5	-3.4	81	10	1.22	-1.29	3.67	0.29	1.7	6	18	6	7
1924	58.1	+6.2	89	21	0.87	-1.55	2.58	0.03	0.0	4	22	5	4
1925	49.2	-11.7	78	-15	2.91	+0.49	2.79	0.97	4.9	10	8	8	15
1926	61.2	-0.7	91	14	1.33	-0.89	3.91	0.11	T.	7	13	9	9

T. Indicates an amount too small to measure, or less than .005 inch rainfall and less than .06 inch snowfall.

SOME OBSERVATIONS OF THE TREND OF THE MISSISSIPPI RIVER

By H. Merrill Wills, U. S. Weather Bureau, Dubuque, Iowa

Is the Mississippi River drying up? A survey of past records of river stages at Dubuque, Iowa, for the period 1870 to 1925, inclusive, brings out the fact that, contrary to popular opinion, the Mississippi River at this point has shown a tendency to rise rather than fall during the last half century. In other words, there is apparently more water in the river than there used to be.

Daily readings of the water have been made continuously since May, 1869, at the drawbridge, by the Dunleith and Dubuque Bridge Company, under the supervision of the United States Weather Bureau. The gage has been located in approximately the same spot during this long period and all records carefully preserved, except one book containing the four winter months of the winter of 1884-1885. Readings have been made daily throughout the year, the ice being broken about the gage in winter in order to obtain true water readings. All values have been adjusted where necessary to reduce to the same zero-plane, and the data for the long period thus brought into true comparison.

The normal annual stage of the Mississippi at Dubuque is 5.5 feet. This has been found by averaging the means for past years. The annual mean values, based upon the twelve month means of each year, were grouped into 5-year, 10-year, 20-year, and finally, into 25-year periods, for the purposes of this analysis. The graph obtained from these values shows, for the 5-year subdivisions, that the average for the first period was close to normal; the next period, nearly a foot below normal; the next, more than a foot above; the next three periods, a half foot to a foot and a half below; the next two periods, nearly a foot above; the next was slightly above; the next, a foot above; and the last 5-year period, more than a foot below normal. It is thus seen that there has been only one 5-year average below normal in the last 25 years while the preceding 25 years had four such periods below normal.

On the basis of the 10-year groups, the years 1870 to 1885 averaged 0.3 foot above normal; the next decade, more than a foot below normal; the next was practically normal; the next, a half foot above; while the last decade was exactly normal. It is already disclosed by these 10-year averages that relatively high or normal tendencies have been the rule during the last thirty years.

When we come to the larger subdivisions we find the first period (16 years) averaged 0.3 foot above normal; the middle period (20 years), 0.5 foot below normal; and the last 20 years, 0.2 foot above normal, or 0.7 foot higher than the preceding 20-year group.

Finally, when the curve is smoothed out as the smaller subdivisions are brought together to form 28-year periods, which divides the entire record into equal parts, it is seen that the first half of the record averaged 5.2 feet, while the second half averaged 5.7 feet. This obviously shows a distinct upward trend of the river, with an average stage for the last 28 years 0.5 foot higher than in the preceding 28 years.

Of course, water depth is not a perfect index to stream flow or volume,

and it is recognized that both channel course and cross section have changed somewhat in this long lapse of years, but it is thought that the gage record is sufficiently indicative of the trend to establish beyond question that the river is actually carrying more water than formerly, the increase amounting roughly to about 10 per cent.

One asks the question, then, "Why do people generally think of the river as gradually drying up?" The writer is inclined to believe this delusion to be purely a psychological development due to changing viewpoint of the individual with increasing age. Everyone remembers that when he was small, hills were mountains to him, summers and winters were ages, miles were long distances, snow banks were as high as the housetops, creeks were rivers, and rivers were oceans. Moreover, it seems to be a trait of the mind to remember extremes, though seldom average conditions. Then again, public opinion is contagious. What we hear others say makes a certain impress upon us and when the same opinion, however unfounded, is expressed on every hand, we are eventually drawn into similar habits of thoughts.

Examining the table of monthly mean values and noting the past records of high and low values for each of the twelve months since 1869, it is found that 50 per cent of the high means occurred before 1898 and the remaining 50 per cent, since then; while in the case of the low monthly means, twice as many appear in the first half of the record as in the second. It is true that the highest monthly mean of record, 18.3 feet, was back in May, 1888, but the lowest mean record, 0.3 foot, occurred only three years later, in September, 1891. While the highest annual mean, 8.4 feet, occurred back in the first half of the record, the lowest annual mean, 2.5 feet, also was recorded before 1898.

Flood stage, 18 feet, has been reached at Dubuque seven times in the history of the station, or an average of once in eight years. Four of the floods occurred in April, the most prolific month for high water, two in May (one of which began on the last day of April), one in June and one in October. The highest water known was 21.7 feet in June, 1880; the next, 21.4 feet in May, 1888; but a 21-foot stage was reached also in April of 1920 and 1922.

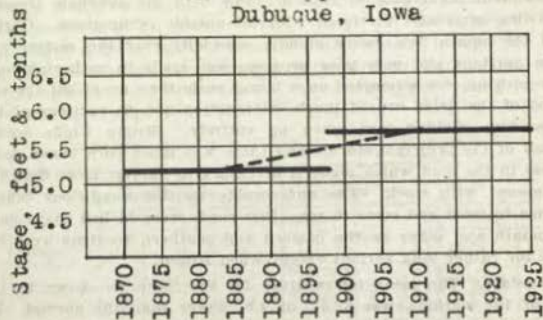
On the basis of extreme minimum stages, it is found that 67 per cent of the lowest monthly stages occurred in the first half of the record. The lowest water known was 1.2 feet below zero of gage, in January, 1890. The water has been known to touch zero or lower also in the last four months of the year, in fact, December most frequently has the lowest water of the year. The water has reached zero or lower seven times in the last 56 years, six of which occurred during the first half of the record and one time in the latter half. So it would seem that there are many evidences of an expanding rather than a diminishing of the "Father of Waters" within the limits of recorded history.

While this study has not entered into the contributing rainfall during the period, which is assumed to have been reasonably constant, a noting of certain factors which have a bearing upon the proportion of the fallen rain that actually reaches the main streams, may be of interest. It is

apparent that increased cultivation of the soil in the drainage area above has enhanced the absorptive power of the soil, resulting in a slower run-off and a consequent tendency to a more nearly uniform discharge. This, in turn, reduces the number of cases of high water and effects higher mean stages during the low-stage months. Moreover, a considerable portion of the rainfall upon well cultivated soil never reaches the streams at all, being lost through evaporation from the surface and by percolation to the subsoil.

On the other hand, these "holding" influences that tend to retard or actually reduce the flow of water to the streams, may be largely, if not entirely compensated by the drainage of marshland, which accelerates the run-off through that channel and incidentally diminishes the possible amount of evaporation from the wet ground or water surface. Again, deforestation has removed an effective medium for interception and absorption of the rainfall before it reaches the ground, to be lost later through evaporation from the plant surface. A larger percentage of the total precipitation is thus permitted to reach the ground now than formerly, with a consequent increase in potential discharge.

Mean Annual River Stages
Mississippi River
Dubuque, Iowa



The above cut shows the average river stage to be 0.5 foot higher during the last 25 years, than the 25 years previous.

NOVEMBER

November, 1926, was a cold, disagreeable month, being the coldest since 1911. There was a decided deficiency in sunshine, especially in the extreme eastern portion. The average number of clear days for the State was the least ever recorded in November and the number of cloudy days equaled the November record, while at Dubuque with a total of 23 cloudy days, the month was the cloudiest ever known in a period of over 50

years. The month was characterized by unusual storm activity and this condition produced numerous fluctuations in temperature but no sudden changes except a cold wave on the last day of the month in which the temperature dropped nearly 50° at a number of stations.

The precipitation was above normal in all divisions and occurred in well defined periods at frequent intervals throughout the month, but there was a deficiency in precipitation over about one-fourth of the State, the principal areas being in the north-central, south-central and the eastern portion of the south-western sections. The principal storm passed over the State on the 13th-14th and this storm produced more than half of the monthly total with unusually heavy falls at many places in the western portion. There was some snow in connection with nearly every period of precipitation in some portion of the State, but the storm that passed along the eastern border of the State on the 18th was the only storm of more than ordinary consequence. The snow was confined mainly to the eastern portion. The heaviest amount reported was 12.3 inches at Independence and a number of other stations reported the greatest November snowfall of record. The snow during this storm drifted badly, blocking highways for several days but there was no serious interference with railway traffic except on a few branch lines in the east central and northeast portions.

The frequent occurrence of rain or snow with the alternate freezing and thawing seriously interfered with all outside occupations. During most of the month fields were muddy, especially over the eastern and southern portions and very poor progress was made in gathering corn. Machine picking was attempted on a larger scale than usual but the soft condition of the fields caused much interruption and in portions of the State machine picking was given up entirely. Strong winds accompanied all of the principal storms and there was much corn blown down that froze in the mud which made it necessary to harvest more than the usual amount with stock. The unfavorable weather conditions caused much corn to mold and some to rot. Dirt roads were in bad shape most of the month and many in the eastern and southern portions were impassable for rather long periods except when frozen.

Temperature. The mean temperature for the State, as shown by the records of 102 stations, was 32.6°, or 4.0° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 29.7°, or 4.7° lower than the normal; Central, 32.9°, or 3.8 lower than the normal; Southern, 35.2°, or 3.5° lower than the normal. The highest monthly mean was 38.6° at Ottumwa, and the lowest was 27.6°, at Northwood. The highest temperature reported was 71° at Little Sioux and Thurman on the 5th and Mt. Ayr on the 6th, and the lowest was -3°, at Little Sioux on the 21st. The temperature range for the State was 74°.

Precipitation. The average precipitation for the State, as shown by the records of 108 stations, was 2.10 inches, or 0.54 inch greater than the normal. By divisions, the average were as follows: Northern, 1.84 or 0.32 inch greater than the normal; Central, 2.39 inches, or 0.81 inch

greater than the normal; Southern, 2.07 inches, or 0.50 inch greater than the normal. The greatest amount, 3.88 inches occurred at Davenport, and the least 0.68 inch occurred at Grinnell. The greatest amount in any 24 consecutive hours, 2.65 inches occurred at Onawa on the 14th.

Snowfall. The average snowfall for the State was 4.2 inches, or 1.9 inches greater than the normal and 0.2 inch greater than November, 1925. The amounts were rather unevenly distributed, being the greatest in the northern division and least in the southern division. The heaviest amounts occurred in the northeastern portion, where four stations reported more than ten inches. Several stations in the central and southern division reported less than an inch and three stations reported only traces. Snow fell on numerous dates throughout the month, the heaviest being on the 18th, and at several stations in the northern half of the State the ground was still covered at the close of the month.

Miscellaneous Phenomena. Aurora: 28th. Fog: 3d, 11th, 13th, 23d, 24th, 25th. Hall: 8th, 25th, 26th. Halos (lunar and solar): 6th, 16th, 17th, 20th, 21st, 22d, 24th. Rainbow: 14th. Sleet: 8th, 9th, 14th, 16th, 21st, 22d, 23d, 24th, 25th, 26th, 29th. Thunderstorms: 7th, 8th, 13th, 14th, 15th, 25th, 26th. Winds (strong): 8th, 9th, 15th, 16th, 18th, 19th, 26th.

Rivers. Rather high stages prevailed on the Mississippi River with a falling tendency during most of the first two weeks and a general rising tendency thereafter, though there were numerous fluctuations. Moderate stages prevailed on all interior rivers. There were no important fluctuations except a moderate rise occurred following the heavy rains on the 14th. Moderate stages also prevailed on the Missouri River with a gradual fall throughout the month. There was considerable floating ice on all rivers during the last two weeks.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)				Relative Humidity, %				Wind			Sun- shin- e		
	Mean	Highest	Date	Lowest	Date	Mean		Total movement	Average, hourly velocity	Maximum			% possible departure from normal	
						7 a. m. to 12 Noon	1 p. m. to 7 p. m.			Miles	From			
Charles City	30.00	30.51	10	29.37	15	98	79	42	5,491	9.0	sw.	36	32-15	
Davenport	30.01	30.45	10	29.25	20	86	72	41	6,140	8.5	n.	8	82-25	
Des Moines	30.00	30.52	10	29.37	14	77	67	33	6,223	8.6	n.	8	46-10	
Dubuque	29.97	30.47	10	29.27	30	81	67	37	5,806	8.1	n.	9	23-21	
Keokuk	30.02	30.52	10	29.34	30	76	62	35	5,967	9.7	sw.	25	30-16	
Sioux City	30.06	30.61	10	29.41	29	89	64	71	5,751	15.0	sw.	15	36-17	
Omaha, Neb.	30.04	30.55	10	29.38	29	78	68	36	7,945	11.0	n.	5	44-11	
Means and extremes	30.01	30.61	10	29.25	36	81	67	78	10.0	42	sw.	15	35-17	
Normals and records	30.07	30.94	9	29.18	81	70	61	70	8.2	10	sw.	10	52	
		*30.96	1806	†29.06	1915			†16	1916		†68	sw.	1919	

*Sioux City. †Davenport. ‡Omaha. §Keokuk. ¶Local mean time.

COMPARATIVE DATA FOR THE STATE—NOVEMBER

Year	Temperature				Precipitation				Number of Days		
	Mean	Departure	Highest	Lowest	Total	Departure	Greatest	Least	Snowfall	With pre. of in. or more	
										Clear	Partly cloudy
1873	36.2	-0.4	64	-4	0.72	-0.84	2.78	0.00			
1874	32.9	-3.7	74	-6	2.21	+0.65	4.79	1.05			
1875	39.1	-0.5	60	-16	0.19	-1.37	0.61	0.00			
1876	31.3	-3.3	68	-6	1.70	+0.14	5.59	0.16			
1877	31.3	-3.3	68	-10	1.98	+0.33	3.84	0.12			
1878	39.7	+3.1	72	12	0.63	-0.55	2.63	0.00			
1879	33.3	-0.3	75	4	4.08	+3.32	7.99	0.20			
1880	25.3	-9.3	68	-12	1.29	-0.27	3.37	0.65			
1881	34.4	+2.3	65	-1	2.01	+0.45	3.97	0.00			
1882	37.5	+0.9	76	4	1.73	+0.15	7.15	0.39			
1883	35.8	+0.3	70	-3	1.44	-0.12	4.17	0.00			
1884	35.6	-1.0	68	-15	0.79	-0.77	1.90	0.00			
1885	36.4	-0.2	67	14	0.69	-0.87	2.60	0.19			
1886	32.1	-4.5	73	-4	1.40	-0.67	5.38	0.39			
1887	35.1	-1.3	78	-26	0.85	-0.71	4.10	0.10			
1888	37.1	+0.5	82	0	1.56	-0.09	6.00	0.00			
1889	33.0	-3.6	68	-0	1.44	-0.12	4.90	0.05			
1890	38.9	+2.3	78	-2	1.31	-0.25	3.56	0.50			
1891	33.5	-6.1	84	-54	1.70	+0.14	3.64	0.66	7	10	8
1892	32.7	-3.3	70	-3	1.10	-0.46	3.16	0.05	1.8	4	11
1893	34.0	-2.6	86	-13	1.17	-0.39	2.56	0.05	4.6	4	16
1894	32.7	-3.9	72	-5	0.92	-0.64	2.42	T	0.4	4	9
1895	34.3	-2.3	86	-12	1.51	-0.03	3.05	0.45	4.9	6	9
1896	29.6	-7.0	82	-15	1.83	+0.37	4.51	0.16	2.9	6	9
1897	34.3	-2.3	81	-19	0.66	-0.93	2.54	T	1.2	5	12
1898	32.2	-4.4	78	-17	1.50	-0.66	3.01	0.33	8.7	6	14
1899	43.9	+7.3	96	8	1.30	-0.36	2.97	0.13	0.5	5	12
1900	38.5	-3.1	79	-6	1.00	-0.50	3.35	T	3.7	6	12
1901	35.8	-0.8	77	2	0.86	-0.70	2.30	0.20	2.6	3	18
1902	41.2	+4.6	79	4	2.13	+0.52	4.19	0.16	1.8	7	9
1903	34.2	-2.4	75	-5	0.62	-1.04	1.74	T	1.1	13	8
1904	41.0	+4.4	80	4	0.15	-1.41	0.50	0.00	6.5	1	29
1905	38.4	-1.8	70	-12	2.84	+1.28	5.30	0.90	6.6	5	15
1906	35.4	-1.2	79	-5	2.03	+0.47	3.86	0.35	4.4	8	9
1907	38.7	+0.1	68	-4	0.53	-0.53	2.27	0.05	6.9	4	17
1908	39.3	+2.7	80	5	1.56	-0.00	3.31	0.21	1.4	8	9
1909	42.4	+5.8	84	-3	5.39	+3.83	1.48	3.67	6.8	10	10
1910	35.4	-3.3	76	5	0.34	-1.22	1.03	T	6.7	3	13
1911	29.9	-6.7	79	-8	1.42	-0.14	4.99	0.11	1.6	6	11
1912	40.1	+3.5	77	9	0.98	-0.28	2.38	0.00	T	2	18
1913	44.1	+7.5	78	10	1.18	-0.28	3.49	0.39	0.4	6	11
1914	41.0	+4.4	80	-4	0.22	-1.34	0.95	0.00	T	2	19
1915	40.2	+3.6	83	-5	1.94	+0.38	4.86	0.30	1.2	6	11
1916	37.3	+0.7	89	-8	1.61	+0.05	2.65	0.05	3.6	5	16
1917	39.7	+4.1	77	3	0.28	-1.82	0.72	T	4.7	7	13
1918	39.7	+3.3	75	6	3.11	+0.55	5.10	0.70	4.4	7	13
1919	38.6	-3.0	89	-15	3.40	+1.84	6.22	1.97	6.3	8	11
1920	36.4	-1.2	71	9	3.18	+0.62	4.45	0.73	1.2	8	10
1921	35.6	-3.0	70	-7	0.86	-0.96	1.61	T	3.4	5	16
1922	42.2	+5.6	74	11	3.54	+1.98	5.38	1.96	0.3	9	11
1923	40.1	+3.5	72	9	0.58	-0.98	1.84	0.00	1.2	3	16
1924	38.9	+2.3	82	0	0.58	-0.98	1.55	T	0.4	4	15
1925	36.1	-0.5	68	-6	0.71	-0.85	2.30	0.10	4.0	4	15
1926	32.6	-4.0	71	-8	2.10	+0.54	3.88	0.08	4.2	7	8

T. indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

DECEMBER

There were no unusual weather features during December, 1926. The temperature averaged somewhat below normal for the State, the deficiency being most pronounced in the northern division and least in the southern division, where a few stations reported a slight excess. Fluctuations in temperature were frequent with no protracted periods of either cold or mild weather. The longest period of cold weather and greatest deficiency occurred from the 13th to 18th, inclusive, which was immediately followed by the longest period of mild weather, extending from the 19th to 23d. Zero weather occurred in all portions of the State, the average number of days with zero, or lower, was about eight in the northern division, gradually diminishing to three in the southern division.

