

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU

IN CO-OPERATION WITH THE

Iowa Weather and Crop Service

ANNUAL REPORT FOR 1906

GEO. M. CHAPPEL,
Local Forecaster, Asst. Director.

JOHN R SAGE,
Director.

PRINTED BY ORDER OF THE GENERAL ASSEMBLY.

DES MOINES:
EMORY H. ENGLISH, STATE PRINTER,
1907.

LETTER OF TRANSMITTAL.

STATE OF IOWA,
OFFICE OF THE WEATHER AND CROP SERVICE,
Des Moines, July 5, 1907.

TO HIS EXCELLENCY, ALBERT B. CUMMINS, Governor of Iowa:

SIR—In accordance with the requirements of the law, we have the honor to submit herewith the seventeenth annual report of the Iowa Weather and Crop Service for the year 1906.

We are, sir, very respectfully,

Your obedient servants,

JOHN R. SAGE,
Director.

GEO. M. CHAPPEL,
Local Forecaster, U. S. Weather Bureau,
Assistant Director.

ANNUAL REPORT, 1906.

This report is a compilation of climatic data and statistics of soil products, for the year 1906, in convenient form for reference and comparison.

During the year meteorological reports were received from United States Weather Bureau stations at Des Moines, Davenport, Dubuque, Charles City, Keokuk and Sioux City, Iowa, and Omaha, Neb. Reports were also received, and are included in the meteorological tables, from 124 stations in charge of co-operative observers at well distributed stations in this State. The equipment of these co-operative stations has been materially improved within the past year.

During the year 1906 this office distributed about 70,000 copies of the weekly Bulletin (issued during the six crop months); also 31,000 copies of the Monthly Review of the Weather and Crop Service.

There has been a steady increase in the dissemination of daily weather forecasts. About eighty thousand patrons of rural telephone lines in Iowa are now receiving the forecasts before noon of each working day. This service appears to be highly appreciated by the general public in towns and in the country districts.

CLIMATOLOGY OF THE YEAR 1906.

BAROMETER.—The mean pressure of the atmosphere for the year 1906 was 30.5 inches. The highest observed pressure was 30.79 inches on February 5th at Dubuque. The lowest pressure was 28.71 inches on January 3d at Dubuque. The range for the State was 2.08 inches.

TEMPERATURE.—The mean temperature for the State was 48.7°, which is 1° above the normal. The highest temperature reported was 102° on July 21st, at Atlantic. The lowest temperature reported was 32° below zero on February 10th, at Inwood, Lyon county. The range for the year was 134°.

PRECIPITATION.—The average amount of rain and melted snow for the year, as shown by complete records of 107 stations, was 31.23 inches,

which is .49 of an inch below the normal, and 5.28 inches below the average amount in 1905. The greatest amount recorded at any station for the year was 44.34 inches at Ridgeway, Winneshiek county. The least amount recorded was 20.63 inches at Elliott, Montgomery county. The greatest monthly rainfall was 11.10 inches at Thurman in September. The least monthly precipitation was 0.20 of an inch at Baxter and Sibley in February. The greatest amount in any twenty-four consecutive hours was 7.60 inches at Thurman on September 16th and 17th. The average number of days on which .01 of an inch or more of rain fell was ninety-two.

WIND AND WEATHER.—The prevailing direction of wind was northwest. The highest velocity reported was fifty-eight miles per hour in Sioux City, from the northwest on March 21st. The average daily movement of wind was 205 miles. There were 163 clear days; 97 partly cloudy, and 105 cloudy days; as against 164 clear days; 98 partly cloudy, and 103 cloudy days in 1905.

MONTHLY SUMMARIES.

JANUARY.

The month was unusually fair and mild, with less than the average amount of stormy weather. Conditions were generally favorable for the care of stock, for marketing products and for the usual farm operations of the winter season.

Since 1890 there have been but two warmer Januaries, viz.: in 1891, when the mean temperature for the State was 26°, and in 1900 when the mean was 25.6°. The coldest periods of the month were the 7th to the 10th, inclusive, and the 21st to the 23d. During the prevalence of the lowest temperatures, in the first decade, the ground was generally well covered with snow; but in the latter part of the month the surface was mostly bare. So far as can be ascertained no material damage has been caused to fall wheat and rye, or to fruit buds. Electric storms were reported at Keokuk, Fort Madison and other southeastern stations on the night of the 20th.

TEMPERATURE.—The monthly mean temperature for the State as shown by the records of 125 stations, was 24.6°, which is 4.8° above the normal. By sections the mean temperatures were as follows: Northern section, 22.7°, which is 5.1° above normal; Central section, 25.2°, which is 6.0° above normal; Southern section, 25.9°, which is 3.4° above normal. The highest monthly mean temperature recorded was 31.8° at Red Oak. The lowest mean reported was 19.4° at Charles City. The highest temperature reported for the month was 69° at Keokuk on the 20th. The lowest temperature reported was 19° below zero, at Charles City, on the 8th. The average of monthly maximum temperatures for all reporting stations was 53.2°. The average of the minimum temperatures was -9.3°. The greatest daily range of temperature was 49°, at Sibley. The average of greatest daily ranges was 36.8°.

PRECIPITATION.—The average precipitation (rain and melted snow) for the State, as shown by records of 132 stations, was 1.52 inches, which is 0.57 of an inch above the normal for January in Iowa. By sections the averages were as follows: Northern section, 1.20 inches, which is 0.44 of an inch above normal; Central section 1.79 inches, which is 0.75 of an inch above normal; Southern section, 1.7 inches, which is 0.52 of an inch above normal. The largest amount reported was 4.71 inches at Ridgeway. The least amount reported was 0.28 of an inch at Inwood. The greatest daily precipitation reported was 3.87 inches at Ridgeway on the 3d. The average number of days on which .01 of an inch, or more, precipitation was recorded was 5.

WIND AND WEATHER.—The prevailing direction of the wind for the month was northwest. The highest velocity reported was 50 miles per hour, from the southwest, at Keokuk, on the 3d. The average number of clear days was 14; the average of partly cloudy days was 6, and of cloudy days 11.

OBSERVERS' NOTES.

ALTA. *David E. Hadden.* January was an ideal winter month, being warm and dry. The mean temperature was 7° above the sixteen-year normal. Only three times was the mean temperature higher, viz.: in January, 1891, 1900 and 1903.

ATLANTIC. *J. W. Love.* This has been the warmest January on record here; zero temperature was recorded one day and then only 5° below.

BONAPARTE. *B. R. Vale.* Probably the mildest January since 1876. The temperature on the 20th was one degree higher than it was on July 10th, last year.

BRITT. *Geo. P. Hardwick.* Mild, with but few storms and light precipitation; conditions good for feeding in stalk fields.

CLINTON. *Luke Roberts.* This has been the warmest January in 28 years, except in 1880, which was 8.1° above the mean of January, 1906.

GRAND MEADOW. *F. L. Williams.* January was warm and pleasant; on the 3d the barometer reading was 27.40 inches, which was the lowest I ever recorded.

INWOOD. *F. B. Hanson.* Only three days on which the temperature was below zero; on five days the maximum exceeded 50°.

KEOSAUQUA. *J. H. Landes.* A beautiful winter month. This is the first instance where my record for a month did not show a single entry of "partly cloudy."

LARABEE. *H. B. Strever.* This has been a midwinter month with the "backbone" left out.

LEON. *W. F. Stookey.* Warmest January known in this section for many years.

RIDGEWAY. *Arthur Betts.* One of the mild Januaries; no bad storms; meteor on the 5th making the night as light as day.

WAUKEE. *E. J. Leonard.* Only once was the zero mark reached; range for the month 58°.

FEBRUARY.

This has been the warmest February since 1898. The mean temperature for the State as shown by the records of 125 stations, was 23.6°, which is 4.2° above normal. By sections the mean temperatures were as follows: Northern section, 20.2°; Central section, 23.5°; Southern section, 27.2°. The highest monthly mean was 31.6° at Red Oak, and the lowest was 17.3° at Charles City. The highest temperature reported was 66° at Red Oak on the 22d, and the lowest was -32° at Inwood on the 10th. The average of monthly maximum temperatures was 56.4°, and the average of minimum temperatures was -13.1°. The greatest daily range was 59° at Sibley, and the average of greatest daily ranges was 38°. The average precipitation for the State, as shown by records of 132 stations was 1.29 inches, which is 0.28 of an inch above the normal for February. By sections the averages were as follows: Northern section, 1.01 inches; Central section, 1.23 inches; Southern section, 1.62 inches. The largest amount reported was 2.91 inches at Mount Pleasant, and the least reported was 0.20 of an inch at Baxter and Sibley. The greatest daily precipitation was 1.48 inches at Webster City on the 13th. The average number of days on which .01 of an inch or more precipitation was reported was 5. The prevailing direction of wind was south. The highest velocity reported was 50 miles per hour, from the northwest at Sioux City, on the 3d. The average number of clear days was 14; partly cloudy 7, and cloudy 7.

The mean temperature of the three winter months—December, 1, 1905, to March 1, 1906—was 25°, which is 4.3° above the normal for this State. The maximum temperature recorded was 69° at Keokuk on January 20th. The minimum recorded was 32° below zero at Inwood on February 10th. The average precipitation for the State was 1.11 inches—a total of 3.33 inches for the winter months. This is 0.94 of an inch above the normal. On the whole, it was a very mild and agreeable winter, with less than the usual amount of stormy weather. In the southern districts the supply of ice was deficient.

OBSERVERS' NOTES.

ALTA. *David E. Hadden.* Mean temperature of February was 33° above the sixteen years' normal, and the precipitation was double the normal.

ALTON. *W. S. Slagle.* Bees were out on the 22d; ice broke up in streams on 22d.

AMANA. *Conrad Schadt.* Month was mild, with a number of spring-like days; on 25th the river was high and ice was moving; in the timber the ground was slightly frozen.

ATLANTIC. *J. W. Love.* A mild winter month; ducks were observed on the 21st and robins on the 27th.

BONAPARTE. *B. R. Vale.* A mild month; frost practically out the last ten days.

BRITT. *Geo. P. Hardwick.* February has been much milder than the average. Wild fowls flying northward on the 22d. Less than usual fuel used this winter.

CLINTON. *Luke Roberts.* Mean temperature 5° above normal; rain-fall also above average; lowest temperature at zero.

CRESTON. *W. L. Gaston.* Another month of good weather; a few robins and bluebirds made their appearance during the last days of February.

ELKADER. *Chas. Reinecke.* Ice went out of Turkey river February 22d. FOREST CITY. *J. A. Peters.* Mean temperature highest since 1898; month was beautiful, though there were some sudden changes.

GRINNELL. *A. O. Price.* An enjoyable month, with no bad storms or protracted cold weather.

KEDSAUQUA. *J. H. Landes.* A very mild February, with only one touch of zero weather; roads nearly impassible during last week.

MASON CITY. *J. S. Mills.* Robins appeared on the 22d; wild geese and ducks were flying northward on the 24th.

OLIN. *N. Potter.* February was warmer than usual, with good roads most of the month; zero temperature only on five days.

PROVER. *J. S. Smith.* Ducks flying northward on 22d; blackbirds and robins were observed on 23d; brilliant northern lights on night of 24th.

RIDGEWAY. *Arthur Betts.* This has been the mildest February since 1898; also the driest; there were sixteen days with thawing temperature; 206 hours of sunshine.

MARCH.

This has been the coldest March experienced in Iowa since 1899. The daily mean temperature was 5.7° below normal, and 14.8° lower than the average of March, 1905. The snowfall was generally heavier, and the weather was more stormy and inclement than during any of the preceding winter months. The last five days were milder and more spring-like, the snow disappeared rapidly, leaving the ground thoroughly saturated and causing floods in some of the streams. The severest cold wave of the month swept over the State on the 17th, the records showing below zero temperatures at numerous stations in the southern districts, and above zero at stations in the central and northern sections. Conditions were at no time favorable for field work, and live stock required more care and forage than during any month of the preceding winter. The monthly mean temperature for the State, as shown by the records of 123 stations, was 27.1°, which is 5.7° below normal. The mean temperatures by sections were as follows: Northern section, 25.3°; Central section, 27.6°; Southern section, 28.4°. The highest monthly mean was 30.7° at Red Oak, and the lowest monthly mean was 22.8° at Sibley. The highest temperature reported was 65° at Pacific Junction on the 1st, and the lowest reported was 14° below zero at Thurman on the 17th. The greatest daily range was 42° at Bedford and Thurman. The average of greatest daily ranges was 32.1°. The average precipitation for the State, as shown by the records of 129 stations, was 2.34 inches, which is 0.46 of an inch above normal. The averages by sections were as follows: Northern section, 2.56 inches; Central section, 2.14 inches; Southern section, 2.31 inches. The largest amount reported was 4.55 inches at Burlington; and the least amount reported was 0.58 of an inch at Ames. The greatest daily rainfall reported was 2.55 inches at Denison on the 3d. The aver-

age number of days on which .01 of an inch or more was reported was 10. The prevailing direction of the wind was northwest. The highest wind velocity reported was 58 miles an hour from the northwest at Sioux City on the 21st. The average number of clear days was 7, partly cloudy 7, cloudy 16.

OBSERVERS' NOTES.

ALTA. *David E. Hadden.* Compared with preceding sixteen years, March, 1906, was 0.8° cooler; the mean temperature was 10° lower than March, 1905.

ALTON. *W. S. Slagle.* Month has been unusually cold, damp and foggy.

AMANA. *C. Schadt.* A cold, wet month, with frequent rain and snow; soil was untillable till the end of the month.

ATLANTIC. *J. W. Love.* March was more wintry than January or February.

BONAPARTE. *B. R. Vale.* A cold March with 12 inches of snow, —2.40 inches of precipitation.

BRITT. *Geo. P. Hardwick.* Precipitation, 2.86; northerly winds; no field work done in March. Preceding winter months were open and favorable.

CHARITON. *C. C. Burr.* Temperature below normal; stock required more feed in March than in any month of the winter.

CRESTON. *W. L. Gaston.* March was the most inclement month of the winter, with deepest snow; month ended with fine weather.

GRINNELL. *A. O. Price.* Coldest March since 1899, when the average was 25.9°.

OLIN. *N. Potter.* March was the most disagreeable month of the winter; cloudy weather and bad roads.

RIDGEWAY. *Arthur Betts.* Wettest March since 1899; 47 per cent of sunshine. Precipitation, 4.41 inches, of which 85 per cent was in form of rain.

WAUKEE. *E. J. Leonard.* Unusually severe winter weather for March; no farm work done during the month.

APRIL.

The monthly mean temperature for the State, as shown by records of 121 stations, was 52.5°, which is 3.1° above normal. By sections the mean temperatures were as follows: Northern section, 50.5°; Central section, 52.5°; Southern section, 54.4°. The highest temperature reported was 94° at Ida Grove and Onawa on the 24th. The lowest temperature reported was 22° at Clinton and Webster City on the 1st and at Odebolt on the 6th. The average monthly maximum temperature was 85.4°, and the average monthly minimum was 26.3°. The greatest daily range was 51° at Denison and the average of greatest daily ranges was 42.4°. The average precipitation for the State, as shown by records of 128 stations, was 2.42 inches, which is 0.46 of an inch below the April normal. The averages by sections were as follows: Northern section, 2.06 inches; Central section, 2.43 inches; Southern section, 2.76 inches. The largest amount reported was 5.55 inches at Glenwood, and the least amount

reported was .53 or an inch at Independence. The greatest daily rainfall reported was 2.75 inches at Sheldon on the 13th. The average number of days on which .01 of an inch or more was reported was 8. The prevailing direction of the wind was southeast. The highest velocity reported was 42 miles an hour from the west at Sioux City on the 25th. The average number of clear days was 14, partly cloudy 9, cloudy 7.

