UNITED STATES
DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

ANNUAL REPORT

OF THE

Iowa Weather and Crop Service

FOR THE YEAR 1895.

JOHN R. SAGE,
Director.

GEO. M. CHAPPEL, M. D.,
Local Forecast Official, U. S. Weather Bureau,
Assistant Director.

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STATE OF IOWA,
OFFICE OF THE IOWA WEATHER AND CROP SERVICE,
DES MOINES, June 1, 1896.

To His Excellency, Francis M. Drake, Governor of Iowa:

SIR—In accordance with the requirements of the law, we have the honor to submit herewith the sixth annual report of the Iowa Weather and Crop Service for the year 1895.

We are, sir, very respectfully,

Your obedient servants,

JOHN R. SAGE,
Director.

GEO. M. CHAPPEL, M. D.,
Local Forecast Official, U. S. Weather Bureau,
Assistant Director.

GENERAL REMARKS.

Since June 1, 1890, the Iowa Weather and Crop Service has been operated under the joint auspices of the State and the United States Weather Bureau, and through this system of co operation the best results have been secured for the benefit of all the people. The plan of co-operation has proven to be wholly feasible, and by an equitable division of labor and expense the work has been carried on with entire harmony.

The people of Iowa have come to regard it as their service, and large numbers have manifested their deep interest in the work by expressions of willingness to serve as voluntary observers and crop reporters. In fact, more proffers of service have been tendered than could be accepted, because of limited means for the equipment of stations and tabulation of reports.

A greatly increased public interest has also been manifested in the published reports of the service relating to the climatic features and crop production of this state. The tables of means and extremes, and the weather charts, are being studied by practical business men and farmers as well as by students and scientists. All classes are interested in the data and the generalizations relating to the weather and climate of this section. The subject has been a foremost topic of discussion at farmers' institutes during the past two years, and much progress has been made in popular education along this line. It has come to be regarded as a matter of practical value as well as scientific interest.

This annual report is compiled mainly from the Monthly Reviews and Weekly Weather-Crop Bulletins issued from this office, the more important data being condensed and arranged in the most convenient form for reference. The climatic records of this state will possess inestimable value to the people who will inhabit this region in the next century.

There is an increasing demand for the monthly and weekly publications issued from this office, and in their distribution the attempt has been made to subserve the interests of the general public, as well as gratify the desires of individuals. The

number of copies of the Monthly Review mailed from this office during the year was about 29,000. Summaries of the weekly Weather-Crop Bulletins, issued from April 1st to October 1st, were mailed each week to all the newspapers of the state that expressed a desire to publish them, and they were also widely disseminated through the press associations. The mailing list of the complete bulletin contained about 1,600 names. Through these various avenues of dissemination the general public was kept well informed relative to the condition of the staple crops of Iowa in the most productive season of recent years.

The meteorological data and crop statistics embodied in this report were tabulated and summarized at the central station from the reports of 104 meteorological observers, 78 weather-crop observers and about 900 crop correspondents, representing all the counties in the state.

DISTRIBUTION OF FORECASTS.

Daily weather forecasts are now being distributed by telegrams, postal cards and weather maps to over 800 places, reaching them in due time to be of service to the general public. They are also widely disseminated through the daily papers; and by all these various means of distribution, warnings of storms, cold waves and other notable changes of weather are placed within the reach of a very large portion of the people of this state. The cold wave warnings have been instrumental in saving perishable products of very great value.

Following is a list of stations and observers:

METEOROLOGICAL STATIONS AND OBSERVERS.

STATIONS.	OBSERVERS.	STATIONS.	OBSERVERS.
Afton	Hon. N. W. Rowell.	Jefferson	Dr. Charles Enfield.
Albia(Maxon)	Gus Johnson.	Keokuk	*Fred. Z. Gosewisch.
Algona	C. D. Pettibone.	Keosaqua	Prof. J. H. Landes.
Alta	D. E. Hadden.	Knoxville	Casey and Beaver.
Alta (near)	W. J. Minard.	Larrabee	H. B. Strever.
Amana	Conrad Schadt.	Lenox	J. L. Hurley.
Ames (Exp. Sta.)	W. H. Hellenan.	Logan	Mrs. M. B. Stern.
Atlantic	J. W. Love.	Madrid	G. B. Heath.
Atlantic	George W. Franklin.	Malvern	R. F. Norton.
Audubon	J. F. Hocker.	Mason City	H. I. Smith.
Belknap	A. W. Rankin.	Marshalltown	C. M. Cook.
Belle Plaine	S. P. Vandike.	Mechanicsville	Rev. J. W. Hubbard.
Bonaparte	Hon. B. K. Vale.	Moore	F. G. Thomas.
Carroll	Moses Simon.	Monticello	Henry D. Smith.
Cedar Falls	Prof. A. C. Page.	Mount Vernon	Prof. A. Collins.
Cedar Rapids	B. D. Olds.	Mt. Ayr	R. O. Beard.
Centerville	Prof. H. E. Reister.	Mt. Pleasant	Dr. Max E. Witte.
Charlton	Hon. S. H. Mallory.	Neola	J. E. Hemsworth.
Charles City	J. W. Smith.	Newton	A. Lufkin.
Clarinda	A. S. Van Sandt.	Ogden	E. Sayre.
Clinton	Luke Roberts.	Omaha, Neb	*L. A. Welch.
College Springs	A. A. Berry.	Osceola	A. W. Lewis.
Corning	John W. Bixby.	Ovid	H. C. Miller.

METEOROLOGICAL OVSERVERS AND STATIONS.—CONTINUED.

STATIONS.	OBSERVERS.	STATIONS.	OBSERVERS.
Cresco	Gregory Marshall.	Osage	G. D. Pattingill.
Davenport	*F. J. Walz.	Oskaloosa	Joseph Boyd.
Delaware	William Ball.	Ottumwa	L. J. Baker.
Decorah	F. B. Baker.	Panama	William J. Wicks.
Denison	M. E. Lies.	Portsmouth	T. B. Burr.
Des Moines	*Geo. M. Chappel, M. D.	Postville	F. L. Williams.
Dubuque	*T. W. Ruete.	Primghar	E. S. Proper.
Eldora	Prof. C. F. Woodward.	Rock Rapids	W. C. Wyckoff.
Elkader	Charles Reinecke.	Rockwell City	G. B. Rigg.
Emmetsburg	J. A. Carmichael.	Seymour	Mrs. C. A. Conger.
Estherville	M. L. Archer.	Sibley	H. G. Doolittle.
Fairfield	Charles J. Fulton.	Sidney	G. V. Swearingen.
Fayette	B. Z. Laidmer.	Sioux City	*U. G. Pursell.
Ft. Madison	Miss L. A. McCready.	Sac City	Dr. C. Brown.
Forest City	J. A. Peters.	South Amana	John Cownie.
Galva	W. A. Crowley.	Spencer	F. E. Willard.
Garden Grove	M. Wemple.	Spirit Lake	W. C. Drummond.
Glenwood	Seth Dean.	Sutherland	W. H. Bloom.
Greenfield	J. G. Culver.	Toledo	Charles Mason.
Grinnell	Prof. S. J. Buck.	Vinton	T. F. McCune.
Grundy Center	George F. Ellis.	Villisca	J. F. McCartney.
Guthrie Center	T. J. Foster.	Washington	William A. Cook.
Hampton	E. C. Grenelle.	Waterloo	M. L. Newton.
Hawkeye	J. W. Bopp.	Waukee	John Wragg.
Hopeville	M. T. Ashley.	What Cheer	O. D. Lawrence.
Humboldt	H. S. Wells.	Wilton Junction	J. M. Rider.
Independence	E. F. Wulfke.	Winterset	William McKnight.
Indianola	Prof. J. L. Tilton.	West Bend	Phillip Dorweiler.
Iowa City	Prof. A. L. Arner.	Williams	A. C. Fuller, Jr.
Iowa Falls	J. B. Parmelee.		

*U. S. Weather Bureau.

WEATHER CROP OBSERVERS.

STATIONS.	OBSERVERS.	STATIONS.	OBSERVERS.
Afton	M. V. Ashby.	Le Mars	Hon. Henry Schrooten.
Agency	J. H. Van Zandt.	Ledyard	Frank Miller.
Albia	William Mercer.	Lawler	Hon. William Glattly
Alta	Hon. H. T. Saberson.	Lawler	Peter O'Byrne.
Anita	H. T. Chapin.	Lockridge	John F. Farman.
Ankeny	Ed. Parmenter.	Marshalltown	Hon. S. B. Packard.
Battle Creek	A. Preston.	Marshalltown	Hon. J. G. Brown.
Bloomfield	George Duffield.	Mason City	William Nettleton.
Boone	L. C. Morris.	Mapleton	A. Lamb.
Bristow	G. W. Wells.	Mount Pleasant	W. S. Wright.
Carson	G. N. Ferguson.	Milton	Hon. E. C. Holland.
Centerville	Lewis Phillips.	Mount Vernon	Robert Smith.
Charles City	W. B. Towner.	Newton	J. P. Beatty.
Charlton	C. C. Burr.	North English	J. L. Williams.
Clarksville	F. M. Russell.	Nevada	O. G. Ashford.
Corning	Jerome Smith.	Osage	E. W. Stacy.
Clermont	Charles Larrabee.	Orange City	H. J. Vande Was.
Concord	J. M. Elder.	Paton	A. B. Cordit.
Council Bluffs	L. Prouty.	Pittsburg	G. C. Duffield.
Dedham	J. A. Horton.	Paullina	Stephen Harris.
Danville	Sherman Matthews.	Rockwell City	M. W. Cooper.
Emerson	Hon. B. Nims.	Rock Rapids	D. E. F. Merrill.
Ely	Hon. A. J. Fuhrmeister.	Rossville	F. B. Wiley.
Fulton	Carl S. Frank.	Sageville	Hon. F. N. Knoll.
Fontanelle	Hon. L. M. Kilburn.	Seymour	J. F. Wagner.
Ford	J. C. Richards.	Shenandoah	Reuben Mullison
Fort Dodge	R. W. Blain.	Spirit Lake	S. L. Pillsbury.
Geneva	William H. Thompson.	state Center	E. N. Thompson.
Grinnell	A. O. Price.	Sumner	John Dawson.
Guthrie Center	W. F. Bailey.	Tama	W. D. Mallin.
Hesper	G. E. Dillingham.	Unity	Edw. Hummer.
Hodge	James Piper.	Van Horne	Spencer Smith.
Hamlin	F. P. Moore.	Wapello	O. P. Smith.
Humeston	Hon. S. H. Moore.	Wheatland	D. Beckman.
Independence	C. L. Thomas.	Willow Creek	W. S. Nicholson.
Indianola	T. B. Hammer.	Winterset	H. A. Kinsman.
Jefferson	S. M. Taylor.	Wall Lake	T. E. Wilcox.
Knoxville	B. F. Banta.	Walnut	F. L. Martin.
Larrabee	H. H. Carnahan.	What Cheer	O. D. Lawrence.

METEOROLOGICAL SUMMARY FOR 1895.

Barometer.—The mean atmospheric pressure for the year was 30.04 inches, which is about the normal for this state. The highest reading reported was 30.93 on January 8th, at Clarinda; lowest for the year, 29.22, on April 25th, at Sioux City; range for the state, 1.71 inches.

Temperature.—Mean for the year, 45.5°, which is about 1° below the normal for Iowa. The highest temperature reported, 104° at Glenwood, on May 28th, and at Belle Plaine, Neola and Sidney on July 16th. The lowest temperature was 33° below zero, at Sibley on February 1st. Annual range of temperature, 137°.

Precipitation.—The average precipitation (rain and melted snow) for the state was 26.63 inches, about 8.25 inches below normal. The greatest daily rainfall was 6.70 inches at Guthrie Center on the 23d of August. Average number of days on which .01 of an inch or more of rain fell during the year, 70.

Wind.—Prevailing direction, south; highest velocity reported, 60 miles per hour from the northwest at Sioux City on the 28th of April, and at Davenport on the 7th of July. Total movement of wind, 78,657 miles.

Weather.—There were 169 clear days during the year, 108 partly cloudy days, and 88 cloudy days.

MONTHLY WEATHER SUMMARY, 1895.

JANUARY.

The mean pressure for the state was 30.13 inches; highest observed, 30.93, at Clarinda on the 8th; lowest, 29.27, at Keokuk on the 25th; range, 1.66 inches.

January was colder than the average, with less than the normal amount of precipitation. The daily mean temperature was 13.6° for the state, which is 2.6° below the normal. The highest temperature reported was 68°, at Villisca on the 20th; lowest, 31° below zero, at Elkader on the 28th. Six cold waves of considerable severity, swept across the state during the month, giving greater than the usual extremes of temperature.

The average precipitation, mainly in the form of snow, was only .85 of an inch (melted), which is .52 of an inch below the January normal.

The highest wind velocity was 54 miles per hour at Davenport on the 21st. There were 15 clear days, 9 cloudy and 7 partly cloudy.

OBSERVERS' NOTES.

Fort Dodge—R. W. BLAIN: The past month has been quite cold, the temperature being below zero on 11 mornings, the lowest 15° below on the 30th. The wind blew on the 11th, 21st and 25th at a velocity of 20 to 35 miles an hour. Snow fell on 5 days, the total being about four inches. Ground frozen to a depth of two feet. Water for stock scarce. Many wells have been put down from 40 to 160 feet.

Monticello—HENRY D. SMITH: For the month of January the maximum temperature in 42 years was 62°, in 1855; minimum, 33° below zero, in 1883; the mean for 42 years is 14.77°. Highest precipitation in same period, 3.77 inches in 1866; lowest, .29 in 1865. Greatest amount of snowfall, 28.5 inches in 1861; normal precipitation, 1.65 inches. Thunder and lightning on the 20th and 21st.

Keosauqua—JOHN H. LANDES: Light thunder and lightning on the night of the 20th. Snowed all day the 25th.

Fayette—R. G. LATIMER: Distant thunder on the morning of the 21st. The snow is quite badly drifted and plowed ground nearly bare. Sleighing fair for light sleighs.

Cedar Rapids—H. D. OLDS: Heavy thunder the afternoon of the 20th and forenoon of the 21st, with some hail. Vivid lightning. An old-fashioned northeastern snow storm on the 25th, the amount of snow being 9.5 inches. The mean January temperature for 11 years is 15.8°; highest, in 1891, was 26°; lowest, in 1885, 7.4°.

Clarinda—A. S VAN SANDT: The highest barometer of the month was 30.93 inches on the 8th; lowest, 29.50 on the 5th; mean, 30.15 inches.

Bonaparte—B. R. VALE: A very dry January. Only 3 inches of rainfall in 4 months.

Delaware—WM. BALL: Thunder and lightning on the 20th, preceded by foggy weather and followed by a rapid fall of temperature and high wind.

Alta—DAVID E. HADDEN: The 11th was one of the coldest days experienced in many years, with a northwest gale all day.

Dubuque—T. W. REUTE: Remarkably heavy thunder and sharp lightning on the night of the 20th. Heavy snow on the 25th and 26th, falling 11 inches in 36 hours.

FEBRUARY.

Barometer—Mean pressure for the month, 30.28 inches; highest observed 30.87, at Sioux City, on the 7th; lowest observed, 29.36, at Cedar Rapids, on the 20th; range for the state, 1.51 inches.

February was unusually cold and dry. The mean temperature for the state was 16.4°, which was 5.8° below the normal. The minimum temperature was below zero sixteen consecutive days—1st to 16th, inclusive. The lowest temperature reported was 33° below zero, on the 1st, at Sibley. The last week brought a marked change, with spring-like conditions, during which period considerable wheat was sown in the northern half of the state.

The average precipitation for the state was only .49 of an inch, .93 below the seasonal average. The snow disappeared before the close of the month, and nearly all of the moisture entered the soil. The number of storm days was somewhat below the average for February. The highest velocity of wind was 48 miles an hour at Sioux City, on the 20th.

OBSERVERS' NOTES.

Alta—D. E. HADDEN: High wind on the 20th from northwest, came suddenly, accompanied by dust storm, followed by rain at 5 P. M., and wind diminishing in force. Aurora on the 14th—about 7:30 P. M. to about 9 P. M. Very faint low arch. Also on the 15th—7:25 P. M. to about 10:30 P. M. Arch about 10° altitude with scattering streamers at 8:15.

Cedar Rapids—H. D. OLDS: Severe cold during the first part of the month, followed by milder, and during the last few days by warmer. No snow on the ground at the close of the month. The ice below the dam has gone out, but that above is still in position and is quite rotten. The melting snow has temporarily increased the water supply, but streams and wells are low.

Sibley—H. G. DOOLITTLE: A furious blizzard raged all day on the 6th.

Near Atlantic—G. W. FRANKLIN: Blizzard on the 6th and 7th. Dust storm on the 20th.

Amana—CONRAD SCHADT: Snow all gone by the 24th. Many fish, most of them dead, came down the river during the cold weather.

Algona—C. D. PETTIBONE: First appearance of geese and ducks on the 24th. Meadow larks on the 25th.

Bonaparte—HON. B. R. VALE: The last six days of January and the first eleven of February made a mean average of 1.3° below zero. The snow being drifted has been of no material benefit to the land in way of moisture.

Corning—J. W. BIXBY: Blizzard all day of the 6th.

College Springs—A. A. BERRY: First half of month very cold and stormy. Last half warmer. Farmers commenced plowing.

Clarinda—A. S. VAN SANDT: About 3 P. M. of the 6th the snow was covered by a deposit of brown dust; not from the fields here, as that would be black. Thick enough to cover the snow. Thought to be from the bad lands of Dakota. Dust storm on the 20th from the northwest.

Denison—M. E. LIES: On the 17th the wind blew a gale from the northwest, with a good supply of dust.

Elkader—CHAS. REINECKE: Ice in the Turkey river went out at 8 P. M. on the 25th. It ranged in thickness from two to four feet.

Humboldt—H. S. WELLS: The last of the month was spring-like. Crows abundant. Ducks and geese plentiful.

Keosauqua—J. H. LANDES: From January 26th to February 17th the minimum temperature was considerably below zero.

Larrabee—H. B. STREVER: Noticed first flight of wild geese northward on the 22d.

Monticello—H. D. SMITH: 7th, trains blocked by snow. 26th, river opened. It has been closed 61 days.

Ovid—H. C. MILLER: Dust storms on the 17th, 20th and 27th. On the 1st a pair of robins were singing in the orchard, temperature 16° below zero; they were not seen or heard again till the 27th. The 27th and 28th were warm and spring-like and ducks, blackbirds, robins and pewees were about.

Waterloo—M. L. NEWTON: 15th, snow ten inches deep in the timber. 25th, the snow all gone. 26th, first appearance of spring birds. 27th, wild ducks going north.

MARCH.

Barometer.—Mean pressure for the month, 30.06 inches; highest observed, 30.55 at Cresco on the 13th; lowest observed, 29.33 at Sioux City on the 29th; range for the state, 1.22 inches.

The daily mean temperature was below normal during the first and second decades and considerably above in the closing decade of the month. The mean temperature was 34.4°, which is 2.7° above the normal for March.

The average precipitation for the state was .83 of an inch, which is 1.20 inches below the normal. The prevailing dry weather, and the high winds which are characteristic of March, caused severe and somewhat damaging dust storms on a number of days during the latter half of the month.

Highest wind velocity reported, 43 miles per hour from the south, at Sioux City on the 7th. There were 16 clear days, 7 cloudy and 8 partly cloudy.

OBSERVERS' NOTES.

Algona—C. D. PETTIBONE: 23d, 24th, 25th and 28th the worst dust storm ever seen in this section—farming operations entirely suspended.

Alta—D. E. HADDEN: Heavy wind and dust storm on the 21st from the south; on the 23d from the northwest all day, also on the 24th and 25th; on the 28th from the southeast all day.

Amana—C. SCHADT: Polar bands on the 7th and 18th. Dust storms on 23d, 24th, 25th and 28th. The dust storm of the 25th was especially remarkable.

Cresco—GREGORY MARSHALL: Dust storms on the 24th and 25th. The 29th was the hottest day during March on record.

Forest City—J. A. PETERS: A storm of sand and dust on the 24th and 25th.

Garden Grove—M. WEMPLE: Very severe storms of sand and dust on the 22d, 23d and 25th.

Greenfield—J. G. CULVER: On the 24th and 25th the atmosphere was thick with dust Early soft maples thick with bloom. Flocks of purple greckle singing in the trees. Song sparrows and bunting occasionally seen in the prairies. 28th, first bluebirds.

Humboldt—HENRY S. WELLS: A good part of the wheat is sown. Too early to determine if the grass is killed.

Iowa Falls—J. B. PARMELEE: Wild geese seen on the 18th, bluebirds on the 26th and robins on the 27th.

Larrabee—H. B. STREVER: Dust storms on the 21st, 23d and 24th. Robins appeared on the 29th.

Monticello—H. D. SMITH: First plowing on the 26th. Oats sown on the 27th.

Osage—G. D. PETTINGILL: Dust storms on the 23d, 24th and 25th. The air was filled with dust continually. Enough dust was blown from the bare ground to form quite large drifts from six inches to two feet in depth along the fence rows.

Osceola—A. W. LEWIS: Oat sowing commenced on the 19th and was completed with ground in good condition and drouth broken.

Orid—H. C. MILLER: Dust storms on the 9th, 22d, 23d, 24th, 25th and 29th. First wild geese seen on the 18th; cranes going north on the 26th and 30th; barn swallows arrived 27th; snipes seen 30th; frogs peeping 26th; grass beginning to show green 28th; lilac leaf buds open 29th; blue violets and golden rod up 29th. The driest and most dusty March ever known here.

APRIL.

Barometer.—Mean pressure for the month, 29.96 inches; highest observed 30.34 at Clarinda, on the 13th and 22d; lowest observed, 29 22 at Sioux City, on the 5th; range for the state, 1.12 inches.

The month of April was unusually warm and favorable for farm work and seeding. The mean temperature for the state as shown by the reports from 90 stations, was 54.2°, which is about 6° above the normal. At the close of the month a considerable area of corn had been planted in all the districts of the state, and some of it had germinated, showing an even stand. Some high temperatures were reported, the highest being 98° at Glenwood, on the 24th.

The average precipitation for the state was 2 62 inches, which is about the normal amount for April. It was somewhat unequally distributed, the largest amount being 5 88 inches at Guthrie Center, and the least amount, .28 of an inch at Clinton. The larger part of the state, however, received an ample amount of moisture for present needs.

The highest velocity of wind was 60 miles an hour at Sioux City, on the 28th. There were 14 clear days, 8 cloudy and 8 partly cloudy.

OBSERVERS' NOTES.

Bonaparte—B. R. VALE: A most seasonable, pleasant and profitable crop month for the farmer

Carroll—M. SIMON: Mr. H. Bumbower's barn in Kniest township was struck by lightning on the 29th, destroying the barn, five horses and machinery valued at $2,000.

Cedar Rapids—H. D. OLDS: The ground has been in excellent condition for seeding, and the greater part of planting will have been completed by the end of the month. Fruit trees were in full bloom on the 24th, giving promise of an abundant crop.

Monticello—H. D. SMITH: Potatoes and peas planted in the garden on the 10th. Dust storm on the 13th. Soft maples in bloom on the 16th, cottonwoods in blossom on the 22d, and box elder blooming on the 23d. First corn planted on the 23d. Crab apples in blossom on the 27th, currants, plums, apples and gooseberries in blossom.

Neola—Corn planting in full blast, and all work well advanced.

Ovid—H. C. MILLER: Very high wind on the 29th from the south, estimated at 50 miles an hour. Sheds and stacks blown down, and orchards damaged to some extent.

Ottumwa—L. J. BAKER: Hail on the 6th at 12:40 P. M; stones half an inch in diameter and lying on the ground half an inch in depth.

Toledo—CHAS. MASON: The rainfall from January 1st to the present time is 3.02 inches. It is remarkable that cherry, apple and plum trees are in full bloom. A great deal of corn is planted and some is up The high temperature all the month has brought forward vegetation very rapidly.

MAY.

Barometer.—Mean pressure, 29.96 inches; highest 30.39, at Clarinda on 21st; lowest 29.26, at Sioux City on 28th.

The monthly mean temperature for the state was 61.7°, which is 2° above the normal for May. It was a month of extremes, and sharp fluctuations in temperature, the range being from 94° to below the frost line. The average for the first decade was about 12° above the normal. From the 10th to the 22d, the average was about 10° below normal, and the closing week brought the temperature up again somewhat above the normal line, so that the mean for the whole month was higher than the average. There were two periods of general frosts throughout the state—11th to 14th and 19th to 22d. All sections were visited by killing frosts on one or more days, causing much damage in the aggregate to grapes, garden vegetation, corn, potatoes, rye and some other crops. By the close of the month, however, the field crops had mostly recovered their lost ground, and the conditions were then very favorable. It was an unusually good month for farm work.

The average rainfall for the state was 3.19 inches, which is about one inch below the seasonable average. There were many complaints of drouth, but they were mostly silenced by the copious showers of the 30th and 31st.

OBSERVERS' NOTES.

Afton—N. W. ROWELL: Frost on night of the 11th damaging vegetables in gardens. On night of 12th another frost, inflicting serious damage to gardens and fruits. The 17-year locusts were promptly on hand June 1st.

Amana—C. SCHADT: Hail storm 1st and 2d; some stones large as hen's eggs, but did little damage to crops. The frost of the 14th killed grapes, corn, potatoes, rye and beans. Corn was partly replanted and all crops had about recovered at end of month. The frost annihilated the finest prospect for fruit that was ever seen here.

Atlantic—G. W. FRANKLIN: Freeze on 12th killed rye in bloom; also much fruit, etc.

Belle Plaine—H. W. VANDIKE: The month gave greatest extremes of heat and cold of which we have a record for eleven years.

Bonaparte—HON. B. R. VALE: The rain early in month gave vegetation a great send-off; but the freeze set back everything and especially corn, so the 1st of June finds us little in advance of May 10th.

Chariton—HON. S. H. MALLORY: Frost killed nearly all grapes: cut off the corn, but did not kill it. Grass is short; rye and oats good. Very little winter wheat sown.

MAY TORNADOES.

On May 2d and 3d a cyclone of extended area passed over the upper Mississippi valley. On the 3d the center of the disturbance was near the line of North and South Dakota, and during the afternoon and evening of that day severe local storms were developed in the southeast quadrant of the cyclonic area, embracing a considerable portion of the northern half of Iowa. There were wind squalls of much force in numerous localities in this state.

The greatest loss of life and destruction of property occurred in Sioux county, where a heavy wind squall was accompanied by a small group of tornadoes of minor dimensions and considerable force, which swept a narrow pathway of desolation for a distance of over thirteen miles in a northeasterly direction. It appears probable, from the various reports, that there were two or more tornadoes developed within the belt of the storm, which varied in width from one to two miles. The storm was complex, or a combination of straight winds and an occasional descent of swiftly revolving funnels, or tornadoes. This will account for the apparent zig-zag course of the storm.

The work of destruction began in section 33, Center township, Sioux county, at about 3:20 P. M. From that point of contact the storm passed a little west of Sioux Center, and expanded its greater measure of force at or near the town of Perkins, or between that place and Hull. Beyond those points there were occasional traces of tornado action at various points, indicating alternate descent and rebound of the whirling shafts, and a general spreading out of the belt of squalls, with a gradually diminishing force.