For the State as a whole the precipitation was slightly below normal and was unevenly distributed both as to time and locality. A number of stations in the northern division reported practically the entire monthly total as snow and several in the southern division reported only traces of snow. Considerably more than half of the monthly precipitation occurred during a single storm ending on the 7th; during the rest of the month the amounts were mostly light though some rather heavy amounts occurred at several stations in the northern division on the 23d. All precipitation periods were rather general throughout the State but the amount varied much. There was an excess over almost the entire northern division and about one-third of the central division, while in the southern division only one station reported an excess. There was considerable glaze from the 4th to 7th, that was quite general and on several other dates during the rest of the month in smaller areas. While as a rule the glaze was not heavy, it caused some local damage to overhead wires. The greatest damage was by automobiles skidding on slippery streets and roads. The snowfall ranged from none to more than 24.0 inches and was greatest in the northern division. There was considerable wind accompanying the heaviest falls of snow and much drifting resulted. Railroad traffic was interfered with on the 7th, 13th and 23d and many highways were blocked and it was necessary to cut passages through the drifts. In the central and southern division the snow was not heavy enough to cause any inconvenience except in the extreme western portion.

Conditions were mostly unfavorable for winter grains and grasses. The ground was unprotected during the most severe weather over the southern and most of the central divisions and there was some damage from glaze and alternate freezing and thawing. Ice became heavy enough to harvest after the cold weather at the middle of the month, but the mild weather that occurred later made it soft and spongy over most of the southern half of the State. Roads were rough over the southern portion during the first half of the month but there was an improvement later and nearly all roads were passable at the end of the month.

Temperature. The mean temperature for the State, as shown by the records of 104 stations, was 21.9°, or 2.2° lower than the normal. By divisions, approximately three tiers of counties to the division, the means were as follows: Northern, 17.7°, or 3.8° lower than the normal;

Central, 23.3°, or 2.0° lower than the normal; Southern, 25.7°, or 0.8° lower than the normal. The highest monthly mean was 27.8°, at Keokuk, and the lowest was 14.4° at Milford. The highest temperature reported was 58°, at Chariton on the 1st, and the lowest was -21°, at Estherville and Milford on the 14th. The temperature range for the State was 79°.

Precipitation. The average precipitation for the State, as shown by the records of 109 stations, was 1.06 inches, or 0.08 inch less than the normal. By divisions, the averages were as follows: Northern, 1.37 inches, or 0.34 inch more than the normal; Central, 0.96 inch, or 0.21 inch less than the normal; Southern, 0.84 inch, or 0.33 inch less than the normal. The greatest amount, 2.42 inches, occurred at Forest City, and the least, 0.28 inch, occurred at Chariton. The greatest amount in 24 hours, 1.50 inches, occurred at Spencer, on the 7th.

Snowfall. The average snowfall for the State was 5.7 inches, or 0.3 inch less than the normal. The greatest amount, 24.2 inches, occurred at Forest City. Lacona reported no snow whatever and several stations in the southern division reported only traces. The snow was rather heavy over all of the northern division and the northern portion of the central division. The snow was light over the southern division except in the extreme southeast corner and a few small areas near the Missouri River. The snow cover varied greatly. The ground was bare the entire month over small areas in the south-central and southeastern portion and over a small area in the northwestern portion the ground was covered the entire month. Over rest of the northern division and the northern portion of the central division the ground became snow covered the latter part of the first week and remained covered during the rest of the month.

Miscellaneous Phenomena. Aurora: 13th. Fog: 2d, 3d, 7th, 8th, 9th, 10th, 11th, 12th, 18th, 20th, 21st, 22d, 23d, 29th, 30th. Hail: 6th. Halos (lunar and solar): 6th, 13th, 16th, 25th, 26th. Haze: 22d. Parhelia: 13th, 14th. Sleet: 4th, 5th, 6th, 7th, 10th, 12th, 13th, 19th, 22d, 23d.

Rivers. The Mississippi River averaged considerably above normal. There was running ice during the first half of the month and the river closed the latter part of the second week over the upper and middle course. The gorged ice caused rising stages during most of the last half of the month. There was a gradual fall on the Missouri River till the middle of the month after which there was a gradual rise to rather high winter stages at the end of the month. Low stages prevailed on the interior rivers with very little fluctuation. All interior rivers were frozen the entire month, except in the extreme southern portion of the State.

PRESSURE, RELATIVE HUMIDITY, WIND AND SUNSHINE

Stations	Barometric Pressure, Inches (Sea Level)				Relative Humidity, %		Wind			Sunshine						
	Mean	Highest	Date	Lowest	Mean		Total movement	Maximum		% possible						
					7 a. m.	7 p. m.		From	Date		beauture from normal					
Charles City.....	30.12	30.63	18	29.23	12	91.79	87	63	25	5,306	7.3	25	nw.	13	35	9
Davenport.....	30.14	30.70	18	29.28	12	80.75	83	36	10	5,738	7.7	30	w.	13	19	-14
Des Moines.....	30.12	30.63	18	29.19	12	82.60	77	40	115	5,417	7.7	30	sw.	19	42	-10
Dubuque.....	30.11	30.67	18	29.28	12	80.72	76	32	15	5,225	7.0	23	n.	1	31	-11
Keokuk.....	30.15	30.69	18	29.25	12	78.70	75	20	16	6,963	8.1	30	w.	12	32	-12
Sioux City.....	30.14	30.43	1	29.15	12	90.70	82	50	115	8,383	11.5	44	nw.	12	40	9
Omaha, Neb.....	30.14	30.56	17	29.18	12	84.77	79	45	20	6,071	8.2	38	n.	12	53	0
Means and extremes.....	30.12	30.70	18	29.15	12	80.74	80	23	16	.....	8.1	44	nw.	13	37	-10
Normals and records.....	30.12	30.70	18	29.15	12	80.74	80	23	16	.....	8.1	44	nw.	13	37	-10
		*31.09	1917	29.00	1925							58	nw.	1907	47	.....

*Sioux City. †Dubuque. ‡Keokuk. ††Local mean time. †††And other dates.

COMPARATIVE DATA FOR THE STATE—DECEMBER

Year	Temperature				Precipitation			Number of Days				
	Mean	Departure	Highest	Lowest	Departure	Greatest	Least	Snowfall	With pre. 30 in. or more	Clear	Partly cloudy	Cloudy
1873.	22.6	-1.5	65	-10	2.51	+1.37	8.56	6.00				
1874.	24.0	-0.1	60	-18	0.84	-0.30	3.22	0.10				
1875.	30.0	+5.9	68	-18	2.06	+0.92	4.73	0.73				
1876.	11.9	-12.2	56	-28	0.24	-0.90	1.40	0.00				
1877.	36.8	+27.7	65	-11	2.18	+1.04	3.90	1.00				
1878.	17.2	-6.9	52	-16	0.77	-0.37	2.78	0.10				
1879.	16.1	-8.0	58	-35	0.40	-0.26	0.93	0.00				
1880.	16.1	-8.0	55	-23	0.85	-0.29	2.50	0.00				
1881.	33.8	+9.7	60	-10	1.24	+0.10	4.67	0.10				
1882.	21.0	-3.1	54	-23	1.57	+0.43	3.50	0.48				
1883.	24.4	+0.7	62	-24	1.03	-0.13	2.75	0.00				
1884.	16.2	-7.9	56	-30	2.13	+1.01	4.42	0.70				
1885.	24.6	+0.5	55	-22	1.45	+0.31	3.73	0.40				
1886.	14.4	-9.7	53	-12	0.80	-0.34	1.64	0.10				
1887.	20.3	-3.8	57	-23	2.17	+1.08	2.90	0.60				
1888.	28.6	+4.3	68	-6	1.46	-0.22	2.90	0.25				
1889.	35.8	+11.7	60	-6	1.68	-0.09	3.00	0.00				
1890.	28.5	+4.4	68	-18	0.58	-0.56	2.72	0.00				
1891.	32.3	+2.2	72	-14	2.41	-1.27	4.90	1.10				
1892.	18.9	-5.2	68	-29	1.65	-0.51	3.04	0.20				
1893.	22.0	-2.1	70	-21	3.21	+0.13	2.80	0.10				
1894.	30.1	+6.0	73	-17	0.95	-0.19	1.75	0.25				
1895.	25.4	+1.3	63	-16	1.62	+0.49	5.74	0.00				
1896.	30.8	+6.7	70	-10	0.68	-0.49	1.70	0.10				
1897.	18.0	-6.1	69	-23	1.65	-0.51	3.22	0.10				
1898.	18.1	-6.0	69	-23	0.48	-0.66	1.76	0.30				
1899.	22.6	-1.5	73	-10	1.61	+0.47	4.28	0.30				
1900.	26.9	+2.8	63	-10	0.45	-0.69	2.70	0.24				
1901.	30.5	+5.6	64	-21	0.93	-0.21	2.75	0.54				
1902.	36.1	+4.0	59	-27	2.23	+1.09	5.51	0.47				
1903.	19.6	-5.9	61	-17	0.73	-0.73	1.90	0.10				
1904.	23.4	-0.7	67	-19	1.44	+0.30	3.88	0.66				
1905.	27.0	+2.0	62	-11	0.52	-0.62	1.69	1.10				
1906.	25.7	+1.6	65	-9	1.43	+0.29	2.81	0.27				
1907.	28.8	+4.7	67	-9	1.90	-0.14	2.38	0.55				
1908.	27.2	+3.3	67	-12	0.37	-0.37	2.97	0.05				
1909.	15.1	-0.0	60	-26	2.18	-1.04	6.10	0.10				
1910.	23.4	-0.7	57	-14	0.37	-0.77	1.39	0.01				
1911.	27.9	+3.8	60	-24	2.57	+1.43	4.43	0.62				
1912.	29.2	+5.1	64	-13	0.74	-0.40	1.75	0.30				
1913.	31.0	+7.9	61	-15	1.02	-0.12	4.73	0.00				
1914.	15.7	-8.4	63	-31	1.30	-0.16	2.24	0.57				
1915.	25.0	+0.9	56	-10	0.69	-0.47	1.70	1.00				
1916.	18.7	-3.4	67	-25	1.04	-0.10	2.00	0.35				
1917.	14.3	-6.6	61	-15	1.46	-0.38	1.70	0.67				
1918.	32.7	+8.6	68	-7	1.30	-0.10	2.30	0.35				
1919.	15.0	-1.0	52	-36	0.54	-0.60	0.60	0.16				
1920.	26.2	+2.3	65	-26	1.16	-0.22	2.64	0.26				
1921.	28.2	+4.1	69	-16	1.02	-0.12	2.72	0.20				
1922.	24.0	-0.1	61	-20	0.56	-0.12	2.00	0.10				
1923.	33.5	+0.4	68	-12	0.76	-0.25	2.22	0.20				
1924.	15.4	-8.7	62	-33	1.79	-0.67	6.67	0.60				
1925.	21.0	-3.1	61	-21	1.30	-0.22	3.22	0.20				
1926.	21.2	-2.2	53	-21	0.91	-0.08	2.42	0.10				

T. Indicates an amount too small to measure, or less than .005 inch rainfall and less than .05 inch snowfall.

MONTHLY STATE DATA FOR 1926

Month	Barometric Pressure (Sea Level)				Temperature (degrees, F.)		Rel. Humid. (P. Cent)		Precipitation, Inches		No. of Days				Sunshine		Wind									
	Mean	Lowest	Date	Departure from normal	Highest	Lowest	7 a. m.	7 p. m.	7 a. m.	7 p. m.	Average	Normal	Departure from normal	Least	Greatest	Snowfall	With or less than more precipitation	Clear	Partly cloudy	Cloudy	Per cent of the possible amount	Departure from normal	Average hourly velocity	Departure from normal	Prevailing direction	
January	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
February	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
March	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
April	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
May	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
June	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
July	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
August	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
September	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
October	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
November	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
December	30.06	29.85	29	-0.10	30.27	29.88	78	75	1.00	0.54	1.00	0.54	1.00	0.54	1.00	0.54	1.00	11	11	11	11	11	11	11	11	11
Means and extremes.	30.00	29.70	Jan. 22	-0.30	30.30	29.90	75	72	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50	1.00	10	10	10	10	10	10	10	10	10
Normals and records.	30.00	29.70	Jan. 25	-0.30	30.30	29.90	75	72	1.00	0.50	1.00	0.50	1.00	0.50	1.00	0.50	1.00	10	10	10	10	10	10	10	10	10

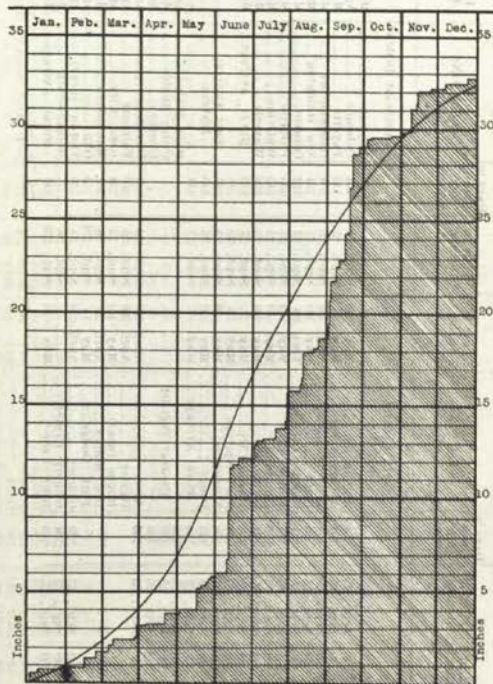
!Local mean time.
*Normal central time.
† 7 a. m. and 7 p. m. observations only.

COMPARATIVE DATA FOR THE STATE—Annual

Year	Temperature				Precipitation in Inches				
	Mean annual	Highest	Date	Lowest	Date	Annual	Greatest annual	Least annual	Average snowfall
1873	46.1	102	August 31	-38	January 24	38.92	41.04	23.34	.....
1874	47.7	101	July 5	-24	January 24	39.76	39.76	25.43	.....
1875	45.3	97	July 16	-31	January 14	36.16	48.42	28.55	.....
1876	45.9	96	August 24	-28	December 9	36.65	53.07	19.92	.....
1877	48.4	100	.....	-31	January 8	35.16	49.82	22.52	.....
1878	50.0	104	.....	-18	January 6	34.53	42.08	20.92	.....
1879	48.0	102	.....	-35	December 25	28.23	46.71	16.49	.....
1880	47.9	104	.....	-25	December 27	39.35	51.10	14.90	.....
1881	47.5	104	.....	-40	.....	44.16	56.81	34.02	.....
1882	48.4	98	.....	-23	December 7	33.40	50.30	17.71	.....
1883	44.8	100	.....	-38	.....	34.54	46.15	18.00	.....
1884	46.0	96	.....	-38	.....	35.59	46.00	23.35	.....
1885	44.7	102	July 30	-42	January 28	32.23	44.89	37.01	.....
1886	46.4	103	July 13	-34	February 4	24.71	35.48	15.53	.....
1887	46.6	105	July 29	-34	January 7	26.31	38.61	12.30	.....
1888	45.3	110	August 2	-43	January 15	31.44	41.17	20.60	.....
1889	48.0	104	August 30	-28	February	25.07	37.61	13.66	.....
1890	47.5	110	July* 13	-27	January 22	29.48	45.45	16.54	.....
1891	47.3	106	August 9	-31	February 4	32.00	40.05	23.48	.....
1892	46.0	104	July 11	-38	January 19	36.58	48.77	24.78	34.2
1893	45.7	102	July* 13	-36	January 14	27.59	33.27	19.19	37.2
1894	49.7	109	July 26	-37	January 25	23.94	29.81	15.63	19.2
1895	47.2	104	May 28	-23	February 1	29.77	35.25	18.47	29.0
1896	48.6	104	July 3	-20	January 4	37.23	51.00	28.68	22.6
1897	47.8	106	July* 23	-30	January 25	26.08	36.18	20.21	38.8
1898	47.7	103	August 20	-25	December 31	31.34	55.47	19.51	40.3
1899	47.3	104	September 6	-40	February 11	28.68	42.06	21.79	23.4
1900	49.3	103	August 3	-27	February 15	35.05	47.32	25.65	28.8
1901	49.0	113	July 22	-31	December 15	24.41	37.69	16.35	38.5
1902	47.7	98	July 30	-31	January 27	44.82	58.80	30.34	28.0
1903	47.2	105	August 24	-27	December 18	35.39	50.53	26.41	19.4
1904	46.3	109	July 17	-32	January 27	28.51	38.63	19.34	29.2
1905	47.2	104	August 11	-41	February* 2	36.56	62.26	24.66	28.3
1906	48.4	102	July 21	-32	February 10	31.60	44.34	30.63	32.8
1907	47.4	102	July 5	-31	February 5	31.61	43.90	19.93	24.0
1908	49.4	101	August 3	-18	January 29	36.26	49.98	24.11	22.7
1909	47.4	103	August* 15	-28	February* 15	40.01	53.48	37.20	49.0
1910	48.6	108	July 16	-35	January 7	19.87	37.90	12.31	25.4
1911	49.5	111	July* 3	-35	January 3	31.37	46.77	19.74	35.3
1912	46.3	104	September 8	-47	January 12	28.89	33.13	15.25	39.5
1913	49.7	108	July* 16	-25	January 8	29.95	45.18	20.31	25.4
1914	49.1	109	July 12	-31	December 30	31.93	44.11	23.30	27.3
1915	47.8	99	May 14	-32	January 25	39.53	51.15	37.29	31.2
1916	47.2	106	August 4	-34	January 13	28.90	46.34	22.48	29.3
1917	44.8	106	July 20	-40	December 29	27.81	36.00	20.78	32.4
1918	49.2	113	August 4	-36	February 4	32.76	47.53	25.03	32.4
1919	48.0	104	July* 30	-31	December 10	36.76	48.16	26.38	29.6
1920	48.2	102	July 23	-26	January 4	31.75	44.00	30.95	21.7
1921	52.2	104	July* 11	-22	December 25	32.03	46.47	30.44	30.7
1922	50.2	104	June 23	-29	January 6	39.98	44.20	19.08	13.5
1923	49.0	102	July* 22	-23	February* 3	29.59	37.47	21.36	36.3
1924	46.4	100	August* 21	-36	January 3	31.29	43.83	19.41	37.4
1925	48.8	105	July* 1	-25	December 29	28.24	45.53	12.77	29.2
1926	45.3	109	July* 19	-22	January 28	33.07	48.36	22.35	27.8
M'n	47.0	.....	.....	.....	.....	31.86	.....	.....	30.6

*And other dates.