OBSERVERS' NOTES.

ALLERTON. *Rez Shriver.* A good month for farm work; plum and peach trees were in bloom at close of month, and pastures had started nicely.

ALTA. *David E. Hadden.* April was warm and generally pleasant. The maximum of 90° on the 24th was the highest ever recorded here in April.

ALTON. *W. S. Slagle.* Farm work was well advanced in April; grain showed a fine stand at close of month, and pastures were in good condition.

AMANA. *C. Schadt.* The month was favorable for farming, the latter part being generally warm; small grain crops were well up and soil was prepared for corn; plums, peaches, cherries and pears were in bloom at close of the month.

ATLANTIC. *J. W. Love.* April was cool and wet, the rainfall being 4.34 inches and the average temperature 53°.

BONAPARTE. *B. R. Vale.* April precipitation, 2.40 inches; first half of the month was wet and cloudy; the latter half was seasonable.

BRITT. *Geo. P. Hardwick.* The spring was ten days late; on flat lands oats seeding was not finished at close of month; apple bloom indicates a short crop.

CHARITON. *C. C. Burr.* The season is ten days late; grass is doing finely and oats making a good start; more than usual loss of pigs and foals.

CLINTON. *Luke Roberts.* April was a fine month, the mean temperature being 3° above normal and the rainfall .69 of an inch below normal. Fruit trees were full of blossoms at close of the month.

EARLHAM. *Geo. Phillips.* Farming operations ten days late. The month closed with stock all out on good pasture.

ELLIOTT. *Henry Barnes.* A fairly good month for farm work; vegetation well advanced.

HANLONTOWN. *Miss G. M. Paschen.* Seeding commenced April 11th; early gardening on 13th; small grain was an inch high by the 27th; plowing for corn begun last week of the month.

MURRAY. *R. D. 2. M. T. Ashley.* Spring backward; the close of April showed oats looking green; early fruits were in bloom and apple tree buds opening.

HUMBOLDT. *H. S. Wells.* Seeding was done in good condition; more wheat sown than last year and less oats; growth is very fine.

INWOOD. *F. B. Hanson.* First half of April not favorable for spring work, but the latter half was very good and moisture supply well regulated; high winds were prevalent.

KEOSAUQUA. *J. H. Landis.* Oats were up nicely, and some corn was planted the last week in April; much ground ready for planting.

OLIN. *Nathan Potter.* April was a fine month, the latter half being exceptionally favorable for farm work.

RIDGEWAY. *Arthur Betts.* This has been the warmest April in ten years; 266 hours of sunshine, or 66 per cent; seven days were entirely cloudless; very dry after the 14th.

MAY.

The monthly mean temperature for the State, as shown by the records of 122 stations, was 60.8°, which is 0.1° above the normal for May. By sections the mean temperatures were as follows: Northern section, 58.8°, which is 0.5° below the normal; Central section, 61.1°, which is 0.6° above the normal; Southern section, 62.6°, which is 0.6° above the normal. The highest monthly mean was 65.5° at Keokuk. The lowest monthly mean was 57.4° at Hanlontown. The highest temperature reported was 95° at Odebolt on the 11th. The lowest temperature reported was 24° at Estherville, Britt and Iowa Falls on the 7th. The average monthly maximum temperature was 87°, and the average monthly minimum was 28.9°. The greatest daily range was 52° at Preston; and the average of greatest daily ranges was 39.8°. The average precipitation for the State, as shown by records of 129 stations, was 3.54 inches, which is 0.70 of an inch below the normal for May. The averages by sections were as follows: Northern section, 5.38 inches, which is 1.40 above normal; Central section, 3.15 inches, which is 1.09 below the normal; Southern section, 2.09 inches, which is 2.42 inches below the normal. The largest amount reported was 10.72 inches at Hanlontown. The least amount reported was 0.89 of an inch at Elliott. The greatest daily rainfall reported was 4.24 inches at Northwood on the 14th. The average number of days on which .01 of an inch or more was reported was 11. The prevailing direction of the wind was southwest, and the highest velocity was 48 miles an hour, from the west, at Sioux City on the 17th. The average number of clear days was 13, partly cloudy 10, and cloudy 8.

OBSERVERS' NOTES.

AFTON. *N. W. Rowell.* Twice during the month we were on the border line of frost, yet escaped damage altogether. A fine month for all crops, and prospects were never better.

ALBIA. *J. I. Chenoweth.* Frost on the 9th hurt cherries and killed pears, yet will have a good peach crop; not enough rain to make good hay crop; prospects good for other crops.

ALLERTON. *Res Shriver.* Month was good for all farm work, but it has been too dry for oats.

ALTA. *David E. Hadden.* There was a killing frost in low places on morning of the 28th.

ALTON. *W. S. Slagle.* Frost on the 6th and 9th killed garden truck in low places; month has been favorable for crops.

CLINTON. *Dr. Luke Roberts.* This was not the warmest May, but it was 1.5° above the twenty-eight year average; crops had made a fair average at close of the month; moisture abundant.

ELLIOTT. *H. Barnes.* A glorious month for farm work, and at its close all crops were in fine condition; fruit abundant.

FAYETTE. *R. G. Latimer.* Heavy frosts on 9th, 10th and 28th hurt vegetation on low lands.

GARDEN GROVE. *F. L. Williams.* Month was wet, with extremes of temperature. Grass has been extra good; small grain is fair; corn planting backward.

KEOSAUQUA. *J. H. Landes.* All vegetation flourishing at end of month; but little damage by frost.

LEON. *Millard F. Stockey.* Light frosts on nights of 5th, 8th and 27th, in low places.

NORTHWOOD. *Chas. H. Duclle.* Worst electric storm in years, on May 14th, rainfall 4.24 inches; farm work much behind at end of month.

OLIN. *Nathan Potter.* A good month, with no severe storms; frost and ice half inch thick on the 6th, but no material damage resulted except in very low places.

RIDGEWAY. *Arthur Betts.* The month was 1.3° warmer than May, 1905. Frost with ice two-tenths of an inch thick on the 6th and 7th. There were 265 hours of sunshine. It was a good growing month with much south wind. Rainfall 6.04 inches.

SHELDON. *A. W. Beach.* A good month except a surplus of rain the last two weeks; all crops and farm work advanced to the average.

SIGOURNEY. *J. L. Baker.* Three hard frosts with fruit in full bloom, and yet but little was killed; ice formed three times a sixteenth of an inch.

WAUKEE. *E. J. Leonard.* Rain fell on 14 days, but was well distributed and little at a time, with no storms; light frosts on the 6th and 28th.

JUNE.

June was slightly cooler than the average, the mean temperature for the State as shown by records of 125 stations, being 67.9°, which is 1.7° below the normal. By sections the mean temperatures were as follows: Northern section, 66.2°, which is 2.0° below the normal; Central section, 68.1°, which is 1.4° below the normal; Southern section, 69.4°, which is 1.8° below the normal. The highest monthly mean was 71.7° at Pella, and the lowest was 64° at Sibley. The highest temperature reported was 99° at Greenfield and Odebolt on the 16th and at Clarinda on the 16th and 17th. The lowest temperature reported was 37° at Atlantic and Earham on the 13th. The average monthly maximum was 93.1° and the average monthly minimum was 43.4°. The greatest daily range of temperature was 48° at Audubon, Bedford and Ida Grove. The average of greatest daily ranges was 36.4°. The average precipitation for the State, as shown by records of 132 stations, was 3.92 inches, which is 0.63 of an inch below the normal. By sections the averages were as follows: Northern section, 3.81 inches, which is 0.63 of an inch below normal; Central section, 3.44 inches, which is 1.16 inches below normal; Southern section, 4.50 inches, which is 0.12 of an inch above the normal. The largest amount reported was 8.27 inches at Albia, and the least amount reported was 1.48 inches at Keokuk. The greatest daily rainfall reported was 5.20 inches at Thurman on the 18th. The average number of days on which .01 of an inch or more was reported was 8. The prevailing direction of the wind was northwest. The highest

velocity reported was 49 miles an hour, from the west, at Sioux City on the 6th. The average number of clear days was 15, partly cloudy 10, and cloudy 5.

OBSERVERS' NOTES.

ALTA. *David E. Hadden.* June, 1906, was cool and dry; the mean temperature was 23° below the normal of the preceding sixteen years, and the deficiency in rainfall was 1.95 inches.

ATLANTIC. *J. W. Love.* An ideal month; not extremely hot or cold, and plentiful rains.

BONAPARTE. *B. R. Vale.* Precipitation, 2.09 inches; a dry month; showers local but too cool for rapid growth.

BRITT. *Geo. P. Hardwick.* Latter part of the month was changeable, with excess of cloudiness. On the 17th hail caused much damage in east central part of Hancock county.

CHARITON. *C. C. Burr.* A fine month for corn, and all vegetation made good growth; pastures good, and corn fields are devoid of weeds.

CLINTON.—*Luke Roberts.* Mean temperature of June was 0.5° below normal, and the rainfall was .92 of an inch below the average; hail on 27th did some damage to fruit and gardens.

CRESTON. *Rev. W. L. Gaston.* The month was unusually dry, but was very favorable for corn plowing.

DECORAH. *F. H. Baker.* A tornado passed over the northeast part of this county on June 5th, doing much damage to farm buildings in its track, and causing loss of life after passing over the line into Minnesota.

FOREST CITY. *J. A. Peters.* Rainfall was about an inch below normal, but enough for all crops. The temperature was 0.5° below normal. Corn and small grain are exceptionally good, but the hay crop is short.

GRINNELL. *A. O. Price.* June was an ideal month for corn. The ground clean and the growth large. Rainfall was about 1.00 inch below the normal.

INWOOD. *F. B. Hanson.* The fore part of June was very favorable. Excessive rainfall the last ten days delayed farm work, and a windstorm on the 29th damaged early grain crops to some extent.

LEON. *Millard F. Stookey.* June was a month of exceptionally favorable weather for farm operations.

OLIN. *Nathan Potter.* The month had some cool waves, but on the whole was favorable for farm work, and corn has been better tilled than an average; oats below average, and meadows fair.

RIDGEWAY. *Arthur Betts.* June was a good growing month, with 323 hours of sunshine and 16 excellent corn days. On June 6th a hailstorm came without wind, and the hailstones were the largest I ever saw. Twelve large stones weighed 3 pounds; they varied from the size of plums to turkey eggs.

WAUKEE. *E. J. Leonard.* The month was very dry (only 2.32 inches of rainfall), but the crops were not injured by the drought, and there were no severe storms.

JULY.

The monthly mean temperature of July for the State, as shown by the records of 122 stations, was 70.9°, which is 3.5° below the normal. By sections the mean temperatures were as follows: Northern section, 69.7°, which is 3.5° below the normal; Central section, 71.0°, which is 3.3° below the normal; Southern section, 71.9°, which is 3.8° below. The highest monthly mean was 67.1°, at Sibley. The highest temperature reported was 102° at Atlantic on the 21st; and the lowest reported was 42° at Washta on the 7th and 8th. The greatest daily range of temperature was 46° at Washta; and the average of greatest daily ranges was 34.6°. The average of monthly maximums was 93.6°; and the average of monthly minimums was 48.8°. The average precipitation for the State, as shown by records of 131 stations, was 3.04 inches, which is 1.31 inches below the normal. The averages by sections were as follows: Northern section, 3.04 inches, which is 1.17 inches below the normal; Central section, 3.09 inches, which is 1.14 inches below the normal; Southern section, 3.00 inches, which is 1.62 inches below the normal. The largest amount reported was 7.05 inches at Independence, the least amount reported was 0.26 of an inch at Tipton. The greatest daily rainfall reported was 2.82 inches at Little Sioux on the 25th. The average number of days on which .01 of an inch or more was reported was 8. The prevailing direction of the wind was northwest. The highest velocity reported was 36 miles an hour from the northwest, at Keokuk on the 22d. The average number of clear days was 18, partly cloudy days 10, and cloudy days 3.

OBSERVERS' NOTES.

ALBIA. *J. I. Chenoweth.* First half of July was showery; latter part dry, but favorable for harvesting.

ALTA. *David E. Hadden.* July was an ideal month.

ALTON. *W. S. Stagle.* A fine month for all crops and farm work was well advanced; most of the hay crop, barley and oats were harvested, and wheat harvest was in progress at close of July.

AMANA. *Conrad Schadt.* Month was very dry, with much sunshine and moderate temperature, and free from destructive storms.

BONAPARTE. *B. R. Vale.* Rain 2.81 inches, and showers were very local; temperature of month below normal; no excessively hot winds or warm days.

BRITT. *Geo. P. Hardwick.* Rain, 4.73. Frequent showers and heavy dews, causing oats to rust; one-fifth of corn tasseled at end of month.

CHARITON. *C. C. Burr.* A fine month for harvesting and corn made fine growth; rainfall much below normal.

CLINTON. *Luke Roberts.* Rainfall, 5.42 inches, or 1.43 above normal; on the 22d was a downpour of 2.50 inches in less than ninety minutes, with some wind and hail; mean temperature of month 1.7° below normal.

CRESTON. *W. L. Gaston.* Rain, 1.88; unusually dry; pastures and gardens have suffered, but corn looks well.

ELLIOTT. *Henry Barnes.* A splendid growing month; hay and small grain show an average yield and prime quality; fall wheat yields 40 to 45 bushels per acre.

GRAND MEADOW. *F. L. Williams.* The month was favorable for all crops and harvesting was nearly finished; cat crop good.

GRINNELL. *A. O. Price.* Rainfall 1.74 inches below normal, and the lowest July temperature since 1899; but crops were secured in fine condition; small grain free from rust.

INWOOD. *F. B. Hanson.* A good month for hay and grain harvest; severe electrical storms on the 21st and 25th.

MASON CITY. *J. S. Mills.* On the 2d of July 2.00 inches of rain fell in 45 minutes.

NORTHWOOD. *Chas. H. Duelle.* On the 25th the worst hailstorm in years damaged crops in a limited area.

OLIN. *N. Potter.* Rain, 1.22 inches; corn somewhat damaged by drought; oats and hay crops are good.

PRESTON. *J. G. Storm.* Crops are up to the average, and corn a little in advance of recent years; some damage caused by hail on 28th.

RIDGEWAY. *Arthur Betts.* Rain, 3.58 inches; the most sunny July on record—407 hours of sunshine; days warm, and nights unusually cool with heavy dewfall.

ROCK RAPIDS. *W. C. Wyckoff.* An exceptionally fine month for crops; though rainfall was only .92 of an inch.

SHELDON. *A. W. Beach.* A good month for haying and harvest; crops extra good.

WAVERLY. *H. S. Hoover.* A cool month for July; but showers were timely, and crops growing well.

AUGUST.