In Osceola county, near Sibley, the effects of tornado activity were noted at a number of points within a belt of varying width, from two to three and a half miles. In that county, says the Osceola *Tribune*, "the storm was mostly in the nature of a straight wind, with a fall of rain that amounted almost to a water spout." A number of farm residences and other buildings were wrecked in that county and one fatality occurred, Mrs. John Walterman being killed at her home, four and a half miles west of Sibley.

At every point along the line of disturbance observers report the usual appearance of clouds coming together, from west and southeast, preceding the development of the funnel-shaped storm center. One account states that the storm cloud appeared, from a distance, like an elongated, inverted dome.

Following is an extract from the report of J. H. Sherman, of Ireton, Sioux county:

About 3:20 P. M., May 3d, dark clouds from the west were seen moving in a north, northeast direction, also a heavy cloud from southeast seemed to move in a northerly direction. The two storm centers apparently met about four miles northeast of Ireton, in Center township, at the farm of M. B. Coombs, sweeping away his barns and granaries and taking off the "L" to his house, leaving the main part standing, but unroofed. North one-half mile it struck a schoolhouse, completely destroying it, killing the teacher and injuring all of the scholars. From there it continued in a north, northeast course, sweeping away farm buildings and everything in its way. Many fine farm houses and barns were completely demolished. Fifteen people are known by the writer to have been killed, and about thirty injured, many of them fatally. Considerable live stock was also killed. Hail fell in the vicinity of Rock Valley, doing much damage, and in the west part of the county a flood of rain, sweeping away bridges, overflowing bottoms, etc.

Postmaster H. Bruins, of Sioux Center, writes as follows:

The storm, observed from its eastern side, had the aspect of a rolling, tumbling mass of clouds. From the west, an observer who saw it at a distance of 200 yards says that it looked like the regulation cyclone—funnel-shaped. On the east side the clouds seemed to dash to the earth, pass around in front of the cloud near the earth and return behind it, but near the top. The whirling could not be observed from this (east) side. The large buildings were all taken off their foundations, the northeast corner of the buildings struck the ground about 10 or 20 feet distant where they were broken up. Buildings on the eastern verge of the path were carried slightly northwest, while those on its western side were carried south or east. The storm was not accompanied by much thunder. Four or five miles east of north and the same distance west immense hailstones fell, breaking window panes, etc., but not damaging crops to a great extent.

Eight people killed outright.
Seven people fatally hurt.
Nine people hurt—legs or arms broken.
About twenty or twenty-five bruised, etc.

Those who fled into caves at the approach of the storm were not hurt. Not one who took refuge in a cellar was hurt. Pans of milk, bottles, etc., in cellars were left intact.

JUNE.

Barometer.—Mean pressure for the month, 30 inches; highest observed, 30.25 inches at Cresco, on the 25th; lowest observed, 29.60 at Sioux City, on the 24th; range for the state, .65 of an inch.

From an agricultural point of view in the larger part of the state, June was an ideal month. The mean temperature for the state was 69.7°, which is about .5° above the normal. The highest recorded temperature for the month was 102° at Neola, on the 23d; lowest, 34° at Rock Rapids, on the 27th and 28th. Light frosts were reported in various places on the 27th and 28th, but no damage to crops resulted.

The average rainfall for the state was 4.32 inches, which is about .63 of an inch below the seasonable amount. The distribution was quite unequal as it generally is at this season of the year, the bulk of the summer rainfall coming in the form of local showers. The highest amount reported was 9.26 inches at Mt. Ayr, and the minimum quantity was about .98 of an inch at Amana. In four-fifths of the state, however, the rainfall was sufficient to give sustenance to nearly all staple crops.

The wind blew 52 miles an hour at Sioux City on the 25th, from the north.

OBSERVERS' NOTES.

Belle Plaine—W. H. VANDIKE: A gale of wind occurred on the 23d; estimated velocity about 45 miles an hour. The most damage was done to shade trees, breaking off limbs where perforated by borers. On the 25th occurred the heaviest rainfall in 24 hours since September 8, 1892.

Bonaparte—HON. B. R. VALE: A seasonable growing month. The wind and the rain of the 17th lodged much oats, which is the only violence done crops since the freeze in May.

College Springs—A. A. BERRY: A splendid month for the farmers. The drouth was broken with 7.94 inches of rain for June, and 2 inches in the last two days of May, making about 10 inches in 32 days. Everything fine corn laid by in fine shape.

Cedar Rapids—H. D. OLDS: The rainfall on the 23d and 25th put corn and oats in good shape, but the hay crop will not exceed 65 per cent of an average. Hail did some damage in the eastern part of the county on the 25th.

Grand Meadow—F. L. WILLIAMS: The month was marked by very hot weather in the first part, and close to the frost line the latter part. Very little thunder with the showers.

Garden Grove—M. WEMPLE: June has been a great month for farmers. Everything at its best, and no one can complain.

Neola—J. E. HEMSWORTH: On the 17th the heaviest rainstorm of the season, with severe hail and sharp lightning. Rain washed corn badly.

Clinton—DR. LUKE ROBERTS: June, 1895, was one of the finest of months, and the wonderful development of flowers and foliage made the landscape beautiful, and the morning and evening rides, by those who were fortunate enough to secure them, were pleasurable and exhilarating. Considering the severe drouth of early spring and the freeze in May, the June development of products of the soil were wonderful, and fully up to the average.

It is to be regretted that this pleasing recital is not applicable to all of Clinton county. It was only the eastern portion which was visited with timely and generous rains. The total precipitation for the month was 4.68 inches, being a normal amount. At the time of the 3-inch rainfall on the 17th, only a sprinkle was deposited through the central part of the county.

Corwith—E. P. TREGANZA: On the 23d a hailstorm ruined crops in a strip two miles wide in sections 9 and 10, Magor township, Hancock county. In places some of the hailstones were large as goose eggs. Some pigs and chickens were killed, and trees were stripped of their leaves.

Emerson—D. B. NIMS: The rainfall for June was as follows: On the 2d, .41; 3d, .28; 9th, 2.20; 12th, .50; 17th; 1.50; 23d, .35; 27th, 1.00; 28th, 1.01. Total for month, 7.25 inches.

Villisca—J. F. MCCARTNEY: On the 14th and 23d heavy showers southeast of Villisca, with hail, damaged crops in a strip one mile wide by six or seven miles long. Wheat ruined; oats and corn badly hurt.

JULY.

Barometer.—Mean pressure for the month, 29.98 inches; highest observed, 30.32, at Clarinda, on the 10th; lowest observed, 29.55, at Cedar Rapids, on the 26th; range for the state, .77 inches.

The month of July was slightly cooler than the average, with less than the normal precipitation for the state.

The mean temperature was 72.1°, which is 2° below the normal for July. The highest temperature reported was 104°, at Neola, Belle Plaine and Sidney, on the 16th; and the lowest was 35°, at Logan, on the 9th.

The average precipitation was 3.40 inches, which is .90 of an inch below the normal. The distribution was remarkably unequal. The greatest amount reported was 10.10, at Iowa City, and the lowest amount, .45, at Neola. In some sections there were very excessive downpours on single days.

The highest wind velocity reported was 60 miles an hour, at Davenport, from the west, on the 7th.

Average number of clear days, 15; 4 cloudy and 12 partly cloudy.

OBSERVERS' NOTES.

Iowa City—PROF. A. L. ARNER: On July 18th, at 9 P. M., began a thunderstorm of unusual severity. It ceased at 3 A. M., July 19th, and in the six hours of its duration 4.67 inches of water fell. There was no violence in the storm, and no funnel-shaped cloud is reported to have been seen. The rain fell, unaccompanied by wind, in such torrents that the Iowa river raised two feet in an hour and about ten feet by the following morning. A great deal of thunder and lightning added to the fury of the elements, the latter striking twice with little or no damage within the city limits. Ralston creek, which empties into the Iowa at this place, was out of its banks so soon that the residents along it were caught in bed by the rising tide. Barns and bridges were swept away in its path. Most of the houses on the flat along Iowa avenue were flooded with water a foot or more in depth. Probably a dozen bridges in the city need more or less repairs, while the total loss to the county on bridges will amount to $12,000. The path of the storm lies west to east, and extends about ten miles north and ten miles south of this city.

As said above, the storm itself caused no destruction; it was simply a heavy downpouring of water, not in drops, but in sheets or waves succeeding each other with great rapidity.

This is not the place to theorize on the cause of such a storm; but it may be mentioned that it was quite in the natural course of events, that is, the time was ripe for such a storm. Three and thirty-two hundredths inches of rain had fallen in the previous three days, and a temperature of from 90° to 100° maintained a steaming atmosphere. Heat and moisture the prime food of storms, were on hand in great supply.

Bonaparte—HON. B. R. VALE: A cool month, with 5.17 inches of rain, but well distributed over the period and accompanied by no severe winds. The earth and plants took up the moisture, leaving no excess on the surface.

Clinton—DR. LUKE ROBERTS: There was much thunder and lightning during the month, and especially heavy on the 7th, 14th, 18th and 26th doing some damage on the last date. Hail on the 26th did some damage, but the benefits of the heavy downpour were great. Pastures, corn and late potatoes were improved.

College Springs—A. A. BERRY: The storm of the 18th was the most severe ever witnessed here. Rain fell to the amount of 5.84 inches in a few hours—the heaviest rainfall on record at this station. Some damage was done. Corn will be a banner crop. Wheat two-thirds of a crop.

Ovid—H. C. MILLER: The storm of the 18th was very severe. Two houses were struck at Humeston, E. A. Rice's store at Corydon and A. Tolliver's barn in Clinton township. Horses and cattle were killed in fields and stacks were struck. One man was knocked senseless but no lives lost.

Iowa—CONRAD SCHADT: Pastures and meadows, almost burned by the drouth, have revived and grown wonderfully since the middle of the month. We need more rain. The 6.46 inches which fell in the last two weeks were entirely absorbed and the roads are again dusty.

Primghar—E. S. PROPER: July has been a fine month for farm products. This county will have the largest crop ever raised since its settlement.

Toledo—CHARLES MASON: July was very dry, with hot, sunny days and cool nights till the middle of the month, when a change took place. Showers came just in time to save the corn and potatoes. According to my records, kept for twenty-five years, we are now short in the last seven years 110 inches of the average rainfall. Our sloughs are dried out and our streams dwindled to rills. When this condition will change we can not tell.

West Bend—PH. DORWEILER: Harvesting finished; a light crop, but badly lodged. Two light frosts on the 9th and 10th, and hail on the 18th and 25th; damage in some localities.

A JULY TORNADO.

On the evening of the 26th a small tornado formed in the southeastern corner of Bremer county and passed southeasterly through a portion of Lester township in Black Hawk county, the distance traversed along the surface being about seven miles, and the width of the shaft was about thirty rods. The station at Fairbank, on the Chicago & North Western railway, was near the track of the storm, and the Fairbank *View* gives a graphic description, from which we make the following extracts:

Friday, July 26th, what was, probably the worst wind storm ever witnessed in these parts, passed about two and a half miles west of Fairbank. The tornado formed just the other side of Grove Hill and traveled in a general southeasterly direction, swaying to and fro like a huge serpent. It was first seen about 4 o'clock and it was almost 7 before it broke and left the ground. The distance traveled was seven or eight miles. The forward motion was very slow and anyone would have ample time to get out of the way. There was no lightning or thunder and but very little rain accompanying the tornado, but the rumbling noise which it made could be heard for miles and was louder than the combined noise of a half-dozen ordinary thunderstorms. The cloud changed considerably in appearance during its progress. At first there was nothing especially denoting danger, being but an ordinary cloud, a little dark, but quite high. The funnel-shaped appendage which finally assumed such large proportions, seemed at first no larger than a stove pipe, and to one not in the habit of studying the clouds was no warning of the terrible fury it contained. It soon increased in size and as it came closer to the ground the bottom was black, but the top of the column, as well as the large cloud from which it hung, was about the color of smoke from an old coal fire. Everything directly in its path was destroyed. Oats, in shock, were taken up and never seen again except in the way of straws, which were scattered for miles on both sides of the tornado. Hay and grain were treated in like manner. Corn, directly in the path, appeared as if a heavy hail storm and flood had passed through. All along the side of the path for a distance of twenty or thirty rods, the corn is bent toward the tornado showing the wonderful suction power it possessed. The wire fences, not too close, have a fringe in the shape of hay and grain which caught on the barbs and fence posts. There is nothing left of fences directly in the path except badly tangled wire and broken posts.

The Cedar Falls *Gazette* also gave some interesting details of this peculiar storm, which fortunately destroyed no human lives. The *Gazette* says:

The roar which many heard last Friday evening, July 26th, came from a small tornado over in the northeast corner of this county. The home of Charles Adams, who is now in the penitentiary at Anamosa for the murder of Howard, was entirely destroyed. Mrs. Adams and the children were saved by fleeing to the cellar, but one of the little folks was slightly injured by the limb of a tree which was blown over the foundation. It is said a large hog was blown into the cellar. A barn on the Walgamoth place was blown down. Mr. Adams, Sr., who is very feeble, was on his return from a visit to his son Charles, at Anamosa, when the destruction came. They are having a full share of trouble.

Mrs. Adams, her two children and Adams' two nephews who are working the farm, took refuge in the cellar when they saw the funnel-shaped monster coming, but had been in there only a few seconds when an awful crash came and the house disappeared as if by magic. It was scattered in all directions, leaving nothing above the occupants of the cellar but the sky. The house was located in a grove of large oaks and one of these was torn out by the roots and, strange as it may appear, was deposited in the cellar, one of the roots striking one of the nephews, whose name is Monroe, and injuring him, but not seriously. Another freak, equally as strange, but with less serious results, was when, a few minutes after the tree had been deposited in the cellar a hog, weighing about 150 pounds, was also dropped down into the cellar beside the terror-stricken occupants. His hogship seemed pleased to be "in the hole," and did not grunt a single grunt, but, on the contrary, kept remarkably quiet, doing nothing more than shake his ears. The cyclone wrecked all of the barn except one stall into which two horses had been taken a few minutes before the twister came. They were left with the harness on. The aerial monster took every vestige of harness off one of them, while the other was left just as he had been when taken into the stall. Chickens had their feathers blown off, furniture was scattered in all directions, and there was a swath of twenty-five rods through the grove of oaks and adjoining timber land. One large oak was cut off about thirty feet from the ground. It stood about ten rods from Adams' house. The tornado, probably feeling sorry for what it had done, took a woman's woolen skirt and brought it down over the high stump, just as nicely as if the skirt had been spread out with hoops—making a cap to hide the damage it had done. A twelve-pound sledge hammer which was being used to drive fence posts by one of the Monroes was picked up and carried a distance of seventy-five rods and all the posts that had been driven were either torn out or broken off. A drive well pump was "driven" out of sight, and at a more rapid gait than it was ever before used to. The Adams' corn field was the next place visitied, and through this a swath thirty or forty rods in width was mowed.

Two colts in the southeast part of Bremer county were taken up from the earth about 1,000 feet, until they looked like specks, then dropped and instantly killed. A large barn 64x56 feet, belonging to Mr. Bradley, was destroyed. It blew trees down on the house, wrecking the roof, but all of the family, except one boy, were in the cellar. This boy would not go into the cellar, but ran out into a field in an opposite direction

to that of the cyclone and was uninjured, as were also the other members of the family. The twister appeared to be keeping time to music from the home of the furies, for it kept going up and down. Now it would rise to a height of several hundred feet from the ground and then suddenly dart down again toward the earth, appalling all who saw it.

AUGUST.

Barometer.—Mean pressure for the month, 29.94 inches; highest observed, 30.30, at Sioux City on the 31st; lowest observed, 29.58, at Sioux City on the 8th; range for the state, .72 inches.

The month of August was unusually favorable. The mean temperature of the state was 71.9°, which is about 1° above the normal.

The average rainfall was 4.43 inches, as shown by reports from eighty-eight stations. This is .83 of an inch above the normal for the state at large. The heaviest rainfall reported for the month was 10.63 inches at Panama, Shelby county.

The crops were greatly benefited by this excess of moisture.

OBSERVERS' NOTES.

Audubon—L. P. HOCKER: On the 23d the heaviest thunderstorm known in many years passed over this station. Rain, 6.25 inches.

Belle Plaine—H. W. VANDIKE: I have recorded in this state forty years and have never known the soil to be so dry. Many forest trees are dying.

Bonaparte—HON. B. R. VALE: A royal month for threshing and saving the crop. The rains of the 23d and 28th gave us over four inches, and put the soil in excellent tilth.

Cedar Rapids—H. D. OLDS: Total rainfall January 1st to August 31st, 13.79 inches, which is 11.05 inches short of normal. Crops are well out of the way of frost. Water for stock is the greatest need.

Larrabee—H. B. STREVER: A severe hailstorm on the 9th passed a half mile east of this station, damaging crops considerably on a strip one-half to three-fourths of a mile wide and 7 to 8 miles long.

Monticello—H. D. SMITH: Maximum temperature for August since 1854: 99° in 1894; minimum, 36° in 1862-3. Normal for August, 70.2°. Maximum rainfall, 8.50 inches in 1885; minimum, .22 in 1889; normal, 4 inches. Total for August, 1895, 1.46 inches.

SEPTEMBER.

Barometer.—Mean pressure for the month, 29.96 inches; highest observed, 30.43, at Charinda, on the 27th and 30th; lowest observed, 29.39, at Sioux City, on the 19th; range for the state, 1.04 inches.

The mean temperature for the state was 66.8°, which is 4.8° above the normal for September. The month will be noted for its high temperatures, especially during the second decade, there being at the central station an average daily excess of 15° from the 10th to the 21st inclusive, during which time there were but two days on which the minimum temperature was as low as the normal temperature for that period. By referring to the table of meteorological data it will be seen that ten stations in the state report the temperature as being above 100° during the second decade, and Sioux City and Glenwood reports 103° on the 17th. The month closed with a cold wave which gave killing frosts over the larger portion of the state, and temperatures below the freezing point throughout the northern half of the state.

The average rainfall for the state was 3.03 inches which is .67 of an inch below the normal for the month.

OBSERVERS' NOTES.

Afton—N. W. ROWELL: Never saw it so hot in September up to 21st. Frost the 23d; no damage to crops.

Alta—DAVID E. HADDEN: Fifth, 8 P. M. to about 12 M. local storm with high west wind, heavy rain, some hail and sharp lightning; two horses killed by lightning. Thunderstorm on 21st from 1:15 A. M. and at intervals to about 11 A. M., also at intervals in afternoon to 7:30 P. M.; very heavy rains at intervals all day.

Amana—CONRAD SCHADT: Thunderstorms on the 6th, 13th, 15th, 22d and 28th. The month was very warm, especially the week ending September 21st, the mean temperature of which was 2° above the hottest week in July. Late corn had a good chance for ripening. The first frost, which was also a killing one, arrived on the last day of the month.

Atlantic—J. W LOVE: Said to be the warmest September ever known up to the last week; a freeze on the 30th.

Bonaparte—B. R. VALE: An exceedingly warm month, but seasonable and fall crops matured perfectly.

Madrid—G. B. HEATH: First snowflakes noted on the 28th. First flock of ducks seen on the 27th. First ice on the 30th.

Sac City—DR. CALEB BROWN: Light frost—first of season—on the 25th killing frost on the 30th.

Williams—A. C. FULLER, JR.: Temperature on the 11th was the highest recorded since May 1st.

OCTOBER.

Barometer.—Mean pressure for the month, 30.11 inches; highest observed, 30.64, at Cedar Rapids, on the 29th; lowest observed, 29.55, at Cedar Rapids, on the 26th; range for the state, 1.09 inches.

The month of October was abnormally cold and dry, with more than the average amount of sunshine and of bright, clear weather. The mean temperature for the state was 46°—3.5° below the normal for the month. The lowest temperature reported was zero, at Neola, on the 29th.

The average precipitation, as shown by the records of 89 stations, was .47 of an inch—2.38 below the October normal. Eight stations reported no measurable rainfall for the month.

The month, as a whole, was favorable for harvesting corn, potatoes and apples, but the drouth was severe on fall pasture, winter wheat and rye.

Highest velocity of wind reported, 41 miles per hour, at Sioux City, on the 18th. There were 19 clear days, 4 cloudy and 8 partly cloudy.

OBSERVERS' NOTES.

Ames, I. A. C.—A. J. ASHBY: On 31st four to six shocks of earthquake were felt at about 4:20 A. M. No wind blowing. Shocks felt distinctly, and movement of furniture noted in different parts of the building.

Cedar Rapids—H. D. OLDS: The earthquake shocks on the 31st were distinctly felt here; apparent direction from southeast to northwest. The motion was sufficient to leave a distinct record on the thermographic sheet at a little past 5 A. M.

Cresco—GREGORY MARSHALL: The driest October known, with the exception of 1889, when the rainfall was .13 of an inch. Wells and springs are failing.

Dubuque—J. W. RUETE: A shock of earthquake was felt here on 31st, at 5:15 A. M., lasting about thirty seconds.

Glenwood—S. DEAN: An earthquake was felt here on 31st, at about 5 A. M. The month has been very dry and windy.

Grinnell—PROF. S. J. BUCK: Two slight tremors of the earth, lasting three to five seconds, separated by an interval of about ten seconds, occurred at 5:20 A. M. on the 31st.

Iowa City—PROF. A. L. ARNER: On the 31st, at about 5 A. M., occurred an earthquake shock lasting about one minute.

Logan—MRS. M. B. STERN: No rain or snow or storm of any kind during the month. Very dry and dusty.

Marshalltown—C. M. COOK: Earthquake felt here about 5 A. M. on 31st.

Sidney—G. V. SWEARINGEN: At 5:10 A. M. on 31st three shocks of earthquake were felt. There was an undulatory or swaying motion after the shocks, all lasting about one and a half minutes. On the evening of the 12th occurred the grandest display of aurora I ever witnessed.

NOVEMBER.

Barometer.—Mean pressure for the month, 30.12 inches; highest observed, 30.55 at Clarinda on the 29th; lowest observed, 29.61, at Clarinda on the 21st; range for the state, .94 inches.

The mean temperature of the month was 34.3°, which is about the normal for the state. The maximum reported was 86° at Glenwood on the 4th; minimum was 12° below zero at Williams on the 26th.

The average precipitation was 1.51 inches—.25 of an inch below normal. It was generally a favorable month for farm work.

The highest wind velocity was 37 miles per hour at Sioux City on the 5th. There were 9 clear days, 13 cloudy and 8 partly cloudy.

OBSERVERS' NOTES.

Grand Meadow—F. D. WILLIAMS: The ground frozen up very dry. Wells and springs very dry.

Humboldt—HENRY S. WELLS: There is some corn yet under the snow, and many ears have dropped off and will be hard to find.

Monticello—H. D. SMITH: Auroras on the 16th and 23d; 18th, wild geese flying southeast; 20th, Maquoketa river frozen over.

Orid—H. C. MILLER: Wells, ponds and streams very low. No water running in Chariton river, or any other stream that I have seen in this county.

DECEMBER.

Barometer.—Mean pressure for the month, 30.04 inches; highest observed, 30.60 at Sioux City on the 2d; lowest observed, 29.27 at Keokuk on the 24th; range for the state, 1.33 inches.

The month of December was generally pleasant and favorable for closing the work of husking and cribbing the large corn crop. The mean temperature for the state was 25.2°, which is 1.7° below the normal.

The average precipitation for the state was 1.63 inches, which is the normal amount for December. The distribution was very unequal, the bulk of it falling in the southeast and eastern districts, the range being from a trace to nearly 5 inches.

The highest velocity of wind reported was 43 miles an hour on the 28th at Sioux City. There were 11 clear days, 9 partly cloudy and 11 cloudy.

OBSERVERS' NOTES.

Bonaparte—B. R. VALE: This month's precipitation of 4.10 inches is unprecedented in December. In 1891 it was 2.08; in 1892, 1.89; in 1893, 1.17 and in 1894, .52. The total precipitation for the year is 31.93 inches, as against 25.81 in 1894.

Cedar Rapids—H. T. OLDS: Precipitation was in excess of the normal for December. The deficiency for the year still amounts to 9.65 inches, which added to that of 1894, 11.57, makes a total of 21.20 in the past two years, and seriously affects the water supply in this part of the state.

WEATHER AT CLINTON, 1895.

ANNUAL REVIEW BY DR. LUKE ROBERTS.

The mean temperature for 1895 was 47.2°, or .5° above normal. The rainfall was 30.38 inches or 4.86 inches below normal. The deficiency in rainfall for the three years ending December 31, 1895, aggregates 17.38 inches. This is equal to six months of normal rainfall.

January was not over severe in its weather conditions, though the temperature was 2.2° below normal. The 28th and 30th were severely cold, with a temperature 17° below zero. The principal phenomena of the month was first, a dense fog, on the 20th, coming on early in the morning and increasing as the day advanced; this proved to be the warmest day of the month, showing a mean temperature of 41°. Second, a snow storm from the northeast on the 25th gave an average depth of 13 inches, which produced 1.35 inches of water out of the total for the month of 1.89 inches. This snow drifted badly, and seriously interfered with traffic and travel. Third, a solar halo of unusual interest prevailed all the afternoon of the 15th. Fourth, the 31st, furnished the most gorgeous sunset ever witnessed here. In addition to the intense glow which spread out in dazzling splendor a broad, colored band resting on the sun reached upward several degrees.

On the 27th very cold weather set in, lasting until the 16th of February twenty-one consecutive days with the minimum temperature below zero! This is without a recorded parallel. The nearest approach to it was in January, 1888, when for fifteen consecutive days the temperature was below zero.

After February 16th we had pleasant, comfortable weather, with only slight precipitation of snow and rain. Notwithstanding this the mean temperature was 7.5° below normal, the minimum 5.2° below normal.

There was fair sleighing from the 25th of January to the 20th of February; after this the snow rapidly disappeared.

In May, November and December there was an excess of rainfall above normal, and of less than normal in March, April, August and October. The mean temperature was below normal in the months of January, February and October, and in excess of normal in March, April, June, September, November and December.

There were clear days in excess of normal in January, February, May, August and October.

March was very dry; April, still drier, gave the least precipitation of any April on record. Grain, during these two months, had to be sown in the dust—there was not enough moisture to keep the soil from moving with the slightest breeze.

From the first day of January to the close of April only 3.92 inches of rainfall (including melted snow). The nearest approach to this minimum precipitation was the first four months of 1879, when the record was 5.37 inches.

May was more liberal in rainfall and saved the crops from total failure. Some of her storms were very severe, being accompanied with thunder and lightning and hail, notably the storm of the 7th when hard ice was precipitated with a strong northeast wind. On the 14th a freeze occurred which utterly destroyed the grape crop, seriously damaged cherries, and left a blight on almost evergthing green. June was one of the finest of months, and the wonderful development of flowers and foliage made the landscape beautiful. It, however, like its predecessor, opened with warmer atmosphere than it closed.

The weather condition for July averaged mild. One severe rain, hail and wind storm left some damaging marks. This occurred on the 26th between 7:30 and 8:45 P. M., precipitating 2.34 inches of water.

August was dry up to the 23d when the parched earth was revived by a rainfall of 1.44 inches. This month excelled in number of clear days. From the 17th to the 22d of September a hot spell prevailed, which puzzled weather bureau officials in making forecasts. These few days are on record as the most oppressive and enervating of all the summer months. The number of clear days exceeded those of August. The temperature from the evening of the 22d dropped rapidly, going from 87° at 2 o'clock to 52° at 9 o'clock. The next morning it was 42°. The balance of the month was cool.