Precipitation
DES MOINES, IOWA
Line bounding shaded area shows accumulated depth in inches, 1926.
Smooth curve shows normal.



Total for 1926, 32.85.

Normal, 32.45.

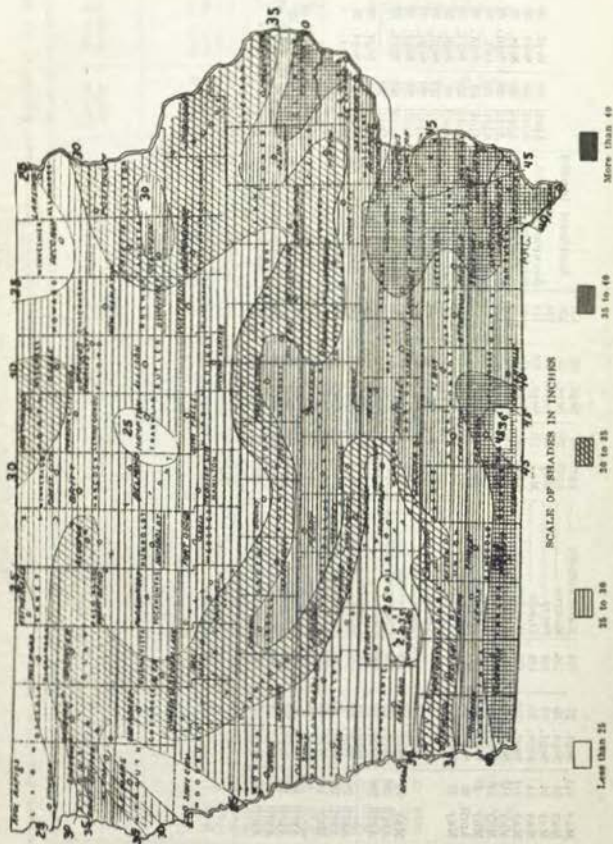
DATES OF KILLING FROSTS, 1926

Charles City, Davenport, Des Moines, Dubuque, Keokuk, Sioux City, Omaha, and Marshalltown excluded from averages because of city influences

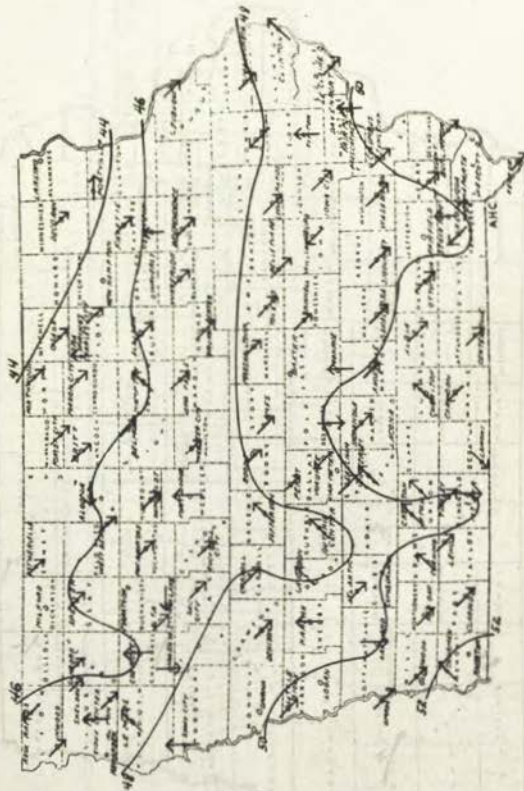
STATIONS	Last in Spring	First in Autumn	Days in Growing Season	STATIONS	Last in Spring	First in Autumn	Days in Growing Season	STATIONS	Last in Spring	First in Autumn	Days in Growing Season
Northwest District			North Central District				Northeast District				
Alta	May 14	Sept. 25	134	Algona	May 14	Sept. 25	134	Decorah	May 3	Sept. 25	145
Alton	May 14	Sept. 25	134	Allison (near)	May 3	Sept. 25	145	Dubuque	April 26	Sept. 26	153
Cherokee	May 14	Sept. 25	134	Belmond	May 14	Sept. 25	134	Fayette	May 3	Sept. 25	145
Etherville	May 3	Sept. 25	145	Britt	May 14	Sept. 25	134	Independence	May 3	Sept. 26	146
Inwood	May 14	Sept. 25	134	Charles City	April 26	Sept. 25	132	New Hampton	May 3	Sept. 25	145
Le Mars	May 22	Sept. 25	126	Forest City	May 3	Sept. 25	145	Oelwein	May 3	Sept. 25	145
Millford (near)	May 14	Sept. 25	134	Hampton	May 14	Sept. 25	134	Postville	May 3	Sept. 26	146
Pocahontas	May 14	Sept. 25	134	Humboldt	May 14	Sept. 25	134	Waverly	May 3	Sept. 25	145
Rock Rapids	May 14	Sept. 25	134	Mason City	May 3	Sept. 25	145	Rural Average	May 3	Sept. 25	145
Sanborn	May 14	Sept. 25	134	Nora Springs	May 3	Sept. 25	145	East Central District			
Sheldon	May 14	Sept. 25	134	Northwood	May 3	Sept. 25	145	Belle Plaine	April 30	Sept. 26	153
Sioux Center	May 3	Sept. 25	145	Osage	May 3	Sept. 25	145	Cedar Rapids	May 15	Sept. 26	154
Spencer	May 14	Sept. 25	134	Rural Average	May 7	Sept. 25	141	Davenport	April 26	Sept. 26	153
Storm Lake	May 3	Sept. 25	145	Central District				Fairport	April 30	Sept. 26	153
Washta	May 14	Sept. 25	134	Ames	April 28	Sept. 26	151	Iowa City	April 26	Sept. 26	153
West Bend	May 14	Sept. 25	134	Baxter	April 28	Sept. 25	150	Maquoketa	May 15	Sept. 25	149
Rural Average	May 12	Sept. 25	136	Boone (near)	May 14	Sept. 25	134	Olin	April 26	Sept. 25	149
West Central District			South Central District				Southeast District				
Audubon	May 14	Sept. 25	134	Fort Dodge	May 14	Sept. 25	134	Bonaparte (near)	April 26	Sept. 26	153
Carroll	May 14	Sept. 25	134	Grinnell	April 28	Sept. 25	150	Burlington	April 19	Sept. 26	160
Denison	May 14	Sept. 25	134	Grundy Center	April 28	Sept. 25	150	Columbus Junction	April 26	Sept. 26	153
				Iowa Falls	May 3	Sept. 25	145	Fairfield	April 26	Sept. 26	153
								Keokuk	April 19	Oct. 24	158
								Keosauqua	April 26	Sept. 26	153
								Mt. Pleasant	April 26	Sept. 26	153
								Oskaloosa	April 28	Sept. 26	151
								Jttunwa	April 26	Sept. 26	153
								Sigourney (near)	April 28	Sept. 26	151
								Stoxport	April 26	Sept. 26	153
								Washington	April 26	Sept. 26	153
								Wescott (near)	April 26	Sept. 26	153
								Rural Average	April 26	Sept. 26	153
								State Average 1926	May 4	Sept. 25	144
								State normal	May 2	Oct. 5	156

Guthrie Center	May 14	Sept. 25	134	Marshalltown	April 26	Sept. 25	152				
Harlan (near)	May 14	Sept. 25	134	Monroe	April 28	Sept. 25	150	Southeast District			
Jefferson	May 14	Sept. 25	134	Perry	May 15	Sept. 26	134	Bonaparte (near)	April 26	Sept. 26	153
Little Sioux	May 14	Sept. 25	134	Toledo	May 15	Sept. 25	133	Burlington	April 19	Sept. 26	160
Logan	May 14	Sept. 25	134	Wauke	April 28	Sept. 25	150	Columbus Junction	April 26	Sept. 26	153
Onawa	May 14	Sept. 25	134	Webster City	May 14	Sept. 25	134	Fairfield	April 26	Sept. 26	153
Rockwell City	May 14	Sept. 25	134	Rural Average	May 6	Sept. 25	142	Keokuk	April 19	Oct. 24	158
Sac City	May 3	Sept. 25	145	South Central District				Keosauqua	April 26	Sept. 26	153
Sioux City	April 28	Sept. 25	150	Afton	April 28	Sept. 26	151	Mt. Pleasant	April 26	Sept. 26	153
Rural Average	May 13	Sept. 25	136	Albia	April 28	Sept. 26	151	Oskaloosa	April 28	Sept. 26	151
Southwest District			Atlantic				Southeast District				
Atlantic	May 14	Sept. 25	134	Centerville	May 2	Sept. 26	147	Sigourney (near)	April 28	Sept. 26	151
Clarinda	April 28	Sept. 25	150	Chariton (near)	April 28	Sept. 25	150	Stoxport	April 26	Sept. 26	153
Corning (near)	April 28	Sept. 25	150	Corrydon	April 28	Sept. 26	151	Washington	April 26	Sept. 26	153
Cumberland (near)	Sept. 25	Sept. 25	150	Creston	April 28	Sept. 25	150	Wescott (near)	April 26	Sept. 26	153
Glenwood	April 28	Sept. 25	150	Earlham (near)	May 15	Sept. 26	134	Rural Average	April 26	Sept. 26	153
Lenox	April 28	Sept. 25	150	Indianola	April 28	Sept. 26	151	State Average 1926	May 4	Sept. 25	144
Oakland	May 14	Sept. 25	134	Knoxville	April 28	Sept. 26	151	State normal	May 2	Oct. 5	156
Red Oak (near)	Sept. 25	Sept. 25	150	Lamoni	April 28	Sept. 26	151				
Riverton (near)	April 19	Sept. 26	160	Mount Ayr	April 28	Sept. 26	151	+Date of last temperature of 32° or lower in the spring, or first temperature of 32° or lower in the autumn (as the case may be) when frost was not reported.			
Thurman	April 19	Sept. 26	160	Tingley	April 28	Sept. 25	150				
Omaha, Neb.	April 28	Oct. 24	168	Winterset	April 28	Sept. 26	151				
Rural Average	April 30	Sept. 25	148	Rural Average	April 30	Sept. 26	149				

TOTAL PRECIPITATION, YEAR, 1926



MEAN ISOTHERMS AND PREVAILING WINDS, YEAR, 1926



TORNADO PATHS IN IOWA DURING THE YEAR, 1926
 (Figures refer to descriptive data in accompanying table)



TORNADOES IN IOWA DURING THE YEAR 1926

Nearest Town	Date	Time	Direction	Length of Path	Persons Injured	Persons Killed	Estimated Damage
1. Clarinda	June 16	3:50 p. m.	sw. to ne.	6 miles	24	2	\$ 250,000
2. Redding	June 16	3:30 p. m.	sw. to ne.	7 miles	5	0	115,000
3. Walnut	June 20	7:30 p. m.	w. to e.	10 miles	0	0	2,050
4. Le Mars and Marcus	August 17	8:00 p. m.	sw. to ne.	18 miles	0	0	-----
5. Milford	Sept. 30, Oct. 1	11:00 p. m. to 1 a. m.	s. to n.	15 miles	0	0	75,000
6. Humboldt	October 1	1:50 p. m.	w. to e.	2 miles	0	0	10,000
Total				58 miles	29	2	\$ 432,050

WEATHER AND CROP REVIEW, 1926.

Read by Charles D. Reed at Annual Agricultural Convention, House Chamber, State House, Des Moines, Iowa, December 8, 1926.

Iowa produced 413,596,000 bushels of corn in 1926 on 11,178,000 acres, according to the joint estimates of the Weather and Crop Bureau of the Iowa Department of Agriculture and the Bureau of Agricultural Economics of the U. S. Department of Agriculture. That is 79 million bushels less than in 1925. The decrease is mainly due to a falling off in the yield per acre from 43.9 bushels in 1925 as reported by assessors to 37.0 bushels as estimated this year. There was, however, a slight decrease of 0.5 per cent in the acreage. This year's total crop is about 11,000,000 bushels less than the average of the five years, 1921-1925.

It is disappointing to note that the price of corn per bushel on December 1 is exactly the same as last year, 56 cents. On this basis the total value of the crop is \$231,608,000 which is about 44 millions less than last year. For several reasons it is believed that this low price is not justified. Both in Iowa and in the country as a whole the supply of old and new corn is appreciably less than last year. For the entire country the total old and new corn is 3 per cent less than last year and in the north-central states it is 12 per cent less. It is believed that before long the market will react to this situation and the market value of the 1926 crop will be greater.

On December 1, 1926, only 76 per cent of the corn had been husked compared with 85 per cent last year and a ten-year average of 84 per cent. Evidently the trouble with corn heating in the cribs last year has made farmers cautious about cribbing too rapidly this year. Also, the fields have been even softer than last year, particularly in the south and east portions of the State. Machine husking has been impossible much of the time.

In general the quality of the crop is not up to standard and this is no doubt a factor in the low price. A large per cent of the ears are moldy and corn ear worm was probably the worst in the history of the State in the western counties.

The total oats crop was 195,962,000 bushels on 6,221,000 acres or a yield of 31.5 bushels per acre. While the price was 3 cents per bushel more than last year the total value of the crop was \$68,587,000, or about \$9,000,000 less than last year.

While a few minor crops show increases in valuation, they do not offset the decreases in corn and oats, so the total estimated value of Iowa crops December 1 is \$468,117,000 which is the smallest of the last five years and about \$57,000,000 less than last year.

The bright spot in Iowa agriculture during the last year has been the marketing at good prices of a moderate number of hogs fed on relatively cheap corn raised in 1925. It is impossible at this time to make even a rough estimate of the value of livestock marketed in 1926, but an effort has been made to estimate that marketed in 1924 and 1925.

Without going into details on which there might be minor differences of opinion, it is our best estimate that with all duplications of crops and

livestock eliminated and due consideration given to changes in inventory values, the total crop and livestock industry of Iowa in 1924 brought in about \$628,000,000 while in 1925 it brought in \$712,000,000. This is the first effort made by this office along these lines and it is gratifying to know that the values given harmonize fairly well with the estimates of other statistical agencies and economists though falling far under the guesses of some persons, who have as a rule committed errors in duplicating crops and crops fed to livestock. No great accuracy is claimed for these figures, yet they are far better than anything that has been put out before.

Bulletin No. 1, April 13, 1926—

Following a winter that was generally mild, March was rather stormy and cold, though the frost left the ground, except in the northeast counties, between the 17th and 24th, and considerable oats and a little spring wheat seeding was done in the northwest counties where the soil was dry and the weather warmer than elsewhere in the State. A sharp change to colder March 25th and an unusual snowstorm in the eastern and southern counties on the 31st stopped field work, except the clearing away of corn stalks.

Temperatures moderated to about normal during the current week. Field work was resumed as rapidly as the frost again left the ground, although wet soil and snow drifts prevented in the southeast counties and there is still much frost in the ground in the northeast.

Much oats seeding has been done this week in the western counties and the work is nearing completion in the northwest counties where the season has advanced nearly to normal. Rain would be beneficial in these counties and, in fact, is seriously needed in some localities where the water supply is deficient. In the eastern districts, the season is from ten days to three weeks late.

Preparations for corn planting are about normal in the western half of the State. Strenuous efforts in seed corn testing have resulted in locating enough seed, but the average germination, reported April 1, is only 78 per cent strong. This is, however, an improvement of about 20 per cent in germination over what it was a few weeks ago, due to diligent search and testing in each county. The best seed is in the northwest and southeast districts. Considerable seed is being shipped into some counties. The average germination in 1925 was 93 per cent and in 1924 82 per cent. If soil and weather conditions are favorable, between May 10th and the 25th, there need be no anxiety about seed corn. However, further search and testing would afford cheap corn insurance by raising the general quality of the seed used.

Winter wheat, rye, grasses, clover, and alfalfa wintered well except in the northwest counties, where a deficiency in precipitation has persisted for about two years and both old and new seedings have suffered seriously. There are, as usual, a few localities where damage from heaving is reported.

Fruit has been beneficially retarded. Gardening is later than usual. Some potatoes have been planted.

Pigs, lambs and chicks have suffered from the inclement weather. Other livestock is in good condition, though there is a pronounced shortage of rough feed and pastures are slow starting.

Bulletin No. 2, April 20, 1926—

Temperatures averaged low with severe freezes on some nights. In extreme eastern Iowa, the temperature averaged 41° or 16° below normal; while in extreme western Iowa, it was about normal. Sunshine was considerably above normal. Strong winds, with sunshine, were of great bene-

fit in drying the saturated soil in the eastern and south central districts, but seriously depleted the deficient soil moisture in the western districts, to the danger point in the northwest district. A soaking rain would be of great benefit in the western two-thirds of the State. Dust storms on the 13th and 17th drifted the soil badly in the northwest counties. Considerable snow fell in the northeast district on the 17th.

Oats seeding is practically completed in the western third of the State, nearing completion in the central and north central districts, but only well started in many eastern and south central counties where the oats so far seeded have been largely "mudded in." Germination has been slow and uneven, due to drouth and cold. Rain is badly needed in the northwest counties where the wind has blown away the soil and seed and piled them in drifts. Some acreage intended for oats in the eastern counties will be diverted to corn on account of lateness of the season.

Spring wheat, especially where drilled in, has come up pretty well in spite of the unfavorable conditions. Winter wheat, which is mostly raised in the southern districts, is greening up and looking well, except where it is so dry that the soil has been blown away from the roots or drifted over portions of fields.

Plowing and preparations for corn planting have made good progress in the western portion of the State and is fully up to normal in many counties. In some localities, the ground is ready for the planter and only awaiting a safe planting date. The soil works easily, except in the eastern and south central districts, and the cool weather has made work comfortable for men and horses.

Pastures are starting slowly and rough feed is scarce. The drouth in the western counties makes the outlook for a hay crop rather poor. Recent dry, sunny weather has been favorable for pigs and lambs, though the cold has been unfavorable for chicks.

Considerable gardening has been done, but little growth is reported. In Mitchell county about half of the large intended acreage of onions has been planted. Fruit buds have continued dormant, but a few warm days would bring out the early plums. There is some prospect of a peach crop in the southern counties. The first spray is being applied to fruit trees generally in these counties.