The monthly mean temperature for the State as shown by the records of 116 stations, was 74.1°, which is 2.1° above the normal. By sections the mean temperatures were as follows: Northern section, 72.6°, which is 1.9° above the normal; Central section, 74.2°, which is 2.6° above the normal; Southern section, 75.4°, which is 1.8° above the normal. The highest monthly mean was 77.4° at Ottumwa; and the lowest monthly mean was 70.9° at Estherville. The highest temperature reported was 101° at Odebolt on the 16th. The lowest temperature reported was 33° at Washta on the 27th. The average monthly maximum was 95°, and the average monthly minimum was 43.6°. The greatest daily range was 47° at Washta. The average of greatest daily ranges was 34.2°. The average amount of precipitation for the State, as shown by records of 125 stations, was 3.95 inches, which is .38 of an inch above the normal. The averages by sections were as follows: Northern section, 5.14 inches, which is 2.04 inches above the normal; Central section, 3.98 inches, which is 0.26 of an inch above the normal; Southern section, 2.74 inches, which is 1.16 inches below the normal. The largest amount reported was 10.51 inches at Sibley, Osceola county, and the lowest amount reported was 0.92 of an inch at Allerton, Wayne county. The greatest daily rainfall reported was 4 inches at Olin on the 6th. The average number of days on which .01 of an inch or more of rainfall was reported was 9. The prevailing direction of the wind for the State was southwest. The highest velocity of wind reported was 32 miles per hour at Sioux City on the 1st. The average number of clear days observed at all stations was 17; of partly cloudy days there was an average of 9, and cloudy days 5.

OBSERVERS' NOTES.

ALTA. *David E. Hadden.* August was warm; the mean temperature being 2° above the sixteen-year normal; the rainfall was .75 of an inch below the normal for the same period. It was a very favorable month for all farming operations.

ALTON. *W. S. Slagle.* Light frost was observed on morning of August 27th, but no damage resulted; corn was all dented and maturing finely at close of month.

AMANA. *Conrad Schadt.* The first half of August brought enough rain for all crops; the latter part was dry and warm, and generally favorable for crops and for threshing. On the 8th 1.47 inches of rain fell in twenty minutes.

BLOOMFIELD. *F. H. Roberts.* Corn was in good condition and mostly out of danger at close of the month; pastures were very short, and needing rain.

BONAPARTE. *B. R. Vale.* August rainfall, 4.10 inches, all in local showers; month warm, and quite even in temperature.

BRITT. *Geo. P. Hardwick.* Excessive precipitation in August, 8.15 inches, retarded grain harvest, and injured quality of grain; also reduced the yield; the belated corn advanced rapidly; pastures are the best in many years.

CLINTON. *Luke Roberts.* Precipitation, 5.07 inches, which is in excess of normal, but none too much for growing crops; the mean temperature was 3° in excess of normal, and sunshine 9 per cent below; there was much humidity the last decade.

ELLIOTT. *Henry Barnes.* An ideal month for corn; early planting was well advanced; yield of small grain was heavy; fall wheat yields 35 to 55 bushels, and spring wheat 17 to 25; oats, 45 to 70 per acre; hay slightly under average.

GRINNELL. *A. O. Price.* A fine month for stacking and threshing; rather dry for meadows, pastures and plowing.

INWOOD. *F. B. Hanson.* August was quite favorable, with some high temperatures and a good supply of moisture; threshing and plowing under way.

KEOSAUQUA. *J. H. Landes.* A hot, dry month; rainfall only 1.80 inches, in form of local showers; there was no general rain for the county during the month; corn, however, is good, but pastures are light.

OLIN. *Nathan Potter.* Heavy rains in the first half of the month; the warm weather wrought wonders for corn, bringing it up above the average.

PRESTON. *J. G. Storm.* Corn is about matured, and promises the heaviest yield ever known here.

RIDGEWAY. *Arthur Betts.* This has been the warmest August since 1900; plenty of showers, and 312 hours of sunshine; hot days and nights till the 26th. The summer months gave us a mean temperature of 71.28; rainfall, 11.38 inches; clear days, 61; partly cloudy, 31 days.

SEPTEMBER.

The monthly mean temperature for the State as shown by records of 111 stations, was 67.2°, which is 3.4° above the normal. By sections the mean temperatures were as follows: Northern section, 65.3°, which is 3.0° above the normal; Central section, 67.3°, which is 4.0° above the normal; Southern section, 68.9°, which is 3.1° above the normal. The highest monthly mean was 71.9 at Ottumwa, and the lowest monthly mean was 62.8° at Sibley. The highest temperature reported was 100° at Clarinda on the 9th; and the lowest reported was 27° at Washta on the 30th. The average monthly maximum was 93.2°, and the average monthly minimum was 37.4°. The greatest daily range was 50° at Washta, and the average of greatest daily ranges was 34.2°. The average precipitation for the State, as shown by records of 121 stations, was 4.16 inches, which is 0.85 of an inch above the normal. By sections the averages were as follows: Northern section, 5.40 inches, which is 2.01 inches above the normal; Central section, 3.47 inches, which is 0.22 of an inch above the normal; Southern section, 3.61, which is 0.31 of an inch above the normal. The largest amount reported was 11.10 inches at Thurman, and the least amount reported was 0.64 of an inch at Mount Vernon. The greatest daily rainfall reported was 7.60 inches at Thurman on the 16th and 17th. The average number of days on which .01 of an inch or more fell was 8. The prevailing direction of the wind was southeast, south and southwest. The highest velocity reported was 48 miles an hour from the west at Sioux City on the 15th. The average number clear days was 16; partly cloudy, 8; and cloudy, 6 days.

OBSERVERS' NOTES.

AFTON. *N. W. Rougell*. Frost on low ground on morning of the 27th. Frost on uplands on morning of the 30th, but all field crops are out of danger.

ALMA. *J. I. Chenoweth*. The hottest day of the season was 98° on September 11th. A very dry month.

ALGONA. *Dr. F. T. Seeley*. On the 16th from 12 m. to 6 a. m. 3.43 inches of rain fell; light frosts were observed on mornings of the 27th and 30th.

ALLERTON. *Rex Shriver*. Corn matured nicely; ground too dry for fall plowing; pastures very short.

ALTA. *David E. Hadden*. No killing frost occurred during the month; except the middle decade, the month was ideal. The corn crop was practically safe at close of the month. The crop season of 1906 was very favorable, and the yield of all farm products will be among the best on record.

ALTON. *W. S. Slagle*. Frost on 30th killed tender garden truck, but corn matured naturally; the rainy weather from 11th to 21st caused much damage to grain in shocks; first and last decades were ideal.

AMANA. *Conrad Schadt*. September was warm and very dry; corn had good weather for growing and time for ripening; no frost here during the month, pastures, meadows and shallow-rooted plants suffered from drought; plowing was retarded.

BAXTER. *W. R. Vandike*. On the 17th from 5 to 6 p.m. 2.00 inches of rain fell.

BONAPARTE. *B. R. Vale*. An exceedingly hot and dry month, till just at its close. A rainfall of 3.20 inches, from the northeast, occurred on the 28th in about twenty hours.

BRITT. *Geo. P. Hardwick*. No killing frost during the month and corn is a good average crop; pastures good; too wet for plowing; potatoes rotted badly.

CHARITON. *C. C. Burr*. No frost during September and corn ripened nicely; there will be no soft corn this year.

CLINTON. *Luke Roberts*. Sunshine, heat and moisture were ample for agricultural purposes, though the rainfall was .68 of an inch below the normal, causing a little shortage of feed in pastures; farmers in eastern Iowa are pleased with September weather.

CRESTON. *Rev. W. L. Gaston*. Heaviest rainfall of the year occurred this month and greatly revived pastures.

DESOTO. *R. D. Minard*. A favorable month for farm work with rain enough to put the soil in condition for plowing and seeding; the 19th was the hottest day of the season, with a maximum of 96.

EARLHAM. *Geo. Phillips*. A fine month and corn was all safe by the 30th.

FOREST CITY. *J. A. Peters*. No killing frost during September and corn is safe; plowing well finished; a very wet month; total rainfall, 7.12 inches.

GARDEN GROVE. *F. L. Williams*. Corn ripened perfectly; no frost to kill any vegetables; there is some damp grain in stacks.

GREENFIELD. *J. C. Culver*. No frost was seen by the observer during the month; all crops out of danger; fall pastures excellent.

HANCOCK. *W. Armstrong*. Corn out of danger; grain nearly all threshed; potato crop medium.

HOPEVILLE. *M. T. Ashley*. A fine month for work; corn crop safe and more than the usual amount cut and in shock.

HUMBOLDT. *H. S. Wells*. Rain, 1.82; the corn crop is secure from frost and storm; plowing nearly done.

INWOOD. *F. B. Hanson*. The first and latter parts of the month were favorable for crops and farm work; excessive rainfall from 12th to 21st delayed threshing; corn is all safe.

OLIN. *Nathan Potter*. September has been all that farmers could desire; no frost to hurt anything and corn is all ripe, making an excellent crop.

OSKALOOSA. *Joseph Boyd*. Two of the warmest days of the season were the 9th and 10th.

RIDGEWAY. *Arthur Betts*. This has been the warmest September since 1897, with copious showers. There were 252 hours of sunshine; thermometer reached 90° or above on six days. A lovely month.

SHELDON. *A. W. Beach*. A good month for maturing all crops, which are safe from frost; threshing 70 per cent done and plowing well advanced.

STOCKPORT. *C. S. Beswick*. Corn is safe; first frost appeared October 1st.

WEST BEND. *Phil Dorweiler*. There was no frost during the month and corn was practically safe at its close.

OCTOBER.

The monthly mean temperature for the State, as shown by records of 117 stations, was 50.5°, which is 2° below the normal. By sections the mean temperatures were as follows: Northern section, 48.4°, which is 2.5° below the normal; Central section, 50.8°, which is 1° below the normal; Southern section, 52.4°, which is 2.3° below the normal. The highest monthly mean was 54.4°, at St. Charles. The lowest monthly mean was 43° at Rock Rapids. The highest temperature reported was 87° at Ames and Bedford on the 13th and 20th; the lowest was 7°, at Elkader, on the 31st. The average monthly maximum was 78.9°, and the average monthly minimum was 20.4°. The greatest daily range was 56° at Woodburn, and the average of greatest ranges was 36.3°. The average precipitation for the State, as shown by the records of 126 stations, was 1.96 inches, which is .45 of an inch below the normal. The averages by sections were as follows: Northern section, 2.82 inches, which is .63 of an inch above the normal; Central section, 1.85 inches, which is .60 of an inch below the normal; Southern section, 1.20 inches, which is 1.41 inches below the normal. The largest amount reported was 4.25 inches, at Larrabee, and the lowest amount reported was .50 of an inch at Allerton. The greatest daily rainfall reported was 2.60 inches, at Pocahontas, on the 22d and the 23d. The average number of days on which .01 of an inch or more was reported was 6. The prevailing direction of the wind was northwest. The highest velocity reported was 50 miles per hour, from the northwest, at Sioux City, on the 8th. The average number of clear days was 14; partly cloudy, 7, and cloudy days, 10.

OBSERVERS' NOTES.

ALLERTON. *Rex Shriver*. Corn matured nicely; pastures very short and farmers are feeding stock.

ALTA. *David E. Hadden*. October was an ideal month; the entire rainfall occurred during the week beginning the 17th. First killing frost of the season was on the 6th.

ALTON. *W. S. Stagle*. Fore part of the month was fine for threshing; corn husking progressing.

AMANA. *C. Schadt*. The first and second decades were very dry; the last decade brought refreshing rains, and much more is needed.

BONAPARTE. *B. R. Vale*. A dry and pleasant month; corn was ready to crib early.

BRITT. *Geo. P. Hardwick*. Vegetable foliage was green until October 6th; pastures have been good a month later than usual; some loss of cattle from "black leg."

CHARITON. *C. C. Burr*. Corn matured without injury by frost and more than the usual amount was cribbed in October.

CLINTON. *Luke Roberts*. October sunshine was 20 per cent less than normal; precipitation was 1 inch below normal; wind movement 100 miles in excess of normal. The maximum velocity was 20 miles an hour; maximum temperature was 76° and minimum 19°.

ESTHERVILLE. *O. C. Peterson*. Light snow fell on the 23d, but amount was too small to be measured.

FOREST CITY. *J. A. Peters*. Fall plowing is well finished; corn picking was delayed by rain in latter half of month.

GRINNELL. *A. O. Price*. This month was very drying for corn and some have it all in crib; it is the soundest and best corn crop grown in years; too dry for plowing.

KEOSAUQUA. *J. H. Landes*. A very dry month, hard on pastures and fall seeded crops, but fine for corn; first killing frost on night of the 9th.

LEON. *M. F. Stookey*. On the nights of the 9th and 10th we had killing frosts.

OLIN. *N. Potter*. A good month for fall work; corn is well on the way to the cribs and in fine condition.

RIDGEWAY. *Arthur Betts*. This month was 2° warmer than October, 1905. Had 200 hours of sunshine; drought prevailed till the 17th; first frost since May 7th was observed on the 10th of October; corn died naturally and is a big crop.

WAVERLY. *H. S. Hoover*. Leaves fell almost entirely from the 18th to the 26th; farmers well advanced with plowing, husking, storing potatoes and hauling beets.

NOVEMBER.

The monthly mean temperature for the State, as shown by the records of 115 stations, was 35.4°, which is 0.2° above the normal for November. By sections, the mean temperatures were as follows: Northern section, 33.6°, which is 1.0° above the normal; Central section, 35.5°, which is 0.5° above the normal; Southern section, 37.1°, which is 0.9° below the normal. The highest monthly mean was 38.8° at Keokuk. The lowest monthly mean was 31.2° at Sibley. The highest temperature reported was 76° at Corydon, Oskaloosa and St. Charles, on the 6th. The lowest temperature reported was 5° below zero at Woodburn, on the 22d. The average monthly maximum was 69.6°, and the average monthly minimum was 8.7°. The greatest daily range was 47° at Woodburn; and the average of greatest daily ranges was 32.4°. The average precipitation for the State, as shown by records of 123 stations, was 2.03 inches, which is 0.72 of an inch above the normal. The averages by sections were as follows: Northern section, 1.80 inches, which is 0.55 of an inch above the normal; Central section, 2.17 inches, which is 0.76 of an inch above the normal; Southern section, 2.11 inches, which is 0.82 of an inch above the normal. The largest amount reported was 3.86 inches at Preston; the least amount reported was 0.35 of an inch at Washta. The greatest daily rainfall reported was 2 inches at Preston on the 25th. The average number of days on which .01 of an inch or more was reported was 8. The prevailing direction of the wind was northwest. The highest velocity reported was 48 miles per hour, at Sioux City, on the 31st. The average number of clear days was 9; partly cloudy, 7, and cloudy days, 14.

OBSERVERS' NOTES.

ALLERTON. *Rex Shriver*. At the close of the month there was some corn unharvested. The condition of the ground was much benefited by rain and snow.

ALTA. *David E. Hadden*. The first snowstorm of the season occurred on the 13th, when 2 inches fell; cooler weather followed, which continued until the close of the month.

ALTON. *W. S. Slagle*. November was too damp for corn picking.

AMANA. *Conrad Schadt*. The first decade was mostly fine hazy weather; the second and third brought needed precipitation.

BONAPARTE. *B. R. Vale*. The first half of November was very fine. The latter half was rainy and muddy. There were no severe storms, and temperature only went down to 10° above.