October was clear, cold and dry. A damaging drouth covered large sections of country at the close of the month, and springs, wells and streams were calling for rain.

November was remarkable for the absence of sunshine and excess of humidity—conditions favorable to much sickness.

December was quite uniform and mild, and favorable to the ingathering of the corn crop which, I understand, was practically all housed as the closing year gave us its farewell salute.

CONSPECTUS.

Highest temperature, 99°, July 7th.
Lowest temperature, 21° below zero, February 2d and 4th.
Extreme range of temperature, 120°.

Mean daily temperature, 47.2°.
Mean daily range of temperature, 23.1°.
Greatest mean monthly range of temperature, 27.3°, in August.
Least mean monthly range of temperature, 12.5°, in December.
Greatest daily range of temperature, 46°, in March.
Least daily range of temperature, 1°, in November and December.
Warmest months, June and August; mean temperature, 72°.
Coldest month, January; mean temperature, 14.1°.
Warmest day, June 3d; mean temperature, 80.5°.
Coldest day, February 1st; mean temperature, 10.5° below zero.
Total number of days with maximum temperature 90° or above, 41; 2 in May, 9 in June, 9 in July, 12 in August 9 and in Septmber.
Total number of days with the maximum temperature at 32° or below, 77; 25 in January, 19 in February, 14 in March, 8 in November, 11 in December.
Total number of days with the minimum temperature at or below 32°, 147; 31 in January, 26 in February, 25 in March, 4 in April, 1 in September, 15 in October, 19 in November, 28 in December.
Mean daily cloudiness, 41 per cent of the surface of the sky.
Month with greatest per cent of cloudiness, December, 66 per cent.
Month with least per cent of cloudiness, September, 24 per cent.
Total number of clear days, 157.
Total number of cloudy days, 91; 36 of these in November and December.
Month with greatest number of clear days, September, 20.
Month with least number of clear days, November and December, 7 each.
Month with greatest number of cloudy days, November.
Month with least number of cloudy days, August, 3.

PRECIPITATION.

Total depth of snowfall, 40 inches.
Greatest fall of snow at any one storm, 13 inches, January 25th.
Total precipitation, rain (and snow melted), 30.38 inches.
Greatest rainfall at any one storm, 3 inches, June 17th.
Month with greatest precipitation, July, 4.69 inches. June gave 4.68 inches.
Month with least precipitation, April, .28 inches.
Month with greatest number of storm days, May, 15.
Month with least number of storm days, October, 3.
Total number of storm days, 88.

THE WIND.

Total movement of wind, 45,090 miles.
Maximum velocity per hour, 32 miles, in January.
Greatest monthly movement, 6,450 miles, in March.
Least monthly movement, 1,750 miles, in August.
Prevailing direction, from the northwest.
Observations taken at 7 A. M., 2 P. M. and 9 P. M., show the movement of the wind to have been from the north, 82 times; from the northeast, 128 times; from the east, 75 times; from the southeast, 98 times; from the

south, 171 times; from the southwest, 176 times; from the west, 172 times; from the northwest, 198 times.

Maximum velocity for January, 32 miles an hour; for February, 20 miles; for March, 30 miles; for April, 26 miles; for May, 20 miles; for June, 18 miles; for July, 27 miles; for August, 13 miles; for September, 32 miles; for October, 27 miles; for November, 19 miles; for December, 20 miles.

SNOW AND FROST.

The last spring snow fell on the 8th day of March and only one-half of an inch.

The first snow of autumn fell on the 9th day of November and only one-half inch.

Last killing frost in the spring, May 14th.

First killing frost in autumn, September 30th.

Number of consecutive days without killing frost, 137.

The temperature of the air was at the freezing point or below for the last time in the spring on the 14th day of May. The first in autumn, September 30th.

The last day in spring when the mean daily temperature of the air was below 32°, was March 20th. The first in autumn October 29th.

ELECTRO METEORS.

Number of auroras observed, 2.

Number of days with thunder and lightning, 24.

None in January, February, April, October, November or December.

OPTICAL METEORS.

Number of lunar halos observed, 8.

Number of lunar corona observed, 3.

Number of solar halos observed, 2.

Following is a table showing the yearly mean temperature, rainfall and movement of wind for the years named:

YEARS.	Mean temperature in degrees.	Rainfall in inches and hundredths.	Wind movement in miles.
1879	46.7	34.18	.....
1880	47.1	36.18	.....
1881	46.2	41.17	.....
1882	47.3	41.18	61,460
1883	44.0	38.71	63,560
1884	45.7	41.40	54,440
1885	43.9	38.21	54,490
1886	45.6	28.71	49,260
1887	47.2	34.01	54,513
1888	45.1	35.80	56,295
1889	48.1	31.98	49,720
1890	48.6	32.62	52,860
1891	48.5	31.87	48,625
1892	46.4	40.73	43,890
1893	46.2	30.39	51,600
1894	49.8	37.57	50,040
1895	47.2	30.38	45,090
Sums	793.9	599.09	734,873
Means	46.7	35.24	52,491

RIVER STATISTICS,

As furnished by Mr. Walden, of the Chicago & Northwestern railroad:

Opening of the river—ice moved very reluctantly, seeming loth to go further southward, it taking thirteen days after the first effort to release itself before it made its final departure. On March 9th, at 3:40 P. M., the ice moved, and stopped again one minute later. On the 18th it moved again at 2 P. M., and stopped again fifty-seven minutes later. It started and stopped twice on the 19th, three times on the 20th, twice on the 21st, once on the 22d, and at 10 A. M. on the 23d started again and ran out. On Monday, March 25th, at 12:10 P. M., the first boat—Denckman—passed up.

Total number of boats which passed the bridge during the season was 2,308, 1,153 of which went up and 1,155 down.

The number of barges was 467.

The number of rafts was 501.

The river closed at 8:45 A. M., December 25th, after nine months' freedom from ice.

The highest water in the Mississippi river was 14.3 feet above low water, occurring on the 30th day of May. The lowest water was only one-tenth of a foot above low water, and the date was December 4th.

REVIEW OF THE CROP SEASON OF 1895.

The season for the beginning of farm operations in Iowa opened about as early as in the average of recent years. During the first and second decades of March the daily mean temperature was below normal; the closing decade was warmer than the average, making the mean for the month 2.7° above the normal. The average precipitation was only .83 of an inch —1.20 inches below the March normal. The wind movement was excessive and numerous observers refer to it as the most dry, windy and dusty March ever known in their localities.

Plowing and seeding were generally begun about March 20th, with the soil exceedingly light and dry, the work being retarded by frequent dust storms. A considerable portion of the usual acreage of small grain was planted, however, during that dusty period, and the outcome of the harvest verified some of the ancient weather proverbs relative to the value of March dust.

April was unusually warm and favorable for farm work, and for the starting of vegetation, the daily mean temperature being about 6° above normal. The rainfall was about the seasonable amount, coming in light showers in weekly periods, generally sufficient for the passing needs of nearly all portions of the state, and not enough to hinder field work.

The soil was never in better condition for plowing and seeding. The sub-soil was unusually dry to a great depth; the spring rains were speedily absorbed and held near the surface. The greater part of the small grain was sown before the middle of April, the acreage being materially

increased on account of the killing out of grass roots in meadows and pastures, from the effects of drouth and winter-killing. The same cause added largely to the acreage of the corn crop. At the close of April the season was about ten days or two weeks earlier than usual.

Plowing and preparing the ground for corn was at an advanced stage, and in numerous localities a beginning had been made in corn planting before the last day of the month. It was an unusually fine spring month, and less than one-tenth of the area of the state suffered materially from drouth. Vegetation had made a fine start, pastures were well started and herds were grazing earlier than usual, and fruit trees were generally in bloom.

All these favorable conditions of temperature and moisture continued through the first decade of May. Prior to the 10th an unusually large acreage of corn had been planted, and the small grain crops had made a promising start. The average temperature of the first ten days was about 12° above the normal. The second decade, however, brought a severe and injurious change From the 10th to the 22d the daily mean temperature was about 10° below normal. There were two periods of killing frosts throughout the state—11th to 14th and 19th to 22d. In many sections the soil was frozen and much of the early planted corn was killed, necessitating the replanting of extensive areas. Small grain, potatoes, garden truck and fruit also suffered material damage. The closing week of the month was favorable, and the field crops recovered a considerable portion of the lost ground

June was exceptionally favorable, except in some of the extreme eastern counties where the rainfall was 3 to 4 inches below the seasonable average In the larger part of the state it was an ideal crop month. The mean temperature was about 5° above the normal. The rainfall, 4.32 inches, was about .63 below normal; but in more than four-fifths of the state it was ample for the growing crops. At the close of the month corn was in a very promising condition being clean and much further advanced than usual at that period of the year.

The month of July was generally favorable for harvesting hay and small grain, and in about two-thirds of the state the rainfall was ample to sustain the crops. The average precipitation, 3 40 inches, was about .90 below normal, and its distribution was very unequal. At the close of the month corn was unusually promising in two-thirds of the state, and promised a fairly good crop in the other sections. All reports indicated phenomenally heavy small grain crops, which were generally harvested earlier than usual. The crop of oats, both in respect to acreage and yield, was the largest ever grown in the state

August was unusually favorable for bringing the bountiful crops to perfection. The temperature was slightly above normal and there was an excess of .83 of an inch in the average rainfall Portions of the eastern and northwestern districts received less than 2 inches. Heavy rains in the latter part of the month quite widely distributed, revived the pastures and late potatoes and placed the soil in excellent condition for fall plowing.

September was noted for its high temperatures, especially during the second decade. At the central station there was an average daily excess of 15° from the 10th to the 21st inclusive. During that period there were

but two days on which the minimum temperature was as low as the normal. The average rainfall was 3.03, which is .67 below the normal for September. The month closed with a cold wave which brought the first killing frost of autumn, which extended to all parts of the state. All crops were fully matured before the frost came, and the corn was generally dry enough to put into cribs in the first week in October.

On the whole the season of 1895 was one of the most productive in the line of cereal crops that has ever been known in this state. The hay crop was cut short by the unfavorable conditions of last year; but with the great supply of corn fodder and other forage crops there will be an abundant supply of coarse food for stock and a considerable surplus for shipment. Corn, oats and potatoes are among the staples that have made the heaviest yields. In many localities the yield of oats was reported to have been phenomenally large.

And all this has been brought forth with much less than the normal amount of soil moisture at the outset, and somewhat less than the usual amount of rainfall during the season. The soil and subsoil in March contained less moisture than had ever been known at that period since the early settlement of the state. The total average rainfall for the season—March 1st to October 1st—was 21 82 inches, 3.51 inches below the normal. The monthly records for the state are as follows: March, .83; April, 2.62; May, 3.19; June, 4.32; July, 4.30; August, 3.40; September, 3.03 inches. For the most part the rains were timely, coming generally in moderate showers sufficiently frequent to save the crops from material damage. And even in the sections where the drouth was most severe the cereal crops have greatly exceeded expectations. The worst effect of the shortage of rainfall has been in cutting short the usual supply of water for stock and for domestic use.

THE DROUTH OF 1895.

IOWA MONTHLY REVIEW FOR SEPTEMBER.

The great drouth which began in the midsummer of 1893, has not yet relaxed its hold upon considerable portions of the country. It reached its maximum of severity in the upper Mississippi and Missouri valleys in the crop season of 1894; but for the past season its worst effects have been felt in the northern and middle states, from the Mississippi valley to the Atlantic coast. The following paragraph from the last Weather-Crop Bulletin issued by the United States Weather Bureau, briefly outlines the extent of the shortage in the seasonal rainfall:

> The crop season of 1895, from March 1st to September 30th, closes with a marked deficiency in rainfall in the states northward of the Ohio river, including nearly the whole of the lake region, where the seasonal fall has generally ranged from 60 to 75 per cent of the average. Western Montana, the eastern portions of Kansas and Nebraska, southern Texas, and portions of Mississippi and western Tennessee have also received from 25 to 40 per cent less than the seasonal rainfall. On the Pacific coast there was

marked deficiency over the greater part of California, but along the coasts of Oregon and Washington it was excessive. The seasonal fall was also excessive in Georgia, South Carolina, over limited areas in Florida, Arkansas, Missouri, the Dakotas, and Minnesota, over a large part of the eastern Rocky Mountain slope from northern Texas northward to Wyoming, the percentage of excess being greatest in southern Wyoming, eastern Colorado, and northern New Mexico.

The Bulletin above referred to also contains some interesting figures showing the total deficiency in the rainfall from March 1st to October 1st, at the various weather bureau stations in the United States. These are worthy of careful study, as showing the wide extent of the drouth, and affording some facts that may help to settle the problem relative to the meteorological effects of large bodies of water and extensive areas of timber.

It appears that all the stations of the district known as the lake region, report a deficiency of rainfall. Following are the official figures:

STATIONS.	Shortage—Inches.	STATIONS.	Shortage—Inches.
Oswego, N. Y.	-4.18	Lansing, Mich.	- 9.48
Rochester, N. Y.	-4.04	Port Huron, Mich.	- 4.95
Buffalo, N. Y.	-7.29	Alpena, Mich.	- 9.33
Erie, Pa.	-5.73	Sault Ste. Marie, Mich.	- .00
Cleveland, Ohio	-9.80	Marquette, Mich.	- 2.49
Sandusky, Ohio	-8.38	Green Bay, Wis.	- 5.15
Toledo, Ohio	-7.25	Grand Haven, Mich.	-10.00
Detroit, Mich.	-8.32	Milwaukee, Wis.	- 6.95
Duluth, Minn.	-5.46	Chicago, Ill.	- 7.34

The stations in the Ohio valley and Tennessee district also show a marked shortage in rainfall:

STATIONS.	Shortage—Inches.	STATIONS.	Shortage—Inches.
Memphis, Tenn.	-10.65	Indianapolis, Ind.	-10.02
Nashville, Tenn.	- 1.61	Cincinnati, Ohio	- 9.94
Chattanooga, Tenn.	- 1.30	Columbus, Ohio	- 9.21
Knoxville, Tenn.	- 6.75	Parkersburg, W. Va.	- 9.44
Louisville, Ky.	- 6.82	Pittsburg, Pa.	- 7.31

Some of the Atlantic coast stations show remarkable deficiencies in the seasonal rainfall, as follows;

STATIONS.	Shortage—Inches.	STATIONS.	Shortage—Inches.
Eastport, Me.	- 9.70	Washington, D. C.	-5.47
Boston, Mass.	- 7.62	Cape Henry, Va.	-6.29
New Haven, Conn.	-11.00	Norfolk, Va.	-4.27
New York city.	- 7.42	Charlotte, N. C.	-7.59
Atlantic City, N. J.	- 8.30	Kittyhawk, N. C.	-9.71
Harrisburg, Pa.	-15.84	Jupiter, Fla.	-4.84
Philadelphia, Pa.	- 7.07	Key West, Fla.	-9.19

These figures show noteworthy fluctuations in the seasonal rainfall in the coast region, where the general conditions tend to bring excessive moisture.

The average deficiency for the upper Mississippi valley stations was 5.25 inches, the station reports showing the following shortage:

STATIONS.	Shortage—Inches.	STATIONS.	Shortage—Inches.
St. Paul, Minn.	- .01	Keokuk, Iowa	-3.98
La Crosse, Wis.	- 7.50	Springfield, Ill.	-3.17
Dubuque, Iowa	-14.78	Cairo, Ill.	-4.77
Davenport, Iowa	- 5.00	St. Louis, Mo.	-4.65
Des Moines, Iowa	- 3.47		

The average deficiency in rainfall for the whole state of Iowa was 3.51 inches, as shown by the following table of monthly normals and average for the season:

MONTHS.	Normal—Inches.	Rainfall, 1895—Inches.	Departure—Inches.
March	2.03	.83	-1.20
April	2.60	3.62	*.02
May	4.15	3.19	- .96
June	4.95	4.32	- .63
July	4.30	3.40	- .90
August	3.60	4.43	*.83
September	3.70	3.03	- .67
Totals	25.33	21.82	-3.51

*Above normal.

It will be seen that the total rainfall for the seven months was 21.82 inches (3.51 below normal), which was sufficient to bring the most abundant crops harvested in this state for the past twenty years And this, too, following the worst drouth experienced in this state since its early settlement.

The records for the season do not furnish a basis for some of the theories that have been so confidently broached to account for the recent widespread drouth. It will be observed that the lake regions and Atlantic coast stations suffered more than some of the western sections that have very little timber or water surface.

Evidently the notion that lakes, ponds, marshes and forests are essential to the production of rainfall is not supported by the records of the current year.

JUNE CROP REPORT.

The season of 1895 opened unusually early, the reports indicating that it has been generally about ten days earlier than the average of former years. Farming operations were begun in March, and small grain seeding was completed generally before the middle of April. Corn planting was quite generally begun in April, and most of it came up in good time. But the killing frosts and cool weather from the 12th to the 21st of May checked the growth and necessitated a great deal of replanting. All crops suffered to some extent from the freezing temperature in May, but the greatest damage was done to grapes, garden truck and small fruit.

The summarized reports of correspondents, made June 1st, show the following results:

Winter Wheat.—There has been a decrease in acreage of about 3 per cent, compared with 1894, largely the result of winterkilling and plowing under for corn. This indicates a present acreage of 201,628 acres. The average condition is 82 per cent.

Spring Wheat.—Reports show an average decrease of 2 per cent in the acreage of this cereal. The northern counties generally report a slight increase, and the decrease is mainly in the southern and central districts. This shows a present acreage of 553,880 acres. The condition is 94 per cent.

Corn.—From ninety-six counties the reports show a marked increase in the acreage of corn, compared with 1894, and three counties report no increase or decrease. The average increase for the state is 9¼ per cent, indicating an acreage of 7,380,172 acres. The condition is 95 per cent.

Oats.—There appears to have been an increase of 3 per cent in the acreage of oats. This would indicate a present area of 4,150,610 acres. The condition is 98 per cent.

Rye.—Increase, 4 per cent; present acreage, 106,075; condition, 89 per cent. A good deal of rye has been cut and cured for hay on account of damage by frost.

Barley.—Increase, 3 per cent; present acreage, 516,061 acres; condition, 92 per cent.

Timothy.—Decrease in acreage, 10 per cent; average condition, 72 per cent.

Clover.—Decrease, 13 per cent; condition, 69 per cent.

Millet.—Increase, 2 per cent; condition, 89 per cent.

Flax.—Decrease of acreage, 3 per cent; acreage sown, 210,136 acres; average condition, 90 per cent.

Broom Corn.—Decrease, 1 per cent; condition, 93 per cent.

Irish Potatoes.—Increase of area, 8 per cent; area planted, 124,937 acres; condition, 93 per cent.

Sweet Potatoes.—Increase, 1 per cent; condition, 88.

Condition of Fruit.—Apples, 64; pears, 58; plums, 64; peaches, 62; grapes, 30; blackberries, 57; raspberries, 55; strawberries, 49; currants, 68; cherries, 60.

Condition of Stock.—Cattle, 99; sheep, 98; hogs, 93; spring pigs, 88; horses, 94; foals, 71.

Meadows are rated at 69, and pastures at 80 per cent.

JULY CROP REPORT.

The month of June was exceptionally favorable for all crops, except in some of the eastern counties, where the rainfall was far below the seasonable average. In about five-sixths of the state the weather was all that could be desired throughout the greater part of the month. There was not more than the usual amount of damage by severe local storms; and on the 1st of July crops were generally several points ahead of the 1st of June estimate. Following is a summary of the average condition of all the crops reported for the state:

Winter wheat, 83 per cent; spring wheat, 96; corn, 101; oats, 102; rye, 83; barley, 96; hay, 65; millet, 93; flax, 96; broom corn, 96; Irish potatoes, 103; sweet potatoes, 93; sorghum, 96; apples, 62; pears, 66; peaches, 68; grapes, 42; pastures, 89; spring pig crop, 90.

AUGUST CROP REPORT.

The month of July was generally favorable for harvesting and for the advancement of the unripened crops. In about two-thirds of the state the rainfall was ample for present needs, while in the remaining portion drouthy conditions prevailed through the larger part of the month.

Corn has made material progress in the state at large. It is rated above an average condition in 61 counties, a full average in 8 counties, and below the average in 30 counties, making the average condition in the whole state 104 per cent. In the 69 counties reporting 100 per cent or over, the average is 107 per cent.

Other crops are rated as follows: Millet, 93; flax, 86; broom corn, 97; Irish potatoes, 102; sweet potatoes, 94; sorghum, 95; apples, 63; grapes, 47; buckwheat, 90; pastures, 82.

Threshing returns and estimated yield of harvested crops show the following average yields per acre: Oats, 46 bushels; wheat, 19; rye, 19; barley, 33. Hay, 1.1 tons per acre.

DECEMBER CROP REPORT.

FINAL REPORT OF THE SEASON OF 1895, SHOWING AVERAGE YIELD AND MARKET PRICES DECEMBER 1ST.

Following is a summary of the tabulated reports of the correspondents of this office, showing the average yield, by counties, of the staple crops harvested in 1895; also the average prices paid at the stations nearest the farms, on December 1st. The reports of average yield have been made by a reliable class of correspondents, mostly farmers, who have had a number of years' experience as crop reporters.

The estimates of total yield for the state are made on the basis of the acreage of former years, with allowance for increase or decrease during the past season. It was hoped and expected that the returns of the state census for 1895, giving the acreage of crops, would be tabulated in time for this final report of the season; but in this we are disappointed, and the figures below are made subject to revision when the census returns are completed and available. It is believed that the acreage herein given will be found to be approximately correct.

Wheat.—The average yield per acre is shown to be 19 bushels, and the acreage of winter and spring is about 754,000, giving a total yield of 14,346,000 bushels. Price, 45 cents per bushel.

Corn.—The yield of this leading staple is exceedingly variable, depending upon local conditions as to rainfall and soil moisture at the critical stage in the growth of the crop. There is a wide range, as shown by the reports from the various counties, the lowest average being 10, and the highest 51 bushels per acre. This difference is not to be taken as an indication of a wide diversity in quality of soil or climate, but as showing the variable rainfall for a single season. The average yield of corn per acre for the state is found to be 38 bushels, and the total output, on the basis of 7,500,000 acres, is 285,000,000 bushels. The government estimates give to Iowa about 8,500,000 acres, but that is unquestionably too high. The aggregate output of corn is somewhat below the earlier estimates, but the yield per acre is sufficiently flattering to state pride, in view of the prevalent drouth, being about 5 bushels per acre above the average yield of the past twenty years. The average price December 1st was 17 cents per bushel.

Oats.—Average per acre for the state, 48 bushels; acreage, 4,200,000 acres; total yield, 201,600,000 bushels. Average price, 13 cents.

Rye.—Acreage, 106,000 acres; average per acre, 19 bushels; total yield, 2,014,000 bushels. Price, 29 cents.

Barley.—Acreage, 516,000 acres; average yield, 33 bushels; total, 18,678,000 bushels. Price, 24 cents.

Timothy Seed.—Average yield, 4 bushels per acre; total (estimated), 1,500,000 bushels. Market price, about $1.50.

Clover Seed.—Yield, 2 bushels per acre; probable aggregate, about 75,000 bushels. Price, $4.60.

Millet Seed.—Average yield, 20 bushels per acre; acreage, unknown. Price, 45 cents.

Flax.—Acreage, about 210,000 acres; average per acre, 11 bushels; aggregate, 2,310,000 bushels. Price, 78 cents.

Broom Corn.—Average yield, nine-tenths ton per acre; estimated total, 1,500 tons.

Irish Potatoes.—Yield, 106 bushels per acre; probable acreage, 200,000 acres; total yield, estimated at 21,200,000 bushels. Average price, 18 cents per bushel.

Sweet Potatoes.—Eighty bushels per acre; total product, about 115,000 bushels. Price, 82 cents.

Buckwheat.—Yield, 17 bushels per acre; total product about 340,000 bushels. Price, 51 cents.

Sorghum.—Gallons per acre, 85; total yield, about 680,000 gallons. Price, 40 cents.

Hay (tame).—Average 1¼ tons per acre; estimated yield, 2,610,000 tons. Average price, $6.25 per ton.

The average farm price of horses is $35 per head, and cows, $26. Wool sells at an average of 12 cents per pound. The average amount of fall plowing done is 77 per cent. The honey crop is 65 per cent of an average.

GENERAL CROP SUMMARY—1895.

PRODUCTS.	Number of acres.	Average per acre.	Total product.	Market value December 1st.
Corn	7,500,000	38 bushels.	285,000,000	$ 48,500,000
Wheat	754,000	19 bushels.	14,346,000	6,456,700
Oats	4,200,000	48 bushels.	201,600,000	26,208,000
Rye	106,000	19 bushels.	2,014,000	584,000
Barley	516,000	33 bushels.	18,678,000	4,482,720
Timothy seed		4 bushels.	1,500,000	2,250,000
Clover seed		2 bushels.	75,000	345,000
Flax	210,000	11 bushels.	2,310,000	1,801,800
Broom corn		.9 ton.	1,500	90,000
Irish potatoes	200,000	106 bushels.	21,200,000	3,816,000
Sweet potatoes		80 bushels.	115,000	94,300
Buckwheat		17 bushels.	340,000	173,400
Hay (tame)		1¼ tons.	2,610,000	16,312,500
Sorghum		85 gallons.	680,000	272,000
Prairie hay	Estimated.	1 ton.	1,200,000	6,000,000
Fruit	Estimated.			3,600,000
Vegetables	Estimated.			2,250,000
Pasturage	Estimated.			35,000,000
Corn fodder	Estimated.			10,000,000
Total				$ 168,230,420

The above is believed to be a fairly correct estimate of the value of the soil products of this state at the minimum market prices December 1st. Of course it is understood that not more than ten per cent of the staple products of this state have been, or will be, sold at such low figures. The

greater part of these products will be consumed on the farms, or within the limits of the state, as raw material in the manufacture of beef, pork, mutton, eggs, poultry, butter, cheese, etc. In their completed marketable form these farm products will bring two or three times the amount that would be realized at the prices offered at the close of the season. We may safely, therefore, add $100,000,000 to the above total as the probable increment of value from feeding or holding for better prices.

AVERAGE YIELD PER ACRE BY COUNTIES.