Bulletin No. 3, April 27, 1926—

Unusually warm weather the first half of the week brought the season up to normal, except in the eastern districts where it is still a week or more late. Freezing temperatures were general at the close of the week, but little or no damage resulted. General rains, 23d-24th, were of great benefit except in the extreme eastern counties, where the soil has been too wet all spring, and in the extreme northwest counties where the amounts were too small to do much good. Wells and water supply continue to fall in many west central and northwest counties where a deficiency of rainfall has been more or less continuous for more than two years.

Dust storms were again prevalent on the 20th, 21st, 23d and 24th, being sufficient at times to obscure the sun. Those on the 23d and 24th, after the rains fell in Iowa, were due to dust carried from drier areas some distance to the westward.

Oats and barley seeding is completed in the west and central districts and more than half done in the extreme eastern counties, though in these counties some intended oats acreage will be shifted to corn on account of the lateness of the season. Germination of spring grains has been slow and uneven, due to deficient moisture, but the recent rains are bringing them up with a rush. Barley acreage has been increased somewhat.

Preparations for corn planting made rapid progress and are fully up to normal except in the extreme east. The first corn planting was done in Fremont County, in the extreme southwest portion of the State, on the 21st which is unusually early. Much ground is ready for the planter and

only waiting for a safe date. On account of the weak and unusually poor seed, planting will generally be deferred until conditions approach the ideal. In some counties the seed corn supply is mostly of the short season varieties.

Winter wheat condition is only fair, some is good and some rather poor. The recent rain will improve it.

Grass started rapidly under the influence of the recent warmth and moisture. Pasturage is badly needed to make up for the lack of rough feed. The warm, dry weather has been good for young animals.

Onions are all planted and the acreage has been increased. Potato planting has been general and there has been the usual increase in small patches that comes with high market price but the commercial potato growers have decreased their acreage, following the old rule, "Dear seed, cheap potatoes." Gardening has been very active. Home grown rhubarb and asparagus are plentiful as far north as Des Moines.

Fruit buds are pink in the southern half of the State and will burst forth into full bloom soon. Currants are already in bloom as far north as Des Moines. Peaches are still believed to be safe in spite of the freezes at the close of the week. Trees and shrubs are showing leaves.

Bees entered the winter in poor condition, because of the unprecedented cold and snow of October which made great demands on their stores. The long period of confinement caused dysentery and starvation. In Woodbury County, which is the principal beekeeping county, colonies were set out of cellars about March 20th and about one-third of the colonies perished.

Bulletin No. 4, May 4, 1926—

Rain occurred in nearly all portions of the State May 2, but too light to be of much benefit, except in portions of the west-central, north-central and northeast districts. The drouth is becoming serious in many counties, particularly in the extreme northwest. High northwest wind April 27 caused a dust storm in western and central Iowa long to be remembered. Correspondents refer to it as the worst since back in the 30's. Soil drifts two or three feet deep formed in the roads interfering with traffic and filling the drainage ditches. The sun was at times totally obscured eastward within three or four counties of the Mississippi River.

Temperatures were extreme. Many stations with maximum temperatures in the 90's on April 26, equalled or exceeded their previous high temperature records for April. An abrupt change to colder followed, with freezing temperatures or frosts at several stations on May 3.

Field work was pushed vigorously though too warm for best results from horses and men on three days. Some southern and eastern counties report field work not yet up to normal.

Oats germinated unevenly and show a poor stand as a result of drouth in many western counties. Drilled oats are in much better condition, but drilling is not generally practiced. In the central counties oats fields are green, the oats being from one to three inches high.

Corn planting has begun in the western half of the State as far northward as Wright county, but planting is being generally delayed until there is sufficient moisture. Preparations for planting are about two weeks late in the extreme eastern counties.

Fruits burst into bloom at the close of April in the southwestern half of the State as a result of the high temperatures. The frosts and freezes of May 3 probably caused no injury. Conditions were good for pollination.

Grasses, pastures, newly seeded clover and old alfalfa are in poor condition generally. Rains are seriously needed.

Winter wheat has been injured by the dry weather, high winds and drifting of the soil. Some is being plowed up.

Bulletin No. 5, May 11, 1926—

Rains of the week were of local nature. Less than 20 per cent of the area of the State had rain of agricultural importance and at least 10 per

cent of the State had none. Amounts exceeding one inch were reported at Sioux City, Alta, Clarinda, Lamoni, Iowa City, and Burlington. April precipitation was below normal in all portions of the State and the State-wide average of more than 100 stations was only 0.91 inch, which is the least in the 54 Aprils of record. The nearest approach to this was April, 1879, with an average of 1.13 inches. Fortunately the extreme northwest counties, where the drouth has been most prolonged and serious, had fair amounts. Temperatures of the week averaged 65.2° or 7.6° above normal.

Crop conditions are unusually localized and variable, ranging from fully up to normal to very backward. Corn planting has only begun in the Mississippi River counties where the spring has been cold and wet and in some other counties where the ground has been too dry, while in the extreme southwest counties planting is three-fourths done. In central Iowa about half of the planting is done. Planting is going forward rapidly now in all sections. The earliest corn, planted about April 21st or 22d, is up.

Oats are looking exceptionally well in the limited areas that have ample moisture, but in most of the State they are short and the stand is thin.

Hay and pasture prospects are poor. Hay is being shipped into some counties. Rye is making good growth because of its deep and well-established roots and will furnish a little early hay and pasture. Newly seeded grasses and clovers have suffered seriously. Winter wheat is in fair to poor condition. Where the stand was good last fall it has made good progress.

Fruits began to bloom this week in the eastern counties, 21 days later than last year and eight days later than the average. Petals have fallen in the western counties, fully up to normal and somewhat in advance of normal in the northwest counties. Pollination is believed to have been fairly good, though the absence of bees is very noticeable, due to the heavy losses of colonies through winterkilling.

Bulletin No. 6, May 18, 1926—

Temperatures averaged about normal though there were some cold nights with light frosts or freezes on the lowlands in some portions of the State, particularly on the morning of the 14th. Minimum temperatures of 28° were reported from several stations. Drouth continued in nearly all of the State, though occasional light showers were of some benefit. Tuesday morning, as this is being written rain is beginning at a number of stations in the western portion of the State and there is prospect of some relief.

Corn planting has gone forward steadily with the ground very dry, but otherwise in fine tilth except in localities in the eastern portion where it became cloddy unless the harrow followed closely after the plow. On account of the dry soil, planting averaged rather deep in an effort to reach moisture. Because of the weak seed this may prove detrimental. An extra kernel or two to the hill has been planted by most farmers which will no doubt produce an ample stand if future weather is favorable. About 72 per cent of the planting has been done in the state as a whole, which is about the same as at this date last year. As usual the most advanced region is on the eastern slope toward the Des Moines river where about 90 per cent is done. Only about 20 per cent of the corn has been planted in the Mississippi River counties from Scott northward. The earliest corn has been cultivated once and rows are showing in occasional fields in most districts. So far the stand is not very good, but the soil is warm and a good rain would improve the situation. Fall plowing shows better moisture conditions than spring plowing.

Oats vary from a poor, thin stand with yellow color in some localities to eight inches tall with good stand and color in others, depending on the amount and timeliness of the rains and the resistance of the soil to drouth. Favorable weather would yet produce a good crop.

Hay and pastures are generally in poor condition. Alfalfa looks the best of all the hay crops though it was nipped somewhat by the frosts of

the week. Sweet clover is doing fairly well. New seedings of grasses have suffered seriously.

Gardens have not done well. Cut worms have been numerous and active. Frosts of the week caused only slight damage, except to tender truck, late cherries and strawberries in the northwest counties. The strawberry crop is probably injured beyond recovery by the drouth. Sugar beets were planted in the sugar-producing northwest and north central counties this week.

Bulletin No. 7, May 25, 1926—

Rain occurred during the week in all portions of the State, but it was of agricultural importance in only about half of the State. Amounts exceeding one inch fell gently and were absorbed by the soil over most of the south central and portions of the central, north central and northeast districts, where they were of immense benefit. Temperatures were rather low with occasional light frosts till the 22d, then turned very warm on the 23d and 24th with afternoon temperatures in the 90's.

Corn planting is nearly completed in the western and central districts but is only a little more than half done in the extreme east central and northeast counties. From a third to a half of the fields show rows in the central and western districts. Where moisture is sufficient the stand is good but in the drier districts cutworms and other pests have been active and some replanting has been done. Cultivation has started in all out the more backward eastern counties. In general the condition of the crop compares favorably with that of last year at the same date.

Oats, barley and spring wheat show the effects of the drouth, particularly on the up-lands where the stand, growth and color are poor. However, ample and frequent rains would still bring these crops out in good condition. Winter wheat and rye with their deep root systems are looking very well in most sections, though there is a prospect of heading short in Scott county. Hay and pastures are generally short, though alfalfa and red clover are doing fairly well.

Fruit prospects are excellent, except raspberries, which suffered considerable winter injury. Strawberries have made a good recovery in the above mentioned area having an inch or more of rain. New blossoms have appeared. However, the earlier berries show the effects of the drouth. Gardens are improving. Many commercial tomatoes were set out during the week. Cutworms and maggots are injuring commercial onions in Mitchell county.

Bulletin No. 8, June 1, 1926—

The week was warm with rainfall varying from light sprinkles to heavy downpours in localities.

Corn made good progress, except in the localities that have been persistently dry, particularly Lyon county. The tallest is now about six inches high while some is just coming up and there is still a little planting and replanting to do as usual at this date. Replanting is largely due to cutworms which are very destructive on spring-plowed sod. The amount of replanting will probably not be greater than last year when it amounted to 5 per cent of the acreage, while in 1924 it was 13 per cent. In spite of the dry spring and weak seed the stand for the state as a whole is fully up to the average. With future weather favorable there is no reason why Iowa should not produce the usual crop of corn. First cultivation is well along in many localities and second cultivation started in occasional fields.

Oats look well over most of the state, though on some dry uplands they are thin and yellow. The tallest are about eight inches high. With plenty of moisture in June and not too much heat, a good crop will be produced.

Winter wheat is heading as far north as Crawford county. This crop is in fair condition though heading a little short. Spring wheat and barley are in fair condition, except in the drier localities.

Hay has been permanently injured by the dry weather with several hot days. Alfalfa has come through the best of all on account of its deep roots. Next to this is red clover, but this is blooming prematurely and is very short. A little alfalfa and sweet clover has been cut. Pastures are very short in many western counties.

The condition of fruit continues generally good except in the drier localities, particularly in Mahaska county. In Lee county, which produces most of the "commercial" strawberries in the state, this crop promises good yields and picking has begun. Potatoes have made good progress, but potato beetles or "bugs" are unusually numerous, and "blight" has appeared in places. Bermuda onions, which were planted quite freely this spring, have been seriously injured by the drouth.

Bulletin No. 9, June 8, 1926—

Drouth with high winds and dust storms June 1st and 6th and temperature averaging slightly below normal were the meteorological features of the week. Generally the temperature determines the advance of the season. This year, from the standpoint of temperature, the season is a few days ahead of the average in all but the extreme eastern counties. The month of May averaged 4 degrees above normal. But drouth in many localities has greatly delayed the growth of all vegetation while in other localities that have had a fair amount of rainfall, the season is slightly in advance of the normal. This explains the large difference in opinion of our correspondents as to whether the season is early or late. Crop conditions are extremely serious in Lyon county.

Corn made fair progress this week except in a few counties where soil moisture is deficient. During the dust storms, June 1st and 6th, in many fields sharp grains of sand were driven through the corn leaves, cutting them to the ground. The damage was greatest in fields that had not been cultivated recently. In cultivated fields and where precaution had been taken to cultivate occasional strips, the wind at the surface of the ground was arrested somewhat and the upturned moist earth was not easily picked up by the wind. Some corn was covered by dirt drifts. With no rainy days to interrupt, cultivation has been active and fields are clean of weeds.

Except in the Mississippi river counties and the drier localities elsewhere, all backwardness of corn was made up by May 15 when for the state as a whole 54 per cent of the corn planting was completed according to reports received from more than 800 township reporters. This compares favorably with the 8-year average of 52 per cent. Last year, with 75 per cent planted May 15, was unusually early. On June 1, 97 per cent of the corn was planted compared with an 8-year average of 96 per cent, and last year 99 per cent. Even in the backward northeast district, 94 per cent was planted by June 1. The general condition of the corn crop June 1 is placed at 90 per cent as compared with a 10-year average of 91 per cent, and last year, 88 per cent.

Oats are beginning to head short in many dry localities and in some places the high, drying winds have turned them brown. However, a good soaking rain and a period of moderate temperatures would yet produce a good crop. Winter wheat is coming into head generally and needs rain badly. Rye is turning color and not billing well.

Pastures are turning brown like late summer in many localities. In Lyon county, livestock are herded along the roadsides and turned into the hopeless oats fields, or being shipped out for lack of feed. The hay crop is ruined in large areas. Alfalfa, sweet clover and a little red clover were cut this week. Timothy is in very poor condition.

Fruits of all kinds are seriously needing rain for full development. Strawberries are being picked quite generally but are again showing the effects of drouth. Commercial tomato planting has come to a halt for lack of rain. Gardens are not thriving. Early potatoes are in blossom but tubers will not set on well till rain comes.

Bulletin No. 10, June 15, 1926—

Copious to excessive rains averaging 3.1 inches, the heaviest since the week ending September 20, 1921, covered most of the State toward the close of the week. The heaviest reported was 7.57 inches in 19½ hours ending 2 p. m. Sunday at Perry. Very few localities had less than an inch. Though there was some damage from erosion and overflow, the soil, thirsty from months and in the northwest counties years of deficient rainfall, absorbed enormous quantities, so that the benefits far outweighed the damages. While there were a few reports of destructive hail and wind the amount of such damage was far less than usual with such heavy rains. Temperatures were from 90 to 101 degrees over all but the northeast portion of the State on the afternoon of the 11th and for the week the average was slightly above normal.

Corn made excellent progress since the rains. It now averages about 5 inches high with the tallest 12 inches and replanted corn just coming up. Replanting was mainly due to outworm damage which has subsided in the last few days. The second cultivation is nearing completion and fields are generally clean. Most of the corn, damaged by the dust storms of last week, has recovered.

Oats had begun to head short in nearly all portions of the State due to the hot winds and drouth, but the rains and cooler weather have already begun to lengthen the straw and improve the color so that an average crop is yet possible. Other spring grains are in a similar situation. Winter wheat is looking well and the rains and cooler weather will be favorable for filling the heads which are well advanced.

Cherry trees are loaded with fruit and the early varieties are turning red, but the drouth has made the fruit small. The heavy rains will make the cherries more plump and will greatly improve all fruits and garden truck. The "June drop" of apples has been rather heavy in some counties.

The rains came too late to save the hay crop but pastures were greatly benefited except where entirely killed by the drouth.

Bulletin No. 11, June 22, 1926—

The past week was cool, averaging 7.4 degrees below normal with rainfall only a little more than half the normal, ranging from heavy in some extreme northern and extreme southern counties to light in a broad belt extending from southwest to northeast across the State.

Corn made slow growth due to the cool weather and particularly the cool nights, but in general the crop is about normal though not as far advanced as at this date last year. There are some reports of renewed outworm damage to replanted and late replanted corn, but this constitutes a very small part of the crop. The earliest fields are more than knee high and the average height is about ten inches. The third cultivation is well started and the fourth has begun in some fields. The weeds began to show up considerably on lowlands that were too wet to cultivate, especially in the south central counties. With a week of warm weather the earliest would be too tall to cultivate.

Cool weather crops such as small grains, potatoes, hay and pastures have been greatly benefited by the cool moist weather, but early oats in a good many counties were too far advanced and too far gone to be entirely restored even with the most favorable weather. In the extreme northwest counties where these crops were killed a considerable acreage has been plowed up and devoted to emergency hay and forage crops such as sudan grass, grain sorghums, and fodder corn. Winter wheat is beginning to turn color as far north as central Iowa. First cutting of alfalfa has been completed with fair yields and the second crop is starting nicely. Considerable sweet clover has been cut for hay. Much difficulty has been experienced in curing the hay. Red clover has started a new growth since the rains. Timothy shows slight improvement and will make a fair yield in a few localities that have had

nearly normal rainfall through the season, but in general the timothy crop will be poor.

Potatoes are setting on nicely and some are now as large as hen's eggs. Fruits are becoming plump. Cherry picking is nearly at its height with an abundant crop. Late cherries will be better than the early ones. Currants are turning.

Bulletin No. 12, June 29, 1926—

Cool, dry weather prevailed the past week but the temperature rose suddenly to above normal on Monday the 28th, with afternoon temperatures above 99°. Light frost occurred in Adair county on June 29; in Fayette county on the 25th; and in Bremer county on the 26th.

Corn made rather slow growth but is generally in fair condition with good color. In some of the south-central counties too much rain has prevented cultivation and gives corn a poor color. Mostly the fields are clean and well cultivated. Cutworms and other adversaries have reduced the stand below that of last year. The tallest is almost too tall to cultivate, while some replanted has not yet been cultivated.

Winter wheat is turning rapidly and filling well as a result of the cool weather. Many fields in central Iowa are nearly ready to cut. Spring wheat, oats and barley have lengthened and filled better, though in some counties spring grains are headed out only a few inches high. All small grains are unusually free from weeds.

Haying has continued with very good weather for curing. The yield is generally about half of the usual. Second growth has started nicely.

Raspberries are ripening; late cherries being picked; currants ripe and yielding well; grapes have set on a good crop; June drop of apples rather heavy, yet the trees are well loaded; honey flow poor; hinds bloomed nine days later than last year and two days later than the average in Scott county.

Bulletin No. 13, July 6, 1926—

The past week was warm with frequent showers and in some cases heavy rains in the east and south portions of the State.

Corn made excellent growth where moisture was sufficient, though drouth has again become menacing in the northwest counties and in a few localities in other portions of the State. Corn averages knee high and much has been "laid by." The tallest is waist high, while replanted and otherwise belated corn constituting less than ten per cent of the acreage is about six inches high. Tassels have begun to appear in a few spots in Pochontas county. For the State as a whole the condition of the corn crop is about normal.

Winter wheat harvest is well advanced in some localities as far north as Monona and Polk counties. The yield and quality appear to be good. Oats have improved greatly in most of the State, but in the northwest and some west central counties cannot recover from the adverse weather earlier in the season. In some localities the oats are being pastured. Spring wheat is turning and will soon be ready to cut.

Hay harvest continues with poor results. The frequent showers and high humidity of the week in some sections made drying and curing slow and difficult. Pastures have gained very slowly in most of the State and in some localities livestock is being fed.