BRITT. *Geo. P. Hardwick*. Excessive cloudiness and damp weather prevailed. Pastures were good the first half of the month. Some fields were too wet for hauling off the crop, so that one-third of the corn was in the field at the close of November.

CHARITON. *C. C. Burr*. Ten inches of snow fell in November, making a new record for this station.

CLINTON. *Luke Roberts*. Temperature, rainfall, warmest day and coldest day, were each above the normal in November. The corn crop is better in quality than usual; in bushels, the crop is not greater than in 1905.

DECORAH. *F. H. Baker*. This has been the most cloudy month of the year, only two bright, clear days.

EARLEHAM. *Geo. Phillips*. An exceptionally cloudy month. Fifteen per cent of corn was still afield at close of the month.

GRAND MEADOW. *F. L. Williams*. The month was cloudy and wet. Husking corn was nearly completed and a large crop was produced. Some hog cholera in the N. E. part of the country.

GRINNELL. *A. O. Price*. The rainfall was 185 inches above the ten-year average; snow interfered with corn harvest.

INWOOD. *F. B. Hanson*. Much bad weather delayed corn husking and threshing. The field of corn is much better than for several years past. KEOSAUQUA. *J. H. Landes*. Three weeks in November were fine for corn husking; most of the crop has been cribbed.

OLIN. *N. Potter*. November was unusually cloudy, with no severe storms. It was a good month for picking corn and finishing fall work.

RIDGEWAY. *Arthur Betts*. The wettest November on record here. Only 110 hours of sunshine. First decade delightful. This year corn husking continues into December, and the crop is immense.

DECEMBER.

The monthly mean temperature for the State, as shown by the records of 116 stations, was 25.7°, which is 2.7° above the normal for Iowa. By sections, the mean temperatures were as follows: Northern section, 23.5°, which is 3.5° above the normal; Central section, 24.2°, which is 1.1° above the normal; Southern section, 29.5°, which is 3.9° above

the normal. The highest monthly mean was 31.6° at Keokuk, and the lowest monthly mean was 19.9° at Elkader. The highest temperature reported was 65° at Allerton, Chariton, Corydon and Clarinda, on the 5th and 12th. The lowest temperature reported was -9° at Washta on the 18th. The average monthly maximum was 50.3°, and the average monthly minimum was -2.7°. The greatest daily range was 43° at Iowa City, Keosauqua, Mount Pleasant and Stockport. The average of greatest daily ranges was 32.6°. The average precipitation for the State, as shown by records of 113 stations was 1.43 inches, which is .18 of an inch above the normal. By sections, the averages were as follows: Northern section, 1.12 inches, which is .07 of an inch above the normal; Central section, 1.47 inches, which is .13 of an inch above the normal; Southern section, 1.71 inches, which is .34 of an inch above the normal. The largest amount reported was 2.81 inches at Independence. The least amount reported was .37 of an inch at Estherville. The greatest daily rainfall reported was 2.15 inches, at Bloomfield, on the 30th. The average number of days on which .01 of an inch or more was reported was 6. The prevailing direction of the wind was northwest. The highest velocity of wind reported was 47 miles per hour, from the northwest, at Sioux City, on the 13th. The average number of clear days was 11; partly cloudy, 7; cloudy days, 13.

OBSERVERS' NOTES.

AFTON. *N. W. Russell*. An unusual month; temperature high; no snow or wind; compares with month of October back in the sixties.

ALTA. *David E. Hadden*. The month was pleasant; no snow fell, except light flurries on the closing days.

ALTON. *W. S. Slagle*. A fine month to finish corn picking; about 5 per cent of corn still in field. Bees were out on the 2d.

AMANA. *C. Schadt*. December was mild with a few cold days; was mostly dry and roads were good. Total snowfall about 5 inches.

BONAPARTE. *B. R. Vale*. Precipitation, 2.20 inches. A mild month; only reached zero once.

BRITT. *Geo. P. Hardwick*. First half excessively cloudy; latter half favorable for finishing corn husking.

CHARITON. *C. C. Burr*. No severe storm during December, and very little snow.

CLINTON. *Luke Roberts*. Rainfall, 2.05; .20 of an inch above the normal; excessive cloudiness.

DESOTO. *R. D. Minard*. Not a flake of snow till the 20th; then a trace, and again on the 31st.

ELKADER. *C. Reinecke*. Total precipitation for 1906, 38.02 inches; total snowfall, 41.50 inches. The highest temperature of the year was 96°, and the lowest 25° below zero. Mean temperature, 45.5°.

FOREST CITY. *J. A. Peters*. The "oldest inhabitant" never saw a finer December. Even the "tourist" delayed his annual California trip, and the farmer smiles because his haystacks are still in evidence.

GRINNELL. *A. O. Price*. Precipitation about normal. Lowest temperature, 3° below zero. But little snow, and the month was favorable for farm work.

INWOOD. *F. B. Hanson*. Fine weather prevailed the greater part of December. A finer Christmas has not been known here. Corn husking was completed late on account of bad weather in previous month.

LARRABEE. *H. B. Strever*. A very mild month. Corn husking was completed about Christmas.

LEON. *Morris Gardner*. Ground was very dry up to the 30th. There was very little snow during the month. The temperature was nearly 6° above the normal.

RIDGEWAY. *Arthur Betts*. One of the mild Decembers, with much damp, cloudy weather and south winds; 122 hours of sunshine, or 44 per cent; ground froze up on the 6th and there were wild flowers and grass as green as in June. Twenty days of thawing temperature.

THE YEAR 1906.

CLIMATOLOGICAL DATA COMPILED AT RIDGEWAY, WINNESHIEK COUNTY, IOWA.

Mean annual temperature, 47.8°.

Mean daily maximum temperature, 58.6°.

Mean daily minimum, 37.0°.

Total waterfall, 44.33 inches.

Total snowfall, 49 inches.

CLINTON WEATHER RECORDS, 1906.

LUKE ROBERTS, OBSERVER.

The mean temperature for 1906—49.4—was 2.1° above the normal; its mate occurred in 1896. The mean temperature for the year 1894 was 49.8°—the highest yearly average during twenty-eight years, and only four-tenths of a degree warmer than 1906, which was the warmest since 1896. The coldest year of the twenty-eight was 1885, the mean temperature of which was 43.8°, and was 6° below the warmest—1894.

Notwithstanding the abnormal cloudiness of 1906, the principal excesses occurred in January, March and the last quarter of the year, thus not interfering with the happy meteorological conditions which prevailed during the season of crop growing, when the principal elements in vegetable growth—heat and moisture—were plentiful, timely, and continuance ample, to bring forth the most wonderful and prolific harvest in grains, fruit and vegetables. Not since Iowa became a State have the tillers of her fertile soil been more bountifully or profitably rewarded. It was manifest at the last national Thanksgiving anniversary, November 29th, by the unusual interest taken in its observance, that the hearts of our people had been touched as never before because of the ample manifestation of God's goodness and care.

CONSPECTUS.

Mean daily temperature, 49.4°.

Highest temperature, 94°, occurring June 28th July 22d and August 4th.

Lowest temperature, zero, February 5th, 10th, 15th.

Mean daily range of temperature, 19.6°.

Least daily range of temperature, 3°, February 24th and December 23d.

Greatest daily range of temperature, 38°, occurring August 28th.

Warmest month, August; mean temperature, 73.5°.

Coldest month, February; mean temperature, 24.9°.

The warmest day, 79.8°, August 23d.

The coldest day, 5.5°, January 8th.

Total number of days with maximum temperature 90° or above, 25; two in May; four in June; seven in July; eight in August, and four in September.

The total number of days when maximum temperature was 32° or below, 44; ten in January; twelve in February; nine in March; four in November, and nine in December.

Total number of days when the minimum temperature was 32° or below; twenty-nine in January; twenty-five in February; twenty-five in March; five in April; three in May; five in October; twenty in November, and twenty-eight in December.

Average per cent of cloudiness, 53.1.

Month with the greatest per cent of cloudiness, November, 74 per cent. Month with the least per cent of cloudiness, September, 32 per cent.

Total number of clear days, 117.

Month with greatest number of clear days, September, 19.

Month with the least number of clear days, March and December, four each only.

Month with the greatest number of cloudy days, March 21st.

Month with the least number of cloudy days, September, five.

Total number of stormy days, 97.

Month with the greatest number of stormy days, March and May, eleven each.

Month with the least number of stormy days, September, only three.

Total depth of snow fall, 23.5 inches.

Greatest fall of snow at any one storm, 5 inches, January 23d.

Total precipitation, rain and melted snow, 38.56 inches. This is 4.98 inches in excess of a twenty-eight year mean.

Greatest rainfall in any twenty-four consecutive hours, 2.5 inches, occurring on July 22d.

Month with the greatest rainfall, July, 5.42 inches. August came very near the same amount by a precipitation of 5.07 inches.

Month with the least rainfall, October, 1.41 inches.

WIND.

Total movement of wind, 41,220 miles, 3,730 in excess of 1905.

Maximum velocity per hour, 27 miles, in March.

Greatest monthly movement of wind, 5,720 miles, occurring in March.

Least monthly movement, 1,700 miles, occurring in August.

Prevailing direction of the wind was from the southwest.

Observations taken at 7 A.M., 2 P.M., and 9 P.M. show the movement of the wind to have blown from the north, 114 times; from the northeast, 130 times; from the east, 128 times; from the southeast, 109 times; from the south, 162 times; from the southwest, 175 times; from the west, 138 times, and from the northwest, 145 times.

The maximum velocity of the wind for January was 26 miles; for February, 24 miles; for March, 27 miles; for April, 20 miles; for May, 18 miles; for June, 12 miles; for July, 10 miles; for August, 12 miles; for September, 16 miles; for October, 20 miles; for November, 17 miles; for December, 20 miles.

First frost in autumn, October 9th.

Last frost in autumn, October 9th.

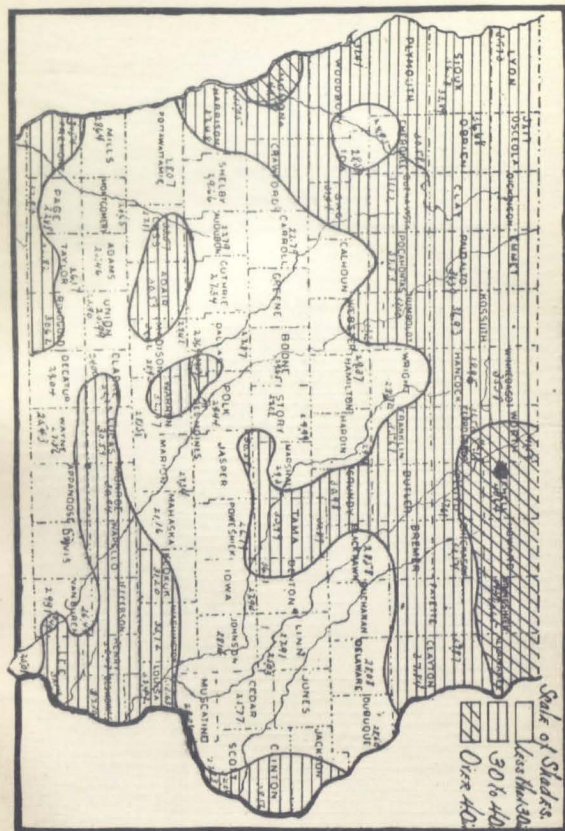
Number of days without frost, 153, less than in 1905 by 24; and yet the crop season produced more abundantly than in 1905.

The last freezing temperature in the spring was May 9th, and the first freeze in autumn was October 9th, the same date for the last and first frosts of the season.

Number of days with lightning and thunder, 23.

The highest water in the Mississippi river was 15.3 feet, occurring on April 25, 26 and 27. On May 1 it was 14.1 feet. The lowest was 2.5 feet, occurring December 20th and 21st.

The average depth for the five months commencing with April, was 11.7 feet above low water mark.



Date of Last Killing Frost in Spring and First in Fall in Iowa in 1906—Con.

DATE OF LAST KILLING FROST IN SPRING AND FIRST IN FALL IN
IOWA FOR 1906.

Stations	Killing Frost		Stations	Killing Frost	
	Last in Spring	First in Autumn		Last in Spring	First in Autumn
Afton	May 6	October 9	Hanlontown	May 9	October 1
Albia	May 9	October 10	Harlan	May 9	October 9
Algona	May 7	October 9	Hopewille	May 7	October 6
Allerton	May 9	October 10	Humboldt	May 28	September 30
Alta	May 9	October 6	Ida Grove	May 9	October 10
Alton	May 9	September 30	Independence	May 28	September 30
Amama	May 9	October 6	Indianola	May 9	October 10
Ames	May 9	October 6	Iawood	May 28	October 1
Atlantic	May 28	September 27	Iowa City	May 6	October 10
Audubon	May 9	September 27	Iowa Falls	May 6	October 10
Baxter	May 10	October 10	Jefferson	April 1	October 3
Bedford	May 9	October 6	Keosauqua	May 9	October 3
Belle Plaine	May 9	October 10	Keokuk	May 7	October 19
Bonaparte	May 9	October 10	Knoxville	May 7	October 30
Boone	May 6	October 10	Larrabee	May 9	October 6
Britt	May 9	October 6	LeMars	May 9	October 10
Burlington	May 9	October 10	Lenox	May 9	October 10
Carroll	May 9	October 10	Leon	May 9	October 9
Cedar Rapids	May 7	October 1	Little Sioux	May 9	October 1
Chariton	May 9	October 6	Logan	May 7	October 10
Charles City	May 9	October 1	Marshalltown	May 7	October 10
Clarinda	May 9	October 1	Mason City	May 9	October 10
Clear Lake	May 7	October 9	Mount Ayr	May 9	October 10
Clinton	May 9	October 10	Mount Pleasant	May 9	October 10
College Springs	May 9	October 9	Mount Vernon	May 9	October 10
Columbus Junction	May 7	October 10	New Hampton	May 9	October 10
Corning	May 9	October 1	Newton	May 7	October 6
Corydon	May 9	October 9	Northwood	May 9	October 6
Creston	May 9	October 9	Odebolt	May 9	October 9
Davenport	May 7	October 10	Ogden	May 10	October 9
Decorah	May 28	October 10	Ohla	May 6	October 6
Delaware	May 10	October 10	Osage	May 9	October 6
Denison	May 28	September 30	Oskaloosa	May 9	October 10
Des Moines	April 1	October 10	Ottumwa	May 9	October 10
De Soto	May 7	October 1	Pacific Junction	May 9	October 10
Dows	May 9	October 1	Pella	May 9	October 6
Dubuque	May 9	October 10	Perry	May 7	October 6
Earlham	May 9	October 1	Plover	May 10	October 10
Elkader	May 28	October 1	Pocahontas	May 7	October 6
Elliot	May 9	October 9	Preston	May 9	October 10
Estherville	May 8	September 30	Ridgeway	May 9	October 6
Forest City	May 8	October 6	Rockwell City	May 7	October 9
Fort Dodge	May 7	October 3	Sac City	May 9	October 10
Galva	May 28	October 6	St. Charles	May 28	October 6
Glenwood	May 6	October 6	Sheldon	May 9	October 6
Grand Mendow	May 9	October 6	Sibley	May 9	October 1
Greenfield	May 9	October 9	Sioux Center	May 9	September 30
Grinnell	May 9	October 1	Sioux City	May 9	October 9
Grundy Center	May 7	October 1	Stockport	May 9	October 10
Guthrie Center	May 10	October 1	Stuart	May 7	October 10
Hancock	May 9	October 6	Thurman	May 9	October 1
			Tipton	May 7	October 10
			Toledo	May 7	October 10
			Vinton	May 7	October 10
			Wapello	May 28	September 27
			Washington	May 9	October 6
			Washita	May 9	October 6
			Waterloo	May 9	October 10
			Wauke	May 28	October 10
			Waverly	May 9	October 1
			Webster City	May 9	October 1
			West Bend	May 7	October 10
			Whitten	May 6	October 10
			Wilton Junction	May 9	October 1
			Winterest	May 9	October 1
			Woodburn	May 9	October 1
			Zealand	May 9	October 1

CLIMATE AND CROP REVIEW.