COUNTY.	Winter wheat, bu.	Spring wheat, bu.	Corn, bu.	Oats, bu.	Rye, bu.	Barley, bu.	Timothy seed, bu.	Clover seed, bu.	Millet seed, bu.	Flax seed, bu.	Broom corn, tons.	Irish potat's, bu.	Sweet potat's, bu.	Sorghum, gals.	Buckwheat, bu.	Hay, tons.
Adair	24	22	46	62	20	32	6.4	2.6	28	8	1.5	128	100	118	14	1.6
Adams	14	....	47	52	8	....	5.0	....	....	....	....	112	....	....	....	1.4
Allamakee	16	16	31	40	18	25	4.8	1.6	10	13	....	61	....	48	10	1.5
Appanoose	15	....	28	40	15	....	2.5	....	....	....	2	80	100	....	....	1.5
Audubon	29	27	38	56	29	30	4.1	1.0	8	....	....	84	100	75	....	1.4
Benton	....	16	38	58	18	15	2.5	.5	....	....	....	140	....	....	....	.5
Black Hawk	....	....	35	44	17	33	3.0	2.2	15	18	....	101	73	82	9	1.3
Boone	....	25	50	60	23	25	4.7	1.4	29	....	....	159	....	107	30	1.7
Bremer	....	12	30	40	18	....	4.5	....	12	12	....	47	....	60	9	1.2
Buchanan	20	18	30	45	15	....	2.0	1.5	....	....	....	110	....	60	12	1.2
Buena Vista	....	24	37	55	18	41	2.5	....	30	9	....	74	....	40	5	.9
Butler	....	16	31	42	16	43	4.2	....	12	8	....	85	....	120	....	1.4
Calhoun	....	25	45	60	22	59	5.7	2.5	52	10	....	158	50	89	8	1.6
Carroll	24	25	38	56	21	22	3.0	2.0	27	11	....	137	20	120	23	1.4
Cass	19	23	32	47	18	27	3.0	1.8	17	....	....	84	....	75	....	1.4
Cedar	16	14	40	22	15	21	3.3	1.3	....	....	....	82	100	102	12	.8
Cerro Gordo	....	16	38	46	18	27	1.8	2.0	10	11	....	115	....	100	17	1.2
Cherokee	....	26	39	56	16	48	4.5	3.0	....	10	....	86	....	....	40	1.6
Chickasaw	....	15	39	48	19	37	4.1	....	....	14	....	104	....	70	28	1.2
Clarke	20	16	42	47	19	25	4.1	1.6	25	....	2.0	126	100	69	7	1.3
Clay	....	15	16	85	....	35	3.0	....	....	5	....	20	....	....	....	.7
Clayton	16	13	32	47	17	22	3.2	2.0	....	....	....	84	....	95	16	.8
Clinton	20	15	32	32	25	....	....	....	....	....	....	50	....	....	....	.8
Crawford	....	18	35	35	16	10	2.0	....	22	....	....	150	....	100	20	1.8
Dallas	24	20	50	59	21	40	4.6	2.4	15	10	....	111	100	88	....	1.9
Davis	18	13	47	44	17	....	3.7	1.5	....	....	....	90	82	62	17	1.0
Decatur	21	16	48	48	19	....	4.7	2.0	19	6	....	130	80	96	16	1.6
Delaware	20	14	25	27	14	20	3.8	....	8	....	....	63	....	80	12	.4
Des Moines	18	8	40	32	19	....	3.1	2.2	....	....	....	69	79	70	18	.7
Dickinson	....	19	10	30	18	23	2.0	....	....	7	....	62	....	20	....	.5
Dubuque	11	10	23	22	14	20	1.5	2.0	....	....	....	79	....	43	....	.4
Emmet	....	21	22	45	20	17	3.3	....	6	7	....	147	....	30	24	1.1
Fayette	16	15	35	43	26	33	4.8	1.8	14	12	....	104	100	97	19	1.1
Floyd	....	19	34	44	18	21	3.4	2.0	14	11	....	118	....	81	21	1.0
Franklin	....	23	48	53	26	37	3.2	1.0	22	13	....	128	....	90	22	1.2
Fremont	23	18	50	46	23	25	5.5	2.0	8	9	....	142	225	100	16	1.8
Greene	25	20	42	52	16	45	5.0	2.5	20	7	....	162	50	120	12	1.6
Grundy	....	21	41	49	29	41	5.5	.5	....	10	....	121	....	51	15	.9
Guthrie	25	21	43	57	22	42	5.0	2.9	15	9	....	117	75	84	15	1.7
Hamilton	....	23	47	55	26	37	4.5	3.0	18	10	....	156	100	88	28	1.7
Hancock	....	20	44	48	23	33	4.6	2.0	20	13	....	90	....	....	6	1.3
Hardin	20	21	43	50	21	42	4.0	1.6	16	9	....	94	30	72	15	1.5
Harrison	....	22	27	43	20	37	....	....	15	....	....	91	50	60	....	1.3
Henry	23	16	54	48	22	....	2.8	1.5	4	....	....	106	65	82	15	1.5
Howard	18	17	41	50	20	34	4.1	1.8	14	14	....	141	....	79	22	1.4
Humboldt	....	23	40	50	24	30	4.0	3.0	15	14	....	188	....	90	15	1.1
Ida	....	20	32	41	11	23	7.5	....	8	....	....	150	30	....	....	1.3
Iowa	19	17	36	32	20	24	3.7	2.5	....	....	....	74	100	80	....	.6
Jackson	18	14	30	29	12	20	4.0	1.5	7	....	....	55	....	75	15	.7
Jasper	21	18	47	51	19	24	3.6	2.4	20	10	....	122	50	61	....	1.5
Jefferson	19	12	43	30	16	....	3.0	1.7	14	....	.5	115	69	108	16	1.4
Johnson	19	16	50	40	18	22	2.4	1.8	12	....	.5	144	100	120	....	.8
Jones	....	15	37	42	20	29	3.3	1.2	....	....	.5	80	....	72	20	1.0
Keokuk	19	15	49	45	20	....	3.2	.5	....	....	....	75	....	90	....	1.1
Kossuth	....	30	42	55	25	42	5.0	6.0	22	14	....	125	....	175	18	1.0
Lee	16	....	37	37	16	....	4.4	1.5	5	....	2.0	72	48	83	9	1.3
Linn	10	14	30	31	17	25	5.0	2.0	....	....	.2	103	....	88	10	.4

AVERAGE YIELD PER ACRE BY COUNTIES.

COUNTY.	Winter wheat, bu.	Spring wheat, bu.	Corn, bu.	Oats, bu.	Rye, bu.	Barley, bu.	Timothy seed, bu.	Clover seed, bu.	Millet seed, bu.	Flax seed, bu.	Broom corn, tons.	Irish potat's, bu.	Sweet potat's, bu.	Sorghum, gals.	Buckwheat, bu.	Hay, tons.
Louisa	20	....	38	26	12	....	2.0	....	....	....	....	73	40	88	....	.8
Lucas	22	....	43	45	22	....	3.8	3.0	30	16	....	124	65	82	22	1.8
Lyon	....	22	26	51	35	42	8.0	....	....	13	....	100	....	....	....	1.3
Madison	16	17	37	54	19	50	5.2	2.0	....	8	....	87	120	93	12	1.0
Mahaska	21	16	40	40	16	....	5.0	3.0	13	....	....	65	60	....	....	.9
Marion	18	18	39	42	19	20	3.7	1.2	14	....	.2	70	60	83	17	1.2
Marshall	20	23	36	48	21	37	3.8	1.2	30	9	....	118	....	139	....	1.5
Mills	22	19	43	48	20	28	4.7	2.1	20	....	....	109	112	92	....	1.7
Mitchell	18	16	40	46	20	35	4.6	2.2	23	15	....	134	....	85	21	1.2
Monona	....	21	32	28	21	30	....	....	19	....	....	114	150	83	....	1.3
Monroe	21	....	40	34	16	....	2.6	2.0	18	....	....	134	138	108	14	1.0
Montgomery	20	21	48	61	14	30	5.7	2.5	....	....	.5	69	....	....	11	1.4
Muscatine	23	23	44	36	14	....	2.0	4.0	....	....	....	120	78	75	....	.9
O'Brien	....	20	29	60	15	35	5.0	....	....	10	....	133	....	....	....	1.2
Osceola	....	24	22	55	....	28	4.5	....	....	10	....	77	....	....	....	1.0
Page	16	13	47	49	15	44	6.7	2.0	45	....	....	104	130	100	....	1.9
Palo Alto	....	23	24	41	15	32	3.7	....	29	9	....	59	....	50	....	1.0
Plymouth	....	29	32	50	15	40	7.0	1.5	40	....	....	100	....	55	....	1.5
Pocahontas	....	21	36	57	18	39	3.9	3.2	46	10	....	104	....	78	19	1.2
Polk	22	23	42	50	22	....	4.0	2.3	17	10	.2	80	50	85	20	1.4
Pottawattamie	18	22	37	50	16	27	3.1	2.0	30	....	....	130	74	96	....	1.3
Poweshiek	15	18	41	45	19	24	3.3	1.8	....	....	....	120	65	75	....	1.2
Ringgold	17	13	46	47	16	24	3.8	1.8	24	....	....	155	116	105	17	1.5
Sac	15	19	28	52	17	20	4.5	....	38	10	....	110	....	50	30	1.0
Scott	15	14	33	24	14	16	3.2	2.2	12	....	....	104	60	75	17	.5
Shelby	....	21	30	44	14	33	2.5	1.5	....	....	....	95	....	50	....	1.2
Sioux	....	27	37	56	22	48	4.1	1.5	30	12	....	111	....	....	....	1.7
Story	....	23	47	57	23	41	3.9	1.9	42	10	....	122	55	80	15	1.5
Tama	23	22	37	46	25	16	3.1	2.9	21	....	....	122	75	171	....	1.4
Taylor	12	14	44	46	14	....	4.4	2.1	30	....	....	94	....	90	10	1.6
Union	13	15	47	55	15	....	5.2	2.0	5	....	....	142	78	97	....	1.4
Van Buren	23	....	46	45	18	....	4.0	1.9	20	....	....	149	58	96	19	1.4
Wapello	20	18	43	41	19	....	4.0	2.7	10	....	....	97	45	63	8	1.1
Warren	20	20	44	45	20	30	2.7	2.4	19	....	.3	98	62	81	18	1.4
Washington	23	....	45	40	14	....	3.0	1.3	....	....	....	91	60	98	....	.8
Wayne	17	14	45	47	19	....	4.2	2.0	22	8	....	133	62	89	19	1.6
Webster	....	20	46	53	24	31	3.7	1.2	19	10	.8	118	....	103	12	1.7
Winnebago	....	27	46	59	....	50	6.0	....	35	13	3.0	176	....	100	....	1.6
Winneshiek	12	19	30	48	19	24	3.9	1.0	15	13	....	102	....	98	10	1.2
Woodbury	15	18	32	27	12	23	3.0	....	16	8	....	90	....	50	20	1.5
Worth	....	20	47	51	23	30	4.7	2.2	....	12	....	117	....	....	18	1.2
Wright	....	25	46	58	24	36	5.4	2.5	20	12	....	107	....	100	18	1.4
Averages	19	19	38	48	19	33	4.0	2.0	20	11	.9	106	80	85	17	1¼

WEATHER CROP BULLETINS.

SUMMARIES OF WEEKLY BULLETINS FOR THE CROP SEASON OF 1895.

BULLETIN NO. 1, APRIL 9TH.

The season has opened about as early as in the average of the past ten years. The temperature has been about normal since the middle of March, with less than the seasonable amount of precipitation during that month.

The first week of April began and ended with refreshing showers, giving something over an inch of rainfall to the larger part of the state. This has been speedily absorbed by the dry soil, causing but slight hindrance to farm work.

The soil has never been in better condition for plowing and seeding, and the work is generally at an advanced stage.

There has been sufficient moisture to facilitate farm operations, and not enough to obstruct the work. The bulk of small grain has been sown in the larger part of the state.

Grass has made a seasonable growth since April 1st. Some meadows and pastures show the serious effects of the extended drouth, and this will probably result in plowing up a considerable area of grass lands, to be planted in other crops.

Live stock has been wintered in good condition and the supply of forage is generally sufficient to feed till the pastures will yield a support.

There are no reports of serious damage to fruit.

BULLETIN NO. 2, APRIL 16TH.

The first half of April has given a bright hue to crop prospects, and at the corresponding date there has never been a more encouraging outlook for a productive season.

The temperature of the past week was slightly above normal, and all the weather conditions were favorable for completing seeding operations and pushing the work of preparation for corn planting.

As a result, farm work is generally more advanced than usual at this time of the year, and the soil is in the best possible condition for the reception of seed.

The acreage of small grain, corn and potatoes will be materially increased, compared with the last three seasons.

The week closed with a general rain, giving promise of abundant moisture for present needs in all parts of the state.

All reports indicate a good season for fruit.

BULLETIN NO. 3, APRIL 23D.

There has been a continuation of favorable weather conditions in the past week. The daily mean temperature has been about normal, the days being generally warm and the nights cool, with occasional light frosts.

The rainfall has been ample for present needs in the larger part of the state. Reports of continued drouthy conditions come from some of the northern and northeastern counties; but crops therein have not as yet suffered material injury.

Rapid progress has been made in farm work. The acreage of small grain is large, and more than the usual area of land has been plowed for corn. In some districts a beginning has been made in planting, and with favorable weather it will be quite general by the first of May.

Early sowed cereals are well sprouted and show an excellent stand. Pastures are quite forward, in some sections affording an ample support for stock.

Fruit buds have not been materially injured by frost.

BULLETIN NO. 4, APRIL 30TH.

The past week has been very warm, the daily mean temperature being about 8° above normal.

A heavy local shower on Friday, covering a few counties in the central and western districts, and more general rains on Monday, have given to the larger part of the state a much needed supply of moisture. The drouth had become quite severe in some of the northern and eastern counties.

The conditions have been favorable for pushing farm work. In all districts a fair start has been made in corn planting, with the soil in fine tilth. The area prepared for planting is unusually large.

All reports indicate a fine stand of small grain. The condition of winter wheat and rye is also reported good.

The hay crop will be very light, even under the most favorable conditions in the future. And pasturage will also be scant on account of the effects of the drouth and winter-killing.

The season is fully ten days earlier than the average of former years.

BULLETIN NO. 5, MAY 7TH.

The past week has been unseasonably warm, with frequent and copious showers. The daily average temperature ranged 10° to 12° above the normal, and every district reports rainfall from one to three inches.

All crops have received great benefit from this excess of heat and moisture. Corn planting has been delayed by the showers, but it is well advanced in all parts of the state. In the early planted fields corn is well started, showing a fine stand; and in some sections the work of cultivation is begun. All reports indicate a considerable increase of corn acreage.

In some sections cut and wire worms have begun their ravages at an unusually early date, and in a small area chinch bugs are reported at work in the rye fields.

All small grain crops are unusually promising. Pastures and meadows show vigorous growth, where the plants have not been winter-killed or burned out by the drouth. All the forces of nature seem to be doing their best to repair damages of the past year.

The wind storms of May 3d in the northwest district developed local tornadoes, with destruction of life and buildings. No material damage to crops reported.

BULLETIN NO. 6, MAY 14TH.

This has been a week of notable extremes of temperature, the mercury dropping suddenly from 94° to the frost line. The daily mean of the first three days was about 15° above normal; the last three days, 10° below normal.

Frosts were general and in some sections quite destructive to tender vegetation, on the morning of the 12th. Garden truck, potatoes, small fruit and grape vines were severely injured in all exposed localities. No reports have been received of material damage to field crops, except potatoes, and they will probably recover. The corn crop is all right.

Corn planting is practically completed, except in sections where it was retarded by frequent showers and excessive moisture. The work of cultivation is now quite general and a good stand has been obtained.

Small grain and grass have made good advancement. On the whole, the outlook for the staple crops is still very flattering.

BULLETIN NO. 7, MAY 21ST.

The past week was unseasonably cold, and generally dry. The daily mean temperature was about 8° below normal. The rainfall was very light, except in some of the northeastern counties.

The rapid growth of vegetation has received a most decided check, and little progress has been noted during the past ten days. Reports indicate

that the heaviest damage by the recent frosts was suffered in the east central and northeast districts. The damage to small grain has been relatively light, and it seems probable that the incidental benefit resulting from checking the too rank growth of spring grain will fully compensate for the injury by the freezing temperature.

With favorable conditions in the future there is ample time for the corn crop to fully recover its lost ground. The only irreparable injury has been suffered by grapes, berries and some other kinds of fruit. The bulk of damage to all other crops can be repaired, if there is ample warmth and moisture in the near future.

BULLETIN NO. 8, MAY 28TH.

The past week has been dry and cold, with occasional light frosts. The daily mean temperature was about 4° below the normal, and there was but little more than a trace of rainfall in the larger part of the state.

Despite these adverse weather conditions, the spring grain crops are generally doing fairly well. Some progress has been noted in recovery from effects of recent frosts. The corn crop is a little more than holding its own in the conflict with cold weather and cut worms. Considerable replanting has been reported, and planting operations will continue until after June 1st, assuring a large increase in the acreage.

In numerous localities fall rye was blighted by freezing temperature, and it is being cut for fodder. The damage to fall wheat has not been extensive.

Pastures and meadows have materially suffered from lack of rain. The hay crop must necessarily be light.

BULLETIN NO. 9, JUNE 4TH.

The past week witnessed a remarkable transition in the condition of crops, and in the hopes of the people. The daily mean temperature for the week ending June 3d was about 10° above normal. The high and hot winds of the 27th and 28th, which threatened serious damage to all crops, brought copious and well distributed rainfall on the 30th, with local showers on June 1st, 2d and 3d, affording abundant moisture to nearly all parts of the state.

The result has been a notable transformation in the appearance of all vegetation. Corn has made rapid progress in recovery from its setback by cold weather and the cut worms. The damage has been mainly repaired by replanting, and most reports show that a good stand has been obtained, with about an average condition.

Oats and other small grain are doing well. Potatoes are now quite promising. Pastures and meadows show some improvement.

BULLETIN NO. 10, JUNE 11TH.

Warm, growing weather prevailed during the past week. The average daily temperature was about 2° above normal. The rainfall was generally light until Sunday, on which day heavy showers passed through the central districts from southwest to northeast, giving ample rainfall for present needs to at least three-fourths of the area of the state. In some localities the showers were phenomenally heavy, and possibly occasioned

some damage to crops by washing and covering; but the rains, on the whole, have been highly beneficial to all crops.

Corn is now generally in clean condition and shows a good stand, giving promise of a large crop with favorable conditions in the future.

Oats, barley, spring wheat, potatoes and flax are generally reported in good condition. Pastures are improving. Small fruits are doing better than was expected.

BULLETIN NO. 11, JUNE 18TH.

The general weather conditions during the past week were favorable in the larger part of the state. The daily mean temperature has been slightly above the normal. The reports for the week ending the 15th show a very unequal distribution of rainfall. In the central belt, south to north, the measurements range from 2 to 5.75 inches. In a number of the counties in the east central and southeast drouth has practically remained unbroken, and all crops except corn have been considerably injured by its continuance.

But in nine-tenths of the state the conditions have been about as good as could be desired, and all crops have made rapid advancement. Corn is doing notably well in all sections, and has been thoroughly tilled except in localities where cultivation was retarded by very heavy rainfall. This crop has gained several points since June 1st, and is now quite promising. Spring grain crops are heading in fine shape. The harvest of winter grain will begin in some of the southern counties during the coming week.

BULLETIN NO. 12, JUNE 25TH.

This has been one of the best weeks of a most propitious season, with weather conditions all that could be desired over the greater part of the state. The average temperature has been about normal. The amount of rainfall has been generally ample for the present needs of growing crops. The only complaints on that score have been an excess of moisture, causing too rank growth of grain, in the northwest; and a deficiency of rainfall in some of the eastern counties.

All crops have made good progress. Corn has attained more than an average height for the season. In some fields it is reported too large to cultivate within thirty days after planting.

Oats are in full head and harvest of the earliest fields will begin within two weeks. The present condition of this cereal justifies the promise of the largest crop of oats ever harvested in this state.

Other spring grain crops are also in good condition.

The harvest of fall wheat and rye is in progress in the southern districts and the yield of wheat promises to be better than was anticipated.

BULLETIN NO. 13, JULY 2D.

The daily temperature of the past week averaged about 3° below the normal, and there was a general deficiency of sunshine. The rainfall was abundant, except in portions of the eastern districts.

On the whole the cool weather has been highly favorable for oats, spring wheat and flax, and not detrimental to other crops. Oats are filling well, and the more advanced fields will be ready for harvest within a week. The only drawback to the crop is too rank growth of straw on rich soil, where the rainfall has been copious.

Reports show an increased acreage and a full normal condition of flax in the sections where it is most largely grown.

Corn is thriving and the larger part of it will be laid by in fine condition before the 4th.

Haying is in progress. There has been a notable improvement in meadows within the past eight days in the larger part of the state, and the yield may be slightly above half an average crop. Prairie hay will be heavier, and pastures are generally good.

Potatoes are exceptionally promising.

BULLETIN NO. 14, JULY 9TH.

The daily mean temperature of the week ending the 8th, was slightly above the seasonable average. The rainfall was generally deficient, the southwest district receiving the larger quantity on the 4th inst On the 7th light showers afforded some relief to the eastern districts which have suffered material injury from the protracted drouths.

In the larger part of the state crops have made rapid progress and are in a very satisfactory condition. Corn is above an average in nearly all sections.

Oats are everywhere putting on the harvest color, and cutting is already in progress in the earlier fields. The crop as a whole will be somewhat lessened by too rank growth and lodging, but with favorable harvest weather the prospect is still good for the greatest total yield ever grown in this state.

All field crops except hay are doing remarkably well, and in sections favored by heavy showers the yield of hay has exceeded expectations. Flax promises an average crop in sections where it is most extensively grown.

BULLETIN NO. 15, JULY 16TH.

The daily mean temperature of the past week was about 6° below normal, and the farmers of the state had six days of dry and cool weather for working in harvest fields.

In the northern districts a light frost on the morning of the 9th slightly damaged garden truck and corn on bottom lands, but it will not materially lessen the crops.

Reports mailed before the 14th indicated drouthy conditions in nearly all districts, and in the eastern counties the small grain and grass crops have been materially injured by the protracted drouth.

The copious showers of Saturday night and Sunday afforded substantial relief in many localities from which later reports have been received, and it is believed that the larger part of the state received some measure of benefit from these timely rains.

The harvest of winter grain and barley is practically completed, with fairly satisfactory results, and the oats harvest is well under way in all sections.

Corn is generally doing well in all districts, and in the most favored sections it has reached the tasseling and earing stage. Potatoes and the minor crops are in fair condition.

BULLETIN NO. 16, JULY 23D.

The temperature of the past week was about the seasonable average. For a mid-summer week the rainfall was phenomenally heavy, the measurements reported from more than two-thirds of the state ranging from two to five inches Some of the heaviest showers fell in the districts that had suffered most severely from drouth, and there is now only a very small area that has not received ample moisture for present needs.

In many localities the unharvested crops of small grain were prostrated by the winds and weight of rainfall. In a few sections considerable loss resulted from hailstorms within narrow belts. On the whole the benefits have been immeasurable and the aggregate of loss relatively small.

The harvest of oats is in progress, and nearing completion in all districts. Scattering returns from threshers show high average yields of winter wheat, barley and oats.

Corn and potatoes maintain their promising condition.

BULLETIN NO. 17, JULY 30TH.

The average temperature of the past week was about normal Nearly all sections of the state have had sufficient rainfall for present needs, and considerable damage has been caused by severe local storms, accompanied by wind and hail.

On the whole, however, the week has been highly favorable for the growing crops, and for harvesting and threshing the ripened small grain. The oats harvest is about completed and threshing is in progress, with many reports of phenomenally heavy yields. The cutting of spring wheat is in progress, and some early fields of flax are ready for harvest.

Corn is steadily maintaining its lead and bids fair to break all previous records in the districts where the rainfall has been ample. Potatoes and the minor crops are doing well.

BULLETIN NO. 18, AUGUST 6TH.

The average daily temperature of the past week was slightly above normal, and the rainfall was generally deficient. The weather conditions have been favorable for completing the harvest of small grain, and for threshing from fields, which is in progess with highly satisfactory returns.

Nearly all threshing reports show the yield of oats to be phenomenally heavy, and barley and wheat above the average.

A special report from 640 correspondents, representing every county in the state, shows that the condition of corn is considerably above an average in sixty-one counties, a full average in eight counties, and somewhat below the average in thirty counties. For the state at large the condition is materially above an average. The earlier fields are in the roasting ear stage, and with favorable weather the bulk of the crop should be beyond danger of frost before the middle of September.

The flax harvest is in progress. Potatoes are doing well in nearly all sections.

BULLETIN NO. 19, AUGUST 13TH.

The average temperature for the past week was above normal. On the 8th and 9th brisk winds, with the temperature above 90°, caused apprehension of serious damage to the rapidly maturing corn crop. This was

relieved in part by the cooler weather, with scattered showers in the western and northern districts. The amount of rainfall was sufficient to afford substantial benefit to crops in about one-third of the state, mainly in the northern districts.

In more than half of the state corn has unquestionably received some measure of damage from hot and dry weather since the first of August, and the present condition does not justify the promise of more than an average yield for the state at large. Reports show the condition to be very uneven, as a result of the notable variability of the rainfall. With timely rains to help out the later fields and favorable weather throughout the balance of the season the total output of corn will be highly satisfactory.

Threshing returns continue to show yields of oats much above the average, and other small grains unusually heavy.

BULLETIN NO. 20, AUGUST 20TH.

The temperature of the past week was above the seasonable average, and it was generally dry. The rainfall was in form of light local showers, covering a small area of the state.

Reports from the cornfields are unusually variable, being largely colored by local conditions as to rainfall and conditions of the soil. Late planted corn, on naturally dry land, has suffered material damage from effects of drouth. Early planted corn, especially on bottom lands, is maturing in good shape and much of it will be ripe enough to cut within a week.

With timely rains to develop the late planting, this state will probably produce a fair average crop of corn. If the weather remains dry and hot, pushing the crop too rapidly to maturity, the quantity and quality will be reduced considerably below the normal yield. But without another drop of rain for a month the aggregate of corn will most likely be more than double the output of last year.

Pastures and late potatoes need more rain.

Threshing returns indicate notably heavy yield of timothy seed. Oats yield far beyond any former record, and all small grains are exceptionally good.

BULLETIN NO. 21, AUGUST 27TH.

The mean temperature of the past week was slightly above the normal. On the 22d and 23d heavy and widely distributed showers afforded relief from the prevailing drouth. Excessive measurements of rainfall are reported from all sections, except a few northwestern counties. Following are some of the heavier amounts reported: Chickasaw, 6.50 inches; Hamilton, 8.50; Shelby, 6.47; Guthrie, 6.70; Harrison, 5.40; Pottawattamie, 3.40; Adair, 3.25; Scott, 4.36; Fayette, 4.35; Clayton, 2.87; Muscatine, 2.15; Monroe, 2.35; Davis, 2.55; Polk, 2 19; Wayne, 2.50; Webster, 2.19 inches.

The soil is now in excellent condition for fall plowing, which is in progress. Pastures have been revived; late potatoes and corn are now placed beyond danger of further injury by drouth, and they will make the most of their improved conditions.

BULLETIN NO. 22, SEPTEMBER 3D.

The mean temperature of the past week was slightly above normal. The rainfall was ample in all parts of the state, and in numerous localities

it was in excess of the normal. From a few sections reports are received of damage by washing and local floods.

On the whole the week has been exceedingly favorable for ripening late corn and potatoes and for the growth of grass. Cutting early-planted corn is in progress in all districts, and the larger portion of the crop is now ready for the harvester. Some of the late-planted fields, especially in the northern districts, would be much benefited by two to three weeks of favorable weather.

All reports show marked improvement in pasturage and meadows, and in some localities a second crop of hay will be cut. The soil is in fine condition for plowing, and more than the usual area will be turned.

BULLETIN NO. 23, SEPTEMBER 10TH.

In respect to temperature and moisture the past week was about all that could be desired for ripening crops and for general farm work. The greater portion of the corn crop is now practically safe, and harvesting is in progress in all districts. Some late planted fields would be materially improved in quality by a week or ten days of warm weather. Reports show that even in sections where the drouth was most severe the present condition of corn is much better than was anticipated a month ago. More than the usual amount is being cut and shocked.