Truck crops show some improvement. Home grown new potatoes and peas are on the tables throughout the State except where too dry. Commercial tomatoes are somewhat belated by the adverse weather earlier in the season. Sweet corn has made good advance.

Late cherries are abundant; raspberries are yielding well where not winter-killed; the blackberry outlook is good; apple trees generally have retained as much fruit as can be properly matured; and the peach outlook is the best in years.

Bulletin No. 14, July 13, 1926—

Frequent light showers covered most of the State during the week, and good rains occurred in the southern counties. Drouth has again become very serious in the northwest counties. In Osceola county the general farm conditions are the worst in 53 years. Feed is scarce, corn and oats being bought by the farmers, and livestock being sold for want of feed. Temperatures were above normal till cool weather came toward the close of the week. High humidity in the central and east portions of the State made the comparatively moderate temperatures rather oppressive.

Corn made excellent progress in most of the State, except in the extremely dry northwest counties, where growth was only fair. The moderately warm days and nights and rather high humidity of last week and the first part of the current week caused rapid growth. The tallest corn is now as tall as a man and the smallest is about knee high. Tassels are becoming more frequent. Silks have appeared in Marshall county. More than half the crop has been "laid by." Even in the dry northwest counties corn has done exceptionally well considering the extremely adverse conditions.

The heat and deficient rainfall so far in July have been unfavorable for filling oats. In the northwest counties the crop is nearly a failure; early oats are prematurely ripe and too short to cut with a binder; and late oats are drying up without filling at all. In other portions of the State oats harvest is about to begin. A fair yield was in prospect at the beginning of July, but this can hardly be realized now.

Winter wheat is mostly in shock with favorable conditions for curing. The heads are long and heavy and the berries plump. Spring wheat is turning rapidly and is nearly ready to cut. The same is true of barley.

Haying has made good progress, but with some difficulty in curing, as a result of the light and frequent showers in some portions of the State. Yields are generally very disappointing. Second crop alfalfa is about ready to cut and the second crop looks better than the first.

Potatoes are the best in several years in the south and east portions of the State, as a result of the cool, moist June. Late potatoes are needing rain in most of the State and in the northwest counties the vines are dying from drouth.

Fruit conditions are the best since 1922. The June drop left plenty of apples on the trees for best results. Blackberries and grapes are loaded with fruit. Rain would help most fruits. Sweet clover affords considerable bee pasture, but the absence of bees as a result of winter killing, or possibly spring starvation is a better term, is noticeable.

Bulletin No. 15, July 20, 1926—

Rain is needed in nearly all portions of the State, but particularly in the northwestern portion. In many localities the water supply, especially for live stock, is falling. Temperatures ranged from low in the 40's in the mornings at the beginning of the week to high in the 90's in the afternoons toward the close of the week, while in the northwest one-fourth of the State temperatures above 100 were general. The highest reported was 107 at Inwood on the 16th and 18th, and 109 on the 19th.

Corn made good growth where not too dry, but in the northwest counties it scarcely held its own against scorching heat and prolonged drouth. Strong winds intensified the deteriorating effects of the intense heat, causing the corn leaves to curl considerably and starting some lower leaves to turn brown. A general rain in the next few days would overcome the effects of the heat.

Winter wheat harvest is finished except in the extreme northeast counties. Threshing has begun as far north as Dallas and Monona counties. The yields are very good, running as high as 36 bushels per acre in Dallas county and even higher on Missouri River bottom land in the southwest counties. The quality is very good.

Oats harvest is more than half done in the central portion of the State and well under way in the north. The yield and quality appear to be fair except in the northwest counties where failure to very poor is reported. Late oats have been injured by the recent heat and drouth. Considerable red rust has appeared on oats. No black rust has been reported. Spring wheat and barley harvest is well along.

Haying continued, with good conditions for curing, but poor to very poor yields, except alfalfa and some fields of red and sweet clover. Some first crop clover has been hulled and yields of one to two bushels of seed per acre are reported from Henry county. Pastures are falling rapidly and in many places cattle are being fed.

Potatoes and garden truck have been damaged by the heat and drouth. Blackberries and other fruits need rain. A few early peaches are on the market in Lee county.

Bulletin No. 16, July 27, 1926—

Excessive heat continued into the early part of the week followed by much cooler. Temperatures above 100 degrees occurred over most of the State on the afternoon of the 29th, accompanied by strong, drying winds. The highest temperature reported was at Inwood, Lyon county, where 109 degrees was recorded a second time. Good rains came in the central and southeast portions of the State on the 21st and in the west central district on the 23d. Lighter showers occurred in the rest of the State but about half of the State is still seriously needing rain.

Corn has undergone a trial of heat, drouth and wind the first three weeks of July such as is comparatively rare in this State. Just what the damage has been no one, not even the farmer in his own fields, can accurately estimate. The bulk of the crop had not yet reached the most critical pollination stage, though some had. Silks that appeared were promptly seared and browned and made unresponsive to pollen by the scorching winds. Upland corn in much of the State has fired badly, particularly in the northwest counties. Almost everywhere corn is tasseling shorter than usual. In other years under similar conditions corn has sometimes shown remarkable ability to "mark time" and await more favorable weather. The recent cool and showery weather arrested further damage for the present and gave the crop its opportunity to "mark time." Cool weather the last 10 days of July in other years has usually been followed by good yields. No doubt a good general soaking rain with moderate temperatures would enable corn to make a remarkable recovery.

Oats, barley and spring wheat harvest is practically completed except in the extreme north central and northeast counties. The extreme heat and drouth prematurely ripened the later small grain. Oats threshing is well started and the yields reported are unusually variable, ranging from very poor to very good. Winter wheat threshing is progressing rapidly with yields mostly very good to excellent.

The hay and pasture situation has grown steadily worse in most of the State. In several counties live stock is being fed or shipped out for lack of pasture. In the timothy seed section in southern Iowa timely rains have produced a good crop of seed. In Johnson and Iowa counties conditions have not been so favorable and the timothy seed crop is not so good. More than the usual amount of first crop clover is being hulled and the seed yield is fairly good.

Potatoes have suffered seriously from the heat and drouth. Beets are looking fairly well. Garden sweet corn is not yielding well and the future is not promising. Commercial tomatoes in southeast Iowa are doing well, but garden tomatoes generally are not. Blackberries have suffered considerably.

Bulletin No. 17, August 3, 1926—

Good rains visited most of the State during the past week. In some west central and southwest counties the amounts were light and more is

needed, but in most of the eastern half of the State the rains were frequent and heavy to excessive. In portions of Worth, Floyd, Mitchell, Benton and Monroe counties the amounts exceeded four inches. The dry northwest counties had about two inches on the average. The State average is about twice the normal. As usual the heavy rains were in some cases accompanied by destructive hail. Hail areas so far reported are in Keokuk, Calhoun, Greene, Webster, Sioux and Audubon counties. The greatest damage was in the Calhoun-Green-Webster area from near Manson to near Paton where the total crop damage is estimated at \$540,000 besides considerable damage to buildings and other property. Temperatures of the week were generally moderate.

Early corn was caught at a critical time by the heat and drouth of preceding weeks and has suffered much damage though reviving somewhat since the recent rains. Late corn is just entering the pollination stage and will be greatly benefited by the rains. In some townships in the northwest counties it seems probable that corn will not yield to exceed 15 to 20 bushels per acre. Drouth in many sections through the season and deficient temperature until recent weeks in the eastern counties make the crop 10 days to two weeks later than the average.

Harvest was nearly finished in the northern counties during the week. Frequent, heavy rains delayed threshing in much of the State, but as yet not much damage to shocked grain is reported. Oats yields are unusually variable according to threshing returns. Some yields above 75 bushels per acre are reported and some below 15. The quality is mostly good. Reports of winter wheat yields continue good to excellent with quality above the average.

Hay lands and pastures were greatly benefited by the heavy rains and moderate temperatures of the week. Live stock can soon be turned on the pastures from which they had been removed.

Fall plowing has started in many places, because the rains made the work easy. Preparations are being made for seeding alfalfa.

Late potatoes that have not died are reviving, tomatoes are ripening and garden truck generally shows much improvement. Grapes will be greatly benefited by the rains. Apples still promise a good crop. The honey crop of the season is much below normal.

Bulletin No. 18, August 10, 1926—

Rains of the week were mostly insufficient, though nearly all portions of the State had some. Temperatures averaged about normal though there were two or three hot afternoons. The highest temperature reported was 101 degrees at Lamoni on the 9th.

Corn made good progress though it is probably incorrect to say that the large amount of early corn injured by the July heat and drouth is recovering. It is only making the best of a bad situation. Late corn is looking well but as a whole the crop is ten days to two weeks late. During the unfavorable weather it seemed to wait for better conditions. Several correspondents report an unusually large number of stalks with two ears, one of which is earlier but is only a cob with a few scattered kernels, showing that the heat and drouth injured the silk and prevented pollination; and the other is later and may make a small fairly well-filled ear if future weather is favorable. Much of the energy of the plant is wasted on the early abortive ear. Many barren stalks are reported. Thick planting to offset poor seed has resulted in too many stalks to the hill in a good many fields which will produce only bunnies or fodder corn. The earliest corn is in the roasting ear stage while late and replanted corn has only begun to tassel. Only exceptionally favorable weather can bring the crop up to the five-year average, yet it will probably not be as poor as in 1924. A good soaking rain is needed in nearly all portions of the State, but particularly in the southwest and extreme northwest counties.

Threshing from shocks was pushed vigorously except in a few localities

where recent showers made the grain too wet. Less than the usual damage to shocked grain is reported. Yields of winter wheat continue good to excellent while oats are unusually variable, ranging from as little as four bushels per acre in Lyon county to as much as 100 bushels in a small field in Cedar county. Considerable grain has been stacked.

Alfalfa, sweet clover and red clover are doing well. Pastures are improving. Gardens are making fair progress. Commercial tomatoes are doing well in Lee county but are seriously needing rain in Mahaska county. Blackberries improved. Grapes, apples, pears and peaches are in good condition.

Bulletin No. 19, August 17, 1926—

Rains of the week were general and mostly heavy. The largest amounts exceeded three inches from Carroll northeast to Belmond. The only area still seriously needing rain is Cass county and some adjoining localities. Temperatures average slightly above normal but no extreme temperatures were reported. The humidity was rather high.

After considerable delay from various causes through the season, corn put on full speed ahead this week. Where not damaged beyond recovery the progress was remarkable. The advancement is unusually variable, ranging from just tasseling to beginning to dent in the more favored localities mostly in the extreme southwest counties. The crop probably averages to be in the early roasting ear stage and about two weeks late. With favorable weather, a fair crop can still be matured if frost holds off till late in October, though in the extreme northwest counties a poor crop is the best that can be hoped for. Small ears or nubbins will be numerous.

Threshing was greatly delayed and in some places wholly suspended by the frequent, heavy rains. Much damage to shocked grain, mostly oats, through sprouting and rotting, is reported.

Stubble fields were put in fair condition for plowing, except in a few localities where too wet, and considerable plowing has been done. More than usual preparation is being made for seeding alfalfa and considerable seeding has been done. The favorable conditions for preparing the ground for winter wheat seeding will cause a larger acreage to be seeded than last year. While the campaigns of the last two or three years nearly eliminated Hessian fly, the danger of another outbreak is nearly always present to some extent. Favorable soil conditions at this time are a temptation to seed too early.

Pastures and hay have made wonderful growth this week. An increased milk flow has already started. Second crop red clover is far better than the first crop. However, a rank growth of the plant due to heavy August rains is not always favorable to a large seed crop, and home grown red clover seed is much in demand. Surprisingly large yields of timothy seed are reported from threshing returns in southern Iowa.

Commercial sweet corn canning has started in southeast Iowa and will begin in a few days throughout the State. The earworm is troublesome in Van Buren county. Commercial tomatoes have made good progress and canning is about to start in the southeast counties. Sugar beets are in good condition.

Bulletin No. 20, August 24, 1926—

Rains were general and well distributed, though a few localities report damaging downpours. Temperatures were above normal and humidity generally high with considerable fog in the mornings. There was considerable hail damage on the 18th and 20th, particularly in Worth, Polk and Wayne counties.

Corn made very good progress but much of the early corn will make little more than fodder. The later corn has shown great improvement as a result of the frequent rains and favorable temperatures of the last two weeks. If frost holds off about two weeks later than usual, till about

October 20, a crop averaging 25 bushels per acre is yet possible, though in the extreme northwest counties it will average less than half that yield. More than half of the crop has reached the roasting ear stage and a little early corn has begun to dent in many counties. Much is still silking. The State Entomologist reports an insect pest not before known in Iowa which is attacking the corn silks in Plymouth, Sioux and Woodbury counties. Late corn silks are seriously affected. This pest, known as the sugar beet web worm, sometimes causes serious damage to sugar beets.

Threshing was further delayed by the rains of the week. In some localities the work is finished but in others only a good beginning has been made. For the State as a whole more than half has been done. Wind squalls uncapped the grain shocks, the rains saturated the bundles and though scattered out to dry, the drying was slow due to the high humidity. In some localities oats were refused at the elevators on account of the poor quality.

Much plowing was done during the week. The rains have put the soil in good condition for this work. Alfalfa seeding has continued in numberless small patches where the acidity of the soil permits. Considerable liming is being done to correct the acidity. The State Entomologist has sent out a warning against too early seeding of winter wheat and will announce the fly-free date by zones when safe.

Grapes are ripening rapidly; peaches and pears are doing exceptionally well; home grown plums are on the market in large quantities and of good quality. Late potatoes that survived the drouth and heat are doing well. Commercial tomato and sweet corn canning is making good progress.

Pastures and hay show wonderful improvement, cattle are taking on flesh and the milk flow is increasing. Hog cholera has broken out in several counties.

Bulletin No. 21, August 31, 1926—

Rains of the week were mostly confined to the southern portion of the State, though there is still an acute deficiency in rainfall in Cass, Adair and Madison counties and some adjacent localities. Rain would be beneficial in the central and northern counties where in some localities the need is serious. Afternoon temperatures were generally in the 90's and the mean temperature of the week was 6.6 degrees above normal.

Corn made very good progress but is unusually variable. Samples of mature corn, mostly from southern Iowa, were brought to the Iowa State Fair, while late corn in many sections is reported in the blister or milk stage. If the next six weeks continue abnormally warm with sufficient but not excessive rainfall, the crop might yet come up nearly to an average yield. On the other hand, a cool and excessively wet September, would produce a crop far below the average in yield and feeding value with a strong probability that it would be caught by frost.

The heat was too intense for plowing with horses, but where tractors were available, considerable plowing was done. More rain is needed in most of the State to condition the soil for plowing, though in a few south central counties the soil is too wet. A little winter wheat has been seeded in the central counties and an occasional field is up but it is too early for safety from fly.

Threshing was pushed vigorously to completion in many counties though some stack threshing and timothy and clover remain to be threshed. The yield of oats is generally below the average and the quality rather poor from damage in shock. Timothy seed yields have been very good and in a few cases extraordinary. As much as 16 bushels per acre, machine run, are reported in Winneshiek county. First crop red clover is hulling out a fair seed crop but the general report is that the second crop heads are not filling well, though they look exceptionally well at a distance. Second crop clover haying is at its height with good yield and quality.

Hog cholera has broken out seriously in many counties. Considerable vaccinating is being done. Live stock is doing well on pasture, but rain is needed for the pastures in the northern, central and a few other counties.

Sweet corn canning factories are running day and night to keep up with the rapid advance made by the corn the last few days. Tomatoes are yielding well and canning is progressing rapidly. A good crop of grapes is being harvested. Apples, plums and peaches are abundant.

Bulletin No. 22, September 7, 1920—

Excessive, damaging downpours of rain in the central and southern portions of the State were the features of the week. More than nine inches fell during the week at some stations in the southwest district, while at the station in the town of Clarinda, 11.94 inches occurred. Large areas were inundated, bridges and fences damaged and roads made impassable. However, there is need for more rain in the northern counties, and the drouth is serious in Winnebago county. Temperatures averaged above normal, till near the close of the week.

Corn made good progress in the northern districts where rains were moderate, but in the southern and central districts the rainy, cloudy weather was unfavorable for maturing the crop and over large areas there was considerable damage from flooding and high winds. Warm, dry weather for the next 30 days is essential to the maturity of the crop in most of the State. A little early corn is already mature in the western counties but the bulk of the crop is only getting a good start in denting. Some late corn is still in the milk and can not escape frost. A little silage has been put up.

Some shocked grain and timothy was damaged, destroyed or washed away by the heavy rains. Threshing was suspended except in the drier northern counties.

The ground is too wet to plow in most of the winter wheat section of the State and very little plowing was done anywhere.

Pastures and hay lands are making a wonderful growth in most of the State. Considerable second crop clover hay and third crop alfalfa hay in process of making was damaged by the long continued rains. Second crop clover is not setting much seed. The rains seem to be causing a luxuriant growth of plant at the expense of the seed crop.

Sweet corn canning was halted by the rains. Fields were too soft to pull wagons through and roads were generally impassable. In the meantime considerable sweet corn advanced beyond the stage suitable for canning. Corn ear worms are unusually troublesome. Tomato canning was also stopped.

Grape harvest has been brisk and the crop generally good. Peaches are maturing though some are reported as spilling on the trees. Apples are plentiful but rotting for lack of a profitable market.

Bulletin No. 23, September 14, 1920—

Another rainy week with the additional disadvantage of low temperature and locally strong winds was generally unfavorable for agriculture. Light frost, but no damage, was reported in Palo Alto and Greene counties on the morning of the 9th, and in Poweshiek county on the morning of the 10th.

Reports received from more than 800 monthly crop reporters September 1, showed that with normal weather 45 per cent of the corn would be safe from frost September 20; 65 per cent September 30; and if frost holds off, 86 per cent October 15 and 96 per cent October 31. Warm weather the first week in September has been more than offset by cool weather the past week and there has been a decided excess of rainfall that will delay maturity, so that frost damage is now more probable than was indicated by our correspondents' estimates of September 1. With normal weather till October 5, the average date of first killing frost, not more than 70 per cent of the crop can escape frost damage, as compared with a 10-year average of 82 per cent. The crop is now about a week later than the 10-year average, but considerably ahead of the crops of 1917 and 1924. The bulk of the crop is now well denting though just starting to dent in the extreme southeast counties. Considerable is already safe in the western

and northern counties but some is still in the milk stage in all sections of the State and this can never mature.

Considerable seed corn was selected this week. Good seed corn can now be found in practically all localities and it can be secured with a tenth of the frantic effort that was expended in the search for safe seed last spring.