CROP SEASON OF 1906.

The year 1906 was exceptionally favorable for agriculture and other industries in Iowa. The tabulated records of all stations show that the mean temperature of the State was 48.7°, which is 1° above the normal. The winter was mild and favorable for the protection of fall seeded crops, and for the care of farm animals. The average amount of precipitation for the year was 31.23 inches, which is about half an inch below the normal for Iowa. The distribution of rainfall was variable, the heaviest amounts being reported in the eastern half of the northern section, and the least amounts were in the southern section. But in all parts there was sufficient moisture to produce more than an average yield of the great staples on which the prosperity of the State depends.

January was 4.8° warmer than the average, and February also brought an excess of 4.2°. Both months had a small excess of precipitation. March was relatively much colder, the mean temperature being 5.7° below the normal. The snow fall was heavier and the weather was more stormy and inclement than during the preceding winter months. Conditions were not favorable for field work, and farm stock required more care and forage than usual at that period. The last five days of the month were springlike.

The mean temperature of April, 52.5°, was about 3.1° above the normal; and the rainfall, 2.42 inches, was .46 of an inch below the normal for the State. The first half of the month was showery and cloudy, but the latter half was generally fair and warm, affording good conditions for spring plowing, which progressed rapidly with the soil in good tilth and warm enough to insure germination of grain and grass. At the close of April the season was about normal in respect to growth of grasses and foliage. Farm work, however, was somewhat belated by wet weather in March and the early part of April.

May was about normal in temperature, the mean being 60.8° for the State. There were sharp fluctuations in temperature, with frosts in all districts about the 6th to the 9th, and on the 28th, though not materially harmful to vegetation and fruit. The average rainfall was 3.54 inches, which is 0.70 of an inch below the normal for the State. The distribution was unequal, the northern section having an excess of 1.40 inches, while the central section was deficient 1.09 inches, and the southern section

was deficient 2.42 inches. In portions of the southern section the dry weather was somewhat unfavorable for pastures, meadows and spring seeded crops. The conditions, however, were favorable for planting corn, and the moisture was sufficient to secure a good stand.

June was slightly cooler than normal, the mean temperature being 67.9°, which is 1.7° below the normal. The average rainfall was 3.92 inches, which is 0.63 of an inch below the normal. In the southern section, where there was greatest need of moisture, the average was 4.50 inches. The greater part of the rainfall came in the latter half of the month, affording timely relief from droughty conditions prevalent in nearly all districts. The dry weather in early June was favorable for corn, which made a fine growth and had been thoroughly cultivated. There was sufficient moisture in the soil to maintain a healthy growth of the corn plant, and at the close of the month nearly all fields gave promise of a heavy yield. Oats, barley and wheat made fairly good stands, but headed out shorter than usual. The hay crop was lighter than usual, but the quality was excellent. As a whole, June was an ideal month for farming operations, and the staple crops were above the ten-year average on July 1st.

The average daily temperature in July was 3.5° below the normal for the State, the mean being 70.9°. The nights were cool, but the day temperatures were sufficiently high to maintain the normal growth of corn and other immature crops. The average rainfall was 3.04 inches, which is 1.31 inches below the normal. The cool nights brought heavy dews and the humidity of the air was about normal, serving to mitigate the droughty conditions in districts where the rainfall was lightest. The distribution of rainfall was quite unequal, ranging from less than two inches in about one-fourth of the State to more than 5.00 inches in a large area. The driest areas were in the southeast and the northwest quarters of the State. Except in a very small area there was sufficient moisture to maintain a healthy growth of corn, which was generally well advanced and promising at the close of the month. Hay and small grain were harvested in good season, under favorable conditions, to maintain a good quality of these crops. There was less than usual damage by windstorms and hail in July.

August was the warmest month of the season, the average temperature for the State being 74.1°, which is 2.1° above the normal. It was 3.2° warmer than July, which is usually the warmest month of the summer in this latitude. The average rainfall was 3.95 inches, which is 0.38 of an inch above the normal. The distribution was unequal, the northern section having nearly twice as much moisture as the average of the southern section. The larger portion of the rainfall came in the first decade, and the balance of the month was favorable for harvesting, threshing and other field work. At the close of the month the corn crop was in a very satisfactory condition, and much of it well advanced toward maturity, giving promise of more than an average yield. The summer months were favorable for apples, peaches, cherries and most of the small fruit crops, and garden truck.

September was warmer than usual, with more than the normal amount of rainfall and excess of sunshine in the larger part of the State. The

mean temperature was 67.2°, which was 3.4° above the normal. The average rainfall was 4.16 inches, or 0.85 of an inch in excess of the September normal. The northern and western districts received much more than the other parts of the State. The bulk of the rainfall came in the second decade, and the balance of the month afforded ideal conditions for farm operations, and the normal ripening of corn and other late maturing crops. The month was wholly exempt from damaging frosts. Conditions were favorable for fall plowing, and seeding fall wheat and rye. All crops were well matured at the close of the month.

October was exceptionally fine, having more than the average number of clear days, and less than the average amount of rainfall. The average temperature for the State was 50.5°, which is 2° below the normal. The average rainfall was 1.96 inches, which is 0.45 of an inch below the normal. Nearly all the rainfall occurred in the ten days from the 18th to the 27th. In the first half of the month conditions were unusually favorable for drying out the bulky corn crop, and husking was begun somewhat earlier than usual. There were but few days too wet for work in the fields. All late maturing crops were harvested under favorable conditions.

November was slightly above the normal in temperature and precipitation. The monthly mean temperature was 35.4°, and the average precipitation was 2.03 inches, which is about 0.72 of an inch above the normal. During the first half of the month conditions were fairly good for husking corn and other field work, and at the close of the month the bulk of the largest corn crop ever produced in Iowa was well secured. In the latter half of the month snow flurries, and alternate freezing and thawing, hindered work to some extent.

December was about 2.7° warmer than usual, the average temperature being 25.7°. The average precipitation, which was mostly in the form of rain, was 1.43 inches, or 0.18 of an inch above the normal. As a whole, it was unusually mild and favorable for outdoor work and the care of stock.

The year 1906 closed as it began, with moderate temperature and favorable weather conditions, typical of the most productive year known in Iowa during the last quarter of a century.

CLIMATE AND CROP BULLETINS.

SUMMARIES OF WEEKLY BULLETINS ISSUED IN THE SEASON OF 1906.

BULLETIN No. 1, WEEK ENDING APRIL 9.

The winter of 1905-1906 was phenomenally mild, but March was unusually cold and stormy, except the last week, with conditions unfavorable for farm operations in all parts of the State. The first week in April was above normal in temperature, with frequent showers and excessive rainfall except in portions of the northern section. The season for farming operations is ten to fourteen days later than the average. The showers of the latter part of the past week will cause still further delay in seeding and spring plowing.

In well drained portions of the State a little seeding of spring wheat and oats has been done, but generally field work has been impracticable except plowing grass lands. All reports indicate that fall wheat and rye came through the winter in good condition. There are no reports of material injury to fruit buds. One of the most favorable features of the crop situation is that an unusually large amount of plowing was done last fall, preparatory for spring seeding and planting.

BULLETIN No. 2, APRIL 16.

The first half of the week was generally fair and seasonable, but the latter part was showery and much colder, ending with heavy frost. The average temperature was about normal for the State, but there was considerable excess of rainfall in all districts, causing still further delay in farming operations.

On well drained lands some progress has been made in seeding oats, spring wheat and barley, and considerable grass lands have been turned preparatory for planting; but for the State at large the season is late, and conditions have been unfavorable for field work. Several days of sunshine and drying winds are needed to put the soil in condition for tillage and seeding. Grass in old meadows and pastures has made a good start. The reports as to all kinds of fruit are generally favorable.

BULLETIN No. 3, APRIL 23.

The average daily temperature of the past week was 3° to 5° above normal and there has been no measurable amount of rainfall reported in the State since the 15th. Ideal weather conditions have prevailed and good progress has been made in farm work. Seeding of small grain has been practically finished in the southern half of the State, and it is nearing completion in the northern section. The acreage of oats and spring wheat is probably a little less than the average of recent years. Good progress has been made in plowing and harrowing ground for planting corn, the soil being now in fair condition for working. Planting early potatoes is in progress, and some farmers have ventured to begin planting corn on dry, warm soil. The pastures are beginning to afford some forage for stock. Altogether the week has been very favorable and encouraging to farmers.

BULLETIN No. 4, APRIL 30.

The week ending Monday⁸ morning, April 30, brought five days of fair weather, with temperature above normal, which were followed by two cool and cloudy days and well distributed showers. The rainfall was timely and very beneficial to pastures, meadows, wheat, oats, barley and garden truck, and it also served a good purpose in preventing baking and encrusting the previously saturated soil.

Reports indicate that good progress has been made in preparation of soil for planting corn, and it is probable that much more than the usual area is now ready for the planter as compared with previous years at this date. If conditions are favorable a large part of the corn acreage

will be planted the first decade in May. Germination of small grain has been quite satisfactory and the fields generally show a good stand. Early varieties of fruits show abundant bloom. The pastures are mostly in condition to afford forage to the herds. Though the season is a little late the general outlook is encouraging.

BULLETIN No. 5, MAY 7.

The past week was abnormally cool, closing with heavy to killing frosts in all districts on the mornings of the 6th and 7th. The minimum temperatures were below freezing at numerous stations, and possibly the more tender varieties of fruits have suffered some damage. In about one-third of the State, in the western and northern districts, the rainfall was above normal, but generally conditions were favorable for plowing and preparations for planting. The cool weather caused delay in corn planting, but considerable progress in that line has been made in the southern and eastern districts. A large area is in readiness for planting, and rapid work will be done within the coming week, if the weather is fair. All reports are satisfactory as to the advancement of grass in meadows and pastures, and the small grain crops are doing notably well, especially in the districts where the acreage of wheat, oats and barley is greatest.

BULLETIN No. 6, MAY 14.

Abnormally low temperature continued through the first half of the past week, and heavy frosts with freezing temperatures were reported in all districts of the State on the morning of the 9th. The latter part average for the week was about normal. The average rainfall for the State was very light, and in a considerable portion of the northern half the soil is becoming quite dry. This has been favorable for plowing and planting operations, but small grain and grass need more moisture. The light showers on Saturday night and Sunday were beneficial, though not distributed where there is the greatest need. Corn planting is now general, and in the southern and central districts it is well advanced, with the soil in good tilth. With fair weather the bulk of the corn area will be planted by the 20th.

Reports as to the extent of damage by recent frosts are quite variable. The greatest amount of injury appears to have been wrought in the truck fields and gardens of the Mississippi valley, and in portions of the southern districts, where vegetation was most advanced. The orchards of the central and northern districts appear to have escaped serious harm. As a whole, the fruit prospect is yet fairly good.

BULLETIN No. 7, MAY 21.

The average temperature of the past week was above the normal. The cool wave that swept down from the north on Friday night and Saturday indicated possible damage by frost, but this was happily averted by the rapid movement of a "low" from the northwest, causing a sudden change of wind to the eastward. The rainfall of the week was in the form of

local showers, ranging from very light to very heavy downpours. The heaviest amounts came on the night of the 14th, the station at Northwood reporting 4.24 inches, Mason City 4.10 inches and Fort Dodge 2.28 inches. Generally the rainfall has been below normal, and in three-fourths of the State grass and small grain would be benefited by a considerable increase of moisture.

In four-fifths of the State conditions were favorable for field work nearly all the week. Reports indicate that from 85 to 95 per cent of the corn area was planted before the 20th inst. The weather has been favorable for germination of seed, and in some localities cultivation is in progress. Grass, small grain and the minor crops are all doing fairly well. Damage to fruit by frost was not generally as heavy as earlier reports indicated.

BULLETIN No. 8, MAY 28.

The average temperature of the week was above normal, though it closed with a cool wave and light local frosts. The rainfall has been ample for the present needs except in a small area in the central and south central districts. The weather was showery, and portions of the west central and northern districts were visited by heavy storms which caused some damage and delayed field work several days. Generally, however, the conditions were favorable for work and growth of crops. In the larger part of the State the reports indicate that a fair stand of corn has been secured and the work of cultivation is progressing under favorable conditions. Except in three or four northern counties the usual acreage has been planted and germination has been satisfactory. Small grain crops and grass in meadows and pastures have been doing very well except in the limited area where the rainfall was deficit. As a whole, the season up to June 1st has been more favorable than in any year since 1900.

BULLETIN No. 9, JUNE 4.

The week opened with a light frost, which was generally harmless. The first half was unseasonably cool, but the latter part brought normal temperature, closing with light showers. The relatively dry weather has been favorable for cultivating corn, and there is sufficient moisture in all fields for the present needs of that crop. The reports indicate that the stand is generally better than usual. In some localities the deficiency of moisture has checked growth of small grain and hay crop, but in the larger part of the State these crops are doing fairly well. The pastures are maintaining a good supply of forage. Potatoes, garden truck and the minor products are in a promising condition. The season as a whole is favorable.

BULLETIN No. 10, JUNE 11.

The daily average temperature of the week was 3° to 5° above the normal. The rainfall was unequally distributed, being deficient in about three-fourths of the State, and much in excess of normal in portions of the northeast and south central districts. Unusually high winds were

prevalent during the latter part of the week, causing rapid evaporation of moisture on the surface, and creating apprehension of damage to hay, oats, wheat and barley in the driest sections. The conditions have been generally favorable for the corn crop, which has been thoroughly cultivated and is making excellent progress. Numerous reports indicate some detriment to oats and the hay crop from effects of dry weather and high winds, but as yet the conditions are not serious. In some of the counties of the northern section oats, wheat and barley have made rank growth, and the hay crop will be heavy where the rainfall was about normal. Potatoes and garden truck are doing well. The pastures are generally affording ample supply of feed for stock.

BULLETIN No. 11, JUNE 18.

From Monday morning until Friday night the weather was abnormally cool and extremely dry. The last two days were very warm, and on Sunday evening copious showers occurred in the Missouri valley, Sioux City and Omaha reporting over 2 inches of rainfall. Reports from nearly all stations in the State tell about the same story of droughty conditions and imminent need of rain to prevent serious damage to all crops. In the southern section and western portion of the central section the seasonal rainfall has been less than in other parts of the State. The dry weather has been beneficial to the corn crop, affording ideal conditions for cleaning out the fields and keeping the soil in fine tilth. The crop as a whole is doing notably well, needing only normal moisture in the balance of the season to insure a great yield. The hay crop has been materially affected by the drought in all sections and the yield will be much lighter than in recent years. Oats, spring wheat and barley have been somewhat injured. Pastures show ill effects of dry weather, but are not materially damaged. A general rain over the State would be of inestimable value, and the week closed with indications of relief from prevalent dryness.