Plowing is in progress, and a beginning has been made in seeding fall grain.

Potatoes are very promising, and pastures are generally in good condition

BULLETIN NO. 24, SEPTEMBER 17TH.

For the state at large the daily mean temperature of the past week was over 9° above the normal. On the 11th and 12th the wind velocity was high, with maximum temperatures above 90°. Light, scattered rains on the 13th, and heavy showers on the 15th, gave an abundance of moisture to the larger portion of the central and southern districts.

Rapid progress has been made in corn cutting, and except in very limited areas the crop is now well matured and safe from damage by untimely frost. Better qualities of corn may be cribbed, however, if the late planted fields can be exempt from killing frost until the close of the month.

Fair progress has been made in fall plowing, and in the larger part of the state the soil is in good condition.

Fall pasture is generally good, and some districts report an unusually fine stand of grass. Potatoes are well matured, and the crop promises a fair harvest.

VARIABLE AND PERMANENT ELEMENTS OF CLIMATE.

EXTRACTS FROM RECENT FARMERS' INSTITUTE TALK, BY J. R. SAGE.

Being somewhat optimistic in temperament, I believe the near future will bring better times, greater crops, higher prices, and abundant rainfall. We are all in a suitable frame of mind to welcome most heartily an improvement on all these lines.

The recent drouth has covered a period of three years, beginning in 1893 and reaching its culmination in the crop season of 1894. The rainfall in Iowa in 1893 was 7¼ inches below the normal amount. In 1894 it was 13 inches below normal, and in 1895 the shortage amounted to 8¼ inches, making a total deficiency of 29 inches for the three year period. So we have had since January 1, 1893, only about two-thirds of our general average of rainfall.

And yet, marvelous as it may seem, the total soil products of this state during these three dry years have been very close to the average of any preceding period of the same number of consecutive years. In fact, our total soil output for these dry years has exceeded the products of any other state in the union for the same period. Our state has been tried "so as by fire," and it has most grandly borne the test.

The people of Iowa have been more badly scared than hurt in this recent dry period. One of the worst effects of the drouth has been in cutting short the usual supply of water for live stock and the family. It has caused much inconvenience and considerable loss; but it might have been vastly worse, and the people of this state have fared better than their neighbors on all sides. Many valuable lessons have been learned to offset the losses; but all of us would be glad to feel assured that the worst is past and that normal conditions will prevail.

My faith in the gradual return of normal seasons, with ample supply of moisture, is strengthened by a careful study of the records of past years, and the philosophy of weather changes. I can not discover the operation of any cause or causes that should have the effect to produce any radical change in the climate of this region, or of any portion of the continent. By study, observation and comparison we find certain constants of temperature, humidity and precipitation, that may be regarded as permanent features of the climate, well nigh as fixed as the everlasting hills and mountains.

And though this may seem a paradoxical statement, one of the most permanent things relating to daily and seasonal weather is the law of change, or variability in some of its principal elements. There is absolute unity with perpetual variety. No two days, or weeks, or months, or years, are entirely alike in all respects, and yet there is stability in general averages. Throughout the physical universe we note the operation of this

law of variety in unity, or changefulness, encompassed by eternal order or stability.

The weather records of every locality, and of wide areas of country, will show marked variations in the seasonal rainfall, and a perpetual succession of wet and dry periods of varying duration. There are drouths prevailing at all times within our broad domain, sometimes covering narrow areas, and at other times affecting broad belts of the continent. The general averages, or the *means* of long periods of time, may be steadily maintained, but in single years, or short periods, there are wide departures both above and below the normal line.

We have among us a class of theorists who gravely talk about a radical change of climate as a result of man's agency in the settlement and cultivation of this state. They tell us that by breaking up the prairies and draining the shallow ponds and marshes the rainfall has been materially lessened, and the showers are now more infrequent and variable than they used to be. And this work of desiccation will go on, they believe, until this once fertile state is converted into a veritable desert. This theory is based upon the assumption that there has been a steady decline in the total annual and seasonal rainfall.

In attempting the solution of this mooted question, we should remember that an ounce of fact is worth a ton of theory. And when we hear it affirmed that these notable variations in the seasonal rainfall are more characteristic of recent years than they were of the period antedating the general settlement of the country, we should call for the proofs in form of reliable figures. In these days we are making a systematic study of climate, and we have stations in every county where accurate rainfall records are kept. But in the pioneer times the number of weather observers who kept records of rainfall were few and widely scattered. In a matter of scientific investigation of such vital importance it will not be safe to trust the memories of the "oldest inhabitants," however positive they may be that the former days were vastly better and wetter than these latter-day seasons.

We have, however, a few records of seasonal and yearly rainfall that were made by a number of the pioneers of this state, and these have been preserved to serve as a basis of climatic study and comparison. By reference to these old-time records, we shall discover that variable seasons, or alternating wet and dry summers, were characteristic features of this climate thirty, forty and fifty years ago.

At Logan, Harrison county, weather records were kept by a pioneer of that section since the year 1866, covering thirty years. From those records I quote a few figures showing the variable rainfall in the summer months —June, July and August. The normal for those months at that place is about 15 inches. Following are the records:

1866—7.40 inches; about half the normal.
1867—10.00 inches; two-thirds of the normal.
1869—25.80 inches; 10 inches above normal.
1870—8.10 inches; a little over half the normal.
1871—10.90 inches; two-thirds of the normal.
1873—21.90 inches.
1874—10.30 inches.

1875—24.50 inches.
1876—11.70 inches.
1878—28.70 inches; nearly twice the normal.
1881—20.30 inches.
1886— 7.70 inches.

The average annual rainfall at Logan is about 35 inches. In 1880 the total for the year was 27 inches, and in 1881 it was more than twice that amount, or 56½ inches; and in one year the total fell to about 16 inches.

The oldest consecutive rainfall records kept in this state are at Muscatine, covering a period of fifty years. At that point the yearly average is about 36 inches. The average for the first decade (1846 to 1856) was 45.17 inches. From 1856 to 1866 the average fell to 25.96 inches. From 1866 to 1876 it rose to an average of 33.86 inches. From 1876 to 1886 it again rose to 40.75 inches. From 1886 to 1896 it amounted to 33 13 inches per year. The smallest amount was 25.10 inches, in 1860; largest amount, 74.80 inches, in 1851. There was less rainfall in the first two decades than in the succeeding two decades.

But the most striking variation is noted in the summer rainfall at that place. The normal summer amount is about 13 inches. The records show for June, July and August:

YEAR.	INCHES.	YEAR.	INCHES.
1846	6.16	1863	5.31
1847	9.10	1869	23.40
1853	26.90	1870	5.44
1852	8.70	1871	16.10
1853	14.70	1881	15.51
1854	6.21	1885	17 22
1855	16.61	1887	7.40
1855	6.78	1891	13 35

These figures give the high and low water marks of summer rainfall at that station prior to 1892.

At Fort Madison the records are continuous since 1848—covering forty-eight years. In 1848 the summer rainfall amounted to 25 inches In 1854 it was 4.46 inches. In 1855 it was up again to 16.35 inches. In 1856 it fell to 8 inches.

YEAR.	INCHES.	YEAR.	INCHES.
1865	18.50	1877	19.70
1869	17 50	1881	16.60
1870	9.00	1886	7.50
1872	5.00	1887	5.30
1874	8.20	1888	14.00
1874	6.00		

These figures show the ups and downs of rainfall, or the alternations of wet and dry summers in that portion of the state where our yearly rainfall is heaviest.

At Monticello the records were kept since 1854, and here are some sample figures of variation in the early years. Summer rainfall in:

YEAR.	INCHES.	YEAR.	INCHES.
1855	14.80	1869	20.75
1856	8.75	1874	6.40
1858	18.00	1876	23.15
1861	7.00	1886	4.40
1862	17.50	1890	18.50
1863	5.40		

Now, all these records tell the same story of variable rainfall. And the fact should be noted here that this variableness is not a special feature

of this state or of the Mississippi valley. Nearly every section of this country is subjected to occasional extremes—drouths and floods—though the plateau region between the Missouri valley and the Rockies suffers most from the frequent recurrence of drouths.

The drouth of 1894 affected more than one-third of the whole area of the United States, its greatest severity being suffered in the states west of the Mississippi. In 1895 the greatest effects of drouth during the crop season were felt in the lake region, the middle, eastern and Atlantic states.

And, as if nature set herself to work to disprove the local pond and vapor theories, some of the driest localities were contiguous to the great lakes and the ocean. At Eastport, Me., which is nearly surrounded by water, the records show a total deficiency of rainfall, for the past two years, of 52 inches At New Haven, Conn., the shortage for 1895 was 14½ inches; and in New York city it was 9½ inches below normal. Similar records were made on the great lakes, and at points along the southern coast.

In Iowa the average or normal summer rainfall is 13 to 15 inches, the western part of the state having a slightly higher summer average than the eastern half, though the yearly average of the eastern section is the larger.

And as a rule better crops are grown in the seasons when the spring and summer rains are a little below rather than above the average. From 3 to 3½ inches a month, from May to September, coming in form of light showers, will bring ample crops if there is a moderate quantity of moisture stored in the soil at the outset.

There are more seasons when the rainfall is a little above than when it is below the requirements of our staple crops. And it may be stated that more damage has resulted in past years from excess than from deficiency of moisture.

The experiences of the last two seasons have tried men's souls and tested the qualities of their faith and philosophy. In all such times of actual or threatened disaster there are numerous prophets of evil, and many people readily accept their prognostications of calamity. And some fairly intelligent people have lost their heads and have been well nigh panic stricken when they have looked out upon their browned fields and withered crops; and their minds have been haunted by the gaunt specter of famine and starvation in the years to come.

This illustrates the need of preaching the gospel of hope and good cheer in relation to our climate; and the necessity of inculcating more hopeful and rational views as to the stability of the elements that have made this such a grand and prosperous state. Our future prosperity depends wholly upon the permanence of the fertile soil and favorable climate which have given this state the front rank in the production of the staple crops.

Our rich patrimony of fertility of soil may be wasted by faulty methods of cultivation, but, thank heaven, it is not in the power of man to change the trend of the great atmospheric currents that bear from the oceans the early and latter rains of our fruitful seasons.

The value of our farms depends in a large measure upon the stability of the climatic conditions which have given to this section its marvelous

productiveness. In fact, climate is sometimes the principal factor in the value of real estate, for in some regions they sell it at fabulous prices, with some mighty poor acres of soil thrown in to bind the bargain.

I have so large a measure of faith in the stability of natural law that if I were selling an Iowa farm I would be willing to make a warranty deed to the climate as well as the soil, and give bonds that it will maintain its average of temperature and rainfall for the coming century, and for centuries to follow.

When we have applied the principles of philosophy to the solution of meteorological problems we shall discover that the weather is controlled by laws that are fixed, definite and potential, like the forces that sway the planets and maintain the harmony of the universe. Though we observe almost infinite variability in the movement of some of the elements, and apparent aimlessness in the daily weather changes, yet by closer study we may note the operation of cause and effect as clearly as in the orderly succession of night and day.

In the science of meteorology we have to do with some permanent elements, or physical constants, which are to be regarded as prime factors in the solution of the more intricate problems. I will here note the following as most essential:

1. The solar heat is a physical constant, the earth receiving substantially the same amount of heat force from the sun from year to year. Laplace, the great French astronomer, stated that the mean temperature of the mass of the earth cannot have changed in any appreciable measure within the entire period embraced in astronomical calculations. This implies constancy in the varied operations of nature dependent upon solar heat. The air is heated by convection and radiation from the earth's surface, and this causes expansion and air movement within the lower part of the atmosphere. And because of the inequalities of the earth's surface, and marked difference in the radiating power of the various portions of that surface, there is great variability in the action of the elements.

2. Evaporation and precipitation are also constants; that is to say, they are practically invariable and substantially equal. The water that is lifted by the power of solar heat from the surface of the oceans, in the form of vapor, must in due time return to the sea to restore nature's equilibrium. The body of the atmosphere surrounding the earth is taking up vapor at all times and constantly parting with it under the cooling process in form of rain, snow, hail, mist and dew. By this unceasing process the continents are watered, made productive and habitable. Just where and when this vapor will condense and fall to the earth depends upon conditions that are beyond our ken, and certainly beyond our control. Local topography, temperature and prevailing atmospheric currents determine the time and place of precipitation.

3. The energy that produces storm movements of all kinds is also a physical constant. This is a corollary of the first proposition, that the heat of the sun is constant; for storms are the result of heat energy acting through the expansive force of air and aqueous vapor. And it is a demonstrable fact that storms are raging at all times over some portions of the earth's surface. They are nature's renovators and purifiers; and even the most violent storms—hail, lightning and wind—are products of

the benign elements whereby the earth is made a fit dwelling place for animate creatures.

If we would understand the philosophy of local weather conditions, or the cause of local drouths or floods, we must take note of what is going on in other regions. The ebbs and flows of the great atmospheric currents are continental in their scope and effects. And the amount of rainfall of this midland region is sometimes determined by influences upon the air currents thousands of miles distant, and possibly on the other side of the globe.

So while drouths or floods may be purely local in their extreme effects, yet the causes that produce them are vast in extent. We must, therefore, take broader views and widen the range of our observation if we would solve these problems; that is to say, we must embrace all the factors in our solution.

METEOROLOGICAL DATA FOR YEAR 1895, GRUNDY CENTER.

MONTHS.	TEMPERATURE OF AIR.					PRECIPITATION IN INCHES.															DATE.
		EXTREMES.																			
	Monthly mean.	Max. tem.	Date.	Min. tem.	Date.	Monthly.	Greatest daily.	Date.	Total snow-fall.	Depth of snow at end of mo.	Prevailing direction of wind.	No. clear days.	No. part cloudy.	No. cloudy days.	No. rainy days.	First light frost.	First heavy frost.	Last heavy frost.	Thunder showers.		
January	10.9	46	20	-22	31	.28	.22	25	12	4	NW	18	4	9	5						
February	15.2	60	28	-24	7	.51	.21	28	3	3	NW	13	6	9	8						
March	31.7	80	29	-1	13	.38	.20	11	2	.0	NW	14	1	16	2						
April	53.2	89	30	14	1	3.87	1.30	1	9	.0	SE	17	5	8	4						
May	60.5	92	28	30	12	4.87	2.05	20	0	.0	NE	11	10	10	14			14	3	1, 9,	13, 28
June	69.7	92	24	46	28	3.75	1.01	25	0	.0	NW	12	10	8	12				3	15, 18,	25, 26
July	71.1	95	16	44	9	4.24	1.50	18	0	.0	SW	13	11	5	9				5		9, 16
August	71.1	93	1	49	18	5.50	2.30	28	0	.0	SW	15	10	6	8				2		6, 18
September	66.2	92	10	31	30	1.84	1.13	6	0	.0	NW	14	6	10	5	28	30		2		
October	44.7	76	2	11	30	1.17	.99	6	T	.0	NW	13	10	8	3						
November	32.9	70	4, 5	-2	29	1.79	.97	8	3	T	N	9	5	16	9						
December	24	65	1	17	-45, 30	1.38	.70	25	6.5	4.0	NW, SW	10	6	15	6				1		17

YEARLY SUMMARY, 1895.

Mean temperature for the year	45.8
Maximum temperature	95°, date, July 16
Minimum temperature	-24°, date, February 7
Range for the year	119
Precipitation for spring months	7.62 inches
Precipitation for summer months	14.17 inches
Precipitation for fall months	6.80 inches
Precipitation for winter months	2.17 inches
Total precipitation for the year	30.86 inches
Prevailing wind direction	Northwest
Number of clear days	159
Number of partly cloudy days	84
Number of cloudy days	120
Number of days on which .01 inch or more of precipitation fell	80

GEO. F. ELLIS,
Voluntary Observer.

IOWA AGRICULTURAL STATISTICS.

OFFICIAL COMPILATION OF THE AGRICULTURAL CENSUS OF 1895.

FARMS, CROPS, LIVE STOCK, ETC.

Chief Landers, of the Iowa census bureau, has given to the press the following summary of agricultural statistics, from the decennial census of 1895, taken by the township assessors of the state. The work was done mainly in the winter and spring months, and the acreage and yield of crops are for the crop season of 1894—the season of the great drouth. Compared with the crops of 1895 the figures look small and insignificant. One of the most surprising features of this report is the heavy corn acreage of that year. The acreage returned is 8,648,804 acres, or a little more than one-third of the improved farm lands of the state. This census report must be accepted as the basis of estimate for this bureau, until a new census of crop acreage furnishes the means of correction.

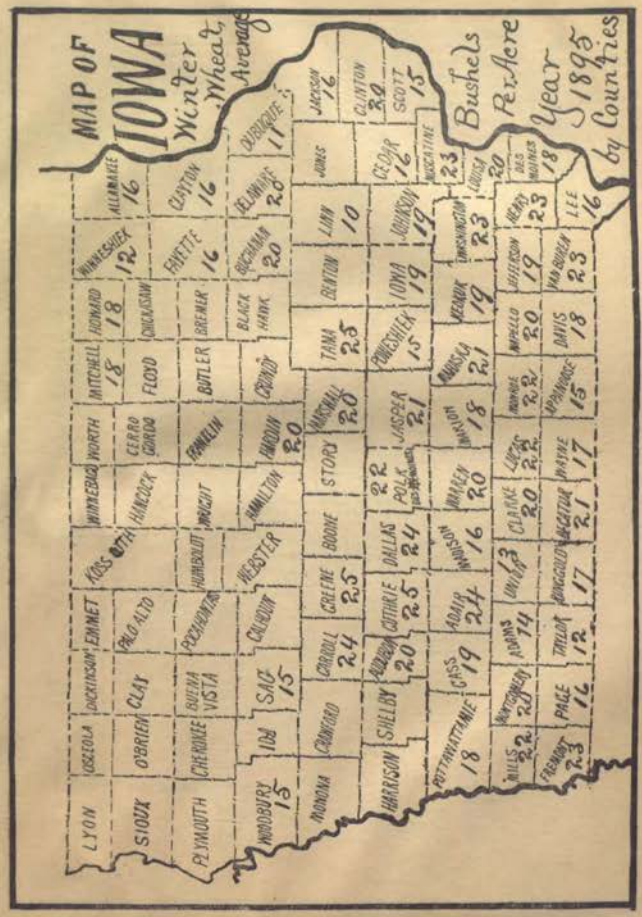
	Number.	Acres.
Farms—40 acres or less	22,577	606,012
40 to 80 acres	44,866	3,319,865
80 to 160 acres	77,993	10,556,515
160 to 640 acres	57,885	15,536,548
Over 640 acres	1,326	1,278,873
Total	204,385	31,297,713
Average size of farms		153
Number acres improved		25,870,180
Number acres unimproved		5,427,624
Number acres cultivated		16,099,951
Value of farms		$1,088,063,068
Management—Number by owner		141,979
Number by manager		3,419
Number by tenant, money rent		33,937
Number by tenant, share rent		25,050
Fence—Total rods		141,794,780
Rods wire fence		119,958,858
Tiling—Total rods		10,610,237
Rods laid in 1894		1,027,324
Winter Wheat—Number acres grown		166,452
Bushels harvested		2,672,601
Value of product		$1,295,481
Acres sown for 1895		209,613
Spring Wheat—Number acres grown		531,466
Bushels harvested		6,797,695
Value of product		$3,264,225
Corn—Number acres grown		8,648,804
Bushels harvested		128,989,047
Value of product		$55,235,667
Oats—Number acres grown		4,412,243
Bushels harvested		107,691,460
Value of product		$26,430,646

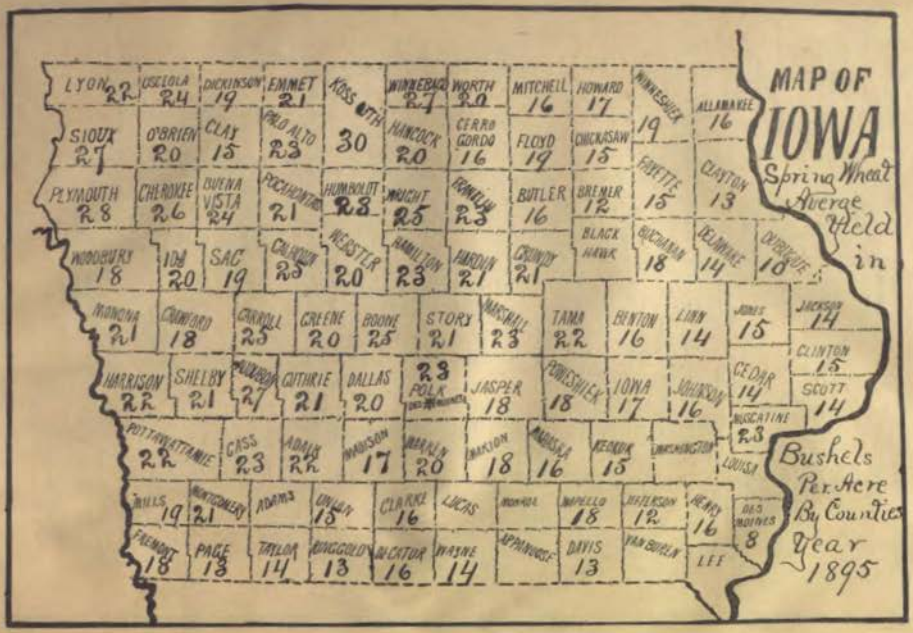
Barley—Number acres grown	576,475
Bushels harvested	9,034,634
Value of product	$4,301,735
Rye—Number acres grown	124,154
Bushels harvested	1,624,078
Value of product	$760,678
Acres sown for 1895	227,190
Buckwheat—Number acres grown	8,626
Bushels harvested	66,327
Value of product	$48,032
Beans—Number acres grown	6,444
Bushels harvested	38,469
Value of product	$66,591
Peas—Number acres grown	3,594
Bushels harvested	38,341
Value of product	$39,120
Flax Seed—Number acres flax grown	201,162
Bushels harvested	1,371,155
Value of product	$1,549,688
Timothy Seed—Number acres cut for seed	150,605
Bushels harvested	552,439
Value of product	$1,119,710
Clover Seed—Number acres cut for seed	57,393
Bushels harvested	63,937
Value of product	$330,133
Hungarian and Millet Seed—Number acres cut for seed	7,003
Bushels harvested	71,556
Value of product	$40,219
Irish Potatoes—Number acres grown	170,285
Bushels harvested	7,869,321
Value of product	$4,497,627
Sweet Potatoes—Number acres grown	3,406
Bushels harvested	195,218
Value of product	$124,068
Onions—Number acres grown	2,139
Bushels harvested	174,717
Value of product	$109,743
Beets—Number acres grown	740
Bushels harvested	85,118
Value of product	$28,430
Turnips—Number acres grown	4,564
Bushels harvested	301,784
Value of product	$72,071
Watermelons—Number acres grown	8,199
Hundreds harvested	32,930
Value of product	$181,419
Timothy Hay—Number acres cut	2,162,791
Tons harvested	1,726,920
Value of product	$11,741,929
Clover Hay—Number acres cut	196,119
Tons harvested	175,038
Value of product	$1,022,922
Hungarian and Millet Hay—Number acres cut	91,167
Tons harvested	95,095
Value of product	$499,118
Prairie Hay—Number acres cut	1,760,159
Tons harvested	1,256,688
Value of product	$5,859,449
Corn stalks—Number acres cut	2,689,099
Value of product	$9,382,534
Silos—Number tons preserved	65,269
Value of product	$202,724

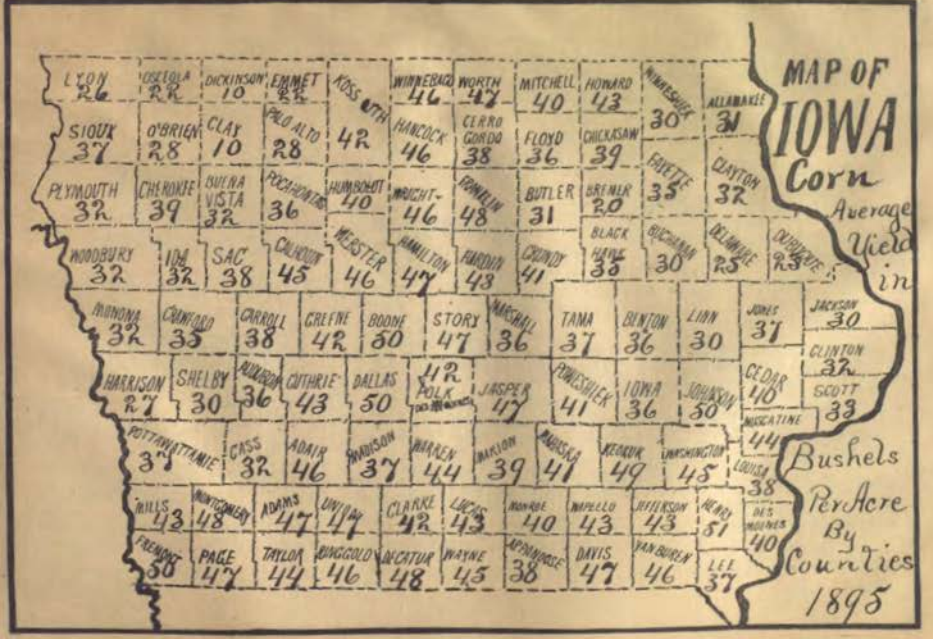
Flax straw—Number tons sold	6,121
Value of product	$16,404
Pastures—Number of acres	8,104,250
Value of grass	$14,700,702
Sorghum—Number of acres grown	20,073
Gallons of syrup produced	903,312
Value of product	$380,858
Pounds of sugar produced	3,050
Maple Sugar and Syrup—Pounds of sugar produced	17,735
Gallons of syrup produced	8,486
Value of product	$9,916
Broom Corn—Number acres grown	1,364
Tons harvested	450
Value of product	$25,967
Hops—Pounds harvested	536
Value of product	$150
Tobacco—Number of acres grown	113
Pounds harvested	51,528
Value of product	$4,355
Forests—Number acres planted timber	141,869
Number acres natural timber	1,505,611
Cords of wood cut in 1894	754,342
Value of wood consumed	$1,647,105
Value of wood sold	$870,787
Nurseries—Number of acres	2,205
Value of trees and plants sold in 1894	$220,033
Apples—Number acres	135,545
Bushels harvested	2,599,884
Value of product	$1,357,300
Number of bearing trees	2,397,793
Pears—Number bearing trees	16,478
Bushels harvested	4,256
Value of product	$7,281
Peaches—Number bearing trees	97,893
Bushels harvested	1,726
Value of product	$3,284
Plums—Number bearing trees	707,506
Bushels harvested	164,449
Value of product	$162,166
Cherries—Number bearing trees	274,322
Bushels harvested	80,650
Value of product	$149,577
Number of other fruit trees not in bearing	29,315
Bushels of other fruit harvested	19,157
Value of product	$14,670
Number of fruit trees not in bearing	1,944,403
Grapes not in Vineyards—Number of acres	11,468
Pounds of grapes harvested	4,348,721
Value of product	$103,582
Gallons of wine made	73,912
Grapes in Vineyards—Number of vines	2,225,695
Pounds of grapes raised	7,125,895
Value of product	$186,746
Gallons of wine made	39,370
Total number pounds of grapes raised	11,475,616
Value of product	$290,132
Total number gallons wine made	113,282
Strawberries—Number of acres	1,393
Bushels harvested	20,654
Value of product	$37,136
Raspberries—Number of acres	4,091
Bushels harvested	32,757
Value of product	$92,321