Some corn has been cut and shocked by hand and considerable is ready for the silo but the soil is too wet to pull harvesting machines through the fields and recent wind and heavy rain storms have beaten down and tangled the stalks so that harvesting and husking machines will be operated with much difficulty. The soil is too wet for "hogging" the corn without great waste. Some new corn is being fed where the supply of old corn is exhausted.

Plowing and preparations for seeding winter wheat have proceeded slowly because of the excessively wet soil. The State Entomologist has announced fly-free dates ranging from September 14 in the northeast counties to September 28 in the extreme southern counties. Details for each county are obtainable from the County Agent. The fly situation is excellent.

On September 1, 92 per cent of the threshing had been done as compared with the 10-year average of 88 per cent. It has been too rainy since then to complete this remnant, but most of it is in stacks and fairly safe. A little clover hulling was done in Scott county this week. The yield of seed was about a bushel per acre. Continued rainy weather has been unfavorable for seed production from second crop clover.

Considerable liming in preparation for alfalfa was done this week but soft roads and wet soil interfered. Late haying has been almost impossible due to the frequent rains. Pastures are luxuriant for September.

Peaches and late plums are bursting on the trees, caused, it is believed, by the excessive rains. Muskmelons and watermelons are abundant and making fine development. The rains are starting potatoes to sprouting and rotting. The sweet corn canning season has closed in southwest Iowa. Wet fields and bad roads have interfered with harvesting and hauling to factories of both sweet corn and tomatoes. Pickles also have been damaged by the rains.

Bulletin No. 24, September 21, 1920—

For the third consecutive week rains were excessive over most of the State. Over an area about two counties wide extending from O'Brien, Sioux and Plymouth counties southeastward to Boone and Dallas thence northeastward to the western portions of Black Hawk and Benton counties the rainfall was from 5 to more than 9 inches.

At Hawarden 9.89 inches of rain (partly estimated because the rain gage was washed away) fell in less than 16 hours ending in the early morning of the 18th. In 5½ hours from the beginning of the rain at 1:30 p. m. of the 17th till 7:00 p. m., 7.30 inches fell. At Sheldon 7.37 inches fell mostly in the 14 hours ending 5 a. m. of the 18th.

The damage in the town of Hawarden alone will amount to half a million dollars and in all the flooded areas of the State it will run into the millions, exclusive of crops. The direct damage to the corn crop is as usual small compared with the total crop, amounting to only a small fraction of one per cent, yet perhaps reaching a few million dollars. The greatest damage to corn is through the further delay in maturity by the unprecedentedly heavy and continuous rains. Fortunately the temperature of the week was 6 degrees above normal which helped maturity. However, some plants, shrubs and trees have been forced into new growth by the excessive heat and moisture which will interfere with proper conditioning for winter. This may result in severe winterkilling unless the autumn is dry. Considerable live stock was drowned.

Great as the rain damage is, it is outweighed by the benefits from replenishing the water supply which in many sections of the State has been

seriously deficient for three years. Prior to the rains well digging was the principal occupation of a large number of farmers. It will do the soil good to once again be saturated to great depths. Streams, lakes and ponds have been brought back to normal or greater than normal levels. The Racoon River at Van Meter reached a stage of 18.8 feet, 6.4 foot higher than the previous high water mark, established no one knows how long ago. The average rainfall of Iowa the first three weeks of September is 8.3 inches, which already makes this the wettest September in 54 years. September, 1914, now stands second with an average of 7.88 inches and September, 1881, stands third with 7.14 inches.

Silo filling and fodder cutting have proceeded very slowly. Winter wheat seeding and preparations therefor have been almost impossible due to the wet soil. Late haying has been at a standstill. Pastures are luxurious. Late potatoes have started a new growth. Some that were fully mature are being damaged and the ground is too wet to dig them.

Bulletin No. 25, September 28, 1926—

Warm weather with frequent rains continued till Thursday afternoon and night when a wave of decidedly colder weather swept over the State carrying the temperature down to low in the 20's in northwest Iowa on the morning of the 25th and throughout the northern third of the State on the morning of the 26th. The lowest temperature reported was 18° at Decorah on the 26th. Nearly all portions of the State had killing frost or freezing temperature. This was about the average date for first killing frost in Osceola and Dickinson counties but about 10 days earlier than the average for the greater portion of the State and 15 to 20 days earlier than the average in many southern and eastern counties.

For the State as a whole, the average of our correspondents' reports shows 72 per cent of the corn safe from frost. Apparently the warm weather for about 10 days prior to the frosts advanced corn toward maturity, more rapidly than seemed possible with the cloudy skies and frequent, excessive rains. Most of the 28 per cent that was susceptible to frost damage was more or less injured. But a clear distinction must be drawn between "damage" and "total destruction." While some crops might be totally destroyed by such a freeze, corn in the state of maturity of the 28 per cent reported as "not safe," would still retain a large feeding value and even considerable commercial value, though severely frozen. The best measure of damage would be indicated by the lowering of commercial grade caused by freezing. Assuming that the immature corn would have made grade 4 with normal weather and no frost till the average date, October 5, and that with normal drying weather it may yet reach a high "sample grade," the damage would not exceed 15 cents per bushel on 28 per cent of the crop. More specifically about 113 million bushels was damaged to the extent of about 17 million dollars. On the other hand, studies in corn economics have shown that a crop may be reduced materially without decreasing its total value in dollars, so from the broad business viewpoint Iowa really suffered no financial loss from the frost.

Much seed corn was saved on Friday, September 23, as a result of warnings spread throughout the State on Thursday by newspapers and radio that Friday would be about the last safe date for saving seed.

Corn earworms are causing an unprecedented amount of damage in many sections of the State, but particularly in the western counties where the season has averaged warmer than in the eastern portion. A warm season favors the rapid breeding of this insect. Fodder cutting and silo filling have proceeded very slowly due to the wet soil.

The freeze put an end to practically all commercial canning of sweet corn and tomatoes. Pumpkins were seriously injured so that very little pumpkin will be canned.

Winter wheat seeding has made little or no progress due to the water

logged soil. However, a few days of sunshine and brisk winds would produce considerable activity in this line.

Bulletin No. 26, October 5, 1926—

Rains were again frequent in nearly all sections of the State and heavy to excessive in many southern and eastern counties where streams again overflowed, took out bridges and caused much general damage. There was very little sunshine. Temperatures showed a rising tendency and the week closed warmer than normal.

Efforts to save the frosted corn by cutting for fodder and silo were mostly limited to hand work, for the fields were too wet to use machinery. It is probable that half of the silos will stand empty and that the amount of fodder saved will be much less than usual though badly needed to supplement the short hay crop. The damp, cloudy and warm weather is causing much corn to mold and rot. This, with the frost and earworm damage has probably made half of the corn unmerchantable though still retaining much value for feeding on the farm. However, if rainy weather continues much longer the damage will be serious and may reduce the 25 per cent that usually goes to market.

Fields have been too wet generally for much winter wheat seeding or preparation for seeding. Where seeding has been possible, the wheat has come up quickly to a good stand and looks fine. It looks now as if the intended acreage cannot be seeded unless the weather should become very favorable immediately.

Apples are abundant and of good quality where sprayed. Walnuts, hickory nuts and other kinds of nuts are unusually plentiful. Potato digging has been nearly impossible on account of the muddy fields. Some potatoes are beginning to rot and some are starting new growth.

Sugar beet harvest will begin in a few days. A large tonnage of beets is indicated but the rainy, warm weather late in the season has not been favorable for a high sugar content or for separating the sugar in the process of manufacture.

Late hay cutting has been impossible though a luxuriant growth has been available for cutting. In some cases a fourth cutting of alfalfa could have been safely made if the weather had been favorable for curing. Pastures are making excellent growth and livestock is in good flesh. The milk flow is abundant. Hog cholera continues its ravages in many localities due to lack of serum for vaccination or too late vaccination.

CROP SEASON WEATHER, 1926, BY WEEKS

Average rainfall, mean temperature and mean sunshine, with departure from the normal, as derived from reports of selected stations

Week Ending	Rainfall (inches)		Temperature (Deg. F.)		Sunshine	
	State Average	Departure	Mean	Departure	Per Cent	Departure
April 13.....	6.1	-0.5	41.5	-5.1	62	+ 5
April 30.....	6.1	-0.9	44.4	-5.2	81	+24
April 27.....	6.6	-0.2	39.9	+1.5	39	+ 1
May 4.....	0.2	-0.5	57.8	+2.8	83	+25
May 11.....	0.6	-0.3	65.2	+7.6	67	+ 8
May 18.....	6.2	-0.8	50.3	-0.7	72	+12
May 25.....	6.9	-0.3	61.9	-0.4	64	+ 3
June 1.....	6.7	-0.5	72.1	+7.7	65	+ 2
June 8.....	T	-1.2	63.6	-2.8	86	+22
June 15.....	3.1	+2.0	60.8	+1.4	56	-10
June 22.....	0.6	-0.4	62.6	-7.4	60	- 2
June 29.....	7.1	-0.9	67.1	-4.5	85	+18
July 6.....	0.5	-0.1	74.3	+1.6	50	-22
July 13.....	0.5	-0.4	72.8	-0.9	75	+ 2
July 20.....	0.1	-0.7	76.5	+2.2	83	+ 9
July 27.....	0.7	-0.1	74.1	-0.2	74	+ 1
August 3.....	1.5	+0.7	73.8	-0.2	42	-31
August 10.....	0.5	-0.3	72.4	-0.9	68	- 4
August 17.....	1.3	+0.5	73.1	+1.0	53	-17
August 24.....	1.0	+0.2	73.3	+2.6	66	- 3
August 31.....	0.5	-0.5	76.0	+6.6	38	+30
September 7.....	3.2	+2.4	70.0	+2.4	38	-27
September 14.....	3.1	+1.2	62.5	-8.1	57	- 6
September 21.....	3.0	+2.2	60.9	+6.0	41	-21
September 28.....	1.0	+0.2	62.4	-8.9	42	-19
October 5.....	1.5	+0.8	68.5	-0.5	35	-35
For season.....	24.7	+1.8	65.3	+0.1	64	- 2

T. Not more than 0.05 inch.

WEEKLY NOTES ON WEATHER AND CROPS IN IOWA

Week Ending October 12, 1926—

Sunny days with good breezes toward the close of the past week dried corn more rapidly than during the preceding month. Though the leaves and stalks are generally dead and dry, considerable was cut for fodder and silos. The work was mostly done by hand for the soil is still too wet for machines. In some portions of the State the ground became dry enough to permit "hogging." Some upland corn was snapped or husked to feed to livestock. Seed corn gathering continued during the week. There was some complaint that early picked seed corn had molded in the drying racks because of the long continued damp weather. Further reports of damage by corn ear worms have been received from the western counties.

Potatoes have rotted badly in the fields which are just becoming dry enough for digging. The tubers have not ripened as they should. The skin is tender like that on new potatoes.

Some winter wheat was seeded during the week, but it was mostly a matter of "mudding it in." Probably not half the intended acreage has been seeded. That which has been seeded is growing well.

Considerable late haying was done this week which afforded about the only real haying weather in more than a month. In a good many instances a fourth cutting of alfalfa was made. Pastures are excellent for the time of year.

Hog cholera continues to rage in many counties. The shortage of serum for vaccination has contributed largely to the losses.

Week Ending October 19, 1926—

Sunny weather with little rain and nearly normal temperature dried the corn and the soil considerably the past week so that a beginning was made in corn husking in the drier western counties and hogging became more general. This weather also checked to some extent the molding, rotting and sprouting that has been causing considerable damage.

Silo filling and fodder cutting mostly by hand continued through the week, particularly in the eastern counties. Though the stalks and leaves are mostly dead and dry they are being saved to supplement the short hay crop.

Winter wheat seeding was resumed in a good many localities where it has been suspended for nearly a month. The intended increase in winter wheat will certainly not be realized and it is doubtful if the acreage will more than equal that harvested in 1925. Early seeded wheat is making good growth. Fall plowing is rapidly catching up though in some places the soil is badly packed.

Considerable alfalfa haying was done this week, though unusually late. Potato digging has been active and sugar beet harvest progressed rapidly. The yield of beets is good but the sugar content is not all that could be desired.

Hog cholera continues to rage, growing worse in some counties but slackening up in others. It does not seem to be spreading much into new territory.

Week Ending October 26, 1926—

Cool cloudy weather prevailed the past week. Showers were frequent in the northeast portion of the State but in most of the State only one day, the 23d, was generally rainy. Light snow in some northern localities melted as it fell.

Freezing temperatures several mornings and a severe freeze with temperatures low in the 20's in most of the State on the 24th, helped to dry the corn and overcome the toughness of husks and shanks that has made husking hard work. The drier upland corn is fit to crib in small quantities and husking is gradually becoming general. Husking machines are being put in the fields in northwest Iowa where the soil is dry enough. Tile drains are still running full and rapidly removing the troublesome excess of soil moisture. In some localities corn is down too badly to use machines for husking.

So far most of the yields are reported low and disappointing and quality poor. A good many cattle feeders have concluded to place a reduced number of cattle on feed because of the prospect for dollar corn of poor quality.

The first killing frost of the season with temperatures below freezing occurred in the Mississippi River counties from Scott to Lee on the morning of the 24th but vegetation was so far advanced that no damage resulted.

More than the usual amount of winter wheat seeding for so late in the season was done the past week, but at most the acreage probably will not exceed two-thirds of that intended to be sown. Early seeded wheat is looking fine.

Hog cholera continues at about the same rate, worse in some counties and not so bad in others. In a few counties a renewed outbreak has started.

Sugar beet harvest continues briskly. About two-thirds of the crop has been harvested. The recent cool weather seems to have improved the sugar content. Potato digging is near the finish. The later diggings have shown better yield and quality.

Week Ending November 2, 1926—

Dry, cool and somewhat breezy weather dried corn rapidly in most of the State. Husking has become general in the western and northern counties and is beginning in the southeast. In some west-central and northwest counties as much as 20 per cent of the husking has been done. Farther east considerable care is necessary to avoid heating in the cribs. Corn averages considerably drier than at this time last year. Much moldy corn is reported. Yields are variable. The best yields are reported in fields with thin stands. Thick stands produced many nubbins but not many bushels. More than the usual number of husking machines are being used. The dry October weather has made the soil firm enough for machines. In the western counties the ears husk so easily that the machines knock off considerable. A good deal of old corn was marketed this week to make room for the new corn.

Pastures have decreased rapidly in productiveness during the cool dry weather of the past two weeks. However, livestock are in good condition and still getting considerable support from pastures.

The hog cholera situation has improved considerably in most of the State, though in a few counties it is still bad. Some localities report a loss of 30 per cent.

A little winter wheat was seeded in the south-central counties this week. Early seeded wheat looks fine but the later seeded wheat, constituting the bulk of the acreage, has made very little showing and will probably not enter the winter in a resistant condition.

Apple picking and potato digging are about finished and sugar beet harvest is advancing rapidly.

Week Ending November 9, 1926—

Conditions were generally favorable for all farm work throughout the week, but corn picking was temporarily suspended over most of the State on the 3d on account of snow and again on the 8th on account of rain. Over a small area in the extreme northwest corner work was suspended for three days while in areas along the Missouri River there was no interruption. Corn picking is now general and the amount completed ranges from a very small per cent in the southeastern portion to considerable areas in the northwestern portion completed. As a general rule the yield is not as good as expected and the quality mostly poor to fair. A few places in the northwest portion report better yields and quality than was expected. There is considerable moldy corn in nearly all portions of the State and reports are coming in of damage from ear worms. Most corn is still too moist to crib safely and some has spoiled. Much fodder is still being shredded on account of the shortage of hay.

The hog cholera situation has shown further improvement but there are a few small areas where there have been recent heavy losses. Other livestock are generally in good condition. Pastures continue good over most of the southern third of the State.

The sugar beet harvest has been completed with a heavy tonnage per acre but the sugar content reported as disappointing. There was a small acreage of winter wheat seeded during the week in the southeast portion and that which is up is in good condition. There has been less fall plowing than usual, most bottom land being still too wet.

Week Ending November 16, 1926—

During the past week temperatures averaged 2.5° below normal, sunshine was decidedly deficient and there was a general excess in precipitation. The first part of the week was cold with temperatures near zero at several stations in the northern portion of the State; the latter part was warm. Field work was possible about three days ending Saturday when all work was suspended due to general heavy rains. There was

more than one inch in about two thirds of the State and more than three inches occurred in Mills County.

Only fair progress was made in husking corn though the work was pushed during the time that the weather permitted. Corn continues very moist especially the large ears and the quality continues about the same. The soil is now thoroughly soaked and it will be some time before plowing can be resumed and corn picking will be further delayed. Machine picking has been generally abandoned and unless the soil dries soon will not be resumed.

Hog cholera continues to improve though there are a few cases of new outbreaks; other stock continues in good condition. Some "Hog Flu" is reported in the north-central section. Pastures in the southern and extreme eastern portion continue pretty good and still sustain considerable stock. Winter wheat recently sown in the southern portion of the State is coming up and looks good. Dirt roads are in bad condition, many being impassable in the southwestern and southeastern portions.

Week Ending November 23, 1926—

The weather during the past week was cold, cloudy and disagreeable. The temperature was 11 degrees below normal and the sunshine was less than half the normal. The precipitation was entirely in the form of snow and was moderate to heavy in the eastern third of the State; many stations reported the heaviest November snowfall of record, the heaviest being 12.3 inches at Independence. About 2.0 inches occurred over most of the southwest portion and lighter amounts over the rest of the State ranging down to only a few tenths in the central and northwest portions.

Corn husking was resumed over most of the State on the 17th but the heavy snow on the 17th-18th completely stopped that work over much of the area covered by heavy snow or permitted very little hand picking; over the rest of the State fair progress was made and frozen ground permitted the use of many machines. The poor progress made will cause additional fields to be "hogged down." Corn dried considerably in the western portion but there is still much moldy and the heavy rains of the previous week caused some down corn to rot.

Hog cholera continues to improve though a few very small areas report further heavy losses. "Hog Flu" is increasing over northern districts but there are very few deaths reported. Other stock are in good condition.

Winter wheat is generally in good condition but some late seeded is in poor shape. Dirt roads froze up rough and many roads in the eastern portion of the State are blocked by snow drifts.

Week Ending November 30, 1926—

The past week was moderately cold and cloudy with a decided deficiency of sunshine over the eastern portion. The precipitation was about normal, ranging from less than .05 inch at many places in the Missouri Valley to more than 1.50 inches in the extreme eastern portion.

Conditions in general were more favorable than during the week previous but farm work is now making poor progress on account of muddy fields. The heavy rains over areas in the eastern and southern portions further retarded work in these sections and the strong winds that accompanied the storm of the 25th-26th blew down considerable corn, making it muddy and difficult to husk. Fields are generally soft and almost all picking is now being done by hand. Good progress was made over most western and northern districts and many farmers have completed husking.