BULLETIN No. 12, JUNE 25.

Complaints of dry weather were silenced by the generous showers that refreshed vegetation in all districts of the State in the early part of the past week. The amounts reported range from light to heavy, but there was no place left unwatered, and there were no destructive local downpours. Cool nights and partly cloudy weather prevailed most of the week. Conditions were favorable for oats, wheat, barley and grass, and were not at all detrimental to the corn crop, which has been thoroughly cleaned and has made fairly good progress, giving promise of being fully up to the average height and stand by July 1st. The pastures are now in good condition, and the hay crop has been improved, though the yield will be below the average. Early haying is in progress. Garden truck and the late berry crops have received much benefit. The general agricultural outlook is quite satisfactory.

BULLETIN No. 13, JULY 2.

With average temperature slightly above the normal, and frequent showers, the weather conditions during the past week were about all that could be desired for the growth of vegetation. The heaviest rainfall occurred in Lyon county, where the amount reported was 5.30 inches. At numerous other stations the amounts reported ranged from 2 to 3 inches. In a few localities there was some damage caused by wind and hail. Generally there is ample moisture for present needs, and the soil is in good condition for field work and growth of crops. Very good progress has been made in cultivation of corn, and a large acreage will be laid by in extra good tilth during the first week in July. The bulk of the crop is fully up to the normal in height, color and stand. Haying is in progress, and the late meadows show material improvement from the effects of recent showers. Oats, spring wheat and barley are filling well. A few reports of damage by rust have come from northern districts. Pastures are much improved, and the minor crops are doing well. Apples and small fruit are about as previously reported.

BULLETIN No. 14, JULY 9.

There was an average daily deficiency of 4° to 6° in the temperature of the past week. The days were moderately warm, but the nights were cooler than usual in the first week of July. Except in a few localities the rainfall was below the normal, but there is an ample supply of moisture in the soil for the present needs of all crops. The cool nights and moderate warmth by day afforded excellent conditions for the growing crops of spring wheat, oats and barley, checking the spread of rust in the late seeded fields. And there was sufficient warmth for the healthful growth of corn, which is now being laid by in very fine condition. In the southern districts the bulk of the crop has been laid by, and in all districts good progress has been made. Haying is well begun, and the quality of the crop is very good; the yield is generally below normal. Winter wheat, rye and early oats are being cut in the southern section, and the yield is fair to good. All minor crops are doing well.

BULLETIN No. 15, JULY 16.

From Monday to Saturday the average temperature was about the normal for the midsummer period. The cool wave Saturday night and Sunday afforded agreeable relief from oppressive warmth and humidity. The rainfall was variable, ranging from a trace at many stations to copious showers in widely scattered localities. Generally the rainfall has been deficient for the first half of July, but the supply of moisture in the soil is ample as yet for corn and small grain crops. The corn crop has made rapid growth in all districts. The more advanced fields are showing tassels at the normal height, and even the late plantings give promise of a good crop. The hay harvest is well advanced, and conditions have been generally favorable for securing an extra quality of forage. In the southern part of the State the harvest of oats, rye, and winter wheat is nearly completed, and in the northern half early oats

and barley are ready for the reapers. Spring wheat is ripening, with variable condition as to stand and damage by rust. Potatoes, vegetables and the late berry crops are doing fairly well. The apple crop is about as previously reported.

BULLETIN No. 16, JULY 23.

Though some high temperatures were registered during the last four days, the mean temperature of the past week was a little below the normal for the latter half of July. In the forepart of the week there was considerable cloudiness, with local showers of variable amounts. The average rainfall was much below the normal, the larger measurements being reported from portions of the northern section. As yet, however, the crops show no signs of suffering from effects of dry weather. Corn has made rapid growth, and on the average the crop is more promising than on the corresponding date in any previous year since 1900. Good progress has been made in haying and harvesting oats and barley, and the quality of both hay and grain is reported to be better than the average of recent years. Pastures are fair, and all the minor crops are doing notably well.

BULLETIN No. 17, JULY 30.

The week was slightly cooler than usual, though the day temperatures were normally high and generally favorable for harvest operations. The rainfall was extremely variable, ranging from a tenth of an inch to over 2 inches. Except in very small areas, the amount of soil moisture is ample for present needs of the staple crops.

The conditions were favorable for finishing the harvest of hay, oats and barley, and in the larger part of the State these crops have been put into shocks, stacks or barns. Threshing barley and oats is in progress, and reports of yield show fair returns. In the spring wheat districts, that crop is ready for harvesting, with good prospects as to yield. The corn crop still maintains its high standard in all sections, giving promise of more than average yield. The pastures are very good in all districts, except in localities where the rainfall has been deficient for several consecutive weeks. Late potatoes have been benefited by recent showers. The apple crop is doing fairly well.

BULLETIN No. 18, AUGUST 6.

The average temperature of the past week was 2° to 3° above the normal. The highest temperature reported was 95° at two stations, but the nights were only moderately warm. From Monday to Saturday morning the rainfall was generally deficient, and many reports from the central and southern sections gave expression to fears of damage to corn and other immature crops. On Saturday night and Sunday copious showers occurred in the north central district, and also in portions of the southern districts, according relief from the prevalent drought. Considerable progress has been made in harvesting late oats and wheat, and in threshing small grain. Corn has made rapid advancement in all districts, and damage by "firing" is as yet limited to very small areas.

BULLETIN No. 19, AUGUST 13.

The average temperature for the past week was slightly above the normal in the eastern half of the State, and slightly below in the western districts. The rainfall was unequally distributed, as usual at this time of the year, but all parts of the State received some benefit from the showery weather that prevailed in the first half of the week. The heaviest showers were reported from stations in the northwest, north central, and east central districts. In the northwest district the heavy rains retarded the wheat harvest, and continued wet and cloudy weather caused grain in shocks to sprout. In limited areas considerable damage to spring wheat and oats resulted from the unfavorable local conditions. For the State at large, the copious rains for the week have been of inestimable value. The corn crop has been relieved at its most critical stage; pastures show marked improvement, and late potatoes give promise of an ample yield. In portions of the southern section more rain is desired within a few days, but in the central and northern sections there is an ample supply of moisture to bring all crops to maturity.

BULLETIN No. 20, AUGUST 20.

The past week was characterized by extremely high temperatures by day and warm nights, and the oppressive conditions were intensified by a high percentage of humidity. The rainfall was unusually variable in amount, resulting from local showers. The largest amount reported was 3.65 inches at Des Moines, most of which fell on the morning of the 16th. On the evening of the 19th a heavy downpour was reported at Decorah, causing damaging floods. Generally, the rainfall was light, though in the larger part of the State the moisture in the soil is sufficient for the present needs of growing crops. For the corn crop it was the most favorable week of the season, and that great staple has made satisfactory progress toward maturity. For the State at large the crop is as well advanced as usual at the close of the second decade in August. The stand is above the average, and the stalks are heavily eared. Reports indicate that in early planted fields the ears are passing beyond the roasting-ear stage. Good progress has been made in stacking and threshing oats and wheat from the shock. Fall plowing is in progress. Early apples are being harvested, and the yield is above the product of recent years. The minor crops are doing well.

BULLETIN No. 21, AUGUST 27.

From Monday morning to Saturday night the temperature was abnormally high, with considerable excess of humidity. The cool wave on Sunday lowered the temperature nearly to the frost line in all sections, and light frost was reported at Charles City on the morning of the 27th. For the State at large the rainfall was very light; but copious showers were reported in widely scattered localities in the northeast, northwest, west central and southeast districts. In at least two-thirds of the State the soil is dry, and rain is needed for pasturage, potatoes, late planted corn and for fall plowing. No serious damage by drought has resulted

as yet, except in very limited areas in the southern section. Fair progress has been made in threshing, and considerable plowing has been done where moisture is ample. The corn crop has made rapid advancement, and the prospect of a heavy output still holds good. Some of the early planted fields will be ready to be cut within the coming week, and much of the crop is beginning to dent. The yield of corn fodder will be much heavier than usual. Condition of minor crops about as previously reported.

BULLETIN No. 22, SEPTEMBER 3.

The week ending September 3d was much cooler than the preceding seven days, but the average temperature was nearly normal and was favorable for the growing crops and farm operations. The week closed with well distributed showers which will be beneficial to pastures, late potatoes, and the belated portion of the corn crop, especially in portions of the central and southern sections. The corn crop is doing notably well in all districts, except in limited areas where the rainfall was insufficient in the latter part of August. A large part of the crop is well dented. Reports indicate that fully three-fourths of the crop will be well matured by September 20th, under normal weather conditions, and all of it will be practically safe by the 30th. Cutting operations will be begun this week in early planted fields. As a whole, the crop is very satisfactory. Fall plowing is in progress where moisture is sufficient. General crop conditions are excellent.

BULLETIN No. 23, SEPTEMBER 10.

Abnormally high temperatures were registered at all stations during the latter part of the week ending on the morning of the 10th. At the central station the average daily excess was 6.3°, which was about the average excess in the central and western districts. Light local showers were reported at Grinnell, Dubuque and Keosauqua, but in the larger part of the State the week was practically rainless. The corn crop has made very rapid advancement toward maturity, and reports indicate that more than half the crop is now in fit condition to be cut and put in shock or silo. This work is now in progress on the best class of farms, where the fodder is utilized. With a continuance of these favorable conditions the bulk of the corn crop will be practically safe by the 25th; though as a rule in this latitude it is always desirable to have a frostless September to bring to maturity the belated cornfields in all parts of the State. In the northern section the soil is sufficiently moist, but in the central and southern sections copious showers are needed to facilitate fall plowing and revive the pastures. Reports are quite variable as to the probable yield of the potato crop, on account of local differences in the amount of rainfall in the critical stage of growth.

BULLETIN No. 24, SEPTEMBER 17.

High temperatures prevailed the first three and the last two days of the week, and the average was above the normal for the middle of September. At the central station the average daily excess of temperature

was nearly 8°. Light showers were reported in all the districts on the 12th and 13th, and very copious showers were quite general throughout the State on the 15th and 16th. The rains were timely and beneficial to pastures, especially in the southern half of the State. Reports indicate that corn cutting is in progress in all districts, and that more than the usual percentage of the valuable fodder will be saved in shock or silo. As to the stage of ripeness, the conditions are quite variable, but it is evident that over 80 per cent of the crop is beyond danger of material injury by frost, and the full crop is likely to be practically safe before the close of September. Damage by windstorms has been less than usual. The soil is generally in excellent condition for plowing. Some progress is reported in seeding fall wheat and rye, and the acreage of wheat is likely to be increased in the western districts, where the yield has been excellent this year. As a whole, this has been an exceptionally favorable crop season.

BULLETIN No. 25, SEPTEMBER 24.

The past week was quite variable in temperature, and in the distribution of rainfall. In the west central and northern districts there was a general prevalence of cool and wet weather, but in other portions of the State the average temperature was above normal, and the rainfall was generally light. The amount of moisture in the soil is now ample for pasturage and fall plowing, except in portions of the east central and southeast districts, where more rain is needed. The late corn has made good progress toward maturity except in the districts where wet and cloudy weather prevailed. Corn harvesting is in progress in all sections, with an increased acreage in shock in districts where dairying is the leading industry. Many crop reporters state that corn is nearly all safe, but conservative estimates indicate that from 10 to 20 per cent of the crop is not as well matured as could be desired to withstand a killing frost. The crop as a whole will be better and sounder if frostless weather prevails until October 5th, which is about the average date of killing frosts in Iowa. In the southern half of the State the bulk of the crop is now reported to be practically safe. The larger amount of immature corn is in the central and north central districts, where there has been heavy rainfall and a rank growth of stalks.

BULLETIN No. 26, OCTOBER 1.

The past week was warm and favorable, the average temperature being above the normal. The cool wave at the close of the week resulted in light to heavy frosts in the northern and central sections, but the damage to the belated portion of the corn crop will be inappreciable. The month of September was exceptionally favorable, serving as a fitting close to an unusually productive season. The corn crop is beyond danger of material harm by frost, and the bulk of it has not been damaged by windstorms. The total yield gives promise of being considerably above the output of any previous year in the history of the State. The other cereal crops are very good in yield and quality. The State has an abundant supply of forage of all kinds. Pasturage is fairly good, and fair

progress has been made in fall plowing. The crops of apples and peaches have been somewhat beyond expectations. As a whole, the season of 1906 has been sufficiently bountiful to add fervency to our annual festival of Thanksgiving.

IOWA CROP REPORT, JUNE 1, 1906.

ACREAGE OF FARM CROPS; AVERAGE CONDITION OF CROPS, FRUIT AND LIVE STOCK.

Reports received June 1st from county and township correspondents of the Iowa Weather and Crop service make a very favorable showing as to the area planted and the average condition of the staple crops of this State, as compared with preceding years.

CORN. The aggregate area of corn planted this season appears to be 9,443,960 acres. These figures indicate an increase of 145,000 acres as compared with the area harvested last year, and a decrease of about 99,000 acres compared with the acreage shown by the State census covering the year 1904. The average condition of the corn crop on June 1st was placed at 99 per cent for the State, as against 90 per cent in 1905 and 1904 on the corresponding date.

WHEAT. The area of spring wheat is estimated to be 357,250 acres; and winter wheat, 65,560, making a total wheat acreage of 442,810 acres. This indicates a loss of 74,464 acres since 1904, as shown by the last State census. The estimated condition of the crop is 98 per cent, which is about the same as last year.

OATS. Total acreage sown, 4,166,800 acres, a decrease of 148,830 acres as shown by the last census. Condition of the crop, 96 per cent, a gain of one point above last year.

BARLEY. Acreage sown, 558,870 acres; condition of the crop, 95 per cent, the same as last year.

RYE. Acreage of rye sown, 62,535 acres, a slight decrease compared with the census year. Condition of the crop, 97 per cent, or one point below last year.

FLAX. The acreage of flax is reduced to about 19,160 acres, showing a reduction of 5,837 acres since 1904, according to the census figures; condition of the crop, 94 per cent, same as last year.

POTATOES. The acreage of the potato crop is estimated to be 115,310 acres, which is about the average of recent years. Condition of crop, 101 per cent.

MEADOWS. Acreage of meadows, including all cultivated hay crops, 3,518,750 acres. Condition of the hay crop, 92 per cent.

WILD HAY. Acreage, 899,850; condition, 90 per cent.

CONDITION OF FRUIT. Secretary Wesley Greene, of the Iowa Horticultural Society, reports the condition of the fruit crops, on June 1st, as follows: Apples, 71 per cent; pears, 45; American plums, 67; domestic plums, 50; Japanese plums, 45; cherries, 75; peaches, 67; grapes, 85; red raspberries, 65; black raspberries, 74; blackberries, 88; strawberries, 82.

CONDITION OF LIVE STOCK. Cattle, 99 per cent; sheep, 99; hogs, 97; spring pigs, 80; horses, 98; foals, 96.

IOWA CROPS - NUMBER OF ACRES BY COUNTIES, REPORTED JUNE 1, 1906.