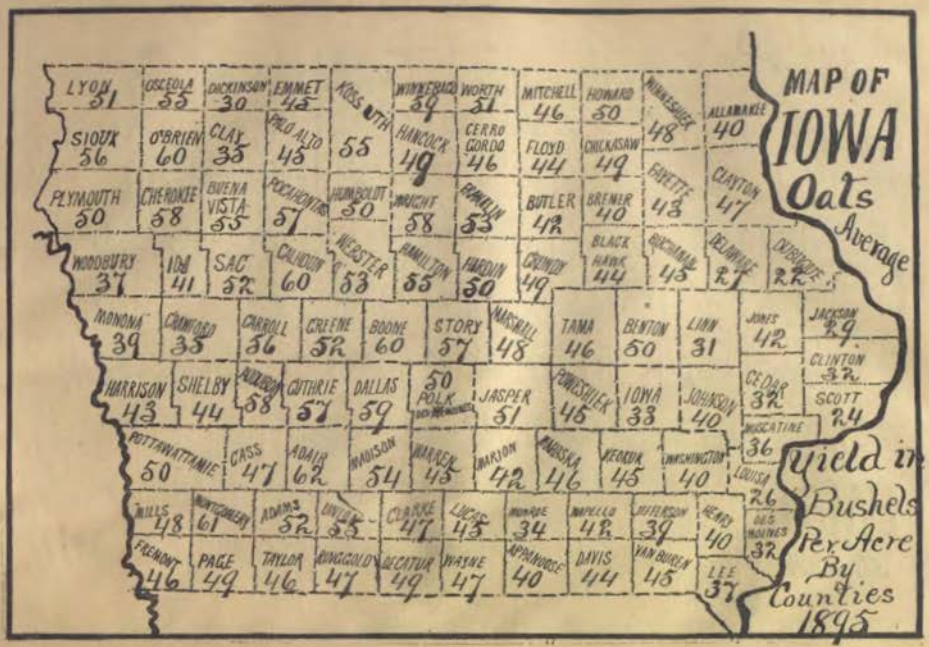
Blackberries—Number of acres	2,431
Bushels harvested	30,710
Value of product	$80,250
Other small fruit—Number of acres	2,404
Bushels harvested	16,093
Value of product	$36,728
Horses—Number of thoroughbreds	1,876
Number of French breeds	3,043
Number of Scotch breeds	1,087
Number of English breeds	1,371
Number of Standard bred	5,270
Number of grades	180,158
Number of common stock	1,190,692
Total number January 1, 1895	1,383,309
Total value January 1, 1895	$41,564,545
Number sold for export, 1894	58,087
Value of same	$2,923,918
Number imported in 1894	2,036
Value of same	$93,819
Mules — Number January 1, 1895	35,498
Value	$1,325,934
Number sold for export	2,044
Value	$56,070
Asses—Number January 1, 1895	622
Value	$35,832
Cattle—Number of Shorthorns	43,013
Number of Holsteins	3,305
Number of Herefords	3,498
Number of Polled Angus	4,654
Number of Red Polled	1,664
Number of Galloways	1,173
Number of Jerseys	6,656
Number of Devons	374
Number of other thoroughbreds	6,907
Number of grades and common	3,125,330
Total number of cattle	3,197,584
Total value	$63,820,197
Number of work oxen	460
Value of same	$13,894
Number of milch cows	1,087,259
Value of same	$23,269,761
Number sold for slaughter for domestic use	453,197
Value of same	$10,369,954
Number sold for export, 1894	753,685
Value of same	$23,388,510
Number imported	39,831
Value of same	$777,058
Hogs—Number of Poland Chinas	3,319,931
Number of Berkshires	34,881
Number of Chester Whites	79,064
Number of Duroc Jerseys	42,019
Number of Essex	4,737
Number of other breeds	2,363,945
Total number	5,044,577
Total value	$23,596,962
Number sold for export, 1894	4,234,090
Value of same	$41,895,049
Number slaughtered for domestic use	495,445
Value of same	$4,551,046
Number imported in 1894	21,022
Value of same	$144,484
Sheep and Wool—Number of Merinos	48,730
Number of Cotswolds	33,582

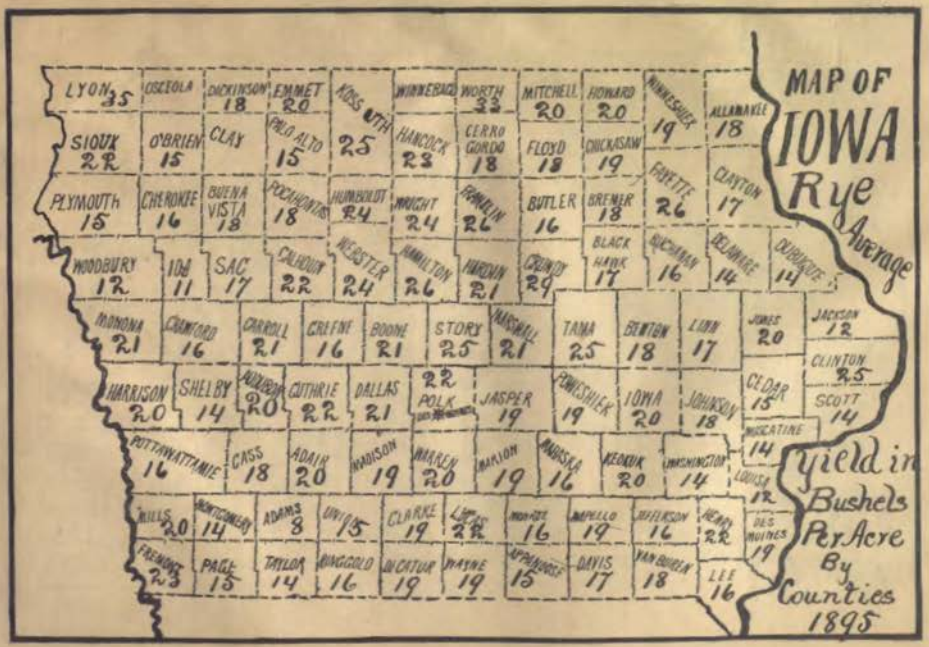
Number of Leicestershires	3,699
Number of Suffolks	3,754
Number of Shropshire Downs	100,060
Number of Oxford Downs	8,486
Number of Southdowns	7,928
Number of Hampshire Downs	4,629
Number of other breeds	282,007
Total number	492,875
Total value	$1,160,535
Number slaughtered or sold for slaughter	203,414
Value of same	$475,889
Number killed by dogs	9,158
Value of same	$22,564
Number of fleeces cut in 1894	432,412
Value of same	$380,875
Dogs—Total number	140,446
Value of same	$139,679
Chickens—Number improved breeds	1,688,410
Number common breeds	15,532,534
Total number	17,220,944
Total value	$3,478,453
Value of chickens marketed, 1894	$1,133,044
Turkeys—Total number	825,881
Total value	$562,330
Value of turkeys marketed, 1894	$713,728
Other fowls—Total number	382,729
Total value	$162,186
Value of other fowls marketed, 1894	$110,797
Eggs—Number dozens produced, 1894	62,710,217
Number dozens marketed, 1894	39,485,897
Value of eggs marketed, 1894	$3,960,932
Bees—Number of stands	76,846
Pounds of honey produced	836,379
Value of same	$81,513
Pounds of honey marketed	224,848
Other Products—Value of market garden products not included with foregoing	$331,936
Value of products of the forest not including wood for fuel	$141,496
Value of farm products not heretofore enumerated	$286,321
Value of products of home manufacture not otherwise enumerated	$62,516
Farm Mortgage Indebtedness—Number of farms mortgaged	83,552
Net mortgage indebtedness on farms	$138,585,720

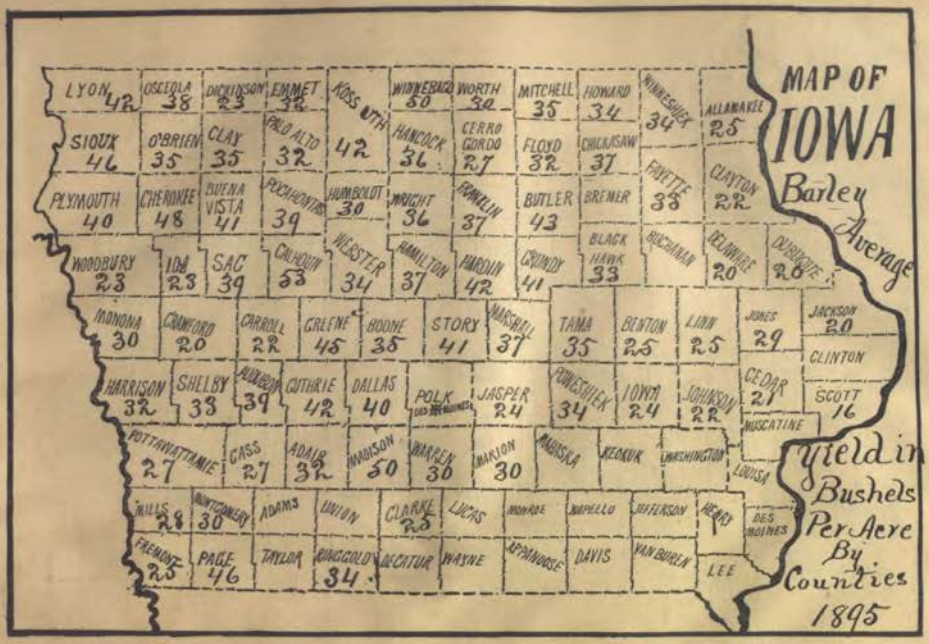


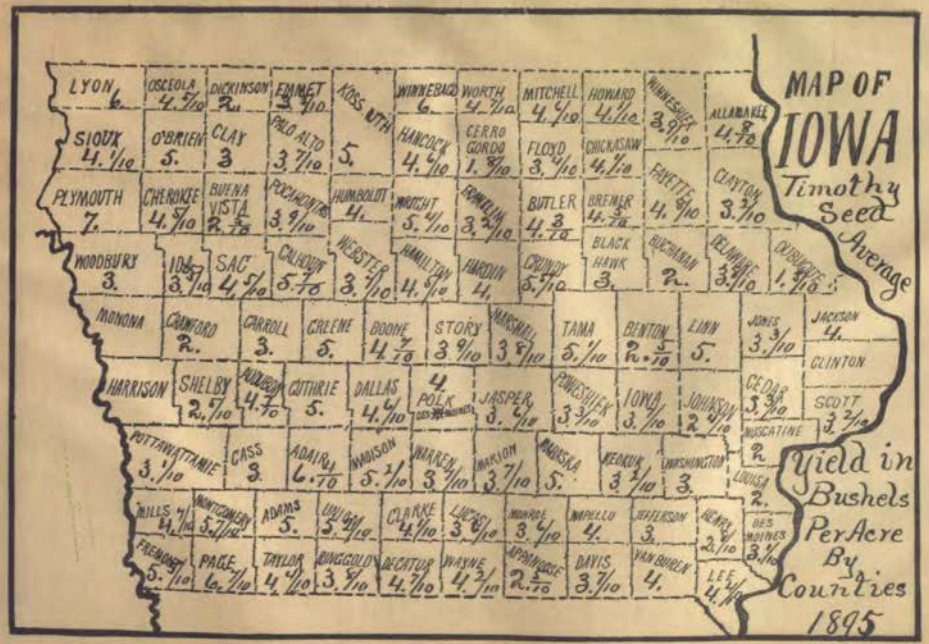

MAP OF
IOWA
Spring Wheat
Average
Yield
in
Bushels
Per Acre
By Counties
Year
1895
LYON 22
OSCEOLA 24
DICKINSON 19
EMMET 21
KOSSUTH 30
WINNEBAGO 27
WORTH 20
MITCHELL 16
HOWARD 17
WINNESHIEK 19
ALLAMAKEE 16
SIOUX 27
O'BRIEN 20
CLAY 15
PALO ALTO 23
HANCOCK 20
CERRO GORDO 16
FLOYD 19
CHICKASAW 15
FAYETTE 15
CLAYTON 13
PLYMOUTH 28
CHEROKEE 26
BUENA VISTA 24
POCAHONTAS 21
HUMBOLDT 28
WRIGHT 25
FRANKLIN 23
BUTLER 16
BREMER 12
BUCHANAN 18
DELAWARE 14
DUBUQUE 18
BLACK HAWK
WOODBURY 18
IDA 20
SAC 19
CALHOUN 23
WEBSTER 20
HAMILTON 23
HARDIN 21
COUNTY 21
MONONA 21
CRAWFORD 18
CARROLL 25
GREENE 20
BOONE 25
STORY 21
MARSHALL 23
TAMA 22
BENTON 16
LINN 14
JONES 15
JACKSON 14
CLINTON 15
HARRISON 22
SHELBY 21
AUDUBON 27
GUTHRIE 21
DALLAS 20
POLK 23
JASPER 18
POWESHIEK 18
IOWA 17
JOHNSON 16
CEDAR 14
SCOTT 14
MUSCATINE 23
POTTAWATTAMIE 22
CASS 23
ADAIR 22
MADISON 17
WARREN 20
MARION 18
MAHASKA 16
KEOKUK 15
WASHINGTON
LOUISA
MILLS 19
MONTGOMERY 21
ADAMS
UNION 15
CLARKE 16
LUCAS
MONROE
APPANOOSE 18
DAVIS 13
JEFFERSON 12
HENRY 16
DES MOINES 8
VAN BUREN
LEE
FREMONT 18
PAGE 13
TAYLOR 14
RINGGOLD 13
DECATUR 16
WAYNE 14


MAP OF
IOWA
Corn
Average
Yield
in
Bushels
Per Acre
By Counties
1895
LYON 26
OSCEOLA 22
DICKINSON 10
EMMET 22
KOSSUTH 42
WINNEBAGO 46
WORTH 42
MITCHELL 40
HOWARD 43
WINNESHIEK 30
ALLAMAKEE 31
SIOUX 37
O'BRIEN 28
CLAY 10
PALO ALTO 28
HANCOCK 46
CERRO GORDO 38
FLOYD 36
CHICKASAW 39
FAYETTE 35
CLAYTON 32
PLYMOUTH 32
CHEROKEE 39
BUENA VISTA 32
POCAHONTAS 36
HUMBOLDT 40
WRIGHT 46
FRANKLIN 48
BUTLER 31
BREMER 20
BUCHANAN 30
DELAWARE 25
DUBUQUE 23
BLACK HAWK 33
WOODBURY 32
IDA 32
SAC 38
CALHOUN 45
WEBSTER 46
HAMILTON 47
HARDIN 43
COUNTY 41
MONONA 32
CRAWFORD 33
CARROLL 38
GREENE 42
BOONE 30
STORY 47
MARSHALL 36
TAMA 37
BENTON 36
LINN 30
JONES 37
JACKSON 30
CLINTON 32
HARRISON 27
SHELBY 30
AUDUBON 36
GUTHRIE 43
DALLAS 50
POLK 42
JASPER 47
POWESHIEK 41
IOWA 36
JOHNSON 30
CEDAR 40
SCOTT 33
MUSCATINE 44
POTTAWATTAMIE 37
CASS 32
ADAIR 46
MADISON 37
WARREN 44
MARION 39
MAHASKA 41
KEOKUK 49
WASHINGTON 45
LOUISA 38
MILLS 43
MONTGOMERY 48
ADAMS 47
UNION 47
CLARKE 42
LUCAS 43
MONROE 40
APPANOOSE 38
DAVIS 47
JEFFERSON 43
HENRY 51
DES MOINES 40
VAN BUREN 46
FREMONT 50
PAGE 47
TAYLOR 44
RINGGOLD 46
DECATUR 48
WAYNE 45
LEE 37


MAP OF
IOWA
Oats
Average
Yield in
Bushels
Per Acre
By
Counties
1895
LYON 51
OSCEOLA 55
DICKINSON 30
EMMET 45
KOSSUTH 55
WINNEBAGO 39
WORTH 51
MITCHELL 46
HOWARD 50
WINNESHIEK 48
ALLAMAKEE 40
SIOUX 56
O'BRIEN 60
CLAY 35
PALO ALTO 45
HANCOCK 49
CERRO GORDO 46
FLOYD 44
CHICKASAW 49
FAYETTE 43
CLAYTON 47
PLYMOUTH 50
CHEROKEE 58
BUENA VISTA 55
POCAHONTAS 57
HUMBOLDT 50
WRIGHT 58
FRANKLIN 53
BUTLER 42
BREMER 40
BUCHANAN 43
DELAWARE 27
DUBUQUE 22
WOODBURY 37
IDA 41
SAC 52
CALHOUN 60
WEBSTER 53
HAMILTON 55
HARDIN 50
GRUNDY 49
BLACK HAWK 44
BENTON 45
LINN 31
JONES 42
JACKSON 29
MONONA 39
CRAWFORD 35
CARROLL 56
GREENE 52
BOONE 60
STORY 57
MARSHALL 48
TAMA 46
CLINTON 32
HARRISON 43
SHELBY 44
AUDUBON 58
GUTHRIE 57
DALLAS 59
POLK 50
JASPER 51
POWESHIEK 45
IOWA 33
JOHNSON 40
CEDAR 32
SCOTT 24
MUSCATINE 36
POTTAWATTAMIE 50
CASS 47
ADAIR 62
MADISON 54
WARREN 43
MARION 42
MAHASKA 46
KEOKUK 45
WASHINGTON 40
LOUISA 26
MILLS 48
MONTGOMERY 61
ADAMS 52
UNION 55
CLARKE 47
LUCAS 45
MONROE 34
APPANOOSE 42
WAPELLO 39
DES MOINES 32
HENRY 40
FREMONT 46
PAGE 49
TAYLOR 46
RINGGOLD 47
DECATUR 49
WAYNE 47
DAVIS 40
VAN BUREN 44
LEE 37

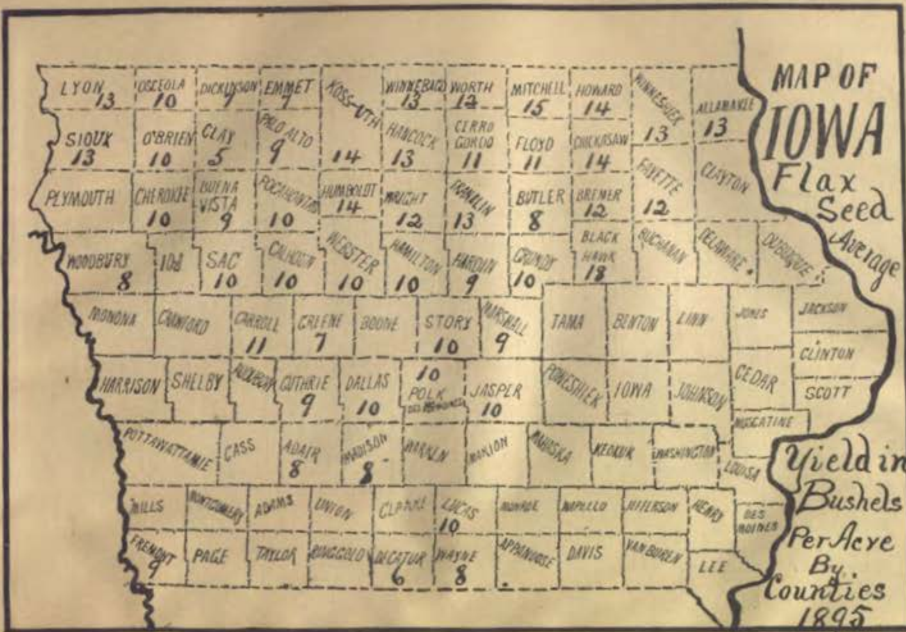

MAP OF
IOWA
Rye
Average
Yield in
Bushels
Per Acre
By
Counties
1895
LYON 35
OSCEOLA
DICKINSON 18
EMMET 20
KOSSUTH 25
WINNEBAGO
WORTH 33
MITCHELL 20
HOWARD 20
WINNESHIEK 19
ALLAMAKEE 18
SIOUX 22
O'BRIEN 15
CLAY
PALO ALTO 15
HANCOCK 23
CERRO GORDO 18
FLOYD 18
CHICKASAW 19
FAYETTE 26
CLAYTON 17
PLYMOUTH 15
CHEROKEE 16
BUENA VISTA 18
POCAHONTAS 18
HUMBOLDT 24
WRIGHT 24
FRANKLIN 26
BUTLER 16
BREMER 18
BUCHANAN 16
DELAWARE 14
DUBUQUE 14
WOODBURY 12
IDA 11
SAC 17
CALHOUN 22
WEBSTER 24
HAMILTON 26
HARDIN 21
GRUNDY 29
BLACK HAWK 17
BENTON 18
LINN 17
JONES 20
JACKSON 12
MONONA 21
CRAWFORD 16
CARROLL 21
GREENE 16
BOONE 21
STORY 25
MARSHALL 21
TAMA 25
CLINTON 25
HARRISON 20
SHELBY 14
AUDUBON 20
GUTHRIE 22
DALLAS 21
POLK 22
JASPER 19
POWESHIEK 19
IOWA 20
JOHNSON 18
CEDAR 15
SCOTT 14
MUSCATINE 14
POTTAWATTAMIE 16
CASS 18
ADAIR 20
MADISON 19
WARREN 20
MARION 19
MAHASKA 16
KEOKUK 20
WASHINGTON 14
LOUISA 12
MILLS 20
MONTGOMERY 14
ADAMS 8
UNION 15
CLARKE 19
LUCAS 22
MONROE 16
APPANOOSE 19
WAPELLO 16
DES MOINES 19
HENRY 22
FREMONT 23
PAGE 15
TAYLOR 14
RINGGOLD 16
DECATUR 19
WAYNE 19
DAVIS 15
VAN BUREN 17
LEE 18

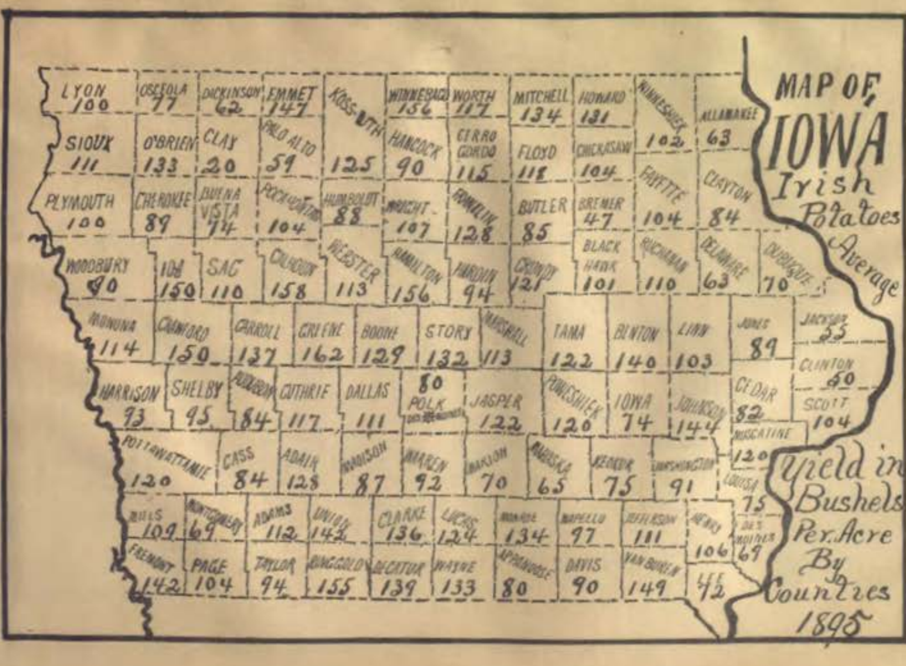

MAP OF
IOWA
Barley Average
Yield in Bushels Per Acre By Counties
1895
LYON 42
OSCEOLA 38
DICKINSON 23
EMMET 32
KOSSUTH
WINNEBAGO 30
WORTH 32
MITCHELL 35
HOWARD 34
WINNESHIEK 34
ALLAMAKEE 25
SIOUX 46
O'BRIEN 35
CLAY 35
PALO ALTO 32
42
HANCOCK 36
CERRO GORDO 27
FLOYD 32
CHICKASAW 37
FAYETTE 33
CLAYTON 22
PLYMOUTH 40
CHEROKEE 48
BUENA VISTA 41
POCAHONTAS 39
HUMBOLDT 30
WRIGHT 36
FRANKLIN 37
BUTLER 43
BREMER
BLACK HAWK 33
BUCHANAN
DELAWARE 20
DUBUQUE 26
WOODBURY 23
IDA 23
SAC 39
CALHOUN 33
WEBSTER 34
HAMILTON 37
HARDIN 42
GRUNDY 41
MONONA 30
CRAWFORD 20
CARROLL 22
GREENE 45
BOONE 35
STORY 41
MARSHALL 37
TAMA 35
BENTON 25
LINN 25
JONES 29
JACKSON 20
CLINTON
HARRISON 32
SHELBY 33
AUDUBON 39
GUTHRIE 42
DALLAS 40
POLK
JASPER 24
POWESHIEK 34
IOWA 24
JOHNSON 22
CEDAR 21
SCOTT 16
MUSCATINE
POTTAWATTAMIE 27
CASS 27
ADAIR 32
MADISON 50
WARREN 36
MARION 30
MAHASKA
KEOKUK
WASHINGTON
LOUISA
MILLS 28
MONTGOMERY 30
ADAMS
UNION
CLARKE 23
LUCAS
MONROE
APPANOOSE
DAVIS
VAN BUREN
HENRY
DES MOINES
FREMONT 23
PAGE 46
TAYLOR
RINGGOLD 34
DECATUR
WAYNE
LEE