There is still some hog cholera and flu but no new outbreaks are reported and but few deaths. Other stock is in good condition and many cattle are still on pasture in the southern portion. Considerable contemplated plowing had to be given up on account of frozen or muddy soil. Winter wheat is looking good except a few fields seeded very late. Dirt

roads are generally in bad shape. The recent thawing has made them very soft, many in the southern portion being impassable and will freeze up rough.

Week Ending December 7, 1926—

Cold, cloudy weather prevailed the past week with glaze storms on the 4th and 7th which with snow in some localities made roads slippery and dangerous, interfered with corn husking and may prove detrimental to winter wheat which is not in resistant condition.

Corn husking is about 80 per cent finished for the State as a whole, though not more than 60 per cent has been finished in some southern and eastern counties where the ground has been too muddy. There is very little complaint of heating in cribs as compared with a year ago, which indicates a smaller per cent of moisture in the corn but there has been an unusual amount of damage from mould.

Week Ending December 14, 1926—

The glaze and snow which covered the State on the 7th-8th was largely removed by thawing temperatures by Saturday and Sunday in the southern and west-central counties, though a snow covering continues in the northern and eastern counties where as much as four inches are reported at some stations. A rather severe cold wave swept southeastward over the State on Monday the 13th. By Tuesday morning temperatures of 14 below zero were reported in the north-central counties.

Under such unfavorable conditions, corn husking made poor progress. Only a small per cent of the corn remains in the fields in the northwest counties but in several southern counties more than one-fourth of the crop is still out.

Alfalfa, clover, grasses and some winter wheat was probably injured by the coating of ice which was more or less persistent from the 4th to the 11th of December.

Hog "flu" is reported as serious in several counties, while cholera has almost disappeared.

MONTHLY PERCENTAGE CONDITIONS OF CROPS AND YIELD PER ACRE, 1926.

Crops	April 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Yield Per Acre
Corn.....			90	84	76	79	78	37.0 Bu.
Oats.....			86	80	74	70		31.5 Bu.
Winter wheat.....	87	85	81	82				21.5 Bu.
Spring wheat.....			85	77	78	82		15.4 Bu.
Barley.....			87	83	84	84		39.5 Bu.
Rye.....			86	90				17.5 Bu.
Flax seed.....	91	89			85	87	91	11.6 Bu.
Potatoes.....			88	85	80	74	76	79.0 Bu.
Tame Hay.....		78	70	78	63	60		1.22 Tons
Wild Hay.....		76	73	60	62			0.84 Tons
Alfalfa.....			89	75	76	80		2.45 Tons
Pastures.....	87	70	71	70	60	78	92	

FINAL IOWA CROP REPORT, DECEMBER 1, 1926

The total value of Iowa's crops in 1926, based on the December 1 farm price, is estimated at \$463,117,000, which is the least in five years and about \$58,000,000 less than last year. This large decrease is offset somewhat by fairly good prices received during the year for a moderate number of hogs marketed that were fed on relatively cheap corn from the 1925 crop. It is impossible at this time to make even an estimate of the value of livestock marketed during the year 1926. The gross farm income for the years 1924 and 1925, with all duplications of crops and livestock eliminated and with due consideration given to changes in inventory values, is estimated at about \$628,000,000 in 1924 and \$712,000,000 in 1925.

Corn: Iowa produced 413,586,000 bushels of corn in 1926 on 11,178,000 acres, which is about 79,000,000 bushels less than last year and about 11,000,000 bushels less than the average for the five years 1921 to 1925. The decrease is mainly due to a falling off in the yield per acre from 43.9 bushels in 1925, as reported by assessors, to 37.0 bushels as estimated this year. There was a slight decrease of 0.5 per cent in the acreage.

The farm price of corn per bushel, on December 1, is exactly the same as on that date last year, 56 cents. On this basis the total value of the crop is \$231,608,000, which is about \$44,000,000 less than last year. For several reasons it is believed that this price is not justified. Both in Iowa and in the country as a whole the supply of old and new corn is appreciably less than last year. For the entire country the supply of old and new corn is 3 per cent less than last year and in the north-central states it is 12 per cent less. It is believed that before long the market will react to this situation and the market value of the 1926 crop will be greater.

On December 1 only 76 per cent of the corn had been husked, compared with 85 per cent last year and a ten-year average of 84 per cent. Evidently the trouble with corn heating in the cribs last year has made farmers cautious about cribbing too rapidly this year. Also, the fields have been softer than last year, particularly in the south and east portions of the State. Machine husking has been impossible much of the time. The average price paid for hand husking from standing corn was 6 1/4 cents per bushel.

In general the quality of the crop is not up to standard, and this is no doubt a factor in the low price. A large percentage of the ears are moldy and the corn ear worm was probably the worst in the history of the State in the western counties. The moisture content of corn was not so high as last year.

Oats: The total oats crop in Iowa this year was 195,962,000 bushels on 6,221,000 acres, or an average yield of 31.5 bushels per acre. While the farm price was 3 cents per bushel more than last year the total value of the crop was \$68,587,000, or about \$9,000,000 less than last year.

Wheat: Iowa harvested 7,310,000 bushels of winter wheat on 340,000 acres, or an average yield of 21.5 bushels per acre, compared with 5,871,000 bushels harvested last year. The average farm price December

1, 1926 is \$1.20 per bushel making the total value of this crop \$8,772,000, compared with \$1.36 per bushel last year and a total value of \$7,985,000. Spring wheat yielded 15.4 bushels per acre on 36,000 acres, making a total production of 554,000 bushels.

Hay: The total production of tame hay is estimated at 3,845,000 tons compared with 4,142,000 tons harvested in 1925. While the total production of hay was 297,000 tons less than a year ago, the December 1 farm price was \$2.00 per ton more, making the total value of this crop slightly more than a year ago. The total production of wild hay was 265,000 tons compared with 305,000 tons in 1925.

Further details of production and valuation are shown in the following table:

IOWA CROPS 1925 AND 1926 COMPARED
Acreage, Average and Total Yield, Average and Total Value

Crop	1925 Final Revision					December 1, 1926 Estimates*				
	Acres	Average Yield, Bushels	Total Yield	Average Price, Dec. 1	Total Value	Acres	Average Yield, Bushels	Total Yield	Average Price, Dec. 1	Total Value
Corn	11,394,000	42.0	477,648,000	1.20	\$573,283,000	11,174,000	37.9	421,206,000	1.20	\$505,404,000
Winter wheat	6,324,000	36.2	228,127,200	1.20	\$274,552,800	6,241,000	31.3	195,363,300	1.15	\$224,667,000
Spring wheat	36,000	15.4	554,000	1.36	\$753,360	36,000	15.4	554,000	1.36	\$753,360
Hay, tame	19,000	114.4	2,173,600	1.80	\$3,912,480	19,000	114.4	2,173,600	1.80	\$3,912,480
Hay, wild	265,000	11.4	3,021,000	1.15	\$3,474,150	265,000	11.4	3,021,000	1.15	\$3,474,150
Timothy seed	220,000	12.4	2,728,000	1.24	\$3,382,720	220,000	12.4	2,728,000	1.24	\$3,382,720
Other seed	220,000	12.4	2,728,000	1.24	\$3,382,720	220,000	12.4	2,728,000	1.24	\$3,382,720
Potatoes	42,000	42.0	1,764,000	1.35	\$2,371,200	42,000	42.0	1,764,000	1.35	\$2,371,200
Peas	2,000	1.2	2,400	1.20	\$2,880	2,000	1.2	2,400	1.20	\$2,880
Beans	2,000	1.2	2,400	1.20	\$2,880	2,000	1.2	2,400	1.20	\$2,880
Barley	30,000	3.0	90,000	1.50	\$1,350,000	30,000	3.0	90,000	1.50	\$1,350,000
Other crops	34,000	1.0	34,000	1.00	\$34,000	34,000	1.0	34,000	1.00	\$34,000
Stocks and products	34,000	1.0	34,000	1.00	\$34,000	34,000	1.0	34,000	1.00	\$34,000
Other	34,000	1.0	34,000	1.00	\$34,000	34,000	1.0	34,000	1.00	\$34,000
Total	11,814,000		487,648,000		\$573,283,000	11,174,000		421,206,000		\$505,404,000
Stocks and products	34,000		34,000		\$34,000	34,000		34,000		\$34,000
Other	34,000		34,000		\$34,000	34,000		34,000		\$34,000
Total	11,848,000		491,048,000		\$577,717,000	11,208,000		424,606,000		\$509,738,000

Total value, not including livestock products, for the year 1926.

*Subject to revision when assessors' figures become available.

AVERAGE FARM PRICE OF IOWA'S PRINCIPAL CROPS AND PER CENT OF CORN HUSKING DONE DECEMBER 1, 1926, BY COUNTIES—Continued

Districts and Counties	Corn		Oats per bushel or 20 lbs.	Winter wheat per bushel of 60 lbs.	Spring wheat per bushel of 60 lbs.	Barley per bushel of 50 lbs.	Rye per bushel of 50 lbs.	Flax seed per bushel of 60 lbs.	Timothy seed per bushel of 60 lbs.	Clover seed per bushel of 60 lbs.	Top corn per pound in ear	Soy beans per bushel of 60 lbs. #	Tame hay (loose) per ton of 2,000 lbs.	Wild hay (loose) per ton of 2,000 lbs.	White potatoes (Irish) per bushel of 60 lbs.	Sweet potatoes per bushel of 50 lbs.	Apples per bushel of 48 lbs.	Honey (per lb.)		
	Per bushel of 70 lbs. in ear or 60 lbs. shelled	Average price paid for husking corn																Comb in sections	Extract (less cost of containers)	
East Central—																				
Benton.....	.67	.54	.84	1.12	1.05	.55	.65	.75	2.15	1.05	.08	1.36	15.35	11.30	1.01	1.56	1.61	.01	.16	.15
Cedar.....	.66	.56	.86	1.20	1.25	.64	.66	.80	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Clinton.....	.66	.56	.86	1.19	1.18	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Iowa.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Johnson.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Johnson.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Linn.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Linn.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Muscatine.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Scott.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
For District.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Southwest—																				
Adair.....	.65	.55	.85	1.18	1.14	.63	.65	.81	2.10	1.00	.06	1.26	14.11	8.02	1.03	1.63	1.64	.01	.16	.15
Adair.....	.65	.55	.85	1.18	1.14	.63	.65	.81	2.10	1.00	.06	1.26	14.11	8.02	1.03	1.63	1.64	.01	.16	.15
Albion.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Albion.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Franklin.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Franklin.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Maquokette.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Maquokette.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Montgomery.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Montgomery.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Page.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Page.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Taylor.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Taylor.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Wapello.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
Wapello.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
For District.....	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15

64	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
65	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
66	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
67	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
68	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
69	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
70	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
71	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
72	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
73	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
74	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
75	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
76	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
77	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
78	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
79	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
80	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
81	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
82	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
83	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
84	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
85	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
86	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
87	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
88	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
89	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
90	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
91	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
92	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
93	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
94	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
95	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
96	.67	.57	.87	1.21	1.20	.64	.66	.82	2.25	1.00	.05	1.30	14.94	7.90	1.00	1.56	1.61	.01	.16	.15
97	.67	.57																		

**AVERAGE PRICE PAID TO PRODUCERS IN IOWA FOR THE
1926 CROP***

Districts	Buckwheat, per bu. of 48 lbs.	Sorghum syrup, per gallon	Grapes, per pound	Grapes, per ton	Peaches, per bu. of 48 lbs.	Pears, per bu. of 48 lbs.	Tomatoes, per bu. of 56 lbs.	Onions per bu. of 56 lbs.	Cabbage, per cwt.	Cabbage, per ton	Turnips, per bu. of 55 lbs.
Northwest.....	\$ 0.94				\$ 1.00	\$ 1.45	\$ 2.63	\$ 20.00	\$ 0.45		
North Central.....	\$ 0.87	1.13	.05		\$ 3.00	\$ 2.10	0.92	1.00	2.93	24.0	0.65
Northeast.....	0.79	1.12	.06		3.50	2.40	1.05	3.28	2.00	30.00	0.60
West Central.....	1.00	.94	.87	.50	1.80	1.70	1.05	1.58	2.50	37.00	0.70
Central.....	0.96	1.14	.04	61.50	1.75	1.65	0.97	1.28	2.50	24.0	0.67
East Central.....	0.79	1.11	.04	72.50	1.66	3.20	0.85	1.46	2.00	37.00	0.70
Southwest.....	1.00	.04			1.70	1.55	1.00	1.51	2.62	43.00	0.70
South Central.....	1.07	.08	35.50		1.40	1.10	0.77	1.55	3.00	29.00	0.65
Southeast.....	0.96	1.11	.03	47.50	1.55	0.80	0.75	1.27	2.30	32.00	0.65
For State.....	\$ 0.92	\$ 1.10	\$ 0.04	\$ 59.00	\$ 1.60	\$ 1.30	\$ 0.90	\$ 1.40	\$ 2.70	\$ 35.00	\$ 0.65

*Data secured December 1, 1926.

WINTER WHEAT AND RYE OUTLOOK IN IOWA FOR 1927

The acreage of winter wheat sown in Iowa this fall, as reported by the Federal and State Crop Reporting Bureaus, is 372,000 acres, compared with 354,000 acres sown in the fall of 1925. This is approximately 105 per cent of last year's seeded acreage. The condition on December 1 was 85 per cent of normal, which is 6 per cent below the average for the past ten years (1916-1925), and 2 per cent below the December 1 condition last year. Excessive moisture delayed seeding in September and the bulk of the acreage was seeded in October. The early seeded germinated well and obtained a good start, but the late seeded did not enter the winter in a very resistant condition. On the whole the crop did not make as good growth as usual. Of the acreage seeded only 77 per cent was reported as having made good growth and become well established; 20 per cent germinated but made very little showing, and 3 per cent did not germinate. Last year 79 per cent germinated and became well established; 17 per cent germinated but made little showing, and 4 per cent did not germinate. The abandonment of acreage last year, due to winter killing and other causes, was estimated at 4 per cent of that seeded, leaving 340,000 acres harvested in 1926.

The acreage sown to rye in Iowa this fall is estimated at 34,000 acres, compared with 31,000 acres harvested in 1926. This is approximately 110 per cent of last year's acreage. The condition of rye on December 1 was reported as 90 per cent of normal, the same as last year, and 4 per cent below the average of the last ten years (1916-1925).

TAME HAY IN IOWA

Classification	Acreage			Production		
	1924	1925	1926	1924	1925	1926
	Acres	Acres	Acres	Tons	Tons	Tons
Clover hay (alone).....	700,000	630,000	560,000	1,300,000	850,000	731,000
Timothy hay (alone).....	471,000	524,000	600,000	650,000	540,000	528,000
Mixed clover and timothy hay.....	1,792,000	1,402,000	1,525,000	2,943,000	1,808,000	1,625,000
Alfalfa hay.....	288,000	245,000	292,000	878,000	500,000	612,000
Other tame hay.....	74,000	75,000	156,000	122,000	124,000	320,000
Annual legumes.....	20,000	30,000	30,000	40,000	40,000	40,000
Grain cut green for hay.....	17,000	47,000	39,000	27,000	60,000	49,000
*Total tame hay.....	3,302,000	3,004,000	3,158,000	5,970,000	4,142,000	3,845,000

*The average farm price per ton on December 1 was \$11.40 in 1924; \$13.50 in 1925 and \$15.50 in 1926.

ESTIMATED AVERAGE YIELD PER ACRE OF PRINCIPAL IOWA CROPS, FOR THE YEAR 1926, BY COUNTIES—Continued

Districts and Counties	Corn		Oats		Winter wheat		Spring wheat		Barley	Rye	Potatoes	Timothy seed	All tame hay	Clover hay	Timothy hay	Mixed clover and timothy hay	Alfalfa hay	Wild hay		
	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.												
Southeast—																				
Davis.....	33.7	23	15	16	24	32	26	3	1.00	1.37	0.70	0.83	2.45	0.88						
Des Moines.....	41.4	27	21	19	12	36	70	6	1.02	1.29	1.19	1.44	3.03							
Henry.....	39.2	27	16	18	37	36	70	6	0.83	1.07	1.08	0.92	2.11	1.22						
Jefferson.....	36.1	26	17	17	33	35	65	6	0.83	1.07	0.99	1.11	2.56							
Keokuk.....	37.1	26	23	14	39	38	44	4	1.16	1.55	1.02	1.04	2.78	0.98						
Lec.....	37.8	29	21	---	15	61	4	1.13	1.40	1.03	1.36	2.01	1.26							
Louis.....	38.4	31	22	---	15	61	4	1.13	1.40	1.03	1.36	2.01	1.26							
Mahaska.....	40.1	34	22	21	---	37	22	0.0	1.15	1.27	0.87	1.02	3.49	0.73						
Van Buren.....	38.9	29	18	---	15	68	5	1.00	1.25	0.84	1.14	2.82	1.06							
Wapello.....	36.9	28	16	---	19	9	61	5	1.00	1.47	1.12	1.48	2.16							
Washington.....	41.2	37	19	17	44	---	75	4	0.94	1.20	0.98	1.14	---							
For District.....	38.4	30.0	20	17.5	36.8	16.2	72	5.2	1.05	1.41	0.98	1.14	2.55	1.08						
For State.....	37.0	31.3	21.5	15.4	30.5	17.3	79.0	5.0	1.21	1.30	0.88	1.00	2.45	0.81						

WINTER WHEAT IN THE UNITED STATES

An AREA OF 41,807,000 ACRES OF WINTER WHEAT SOWN THIS FALL is estimated by the Crop Reporting Board of the United States Department of Agriculture, based upon reports and data furnished by crop correspondents, field statisticians, and cooperating State Boards (or Departments) of Agriculture and Extension Departments. This sown area is 5 per cent more than the revised estimate of 39,799,000 acres sown in the fall of 1925. The sowings in the fall of 1924 were 39,848,000 acres (revised). Winter damage during the past ten years has caused an average abandonment of 12.8 per cent of the acreage sown to winter wheat. The abandonment has ranged from 1.9 per cent to 28.9 per cent in different years during that period.

CONDITION OF WINTER WHEAT on December 1, 1926, was 81.8 per cent against 82.6 and 81.0 on December 1, 1925 and 1924, respectively, and a ten year average of 84.4 per cent.