COUNTIES	Winter Wheat, Acres	Spring Wheat, Acres	Corn, Acres	Oats, Acres	Rye, Acres	Barley, Acres	Flax, Acres	Potatoes, Acres	Hay (tame), Acres	Hay (wild), Acres
Adair	220	2,820	60,110	21,140	70	2,130		1,100	45,410	5,890
Adams	910	1,080	75,180	16,270	130	2,130		1,380	44,780	1,600
Allamakee	450	1,480	45,980	11,250	1,150	19,140	720	1,070	56,280	1,010
Appanoose	720	10,540	95,650	30,130	110	7,720		1,000	29,900	4,280
Audubon			165,050	67,320	420	13,870		1,810	48,130	9,050
Benton		780	108,740	53,170	1,250	2,010		1,570	33,070	12,000
Black Hawk		1,820	110,850	48,440	1,280	280		1,280	32,110	12,000
Boone		320	62,830	28,570	1,020	1,850	140	1,400	29,770	10,000
Bremer		1,470	104,550	65,870	50	2,040	220	1,310	25,130	30,880
Buchanan		310	110,250	69,930	900	1,190	60	1,250	26,600	11,680
Butler		1,810	109,710	61,830	100	3,670	90	1,090	22,400	18,120
Calhoun		6,130	115,270	76,210	80	5,790		1,710	34,500	12,100
Cass	410	9,640	117,210	72,410	400	16,610		1,240	30,500	24,180
Cedar	500	790	92,270	68,890	180	1,820	410	1,310	47,080	400
Cedar Rapids		5,100	110,830	55,780	500	5,820		1,270	30,400	12,270
Cherokee		620	54,330	14,430	130	120	1,810	1,030	27,500	13,110
Chickasaw	150	1,320	88,920	40,320	300	7,400	170	1,270	48,000	310
Chickasaw	650	2,420	138,650	75,670	2,010	17,400		1,580	61,300	40,000
Clinton	420	15,200	140,230	53,570	1,810	5,320		1,580	64,300	4,000
Crawford		2,180	134,020	48,120	180	6,000		1,000	42,130	6,280
Dallas	1,050	600	70,310	15,500	590	620		1,060	30,620	180
Decatur	610	600	65,120	13,870	670	500		1,090	30,500	110
Delaware		300	95,570	37,240	1,710	8,720	40	1,080	47,110	6,000
Des Moines	1,130	9,130	48,880	27,410	60	12,750	400	1,180	28,180	17,070
Dubuque	110	1,460	79,410	40,180	620	5,580		1,180	53,130	2,140
Emmet		880	54,330	44,180	70	1,820	210	510	17,630	15,210
Fayette	140	1,410	56,130	65,720	680	9,300	510	1,540	55,910	12,240

IOWA CROPS—NUMBER OF ACRES BY COUNTIES, REPORTED JUNE 1, 1906.—CONTINUED.

COUNTIES	Winter Wheat Acres	Spring Wheat Acres	Corn Acres	Oats Acres	Rye Acres	Barley Acres	Flax Acres	Potatoes Acres	Hay (tame) Acres	Hay (wild) Acres
Floyd		189	92,470	72,100	1,139	4,639	619	1,879	30,919	5,339
Franklin		1,319	106,419	77,339	119	1,129		1,089	29,549	30,149
Fremont	3,049	1,579	129,149	11,189	339	219		719	18,009	4,119
Green		719	112,139	46,549	59	1,749	119	839	29,499	30,139
Grundy		989	104,049	65,069	1,289	7,019		1,289	25,189	9,769
Guthrie	329	4,689	95,219	38,549	119	2,139		619	35,369	6,849
Hamilton		1,829	115,179	59,629	25	679	139	1,449	30,119	23,119
Hancock		1,919	88,219	89,129	49	2,049		949	25,059	15,949
Hardin		2,379	112,139	69,189	139	1,149		1,319	37,919	15,479
Harrison		29,819	149,139	25,169	299	1,519		1,489	19,179	16,119
Henry	939		71,819	39,119	2,619	959		599	31,469	89
Howard		819	52,239	56,919	49	9,219	2,129	999	31,799	19,229
Humboldt		3,919	74,219	48,079	29	1,249	129	529	32,179	15,939
Ida		8,719	95,839	37,119	119	6,589		959	25,659	4,139
Iowa	219	819	94,939	38,189	599	4,919		1,229	43,919	1,519
Jackson	239	1,399	73,149	28,629	1,219	5,139		1,159	56,929	229
Jasper	419	4,239	149,339	46,159	139	2,519		1,829	43,439	2,279
Jefferson	1,239		64,849	22,949	2,919	1,349		629	12,989	69
Johnson	499	299	105,839	39,169	1,429	7,169		1,229	59,219	1,919
Jones		589	86,539	25,639	819	7,689		1,069	49,489	439
Keokuk	619	729	192,419	32,169	1,649	4,289		919	42,619	419
Kossuth		3,429	147,079	129,289	129	3,029	899	1,499	37,929	75,289
Lee	13,159		65,129	39,649	3,969	129		1,129	45,119	199
Linn		2,119	117,359	59,849	929	999		1,919	69,119	5,919
Louisia	1,939	319	72,919	22,949	2,639	619		629	19,529	1,629
Lucas		929	129,529	13,269	49	3,219		729	39,479	229
Lyon		18,399	98,989	57,179	159	48,129	129	1,229	17,859	19,429
Madison	819	1,239	82,119	47,299	219	2,949		759	41,819	1,269
Mahaska	1,989	819	109,279	32,289	949	5,749		1,949	39,419	929
Marion	1,599	1,219	109,619	27,239	359	1,529		899	36,179	1,989
Marshall	989	1,849	129,519	57,859	289	2,389		1,299	31,689	1,919
Mills	1,859	4,119	95,129	12,919	49	829		899	22,419	5,419
Mitchell		979	58,029	72,979	219	19,349	2,159	1,529	29,029	2,579
Monona	2,819	12,279	139,849	19,289	259	6,429		1,219	9,929	29,119
Monroe	429	319	44,659	9,519	879	399		729	39,479	229
Montgomery	3,889	9,299	92,219	14,559	92	2,819		799	36,729	1,299
Muscatine	819	429	76,219	18,619	3,199	9,779		1,299	25,859	1,979
O'Brien		6,629	192,279	69,999	59	25,119	329	1,149	25,129	19,249
Osceola		4,129	57,489	47,969	99	24,339	499	979	17,139	9,159
Page	8,579	2,219	118,229	17,249	259	929		999	38,129	2,459
Palo Alto		1,179	82,519	16,189	49	3,429	579	899	14,879	35,599
Plymouth		59,159	179,119	66,389	199	17,089	199	1,829	25,199	26,129
Pocahontas		1,989	92,619	69,249	59	1,129	599	1,029	17,829	39,829
Polk	1,989	1,519	118,619	38,299	319	249		2,059	36,219	6,329
Pottawattamie	1,279	22,319	225,129	42,139	229	2,519		2,519	42,249	12,979
Poweshiek	159	1,239	197,519	35,419	219	5,779		1,949	44,119	1,969
Ringgold	429	229	74,959	29,169	129	39		629	52,429	419
Sac		2,119	129,989	59,419	79	9,129	129	1,029	22,619	12,429
Scott	1,029	1,829	89,129	29,619	1,949	31,299		4,029	39,749	4,119
Shelby		15,129	125,489	39,679	199	7,299		1,999	35,319	5,989
Sioux		35,219	159,239	64,239	49	36,419	69	1,519	22,359	29,119
Story	169	979	129,799	59,199	259	519		989	39,139	12,129
Tama		2,919	122,659	57,079	1,179	15,169		1,719	69,129	4,219
Taylor	1,439		89,059	1,279	399	1,399		629	45,139	1,959
Union	179	89	62,849	18,019	89	239		789	45,619	979
Van Buren	1,599	129	59,719	18,299	2,179	69		599	48,679	219
Wapello	929		62,749	18,289	2,919	1,529		989	36,599	129
Warren	429	919	92,179	21,899	219	819		889	42,319	1,299
Washington	929	129	191,429	39,159	1,599	2,999		799	39,719	199
Wayne	139		79,119	16,299	149	89		489	79,149	129
Webster		2,829	112,239	79,579	189	929	129	1,079	27,219	39,519
Winnebago		4,289	35,119	46,879	59	1,489		619	17,519	25,169
Winnesiek	129	15,129	75,129	79,659	289	17,129	2,719	1,999	47,129	5,919
Woodbury		19,589	181,199	42,199	679	12,929		1,529	21,619	15,979
Worth		2,979	49,029	69,569	49	4,219	9,499	749	24,829	15,819
Wright		2,139	99,219	79,119	139	1,829	399	819	25,719	19,999
Total for state	65,599	377,259	9,443,919	4,196,899	62,599	598,879	19,119	115,219	3,518,759	899,859

IOWA CROP REPORT, JULY 1, 1906.

Following is a summary of the reports received from correspondents of the Iowa Weather and Crop service, giving estimates of the condition of the staple farm crops on July 1, 1906:

Corn, 99 per cent; wheat, 94; oats, 84; rye, 93; barley, 91; flax, 92; potatoes, 94; hay (tame), 75; pastures, 88; apples, 70; grapes, 85.

On July 1, 1906, the estimates were as follows: Corn, 92 per cent; wheat, 94; oats, 96; rye, 96; barley, 98; flax, 95; hay, 101; pastures, 105; apples, 65; grapes, 88.

Wesley Greene, secretary of the Iowa Horticultural Society, issued the following report on the condition of the fruit crop in Iowa, dated July 3, 1906:

Apples, 60 per cent; pears, 35 per cent; American plums, 62 per cent; European plums, 45 per cent; Japanese plums, 43 per cent; peaches, 77 per cent; cherries, 79 per cent; grapes, 81 per cent; red raspberries, 65 per cent; black raspberries, 72 per cent; blackberries, 79 per cent; strawberries, 68 per cent; currants, 67 per cent; gooseberries, 58 per cent.

IOWA CROP REPORT, AUGUST 1, 1906.

Following is a summary of reports received from correspondents of the Iowa Weather and Crop service, giving estimates of the condition of staple farm crops, August 1, 1906:

Corn, 99 per cent; spring wheat, 93; oats, 90; flax, 95; hay, 79; pastures, 83; potatoes, 91; apples, 70; grapes, 94.

Last year at corresponding date, the estimates were: Corn, 94 per cent; wheat, 93; oats, 97; flax, 78; potatoes, 92; pastures, 103; apples, 40; grapes, 91.

FINAL CROP REPORT, 1906.

FINAL REPORT FOR THE STATE. TOTAL YIELD OF SOIL PRODUCTS. VALUE AT FARM PRICES DECEMBER 1, 1906.

Tabulated reports by counties afford ample evidence that the season of 1906 brought bountiful crops on the well tilled farms of Iowa. In respect to the aggregate of yield and values of staple products, a new record has been scored for this foremost agricultural State.

CORN. The estimated acreage of the corn crop, based upon the returns of the State census of 1905, is about 9,443,960 acres. Carefully revised estimates of the yield by counties show an average for the state of 41 bushels per acre, and the total output for the State appears to be 388,348,920 bushels. This is about forty-two million bushels above the highest total credited to the state by the state bureau in any previous year. At the average farm price, 33 cents per bushel, the corn crop is now worth \$128,155,143. As the greater portion of this crop will be consumed in the State, and marketed in form of live stock and dairy products, the potential value of this great cereal is 10 to 15 cents per bushel above the present selling price. The quality of corn that has been harvested in good season is above the average. It is a good crop to keep,

so far as may be practicable, for the lean years that may come in the near future.

WINTER WHEAT. The average yield of winter wheat was 23 bushels per acre. Total yield, 1,566,050 bushels. Average farm price is about 67 cents per bushel; value of crop, \$1,049,253.

SPRING WHEAT. Average yield per acre, 15 bushels; total yield, 5,603,880 bushels. Farm value, 63 cents per bushel; value of crop, \$3,530,444.

OATS. Average yield 34 bushels per acre; total crop, 142,036,580 bushels, farm price 27 cents; total value, \$38,349,876.

RYE. Average yield, 17½ bushels per acre; total crop, 1,093,160 bushels. Farm price, 48 cents; total value, \$520,716.

BARLEY. Average per acre, 26½ bushels; total yield, 14,858,830 bushels; farm price, 36 cents; total value, \$5,349,178.

FLAX SEED. Average per acre, 10.7 bushels; total product, 205,280 bushels; farm price, 97 cents; total value, \$200,091.

POTATOES. Average yield per acre, 101 bushels; total product 11,697,500 bushels; average price, 48 cents; total value, \$5,614,800.

HAY (TAME). Average per acre, 1.3 tons; total yield, 4,892,950 tons; farm value December 1st, \$7.50 per ton; total value, \$36,697,125.

HAY (WILD). Average per acre, 1.2 tons; total yield, 1,110,690 tons; farm price, \$5.50; total value, \$6,108,795.

PASTURAGE AND GRAZING. This includes pastures, grazing in meadows and grain fields after harvest and in corn fields in fall and winter. Having given this matter much study, making it a subject of interview with many of our best informed farmers, I am willing to stand committed to the proposition that the value of pasturage and grazing is above, rather than below, the total of \$90,000,000, with which it has been credited in the following table:

TABULATED CROP SUMMARY.

Crops	Total Products	Farm Value Dec. 1
Corn	388,348,920 bus.	\$128,155,143
Winter wheat	1,566,050 bus.	1,049,253
Spring wheat	5,603,880 bus.	3,530,444
Oats	142,036,580 bus.	38,349,876
Rye	1,093,160 bus.	520,716
Barley	14,858,830 bus.	5,349,178
Flax seed	205,280 bus.	200,091
Potatoes	11,697,500 bus.	5,614,800
Hay (tame)	4,892,950 tons	36,697,125
Hay (wild)	1,110,690 tons	6,108,795
Pasturage and grazing	Estimated	90,000,000
Buckwheat	Estimated	85,000
Sweet potatoes	Estimated	150,000
Sorghum and broomcorn	Estimated	195,000
Timothy and clover seed	Estimated	1,800,000
Alfalfa and millet	Estimated	550,000
Sweet corn	Estimated	750,000
Fruit crops	Estimated	6,200,000
Garden truck	Estimated	5,000,000
Total		\$380,495,421

The above figures take no account of the increment of value derived from the consumption of the soil products in the live stock industry of this state.