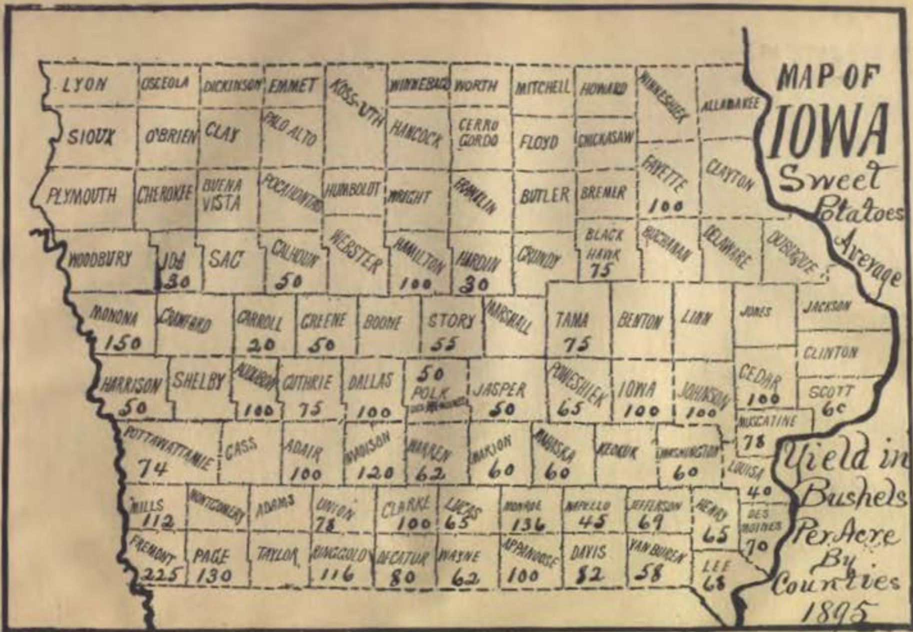

MAP OF
IOWA
Timothy Seed Average
Yield in Bushels Per Acre By Counties
1895
LYON 6.
OSCEOLA 4.9/10
DICKINSON 2.
EMMET 3/10
KOSSUTH 5.
WINNEBAGO 6.
WORTH 4.7/10
MITCHELL 4.4/10
HOWARD 4.1/10
WINNESHIEK 3.9/10
ALLAMAKEE 4.8/10
SIOUX 4.1/10
O'BRIEN 5.
CLAY 3.
PALO ALTO 3.7/10
HANCOCK 4.4/10
CERRO GORDO 1.9/10
FLOYD 3.4/10
CHICKASAW 4.1/10
FAYETTE 4.9/10
CLAYTON 3.7/10
PLYMOUTH 7.
CHEROKEE 4.7/10
BUENA VISTA 2.5/10
POCAHONTAS 3.9/10
HUMBOLDT 4.
WRIGHT 5.4/10
FRANKLIN 3.2/10
BUTLER 4.3/10
BREMER 4.7/10
BLACK HAWK 3.
BUCHANAN 2.
DELAWARE 3.7/10
DUBUQUE 1.9/10
WOODBURY 3.
IDA 3.7/10
SAC 4.5/10
CALHOUN 5.7/10
WEBSTER 3.7/10
HAMILTON 4.7/10
HARDIN 4.
GRUNDY 5.1/10
MONONA
CRAWFORD 2.
CARROLL 3.
GREENE 5.
BOONE 4.7/10
STORY 3.9/10
MARSHALL 3.8/10
TAMA 5.7/10
BENTON 2.5/10
LINN 5.
JONES 3.3/10
JACKSON 4.
CLINTON
HARRISON
SHELBY 2.7/10
AUDUBON 4.7/10
GUTHRIE 5.
DALLAS 4.4/10
POLK 4
JASPER 3.4/10
POWESHIEK 3.9/10
IOWA 3.7/10
JOHNSON 2.4/10
CEDAR 3.3/10
SCOTT 3.2/10
MUSCATINE
POTTAWATTAMIE 3.1/10
CASS 3
ADAIR 6.7/10
MADISON 5.1/10
WARREN 3.9/10
MARION 3.7/10
MAHASKA 5.
KEOKUK 3.7/10
WASHINGTON 3.
LOUISA 2.
MILLS 4.1/10
MONTGOMERY 3.7/10
ADAMS 5.
UNION 3.3/10
CLARKE 4.1/10
LUCAS 3.6/10
MONROE 3.4/10
APPANOOSE 2.5/10
DAVIS 3.7/10
VAN BUREN 4.
HENRY 2.1/10
DES MOINES 3.1/10
FREMONT 5.1/10
PAGE 6.7/10
TAYLOR 4.4/10
RINGGOLD 3.8/10
DECATUR 4.4/10
WAYNE 4.3/10
LEE 4.1/10

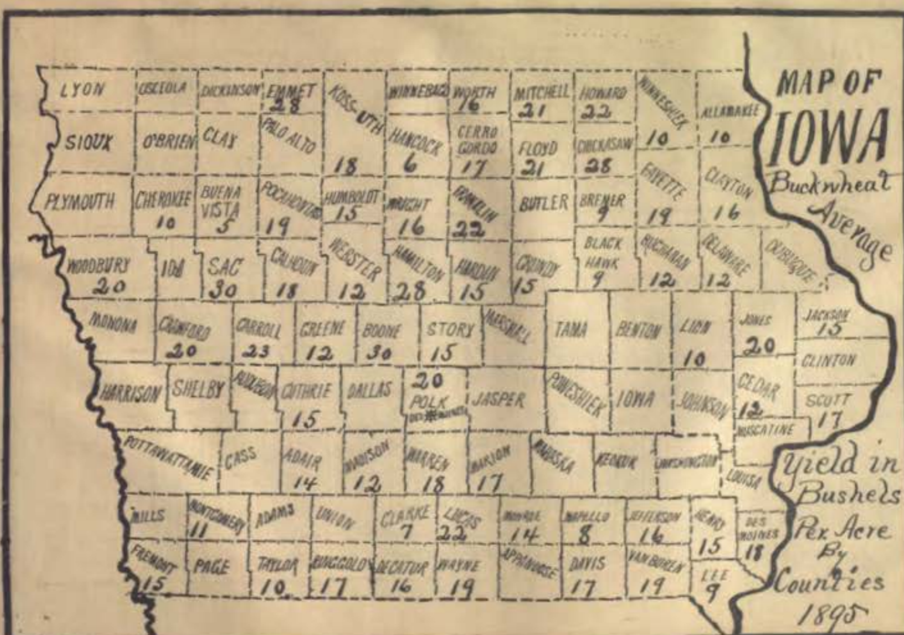
MAP OF IOWA
Clover Seed Average
Yield in Bushels Per Acre By Counties 1895
LYON
OSCEOLA
DICKINSON
EMMET
KOSSUTH
WINNEBAGO
WORTH
MITCHELL
HOWARD
WINNESHIEK
ALLAMAKEE
SIOUX
O'BRIEN
CLAY
PALO ALTO
HANCOCK
CERRO GORDO
FLOYD
CHICKASAW
PLYMOUTH
CHEROKEE
BUENA VISTA
POCAHONTAS
HUMBOLDT
WRIGHT
FRANKLIN
BUTLER
BREMER
FAYETTE
CLAYTON
WOODBURY
IDA
SAC
CALHOUN
WEBSTER
HAMILTON
HARDIN
GRUNDY
BLACK HAWK
BUCHANAN
DELAWARE
DUBUQUE
MONONA
CRAWFORD
CARROLL
GREENE
BOONE
STORY
MARSHALL
TAMA
BENTON
LINN
JONES
JACKSON
CLINTON
HARRISON
SHELBY
AUDUBON
GUTHRIE
DALLAS
POLK
JASPER
POWESHIEK
IOWA
JOHNSON
CEDAR
SCOTT
MUSCATINE
LOUISA
POTTAWATTAMIE
CASS
ADAIR
MADISON
WARREN
MARION
MAHASKA
KEOKUK
WASHINGTON
MILLS
MONTGOMERY
ADAMS
UNION
CLARKE
LUCAS
MONROE
WAPELLO
JEFFERSON
HENRY
DES MOINES
FREMONT
PAGE
TAYLOR
RINGGOLD
DECATUR
WAYNE
APPANOOSE
DAVIS
VAN BUREN
LEE

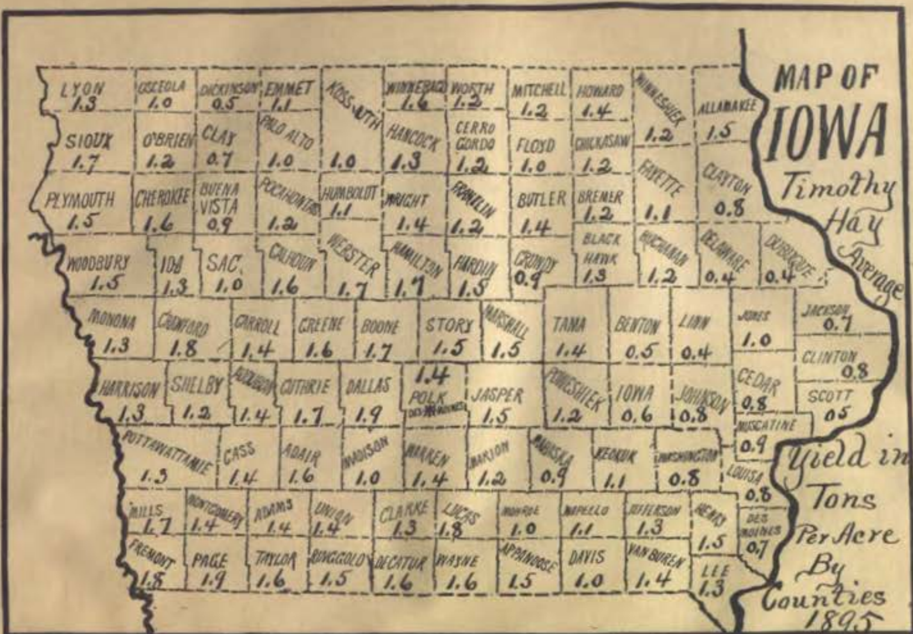
MAP OF IOWA
Millet Seed Average
Yield in Bushels Per Acre By Counties 1895
LYON
OSCEOLA
DICKINSON
EMMET
KOSSUTH
WINNEBAGO
WORTH
MITCHELL
HOWARD
WINNESHIEK
ALLAMAKEE
SIOUX
O'BRIEN
CLAY
PALO ALTO
HANCOCK
CERRO GORDO
FLOYD
CHICKASAW
PLYMOUTH
CHEROKEE
BUENA VISTA
POCAHONTAS
HUMBOLDT
WRIGHT
FRANKLIN
BUTLER
BREMER
FAYETTE
CLAYTON
WOODBURY
IDA
SAC
CALHOUN
WEBSTER
HAMILTON
HARDIN
GRUNDY
BLACK HAWK
BUCHANAN
DELAWARE
DUBUQUE
MONONA
CRAWFORD
CARROLL
GREENE
BOONE
STORY
MARSHALL
TAMA
BENTON
LINN
JONES
JACKSON
CLINTON
HARRISON
SHELBY
AUDUBON
GUTHRIE
DALLAS
POLK
JASPER
POWESHIEK
IOWA
JOHNSON
CEDAR
SCOTT
MUSCATINE
LOUISA
POTTAWATTAMIE
CASS
ADAIR
MADISON
WARREN
MARION
MAHASKA
KEOKUK
WASHINGTON
MILLS
MONTGOMERY
ADAMS
UNION
CLARKE
LUCAS
MONROE
WAPELLO
JEFFERSON
HENRY
DES MOINES
FREMONT
PAGE
TAYLOR
RINGGOLD
DECATUR
WAYNE
APPANOOSE
DAVIS
VAN BUREN
LEE

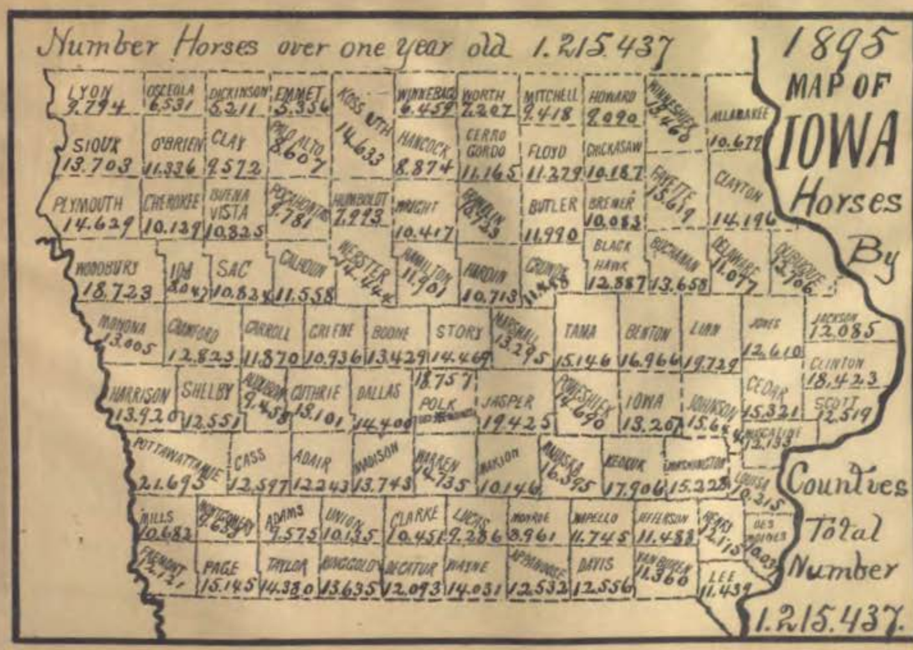

MAP OF IOWA
Flax Seed Average
Yield in Bushels Per Acre By Counties 1895
LYON 13
OSCEOLA 10
DICKINSON 9
EMMET 7
KOSSUTH 14
WINNEBAGO 13
WORTH 12
MITCHELL 15
HOWARD 14
WINNESHIEK 13
ALLAMAKEE 13
SIOUX 13
O'BRIEN 10
CLAY 5
PALO ALTO 9
HANCOCK 13
CERRO GORDO 11
FLOYD 11
CHICKASAW 14
PLYMOUTH
CHEROKEE 10
BUENA VISTA 9
POCAHONTAS 10
HUMBOLDT 14
WRIGHT 12
FRANKLIN 13
BUTLER 8
BREMER 12
FAYETTE 12
CLAYTON
WOODBURY 8
IDA
SAC 10
CALHOUN 10
WEBSTER 10
HAMILTON 10
HARDIN 9
GRUNDY 10
BLACK HAWK 13
BUCHANAN
DELAWARE
DUBUQUE
MONONA
CRAWFORD
CARROLL 11
GREENE 7
BOONE
STORY 10
MARSHALL 9
TAMA
BENTON
LINN
JONES
JACKSON
HARRISON
SHELBY
AUDUBON
GUTHRIE 9
DALLAS 10
POLK 10
DES MOINES
JASPER 10
POWESHIEK
IOWA
JOHNSON
CEDAR
CLINTON
SCOTT
MUSCATINE
POTTAWATTAMIE
CASS
ADAIR 8
MADISON 8
WARREN
MARION
MAHASKA
KEOKUK
WASHINGTON
LOUISA
MILLS
MONTGOMERY
ADAMS
UNION
CLARKE
LUCAS 10
MONROE
WAPELLO
JEFFERSON
HENRY
DES MOINES
FREMONT 9
PAGE
TAYLOR
RINGGOLD
DECATUR 6
WAYNE 8
APPANOOSE
DAVIS
VAN BUREN
LEE

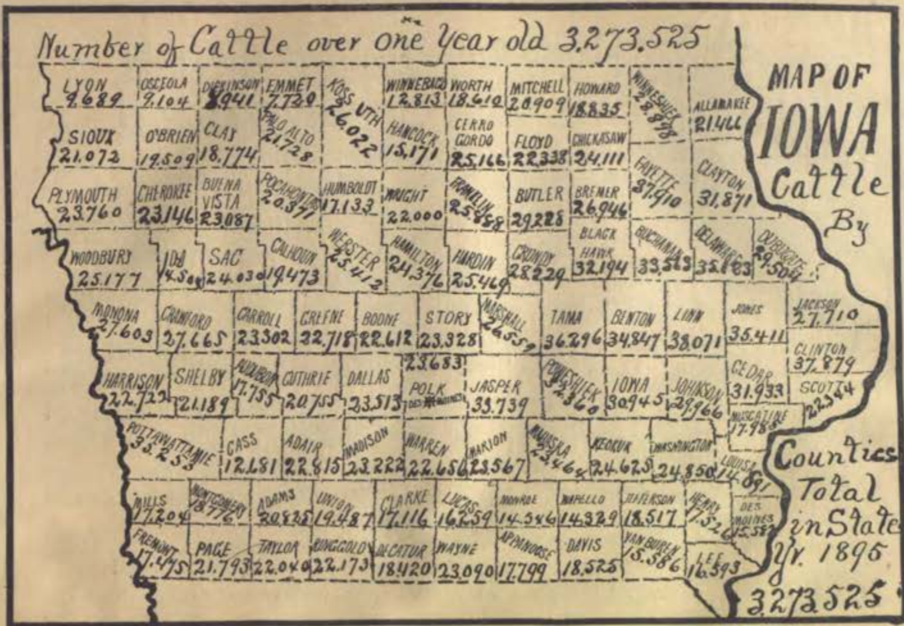

MAP OF IOWA
Irish Potatoes Average
Yield in Bushels Per Acre By Counties 1895
LYON 100
OSCEOLA 77
DICKINSON 62
EMMET 147
KOSSUTH 125
WINNEBAGO 136
WORTH 117
MITCHELL 134
HOWARD 131
WINNESHIEK 102
ALLAMAKEE 63
SIOUX 111
O'BRIEN 133
CLAY 20
PALO ALTO 59
HANCOCK 90
CERRO GORDO 115
FLOYD 118
CHICKASAW 104
PLYMOUTH 100
CHEROKEE 89
BUENA VISTA 74
POCAHONTAS 104
HUMBOLDT 88
WRIGHT 107
FRANKLIN 128
BUTLER 85
BREMER 47
FAYETTE 104
CLAYTON 84
WOODBURY 90
IDA 150
SAC 110
CALHOUN 158
WEBSTER 113
HAMILTON 156
HARDIN 94
GRUNDY 121
BLACK HAWK 101
BUCHANAN 110
DELAWARE 63
DUBUQUE 70
MONONA 114
CRAWFORD 159
CARROLL 137
GREENE 162
BOONE 129
STORY 132
MARSHALL 113
TAMA 122
BENTON 140
LINN 103
JONES 89
JACKSON 55
HARRISON 93
SHELBY 95
AUDUBON 84
GUTHRIE 117
DALLAS 111
POLK 80
DES MOINES
JASPER 122
POWESHIEK 120
IOWA 74
JOHNSON 144
CEDAR 82
CLINTON 50
SCOTT 104
MUSCATINE 120
POTTAWATTAMIE 120
CASS 84
ADAIR 128
MADISON 87
WARREN 92
MARION 70
MAHASKA 65
KEOKUK 75
WASHINGTON 91
LOUISA 75
MILLS 109
MONTGOMERY 69
ADAMS 112
UNION 142
CLARKE 136
LUCAS 124
MONROE 134
WAPELLO 97
JEFFERSON 111
HENRY 106
DES MOINES 69
FREMONT 142
PAGE 104
TAYLOR 94
RINGGOLD 155
DECATUR 139
WAYNE 133
APPANOOSE 80
DAVIS 90
VAN BUREN 149
LEE 42

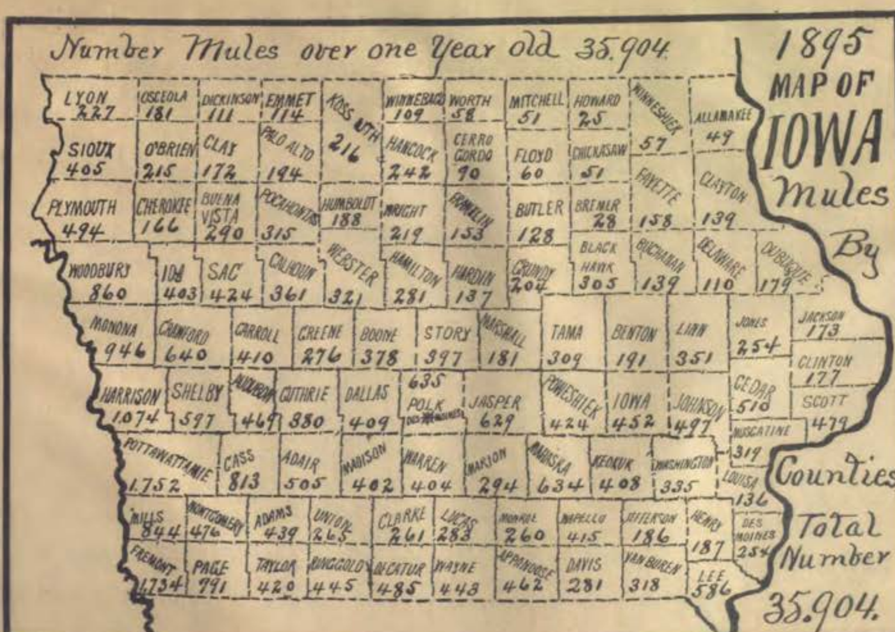

MAP OF IOWA
Sweet Potatoes Average
Yield in Bushels Per Acre By Counties
1895
LYON
OSCEOLA
DICKINSON
EMMET
KOSS-UTH
WINNEBAGO
WORTH
MITCHELL
HOWARD
WINNESHIEK
ALLAMAKEE
SIOUX
O'BRIEN
CLAY
PALO ALTO
HANCOCK
CERRO GORDO
FLOYD
CHICKASAW
FAYETTE 100
CLAYTON
PLYMOUTH
CHEROKEE
BUENA VISTA
POCAHONTAS
HUMBOLDT
WRIGHT
FRANKLIN
BUTLER
BREMER
BLACK HAWK 75
BUCHANAN
DELAWARE
DUBUQUE
WOODBURY
IDA 30
SAC
CALHOUN 50
WEBSTER
HAMILTON 100
HARDIN 30
GRUNDY
MONONA 150
CRAWFORD
CARROLL 20
GREENE 50
BOONE
STORY 55
MARSHALL
TAMA 75
BENTON
LINN
JONES
JACKSON
CLINTON
HARRISON 50
SHELBY
AUDUBON 100
GUTHRIE 75
DALLAS 100
50 POLK
DES MOINES
JASPER 50
POWESHIEK 65
IOWA 100
JOHNSON 100
CEDAR 100
SCOTT 6c
MUSCATINE 78
POTTAWATTAMIE 74
CASS
ADAIR 100
MADISON 120
WARREN 62
MARION 60
MAHASKA 60
KEOKUK
WASHINGTON 60
LOUISA 40
MILLS 112
MONTGOMERY
ADAMS
UNION 78
CLARKE 100
LUCAS 65
MONROE 136
WAPELLO 45
JEFFERSON 69
HENRY 65
DES MOINES 70
FREMONT 225
PAGE 130
TAYLOR
RINGGOLD 116
DECATUR 80
WAYNE 62
APPANOOSE 100
DAVIS 82
VAN BUREN 58
LEE 68

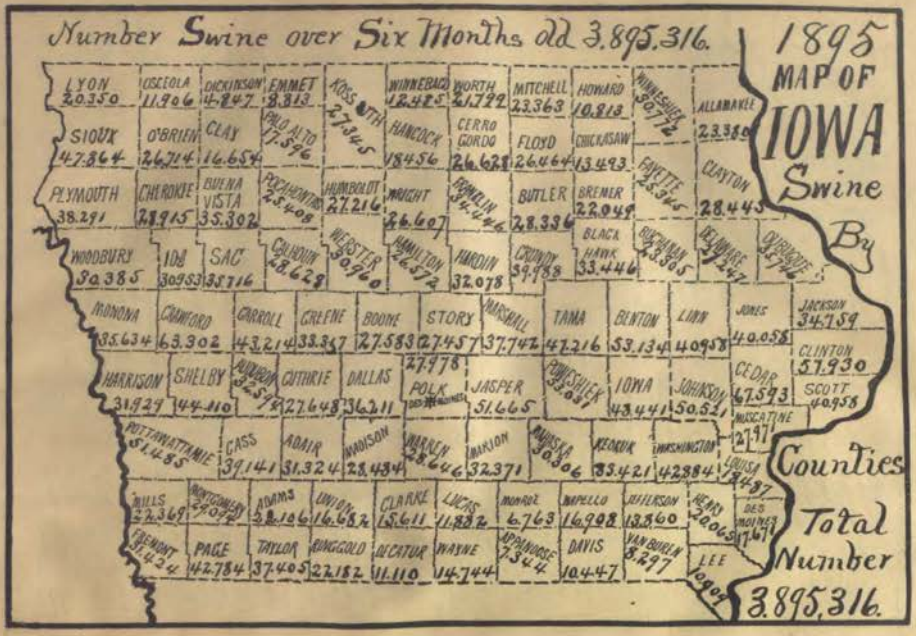

MAP OF IOWA
Buckwheat Average
Yield in Bushels Per Acre By Counties
1895
LYON
OSCEOLA
DICKINSON
EMMET 28
KOSS-UTH 18
WINNEBAGO
WORTH 16
MITCHELL 21
HOWARD 22
WINNESHIEK 10
ALLAMAKEE 10
SIOUX
O'BRIEN
CLAY
PALO ALTO
HANCOCK 6
CERRO GORDO 17
FLOYD 21
CHICKASAW 28
FAYETTE 19
CLAYTON 16
PLYMOUTH
CHEROKEE 10
BUENA VISTA 5
POCAHONTAS 19
HUMBOLDT 15
WRIGHT 16
FRANKLIN 22
BUTLER
BREMER 9
BLACK HAWK 9
BUCHANAN 12
DELAWARE 12
DUBUQUE
WOODBURY 20
IDA
SAC 30
CALHOUN 18
WEBSTER 12
HAMILTON 28
HARDIN 15
GRUNDY 15
MONONA
CRAWFORD 20
CARROLL 23
GREENE 12
BOONE 30
STORY 15
MARSHALL
TAMA
BENTON
LINN 10
JONES 20
JACKSON 15
CLINTON
HARRISON
SHELBY
AUDUBON
GUTHRIE 15
DALLAS
20 POLK
DES MOINES
JASPER
POWESHIEK
IOWA
JOHNSON
CEDAR 12
SCOTT 17
MUSCATINE
POTTAWATTAMIE
CASS
ADAIR 14
MADISON 12
WARREN 18
MARION 17
MAHASKA
KEOKUK
WASHINGTON
LOUISA
MILLS
MONTGOMERY 11
ADAMS
UNION
CLARKE 7
LUCAS 22
MONROE 14
WAPELLO 8
JEFFERSON 16
HENRY 15
DES MOINES 18
FREMONT 15
PAGE
TAYLOR 10
RINGGOLD 17
DECATUR 16
WAYNE 19
APPANOOSE
DAVIS 17
VAN BUREN 19
LEE 9

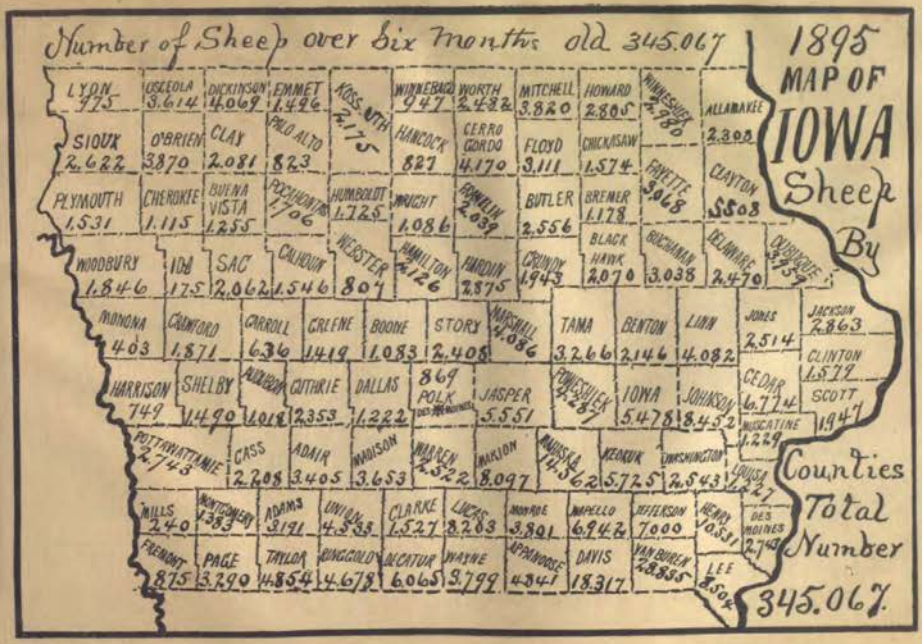

MAP OF
IOWA
Timothy
Hay
Average
Yield in
Tons
Per Acre
By
Counties
1895
LYON
OSCEOLA
DICKINSON
EMMET
WINNEBAGO
WORTH
MITCHELL
HOWARD
ALLAMAKEE
SIOUX
O'BRIEN
CLAY
HANCOCK
CERRO GORDO
FLOYD
CHICKASAW
PLYMOUTH
CHEROKEE
BUENA VISTA
HUMBOLDT
WRIGHT
BUTLER
BREMER
WOODBURY
SAC
BLACK HAWK
MONONA
CARROLL
GREENE
BOONE
STORY
TAMA
BENTON
LINN
CLINTON
HARRISON
SHELBY
GUTHRIE
DALLAS
POLK
JASPER
IOWA
CEDAR
SCOTT
CASS
ADAIR
MILLS
ADAMS
CLARKE
LUCAS
FREMONT
PAGE
TAYLOR
DECATUR
WAYNE
DAVIS
LEE

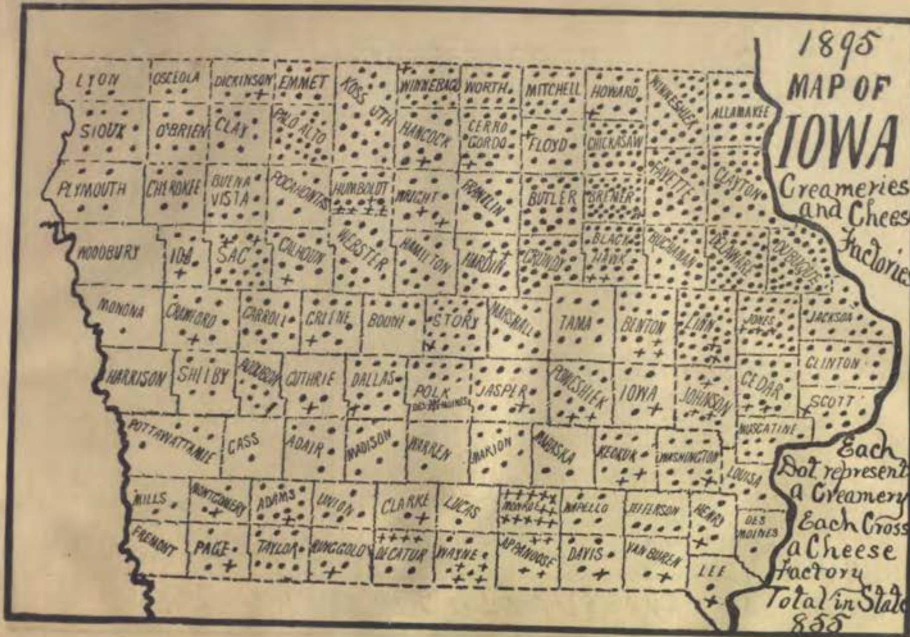

Number Horses over one year old 1.215.437
1895
MAP OF
IOWA
Horses
By
Counties
Total
Number
1.215.437.