State	Area Sown			Condition December 1		
	Autumn 1926 (Preliminary)	Autumn 1925 (Revised)	Autumn 1926 Compared With 1925	1926	1925	Ten-Year Average 1916-1925
	Acres	Acres	P. Ct.	P. Ct.	P. Ct.	P. Ct.
New York.....	308,000	293,000	105	87	77	90
Pennsylvania.....	1,030,000	1,194,000	87	83	88	89
Ohio.....	1,494,000	1,844,000	81	66	79	87
Indiana.....	1,784,000	1,746,000	102	76	70	86
Illinois.....	2,277,000	2,277,000	100	71	67	87
Michigan.....	568,000	1,053,000	91	88	81	88
Wisconsin.....	68,000	72,000	95	90	90	92
Minnesota.....	201,000	201,000	100	90	85	91
Iowa.....	375,000	354,000	105	85	87	91
Missouri.....	1,619,000	1,472,000	110	73	63	85
South Dakota.....	100,000	94,000	110	80	69	81
Nebraska.....	3,569,000	3,274,000	100	90	88	81
Kansas.....	11,982,000	11,392,000	105	80	84	80
Delaware.....	107,000	105,000	102	90	88	88
Maryland.....	292,000	328,000	95	80	79	87
Virginia.....	718,000	697,000	103	80	82	87
West Virginia.....	141,000	148,000	95	75	85	88
North Carolina.....	511,000	456,000	112	85	80	89
Georgia.....	152,000	118,000	100	86	88	89
Kentucky.....	395,000	395,000	115	82	85	87
Tennessee.....	481,000	491,000	120	86	82	84
Oklahoma.....	4,558,000	4,300,000	106	82	87	80
Texas.....	2,322,000	1,858,000	125	85	91	79
Montana.....	614,000	560,000	115	93	86	83
Idaho.....	323,000	476,000	112	91	92	88
Colorado.....	1,509,000	1,509,000	100	70	90	87
New Mexico.....	219,000	219,000	100	78	91	83
Utah.....	152,000	152,000	100	85	96	86
Washington.....	1,226,000	882,000	140	98	68	82
Oregon.....	907,000	907,000	100	97	82	90
California.....	772,000	702,000	110	96	90	90
U. S. Total.....	41,807,000	39,799,000	105.0	81.8	82.6	84.4

CORN BY STATES

Table showing Acreage, Total Production, and December 1 Price of Corn, for the years 1924, 1925 and 1926; Also carry-over from 1925 crop on Hand November 1, 1926 and merchantability of 1926 crop as reported November 1.

State	Acreage			Production			Carry-over from 1925 Crop, on Hand Nov. 1, 1926	Per Cent of 1926 Crop of Merchantable Quality	Price December 1		
	1924	1925	1926	1924	1925	1926			1924	1925	1926
	1,000 Acres	1,000 Acres	1,000 Acres	1,000 Bushels	1,000 Bushels	1,000 Bushels			Per Cent	Per Cent	Cents Per Bu.
Maine.....	12	12	13	536	540	546	1.5	72	136	112	100
New Hampshire.....	14	14	15	672	700	705	2.0	79	134	100	100
Vermont.....	23	25	24	3,254	4,080	3,945	2.0	71	118	100	95
Massachusetts.....	41	43	45	1,845	2,150	2,160	2.0	80	129	120	115
Rhode Island.....	8	9	9	230	405	432	4.0	80	140	150	115
Connecticut.....	32	34	34	2,236	2,700	2,700	4.0	80	150	130	115
New York.....	677	691	670	23,018	24,876	23,450	3.5	68	117	97	80
New Jersey.....	195	199	188	6,430	10,348	8,648	7.5	85	116	73	80
Pennsylvania.....	1,316	1,408	1,394	48,034	71,908	57,154	6.0	77	115	80	78
Ohio.....	3,422	3,741	3,391	96,232	179,568	145,436	9.0	77	104	97	60
Indiana.....	4,450	4,672	4,672	113,920	303,232	170,358	10.0	80	94	55	50
Illinois.....	8,946	9,303	9,205	236,218	334,506	312,070	9.0	73	86	88	96
Michigan.....	1,610	1,642	1,393	45,885	65,080	54,162	3.5	50	106	75	73
Wisconsin.....	2,183	2,285	2,119	56,510	101,802	73,106	4.8	35	165	72	75
Minnesota.....	4,395	4,136	4,343	124,005	148,806	147,062	3.5	35	85	56	56
Iowa.....	10,912	11,234	11,178	305,536	492,648	413,586	7.0	74	93	56	56
Missouri.....	6,300	6,741	6,404	131,300	198,960	174,189	5.4	70	90	69	68
North Dakota.....	1,320	1,056	1,000	28,280	24,816	18,162	0.3	27	75	35	68
South Dakota.....	4,814	4,478	4,433	102,533	78,365	70,794	9.0	50	80	60	58
Nebraska.....	8,716	9,100	8,904	191,732	236,000	139,467	8.5	77	91	61	68
Kansas.....	6,021	6,023	5,393	130,656	109,942	57,259	6.9	63	87	66	70
Delaware.....	136	137	138	3,672	5,000	4,278	4.8	80	112	65	64
Maryland.....	327	324	334	16,357	24,530	22,949	6.0	77	112	70	64
Virginia.....	1,499	1,581	1,494	31,479	36,982	46,585	3.3	77	150	101	85
West Virginia.....	490	520	490	11,900	18,080	16,467	4.0	71	124	100	94
North Carolina.....	2,317	2,400	2,276	41,706	44,400	32,272	3.0	85	124	110	86
South Carolina.....	1,650	1,584	1,426	19,860	19,483	22,168	3.0	87	123	109	90
Georgia.....	3,975	3,895	3,817	45,712	41,676	35,346	2.0	85	112	100	76
Florida.....	600	580	551	8,100	8,700	7,714	1.0	80	112	100	92
Kentucky.....	3,018	3,231	3,069	76,390	85,622	59,377	5.0	81	102	81	65
Tennessee.....	3,100	3,162	3,069	66,670	68,240	85,222	3.5	83	106	80	66
Alabama.....	2,900	2,797	2,825	36,230	37,700	45,765	2.0	85	122	100	76
Mississippi.....	2,240	1,977	1,918	26,880	35,566	36,826	3.0	85	136	94	82
Arkansas.....	2,000	2,036	2,030	31,440	28,084	41,333	1.0	72	107	97	80
Louisiana.....	1,550	1,225	1,137	14,373	22,050	19,722	1.0	78	115	94	90
Oklahoma.....	2,862	2,558	2,333	54,378	19,185	61,178	1.0	82	80	90	56
Texas.....	3,943	2,957	3,844	63,088	25,134	106,893	9.5	89	130	110	60
Montana.....	420	390	370	7,560	6,384	3,940	3.0	89	99	95	92
Idaho.....	66	78	62	2,026	3,168	2,706	2.0	89	113	75	90
Wyoming.....	186	191	197	2,160	4,368	3,940	2.5	61	94	70	72
Colorado.....	1,450	1,467	1,490	14,500	22,005	10,472	2.5	72	88	70	71
New Mexico.....	220	175	221	3,960	3,120	4,430	1.0	82	110	100	87
Arizona.....	31	39	40	682	1,014	1,120	1.0	77	125	130	120
Utah.....	13	18	18	30	422	432	1.0	70	145	100	115
Nevada.....	2	2	2	45	50	48	0.6	73	121	120	120
Washington.....	43	56	49	1,290	2,030	1,715	1.5	70	112	95	95
Oregon.....	36	71	75	1,860	2,050	2,415	1.0	78	121	107	100
California.....	82	81	77	2,747	2,843	2,510	0.9	91	138	118	100
Total.....	100,863	101,570	96,492	2,309,414	2,916,961	2,645,031	6.2	72.6	98.2	67.4	64.4

Note: The figures of this table cover corn for all purposes, including hogged down, silod corn, and that cut and fed without removing the ears, as well as that husked and snapped for grain, the yield for grain being applied to the total acreage to obtain an equivalent production figure for all corn.

UNITED STATES CROP SUMMARY 1926—Continued

UNITED STATES CROP SUMMARY 1926

The December estimates of the Crop Reporting Board of the United States Department of Agriculture of the ACREAGE PRODUCTION, and PRICES PAID TO GROWERS ON DECEMBER 1 of farm crops of the United States, 1924, 1925 and 1926, based on the reports and data furnished by crop correspondents, field statisticians, cooperating State Boards (or Departments) of Agriculture and Extension Departments, et al., are shown below.

These figures have been revised on the basis of the latest and fullest information including available Census data. The revised figures here shown, and not the unrevised figures previously published, should be compared to obtain the proper relation of the 1926 acreage and production to that of 1925 and 1924.

Crop	Acreage	Production			Farm Value December 1 st		
		Per Acre	Total	Unit	Per Unit (Cents)	Total	
Corn	1926..	90,492,000	26.6	2,645,031,000	Bu.	64.4	\$ 1,705,430,000
	1925..	101,350,000	28.8	2,916,001,000	"	67.4	1,906,761,000
	1924..	100,808,000	22.9	2,339,414,000	"	98.2	2,296,771,000
Winter wheat	1926..	36,913,000	17.0	626,929,000	"	121.2	736,870,000
	1925..	31,324,000	12.9	403,734,000	"	147.9	594,289,000
	1924..	33,656,000	16.0	532,239,000	"	131.6	779,548,000
Spring wheat	1926..	19,613,000	10.5	205,376,000	"	115.7	237,719,000
	1925..	21,021,000	13.1	274,065,000	"	132.4	325,618,000
	1924..	16,879,000	16.1	272,160,000	"	126.2	343,538,000
All wheat	1926..	56,526,000	14.7	832,302,000	"	119.9	967,589,000
	1925..	52,335,000	12.9	676,822,000	"	141.5	957,397,000
	1924..	52,535,000	16.5	864,428,000	"	129.9	1,123,086,000
Oats	1926..	44,304,000	28.2	1,252,739,000	"	39.8	490,531,000
	1925..	44,872,000	33.2	1,487,550,000	"	38.0	565,506,000
	1924..	46,116,000	35.7	1,652,929,000	"	47.7	717,180,000
Barley	1926..	8,300,000	23.3	191,182,000	"	57.4	109,677,000
	1925..	8,088,000	26.8	216,554,000	"	58.9	127,463,000
	1924..	6,929,000	29.2	181,573,000	"	74.1	134,500,000
Rye	1926..	3,513,000	11.4	40,024,000	"	82.5	33,436,000
	1925..	3,974,000	11.7	46,456,000	"	78.2	36,340,000
	1924..	4,160,000	15.8	65,469,000	"	106.5	69,696,000
Buckwheat	1926..	707,000	18.3	12,922,000	"	88.3	11,468,000
	1925..	747,000	18.7	13,904,000	"	88.8	12,423,000
	1924..	745,000	17.9	13,367,000	"	102.6	13,708,000
Flax seed	1926..	2,807,000	6.7	19,459,000	"	194.1	37,775,000
	1925..	3,078,000	7.3	22,424,000	"	226.5	59,783,000
	1924..	3,469,000	9.1	31,547,000	"	227.4	74,728,000
Rice	1926..	1,018,000	40.2	41,006,000	"	109.7	44,988,000
	1925..	880,000	27.2	23,909,000	"	152.0	51,232,000
	1924..	850,000	38.2	32,498,000	"	132.5	48,009,000
Grain sorghum ^a	1926..	4,410,000	22.8	100,730,000	"	54.5	54,873,000
	1925..	4,130,000	18.3	75,389,000	"	75.5	56,769,000
	1924..	3,813,000	21.1	80,443,000	"	85.2	68,591,000
Cotton	1926..	47,653,000	4187.0	18,618,000	Bales	710.9	1,016,346,000
	1925..	46,003,000	4167.2	*16,103,679	"	718.2	1,697,670,000
	1924..	41,300,000	4157.4	*13,627,926	"	722.6	1,573,329,000

Crop	Acreage	Production			Farm Value December 1 st		
		Per Acre	Total	Unit	Per Unit (Cents)	Total	
Cotton seed	1926..		8,267,000	Tons	\$18.64	154,069,000	
	1925..		*7,150,000	"	*820.32	220,281,000	
	1924..		*6,051,000	"	*834.08	306,190,000	
Tame hay	1926..	38,840,000	1.47	56,377,000	"	\$14.09	1,216,628,000
	1925..	38,233,000	1.47	55,717,000	"	\$13.94	1,195,133,000
	1924..	61,147,000	1.00	97,622,000	"	\$13.77	1,344,129,000
Wild hay	1926..	13,598,000	0.74	9,984,000	"	\$10.97	100,313,000
	1925..	14,500,000	0.87	12,724,000	"	\$ 8.33	108,485,000
	1924..	13,335,000	0.98	14,859,000	"	\$ 7.88	116,301,000
All hay	1926..	72,346,000	1.33	96,361,000	"	\$13.67	1,317,101,000
	1925..	72,791,000	1.33	98,441,000	"	\$13.24	1,305,618,000
	1924..	76,332,000	1.47	112,481,000	"	\$12.96	1,400,430,000
Clover seed	1926..	536,509	1.45	797,000	Bu.	\$17.72	14,124,000
	1925..	825,000	1.35	1,113,000	"	\$14.87	16,547,000
	1924..	820,000	1.17	958,000	"	\$14.49	18,882,000
Beans, dry, edible ^b	1926..	1,659,109	10.3	17,139,000	"	\$ 2.96	50,235,000
	1925..	1,608,000	12.4	19,928,000	"	\$ 2.28	65,376,000
	1924..	1,373,509	9.6	13,150,000	"	\$ 3.74	50,724,000
Potatoes (white)	1926..	3,163,000	113.1	357,800,000	"	141.6	506,721,000
	1925..	3,052,000	104.6	323,445,000	"	180.8	460,072,000
	1924..	3,327,000	127.7	421,585,000	"	61.3	263,315,000
Sweet potatoes	1926..	830,000	100.8	83,638,000	"	95.7	80,075,000
	1925..	779,000	80.0	62,319,000	"	134.4	86,094,000
	1924..	688,000	78.4	53,912,000	"	128.8	69,444,000
Tobacco	1926..	1,694,700	795	1,323,388,000	Lbs.	18.5	245,175,000
	1925..	1,757,300	783	1,376,628,000	"	18.4	250,372,000
	1924..	1,705,800	794	1,251,823,000	"	20.7	230,159,000
Sugar beets	1926..	685,000	11.0	7,337,000	Tons		50,706,000
	1925..	647,000	11.4	7,366,000	"	\$ 6.34	47,079,000
	1924..	815,000	9.2	7,489,000	"	\$ 7.92	50,304,000
Sorghum syrup	1926..	403,000	89.3	35,077,000	Gals.	54.5	30,308,000
	1925..	379,000	67.4	24,326,000	"	94.9	23,646,000
	1924..	369,000	67.8	25,004,000	"	94.3	23,370,000
Apples, total	1926..		246,460,000	Bu.	72.7	170,205,000	
	1925..		172,880,000	"	125.7	216,735,000	
	1924..		171,725,000	"	118.1	202,807,000	
Apples, Com'l.	1926..		39,066,000	Bbls.	\$ 2.19		
	1925..		33,246,000	"	\$ 3.67		
	1924..		28,013,000	"	\$ 3.60		
Peaches, total	1926..		68,427,000	Bu.	100.2	67,079,000	
	1925..		46,562,000	"	137.8	61,171,000	
	1924..		33,848,000	"	126.4	46,064,000	
Pears, total	1926..		25,644,000	"	88.7	22,742,000	
	1925..		20,720,000	"	140.3	20,006,000	
	1924..		18,866,000	"	141.5	26,089,000	
Grapes	1926..		2,349,117	Tons	\$27.58	64,782,000	
	1925..		2,064,085	"	\$22.00	66,115,000	
	1924..		1,777,722	"	\$41.79	74,297,000	
Cabbage	1926..	122,610	8.0	981,700	"	\$17.71	17,385,000
	1925..	118,710	8.0	946,200	"	\$17.43	16,436,000
	1924..	118,660	8.9	1,056,700	"	\$16.52	17,456,000

UNITED STATES CROP SUMMARY 1926—Continued

Crop	Acreage	Production			Farm Value December 1 ^a		
		Per Acre	Total	Unit	Per Unit (Cents)	Total	
Cantaloupes	1926..	103,160	136	14,038,000	Crates	\$ 2.20	18,944,000
	1925..	93,000	153	14,358,000	"	\$ 1.47	29,915,000
	1924..	95,500	147	14,988,000	"	\$ 1.42	19,968,000
Sweet corn (canning)	1926..	311,640	2.6	803,000	Tons	\$13.17	10,379,000
	1925..	303,910	2.6	1,014,100	"	\$15.04	15,253,000
	1924..	332,799	1.7	527,800	"	\$14.17	7,478,000
Cucumbers	1926..	107,410	82	8,801,000	Bu.	\$ 1.17	10,330,000
	1925..	139,000	88	12,217,000	"	\$ 1.14	13,986,000
	1924..	121,500	62	7,507,000	"	\$ 1.42	10,676,000
Onions	1926..	74,500	377	30,025,000	"	76.0	15,574,000
	1925..	65,000	299	19,423,000	"	108.0	21,116,000
	1924..	65,000	294	19,146,000	"	86.0	16,376,000
Strawberries	1926..	149,300	1,828	256,411,000	Qts.	17.0	44,537,000
	1925..	122,550	1,505	211,306,000	"	18.0	37,023,000
	1924..	156,250	1,822	284,716,000	"	14.0	39,919,000
Tomatoes	1926..	376,000	3.7	1,398,784	Tons	\$25.17	\$9,124,000
	1925..	483,799	4.8	2,321,588	"	\$27.23	63,218,000
	1924..	439,700	3.8	1,677,028	"	\$33.56	56,362,000
Water melons	1926..	199,500	3349	69,551	Cars	\$146.00	10,141,000
	1925..	173,719	3325	56,498	"	\$236.00	13,300,000
	1924..	187,393	3310	56,851	"	\$100.00	9,113,000
Total	1926..	1,056,445,000					\$ 17,802,114,000
	1925..	1,333,746,000					18,949,321,000
	1924..	1,349,547,000					19,394,251,000

^aMinor crop prices mostly for November 15; for commercial truck crops, average price for season paid to grower. ^bIncluding Durum (production 4 States 44,826,000 bushels in 1926, 61,651,000 bushels in 1925 and 62,373,000 in 1924). ^cPrincipal producing States. ^dPounds. ^eCensus. ^fPer pound. ^gWeighted yearly price. ^hNumber. ⁱAcreage and total value of all crops, including several minor crops not listed in table.

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STATE AGRICULTURIST

The Year Ending December 31, 1926

Published by the Department of Agriculture, State of Iowa, at Ames, Iowa, December 31, 1926.

F. H. PETERSON, State Agronomist

Ames, Iowa

1926
No. 12