FINAL CROP REPORT, 1906 AVERAGE PER ACRE AND TOTAL YIELD—BY COUNTIES

COUNTIES		Winter Wheat	Spring Wheat	Corn	Oats	Rye	Barley	Flax Seed	Potatoes	Hay (Tame)	Hay (Wild)									
		Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Tons Per Acre	Total Tons									
Adair	20	4,400	16	66,900	42	4,182,680	34	1,060,460	20	1,400	25	55,120	70	83,300	1.2	54,740	1.4	7,350		
Adams	30	27,340	18	19,440	45	5,389,460	32	820,640	18	2,240	25	52,720	50	35,500	1.1	39,720	1.1	2,180		
Allamakee	17	7,140	15	216,300	46	6,278,800	36	1,473,120	10	23,360	20	284,960	10	134,400	1.5	67,140	1.6	3,380		
Appanoose	20	14,400	20	1,005,700	30	237,800	21	9,450	20	2,800	60	68,480	12	57,900	1.5	1,150				
Audubon			17	178,180	44	4,207,720	35	1,081,080	18	1,980	32	232,000	11	112,300	1.5	49,000	1.2	4,220		
Benton	20	840	18	14,040	47	4,494,610	40	1,505,200	30	9,000	30	416,100	120	217,200	1.8	86,610	1.2	10,800		
Black Hawk			16	6,720	45	4,023,300	33	1,751,610	17	21,250	30	90,300	150	235,500	1.8	63,120	1.4	17,000		
Boone	13	21,600	45	4,985,500	35	1,605,400	18	3,320	30	5,400	95	121,000	1.5	37,600	1.5	31,720				
Bremer	30	6,400	45	2,836,900	34	1,797,580	22	22,600	30	77,600	90	138,480	1.5	32,800	1.4	30,900				
Buchanan	18	2,100	16	2,080	43	3,991,200	35	1,068,550	20	12,000	28	50,960	10	184,600	1.8	72,820	1.5	16,880		
Buena Vista			15	22,050	45	4,708,550	40	2,654,800	30	28	73,020	14	3,080	180	157,300	1.5	37,680	1.3	30,420	
Butler			15	4,650	40	4,468,500	28	1,023,300	18	17,280	31	39,800	8	480	1.40	173,000	1.8	16,200		
Calhoun			17	30,770	42	4,007,320	37	2,550,610	20	3,200	25	91,750	9	810	70	75,000	1.5	33,070	1.2	16,930
Carroll			16	97,820	42	4,811,380	35	2,040,800	18	1,440	28	165,700	110	188,100	1.5	44,500	1.3	18,340		
Cass	30	12,300	15	14,400	35	4,032,350	28	820,280	19	3,040	32	104,640	70	90,400	1.5	51,430	1.2	2,630		
Cedar	22	12,320	16	9,700	48	5,134,080	36	1,079,520	18	11,130	28	51,900	110	130,400	1.3	62,370	1.0	420		
Cerro Gordo			13	19,070	45	2,800,900	32	2,380,800	20	3,120	30	35,400	9	5,000	80	104,800	1.5	44,750	1.5	18,810
Cherokee			10	82,400	41	4,689,600	37	1,189,800	30	1,000	30	192,300	120	157,300	1.8	55,680	1.3	13,350		
Chickasaw			12	7,530	37	2,336,160	36	1,721,080	15	7,800	25	95,750	10	18,100	1.1	100,700	1.4	38,500	1.0	13,110
Clarke	20	3,000			36	1,905,880	31	147,950	22	2,800	25	3,000	80	49,000	1.1	29,640	0.5	130		
Clay			15	19,050	38	3,378,600	33	2,058,050	30	1,800	36	102,300	10	1,700	120	112,400	1.8	48,510	1.5	30,180
Clayton	18	11,700	16	38,720	45	3,402,900	35	2,155,300	10	62,500	25	307,750	130	335,300	1.5	78,000	1.0	1,980		
Clinton	16	6,720	14	17,300	45	5,440,950	30	2,059,500	23	41,630	30	379,900	98	125,440	1.4	89,800	1.5	6,030		
Crawford	20	900	14	254,600	44	6,171,440	37	1,782,050	20	3,600	30	300,700	105	301,000	1.8	75,810	1.5	10,320		
Dallas	30	26,400	16	31,880	45	5,580,800	37	1,481,440	30	10,400	25	15,750	70	75,000	1.2	36,740	1.0	180		
David	18	11,700			35	2,111,000	25	411,000	15	9,750	25	3,710	60	45,000	1.0	50,520	1.0	110		
Decatur	21	12,810			36	4,416,320	30	415,500	18	2,700	20	101,800	10	44,000	1.0	46,740	1.0	380		
Delaware	22	16,280			45	6,031,700	36	1,407,700	20	29,000	32	280,900	110	130,900	1.3	61,240	1.0	6,000		
Iowa Moines	20	23,000	15	3,000	30	3,340,800	30	816,000	18	27,180	25	14,000	85	85,300	1.2	33,810	1.6	210		
Dickinson			16	34,680	34	1,464,000	25	805,250	18	1,080	20	255,000	11	5,900	60	39,400	1.8	21,080	1.5	20,500
Dubuque	22	2,420	16	33,360	40	2,816,400	35	1,731,300	20	18,400	28	155,240	95	188,100	1.3	69,070	1.0	2,140		
Emmet			15	12,300	38	2,972,140	36	1,506,480	18	1,230	32	59,300	19	2,100	120	60,200	1.8	31,730	1.9	15,210
Fayette	18	2,520	14	19,740	42	3,311,000	32	2,104,000	16	10,880	22	305,920	19	6,300	90	135,300	1.5	32,300	1.0	12,240
Floyd			12	2,100	36	3,829,200	33	2,381,280	17	19,210	22	101,800	10	4,300	90	108,300	1.5	46,300	1.0	5,320
Franklin			16	17,600	42	4,460,250	36	2,773,320	16	1,700	30	33,000	120	129,600	1.5	44,310	1.2	24,100		
Fremont	25	26,000	15	23,550	40	4,805,000	30	305,400	20	6,000	25	4,500	90	63,900	1.5	27,040	1.5	6,100		
Greene			13	9,230	40	4,694,300	28	1,708,320	22	1,100	30	52,200	8	4,000	60	74,700	1.1	30,400	1.0	20,100
Guthrie			15	14,700	43	4,475,870	35	2,276,050	16	20,480	30	219,300	8	600	120	205,400	1.5	37,770	1.0	9,700
Guthrie	22	7,940	13	60,840	30	2,713,100	35	1,348,120	12	1,220	30	63,000	90	54,600	1.2	36,800	1.3	8,900		
Hamilton	15	600	15	37,300	42	4,827,140	30	2,146,220	24	600	31	30,770	12	2,530	120	172,800	1.6	48,120	1.5	34,600
Hancock			14	33,740	35	3,687,350	31	2,483,720	10	640	22	44,880	11	4,310	85	79,900	1.3	32,590	1.0	15,940
Hardin			16	37,920	42	4,700,400	36	3,186,480	20	2,600	30	31,200	105	127,500	1.4	30,670	1.0	15,410		
Harrison	21	8,420	40	5,000,400	35	880,000	18	3,000	25	37,750	95	140,000	1.8	31,500	1.5	24,130				
Henry	30	18,000	40	2,872,400	27	812,970	20	32,200	22	20,900	98	54,870	12	38,110	1.0	38,110		80		
Howard			14	4,240	36	1,822,080	30	1,707,300	11	640	20	276,300	40	75,900	1.8	57,160	1.2	12,200		
Humboldt			16	67,700	45	5,359,450	40	1,922,000	20	2,400	32	39,680	140	72,800	1.6	35,470	1.0	15,900		
Ia			20	2,300	31	302,380	18	10,200	32	109,220	105	99,750	1.5	37,370	1.2	4,990				
Iowa	30	6,300	14	121,940	42	4,024,440	34	1,410,150	21	12,200	32	109,220	97	121,050	1.1	48,300	1.0	1,510		
Jackson	18	3,900	14	12,580	40	5,017,300	38	913,120												
Jasper	21	8,010	14	18,200	35	2,540,900	29	829,080	30	24,200	30	132,300	107	123,000	1.5	85,380	1.3	220		
Jefferson			10	60,220	48	6,738,240	37	1,700,250	20	3,800	30	75,000	112	313,840	1.4	50,400	1.2	2,700		
Johnson	30	13,900	20	5,800	46	4,887,720	32	1,276,120	18	25,500	25	179,000	75	43,400	1.5	48,120	1.0	60		
Jones			14	8,130	45	3,893,850	30	79,760	15	12,900	31	258,080	102	192,000	1.3	60,250	1.0	1,910		
Keokuk	18	10,680	12	8,640	30	3,690,900	30	964,800	15	24,000	24	102,620	90	51,000	1.4	50,600	1.0	410		
Kossuth			15	51,200	40	5,082,800	35	4,200,800	18	2,880	25	71,750	10	8,900	104	154,060	1.5	59,150	1.2	90,320
Lee	19	245,800			20	2,004,800	22	453,080	16	63,300	24	2,880	80	89,000	1.1	40,620	0.9	600		
Linn			12	25,320	43	5,046,480	36	1,800,000	16	14,720	30	28,800	115	219,650	1.4	84,150	1.2	9,010		
Louisia	22	22,600	17	3,570	35	2,553,350	30	718,500	20	5,900	35	115,500	85	32,700	1.4	55,070	1.0	2,430		
Lucas	18	27,180	15	1,800	37	2,083,480	28	343,280	19	5,900	22	1,106,700	11	1,320	130	166,400	1.0	35,700	1.2	12,500
Lyon			13	228,680	40	2,957,000	30													
Madison	22	17,820	18	22,140	44	3,920,840	35	551,050	30	4,300	30	88,200	92	69,000	1.5	67,710	1.2	1,820		
Mahaska	21	22,680	14	14,880	42	4,589,340	31	907,080	18	17,820	25	143,500	98	99,840	1.3	51,230	1.0	109		
Marion	30	31,200	15	18,150	43	4,328,320	35	935,150	16	5,900	30	45,000	48	78,200	1.4	50,620	1.3	1,410		
Marshall	22	21,500	15	27,000	48	5,886,400	40	2,201,400	20	5,900	30	45,000	150	138,500	1.2	41,610	1.0	1,610		
Mills	30	55,400	16	65,760	41	4,022,920	35	483,850	30	800	25	20,500	85	73,100	1.5	33,810	2.0	5,610		
Mitchell			12	11,640	38	2,088,720	30	2,216,100	15	3,150	22	227,480	10	21,900	75	113,000	1.5	43,340	1.6	4,710
Monona	21	70,250	13	119,540	40	5,000,240	30	618,240	20	5,900	35	109,500	100	122,700	2.0	118,540	1.0	2,430		
Montgomery	30	8,400	18	14,600	36	1,007,400	25	237,750	14	12,										

AVERAGE PER ACRE AND TOTAL FIELD—BY COUNTIES—CONTINUED

COUNTIES	Winter Wheat		Spring Wheat		Corn		Oats		Rye		Barley		Flax Seed		Potatoes		Hay (Tame)		Hay (Wild)	
	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Bushels Per Acre	Total Bushels	Tons Per Acre	Total Tons	Tons Per Acre	Total Tons
O'Brien	---	---	14	84,430	37	3,830,000	40	2,438,400	15	750	30	753,300	11	2,520	110	125,400	1.5	39,180	1.5	15,300
Osceola	---	---	12	49,440	36	2,909,380	33	1,381,683	14	1,300	25	609,500	11	5,900	90	90,300	1.2	30,550	1.0	9,150
Page	30	257,100	15	33,150	42	4,905,240	35	903,000	16	5,600	25	21,100	---	---	80	78,130	1.0	38,110	1.0	2,450
Palo Alto	---	---	14	10,380	37	5,055,350	35	1,390,300	15	900	24	58,080	8	4,500	130	115,700	1.5	22,210	1.0	35,500
Plymouth	---	---	16	802,400	43	7,315,160	34	2,356,920	18	3,340	28	478,240	10	1,600	90	103,800	2.0	59,380	1.3	1,340
Pocahontas	---	---	17	18,360	40	3,704,400	35	2,108,400	30	1,600	30	45,000	10	5,000	80	81,600	1.5	36,730	1.0	30,820
Polk	25	25,750	12	25,070	46	5,457,900	33	1,394,500	15	4,050	28	6,720	---	---	90	185,400	1.4	30,600	1.2	7,930
Pottawattamie	28	33,550	14	330,740	40	8,724,800	33	1,389,000	15	3,300	25	62,250	---	---	100	251,000	1.5	72,300	1.2	14,480
Poweshiek	20	3,000	16	19,680	45	4,837,950	38	1,345,500	18	3,780	30	173,100	---	---	90	93,000	1.2	52,900	1.0	1,000
Ringgold	30	8,400	18	3,800	36	2,607,300	29	524,100	30	2,400	29	580	---	---	80	49,000	1.1	57,600	1.0	410
Sac	---	---	12	25,320	35	4,202,800	35	1,767,850	15	1,050	25	229,500	---	---	85	92,650	1.5	48,910	1.5	18,720
Scott	20	19,380	14	25,480	42	5,445,190	33	680,130	18	15,720	24	730,900	---	---	120	482,600	1.4	43,030	1.2	5,340
Shelby	---	---	12	181,440	40	4,829,300	36	1,104,120	16	3,040	30	217,800	---	---	110	118,800	1.2	42,270	1.2	4,480
Sioux	20	22,400	16	516,900	46	6,919,580	40	2,500,300	15	600	31	1,128,710	10	650	130	181,200	1.8	30,230	1.4	28,160
Story	18	2,880	14	15,580	45	5,454,500	37	2,042,000	16	4,640	28	14,280	---	---	90	88,300	1.3	39,230	1.0	12,120
Tama	---	---	13	37,830	44	5,394,340	32	1,794,240	20	23,400	30	454,800	---	---	80	136,800	1.6	96,100	1.5	6,310
Taylor	22	31,400	---	---	37	3,183,850	28	481,880	20	7,200	26	36,140	---	---	102	63,240	1.5	67,780	1.5	1,570
Union	16	2,730	---	---	38	2,387,540	25	450,250	18	1,440	22	5,000	---	---	90	70,200	1.0	45,640	1.0	970
Van Buren	10	29,540	10	1,200	43	2,909,530	25	432,250	13	29,210	20	1,300	---	---	50	28,000	1.2	58,410	1.0	210
Wapello	15	13,800	---	---	38	2,384,120	27	429,500	15	30,000	22	33,440	---	---	65	63,700	1.4	51,220	1.0	180
Warren	24	10,080	16	14,600	42	3,871,140	31	678,500	20	4,200	25	20,250	---	---	98	81,840	1.4	59,230	1.2	210
Washington	15	15,800	12	1,440	38	2,833,900	33	1,221,150	14	10,040	30	88,800	---	---	90	71,100	1.3	51,360	1.0	190
Wayne	16	2,080	---	---	33	2,313,630	29	425,540	16	4,240	---	---	---	---	95	45,000	1.0	70,140	1.0	120
Webster	---	---	16	45,130	42	4,712,600	40	3,822,800	18	3,240	30	27,000	12	6,720	80	85,000	1.8	48,970	1.5	46,210
Winnebago	---	---	15	64,200	40	2,304,440	30	1,405,100	---	---	25	37,000	10	5,000	100	61,000	1.5	28,200	1.0	25,100
Winneshek	20	32,000	12	34,840	38	2,854,500	33	2,330,130	15	4,300	28	379,560	12	22,520	110	118,000	1.6	75,280	1.0	5,910
Woodbury	22	19,580	15	203,000	45	5,153,550	36	1,515,000	30	13,400	30	387,000	---	---	105	159,000	1.9	41,050	1.5	23,630
Worth	---	---	15	31,350	38	1,543,500	37	2,340,720	16	640	30	129,300	10	24,000	100	74,000	1.8	44,000	1.2	18,970
Wright	---	---	16	37,920	44	4,369,640	35	2,465,350	17	2,720	35	227,500	9	5,000	110	80,100	1.6	46,570	1.5	29,540
Total for state.	---	1,966,050	---	5,003,880	---	388,348,920	---	149,036,550	---	1,093,100	---	14,883,830	---	305,280	---	11,607,500	---	4,802,950	---	1,110,000
Av. per acre.	22	---	14	---	41	---	34	---	17.5	---	26.5	---	10.7	---	101	---	1.3	---	1.2	---