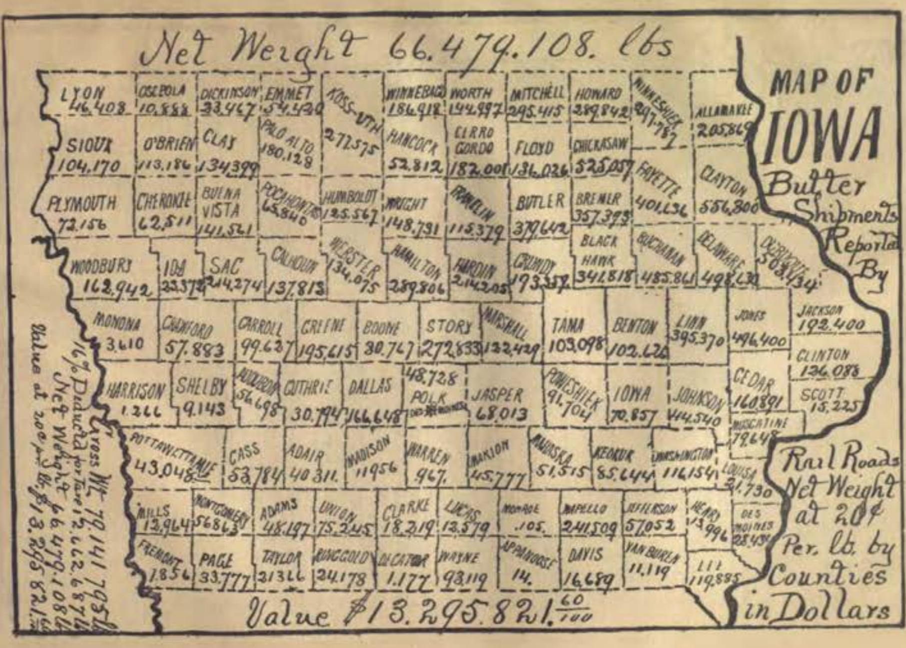

Number of Cattle over one Year old 3.273.525
MAP OF
IOWA
Cattle
By
Counties
Total
in State
Yr. 1895
3.273.525
LYON 9.689
OSCEOLA 9.104
DICKINSON 8941
EMMET 7.729
KOSSUTH 26.022
WINNEBAGO 12.813
WORTH 18.610
MITCHELL 20909
HOWARD 18835
SIOUX 21.072
O'BRIEN 19.509
CLAY 18.774
PALO ALTO 21.728
HANCOCK 15.171
CERRO GORDO 25.166
FLOYD 22338
CHICKASAW 24.111
CLAYTON 31.871
PLYMOUTH 23.760
CHEROKEE 23146
BUENA VISTA 23.087
HUMBOLDT 17.133
WRIGHT 22.000
BUTLER 29228
BREMER 26.946
WOODBURY 25.177
SAC 24.030
CALHOUN 19.473
HAMILTON 24.376
HARDIN 25.469
GRUNDY 28229
BLACK HAWK 32194
MONONA 27.603
CRAWFORD 27.665
CARROLL 23302
GREENE 22.718
BOONE 22.612
STORY 23.328
TAMA 36.296
BENTON 34.847
LINN 38.071
JONES 35.411
JACKSON 27.710
CLINTON 37.879
HARRISON 22.722
SHELBY 21.189
GUTHRIE 20.755
DALLAS 23.513
POLK 23.683
JASPER 33.739
IOWA 30945
CEDAR 31.933
CASS 12.181
ADAIR 22.815
MADISON 23.222
WARREN 22.656
MARION 23.567
KEOKUK 24.625
WASHINGTON 24.850
MILLS 17.204
ADAMS 20825
UNION 19.487
CLARKE 17.116
LUCAS 16.259
MONROE 14.546
WAPELLO 14.329
JEFFERSON 18.517
FREMONT 17.475
PAGE 21.793
TAYLOR 22.040
RINGGOLD 22.173
DECATUR 18420
WAYNE 23.090
APPANOOSE 17.799
DAVIS 18.525
VAN BUREN 15.586
LEE 16.593


Number Mules over one Year old 35.904
1895
MAP OF
IOWA
Mules
By
Counties
Total
Number
35.904.
LYON 227
OSCEOLA 181
DICKINSON 111
EMMET 114
KOSSUTH 216
WINNEBAGO 109
WORTH 58
MITCHELL 51
HOWARD 25
WINNESHIEK 57
ALLAMAKEE 49
SIOUX 405
O'BRIEN 215
CLAY 172
PALO ALTO 194
HANCOCK 242
CERRO GORDO 90
FLOYD 60
CHICKASAW 51
PLYMOUTH 494
CHEROKEE 166
BUENA VISTA 290
POCAHONTAS 315
HUMBOLDT 188
WRIGHT 219
FRANKLIN 153
BUTLER 128
BREMER 28
FAYETTE 158
CLAYTON 139
WOODBURY 860
IDA 403
SAC 424
CALHOUN 361
WEBSTER 321
HAMILTON 281
HARDIN 137
GRUNDY 204
BLACK HAWK 305
BUCHANAN 139
DELAWARE 110
DUBUQUE 179
MONONA 946
CRAWFORD 640
CARROLL 410
GREENE 276
BOONE 378
STORY 397
MARSHALL 181
TAMA 309
BENTON 191
LINN 351
JONES 254
JACKSON 173
CLINTON 177
HARRISON 1.074
SHELBY 597
AUDUBON 469
GUTHRIE 880
DALLAS 409
POLK 635
JASPER 629
POWESHIEK 424
IOWA 452
JOHNSON 497
CEDAR 510
SCOTT 479
MUSCATINE 319
POTTAWATTAMIE 1.752
CASS 813
ADAIR 505
MADISON 402
WARREN 404
MARION 294
MAHASKA 634
KEOKUK 408
WASHINGTON 335
LOUISA 136
MILLS 844
MONTGOMERY 476
ADAMS 439
UNION 265
CLARKE 261
LUCAS 283
MONROE 260
WAPELLO 415
JEFFERSON 186
HENRY 187
DES MOINES 254
FREMONT 1734
PAGE 991
TAYLOR 420
RINGGOLD 445
DECATUR 485
WAYNE 443
APPANOOSE 462
DAVIS 281
VAN BUREN 318
LEE 586


Number Swine over Six Months old 3.895.316.
1895
MAP OF
IOWA
Swine
By
Counties
Total
Number
3.895.316.
LYON 20.350
OSCEOLA 11.906
DICKINSON 4.447
EMMET 8.813
KOSSUTH 27.345
WINNEBAGO 12.485
WORTH 21.792
MITCHELL 23.363
HOWARD 10.813
WINNESHIEK 30.772
ALLAMAKEE 23.386
SIOUX 47.864
O'BRIEN 24.714
CLAY 16.654
PALO ALTO 17.596
HANCOCK 18.456
CERRO GORDO 26.628
FLOYD 26.464
CHICKASAW 13.493
FAYETTE 25.345
CLAYTON 28.443
PLYMOUTH 38.291
CHEROKEE 28.915
BUENA VISTA 35.302
POCAHONTAS 25.408
HUMBOLDT 27.216
WRIGHT 26.607
FRANKLIN 24.426
BUTLER 28.336
BREMER 22.049
BUCHANAN 23.305
DELAWARE 19.947
DUBUQUE 12.746
WOODBURY 30.385
IDA 30.953
SAC 35.716
CALHOUN 28.629
WEBSTER 30.960
HAMILTON 26.572
HARDIN 32.078
GRUNDY 19.788
BLACK HAWK 33.446
MONONA 35.634
CRAWFORD 63.302
CARROLL 43.214
GREENE 33.357
BOONE 27.583
STORY 27.457
MARSHALL 37.742
TAMA 42.216
BENTON 53.134
LINN 40.958
JONES 40.058
JACKSON 34.759
CLINTON 57.930
HARRISON 31.927
SHELBY 44.110
AUDUBON 25.578
GUTHRIE 27.648
DALLAS 36.211
POLK 27.978
JASPER 51.665
POWESHIEK 33.057
IOWA 43.441
JOHNSON 50.521
CEDAR 67.593
SCOTT 40.958
MUSCATINE 27.977
POTTAWATTAMIE 51.285
CASS 39.141
ADAIR 31.324
MADISON 28.434
WARREN 28.646
MARION 32.371
MAHASKA 30.806
KEOKUK 33.421
WASHINGTON 42.384
LOUISA 14.437
MILLS 22.369
MONTGOMERY 28.072
ADAMS 28.106
UNION 16.682
CLARKE 15.611
LUCAS 11.832
MONROE 6.763
WAPELLO 16.908
JEFFERSON 13.860
HENRY 20.065
DES MOINES 17.671
FREMONT 11.424
PAGE 42.784
TAYLOR 37.405
RINGGOLD 22.182
DECATUR 11.110
WAYNE 14.744
APPANOOSE 7.344
DAVIS 10.447
VAN BUREN 8.297
LEE 10.907


Number of Sheep over Six months old 345.067
1895
MAP OF
IOWA
Sheep
By
Counties
Total
Number
345.067.
LYON 975
OSCEOLA 3.614
DICKINSON 4.069
EMMET 1.496
KOSSUTH 2.175
WINNEBAGO 947
WORTH 2.482
MITCHELL 3.820
HOWARD 2.805
WINNESHIEK 2.980
ALLAMAKEE 2.309
SIOUX 2.622
O'BRIEN 3870
CLAY 2.081
PALO ALTO 823
HANCOCK 827
CERRO GORDO 4.170
FLOYD 3.111
CHICKASAW 1.574
FAYETTE 3.068
CLAYTON 5508
PLYMOUTH 1.531
CHEROKEE 1.115
BUENA VISTA 1.255
POCAHONTAS 1706
HUMBOLDT 1.725
WRIGHT 1.086
FRANKLIN 2.039
BUTLER 2.556
BREMER 1.178
BUCHANAN 3.038
DELAWARE 2.470
DUBUQUE 3.157
WOODBURY 1.846
IDA 175
SAC 2.062
CALHOUN 1.546
WEBSTER 807
HAMILTON 2.126
HARDIN 2875
GRUNDY 1.943
BLACK HAWK 2.070
MONONA 403
CRAWFORD 1.871
CARROLL 636
GREENE 1419
BOONE 1.083
STORY 2.408
MARSHALL 4.086
TAMA 3.266
BENTON 2.146
LINN 4.082
JONES 2.514
JACKSON 2.863
CLINTON 1.572
HARRISON 749
SHELBY 1.490
AUDUBON 1.018
GUTHRIE 2.353
DALLAS 1.222
POLK 869
JASPER 5.551
POWESHIEK 2.487
IOWA 5.478
JOHNSON 8.452
CEDAR 6.774
SCOTT 1947
MUSCATINE 4.229
POTTAWATTAMIE 2.743
CASS 2.208
ADAIR 3.405
MADISON 3.653
WARREN 2.522
MARION 8.097
MAHASKA 4.362
KEOKUK 5.725
WASHINGTON 2.543
LOUISA 1.447
MILLS 240
MONTGOMERY 1.383
ADAMS 3.191
UNION 4.333
CLARKE 1.527
LUCAS 8.283
MONROE 3.801
WAPELLO 6.942
JEFFERSON 7.000
HENRY 10.531
DES MOINES 2.743
FREMONT 875
PAGE 3.290
TAYLOR 4.854
RINGGOLD 4.678
DECATUR 6.065
WAYNE 3.799
APPANOOSE 4.341
DAVIS 18.317
VAN BUREN 28.855
LEE 8.504


1895
MAP OF
IOWA
Creameries
and Chees
Factories
Each
Dot represent
a Creamery
Each Cross
a Cheese
Factory
Total in State
855


Net Weight 66.479.108. lbs
MAP OF
IOWA
Butter
Shipments
Reported
By
Rail Roads
Net Weight
at 20¢
Per. lb. by
Counties
in Dollars
Value $13.295.821.60/100

ASSESSED VALUATION OF PROPERTY, TAXES, ETC.

Table giving acres of land, valuation of realty, personal and railroad property, as per assessment; state and county taxes; number of youth; amount of permanent school fund by counties, year 1895. (From state auditor's report.)

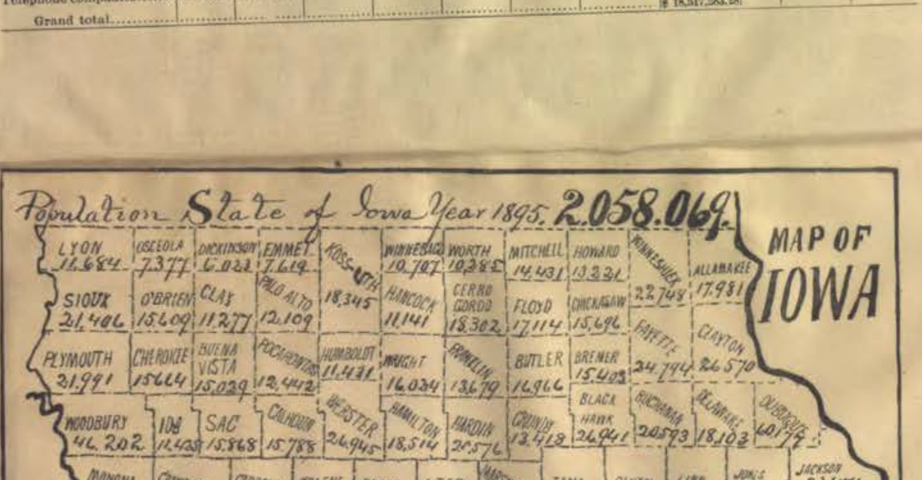
COUNTIES.	Ares of land.	Assessed value of land and town lots.	Assessed value of personal property.	Assessed value of railroad property.	Total assessed value for taxation.	State tax.	County, district and city taxes.	Total taxes in state due in 1895.	Number of youth.	Amount of permanent fund held by counties and state, January 1, 1896.	Amount of interest apportioned.
Adair	357,507	$ 2,949,699	$ 720,878	$ 221,713	$ 3,892,290	$ 9,639.62	$ 113,963.16	$ 123,602.78	5,543	$ 33,244.69	$ 996.77
Adams	269,215	2,289,012	592,803	365,540	3,236,361	8,078.83	97,158.62	105,237.45	4,891	34,640.74	826.58
Allamakee	403,174	2,543,945	700,342	254,799	3,499,086	8,581.93	91,641.56	100,223.49	6,415	63,644.58	1,084.14
Appanoose	317,227	3,424,496	691,953	529,167	4,645,618	12,195.61	136,416.22	148,611.83	8,419	38,392.05	1,422.81
Audubon	283,449	2,704,018	558,194	118,040	3,380,252	9,280.09	96,607.53	105,887.62	4,331	40,040.37	731.94
Benton	442,576	5,831,034	1,549,321	643,329	8,023,684	20,019.49	149,202.31	169,221.80	8,250	38,000.00	1,394.35
Black Hawk	345,094	5,801,675	1,155,620	547,079	7,504,374	18,155.17	201,575.58	219,730.75	8,698	18,256.54	1,469.97
Boone	358,957	4,206,070	690,947	518,205	5,415,222	13,562.73	157,379.69	170,942.42	8,715	94,732.31	1,472.84
Bremer	269,599	2,754,135	750,825	235,518	3,740,478	9,570.86	97,515.86	107,086.72	5,170	52,399.69	873.73
Buchanan	352,013	4,464,988	1,249,035	305,252	6,019,275	15,306.81	143,119.99	158,436.80	6,307	9,819.16	1,065.88
Buena Vista	354,447	3,051,848	420,203	267,911	3,739,962	8,370.07	128,326.11	136,696.18	5,358	62,983.69	910.57
Butler	363,969	3,616,996	771,465	377,573	4,766,034	11,088.69	121,055.49	132,139.14	5,666	26,095.49	957.55
Calhoun	351,917	3,357,173	399,069	277,309	4,033,551	10,164.11	142,286.98	152,451.09	5,560	62,715.75	939.64
Carroll	356,219	3,601,649	580,589	565,610	4,747,848	11,433.13	149,791.06	161,224.19	6,959	19,633.15	1,176.07
Cass	358,143	4,624,574	1,043,312	500,062	6,169,948	15,359.82	184,822.19	200,182.01	7,401	57,962.70	1,250.77
Cedar	355,381	4,999,040	1,381,532	582,862	6,963,434	17,194.85	122,676.19	139,871.04	6,016	38,209.43	1,016.79
Cerro Gordo	328,692	3,733,078	614,451	400,399	4,747,928	11,551.91	153,895.75	165,447.66	5,979	18,095.79	1,010.45
Cherokee	365,309	3,454,235	649,323	263,609	4,367,167	10,568.95	143,589.57	154,158.52	5,259	67,623.91	888.77
Chickasaw	310,718	2,512,746	517,769	292,925	3,323,440	8,143.95	101,323.06	109,467.01	5,601	32,630.77	946.57
Clarke	274,897	2,388,892	573,752	876,940	3,839,581	8,575.43	91,452.85	100,028.28	4,094	45,042.19	691.88
Clay	350,033	2,194,400	359,222	189,000	2,742,622	6,700.96	112,411.79	119,112.75	3,782	62,310.52	639.16
Clayton	483,988	3,911,566	1,312,309	533,458	5,757,289	14,629.23	147,929.12	162,558.35	9,316	47,649.94	1,574.40
Clinton	429,901	7,145,645	1,460,715	977,714	9,584,074	24,483.14	378,480.26	402,963.40	14,021	4,410.45	2,369.55
Crawford	443,086	4,221,089	584,011	546,800	5,351,900	13,253.61	165,340.63	178,594.24	7,070	83,322.09	1,194.83
Dallas	370,724	4,797,513	1,246,407	603,521	6,647,441	15,893.33	154,762.23	170,655.56	7,218	46,533.74	1,219.84
Davis	316,420	2,805,517	919,374	369,322	4,094,213	9,873.41	82,509.60	92,383.01	5,389	28,682.81	910.91
Decatur	333,544	2,665,968	625,316	322,351	3,613,635	9,216.46	98,128.12	107,344.58	5,720	92,544.43	966.68
Delaware	352,937	3,821,153	863,854	430,808	5,115,815	12,700.48	122,412.26	135,112.74	6,068	12,022.07	1,025.49
Des Moines	236,672	6,414,167	1,790,775	478,352	8,683,294	22,159.89	335,182.22	357,342.11	12,384	22,424.77	2,092.90
Dickinson	235,516	1,489,104	244,429	141,737	1,875,270	4,273.63	62,799.88	67,073.51	2,067	66,515.83	349.32
Dubuque	373,531	9,307,298	3,190,274	566,011	13,063,583	32,166.25	562,480.39	594,646.64	19,361	5,555.00	3,258.11

COUNTIES.	Ares of land.	Assessed value of land and town lots.	Assessed value of personal property.	Assessed value of railroad property.	Total assessed value for taxation.	State tax.	County, district and city taxes.	Total taxes in state due in 1895.	Number of youth.	Amount of permanent fund held by counties and state, January 1, 1896.	Amount of interest apportioned.
Emmet	245,372	1,685,425	198,597	65,308	1,949,330	4,377.44	68,031.11	72,408.55	2,308	83,037.47	389.71
Fayette	453,022	4,337,588	995,969	444,909	5,778,466	13,898.98	135,406.31	149,305.29	8,128	69,509.47	1,373.63
Floyd	309,830	3,123,832	880,044	334,074	4,338,350	10,616.26	124,143.52	134,759.77	5,637	23,705.46	952.65
Franklin	361,027	3,266,715	581,595	261,169	4,002,479	9,654.27	123,847.84	133,502.11	4,751	26,830.35	802.95
Fremont	315,058	3,759,529	904,413	337,575	5,001,547	13,002.90	129,646.38	142,649.37	5,980	57,414.96	1,010.62
Greene	363,847	3,779,407	726,292	454,778	4,959,477	12,176.37	124,578.81	136,755.18	5,600	45,224.58	946.40
Grundy	312,910	3,092,330	584,886	188,489	3,865,705	9,834.05	97,765.59	107,599.64	4,807	22,443.45	812.38
Guthrie	380,096	3,876,775	871,214	464,815	5,212,804	13,375.08	147,806.35	161,181.43	6,355	30,155.07	1,074.09
Hamilton	319,460	3,670,043	742,443	414,809	4,827,317	11,797.11	140,298.77	152,095.88	5,951	50,091.53	1,005.72
Hancock	356,849	2,340,417	313,383	305,613	2,959,413	6,706.24	110,133.82	116,840.06	3,854	31,898.28	651.33
Hardin	344,935	3,769,409	919,584	509,915	5,199,908	12,595.20	161,357.58	173,952.78	7,278	39,069.90	1,229.48
Harrison	433,039	4,562,007	1,074,469	563,923	6,200,409	16,379.97	192,013.75	208,393.72	8,236	48,156.04	1,391.88
Henry	289,457	3,793,374	1,452,071	377,039	5,622,484	14,138.46	110,206.09	124,344.55	5,689	14,220.07	961.44
Howard	293,318	2,578,720	545,471	185,452	3,309,653	8,069.64	72,069.73	80,139.37	4,686	41,508.40	791.93
Humboldt	268,541	2,448,604	463,228	365,864	3,278,696	7,228.53	87,868.07	95,096.60	3,826	28,636.46	646.60
Ida	265,437	2,825,699	414,045	171,524	3,411,258	8,397.95	97,970.53	106,368.48	3,691	29,972.00	623.78
Iowa	373,716	3,682,274	1,004,055	417,558	5,103,898	12,819.62	124,951.56	137,771.18	6,329	81,429.50	1,069.60
Jackson	401,700	3,532,450	1,334,205	327,404	5,195,069	13,605.60	142,754.22	156,359.82	8,007	25,160.84	1,353.18
Jasper	432,616	5,827,706	1,752,259	804,959	8,384,924	19,398.56	177,099.69	196,400.25	8,582	62,540.04	1,459.36
Jefferson	271,517	3,640,573	1,011,940	602,850	5,264,362	13,534.85	118,758.68	132,293.53	5,370	27,993.36	909.05
Johnson	388,829	6,223,281	2,004,290	521,303	8,758,789	21,270.06	179,438.57	200,708.63	8,958	31,418.40	1,513.90
Jones	353,920	4,624,609	1,444,359	398,544	6,467,796	16,077.02	132,906.88	148,983.90	6,556	31,738.53	1,107.98
Keokuk	361,341	4,738,870	1,788,790	404,062	7,031,518	17,883.75	129,554.67	147,438.42	8,215	27,939.56	1,388.34
Kossuth	599,235	4,333,629	669,612	484,898	5,488,139	12,105.79	155,864.02	167,969.81	6,221	99,963.69	1,056.42
Lee	322,159	7,198,736	1,757,261	858,858	9,814,815	24,702.06	375,647.07	400,409.13	12,040	15,425.00	2,034.76
Linn	440,719	9,312,347	2,669,725	878,860	12,860,932	31,915.54	447,522.91	479,438.45	17,038	22,602.10	2,879.42
Louisa	250,812	2,491,737	947,456	359,439	3,798,632	9,460.60	85,707.57	95,168.17	4,047	21,789.57	683.94
Lucas	274,390	2,590,858	728,385	404,390	3,783,633	9,511.95	87,793.22	97,305.17	4,968	29,387.47	839.59
Lyon	360,529	2,886,965	342,981	418,065	3,648,420	8,200.32	127,103.94	135,304.26	3,896	115,671.25	658.42
Madison	356,261	3,358,585	865,568	265,574	4,489,727	10,605.58	111,478.39	122,083.97	5,805	67,031.22	981.05
Mahaska	356,997	5,335,665	1,445,289	551,250	7,332,204	18,678.21	218,529.03	237,207.24	11,038	29,396.79	1,865.42
Marion	355,046	4,488,044	1,253,908	451,655	6,193,607	16,057.30	152,702.22	168,759.42	8,303	54,029.01	1,403.21
Marshall	358,070	5,280,069	922,079	838,074	7,140,212	18,139.43	250,493.08	268,632.51	8,651	30,501.07	1,462.36
Mills	259,562	3,193,927	785,093	693,397	4,672,419	12,118.00	129,125.88	141,243.88	5,535	46,168.85	938.80
Mitchell	288,921	2,700,024	681,658	223,850	3,607,530	8,612.89	97,491.90	106,104.79	4,923	17,532.49	831.99
Monona	428,153	2,719,975	588,108	395,861	3,703,944	9,334.26	131,416.82	140,751.08	5,764	26,395.51	974.12
Monroe	271,408	2,330,335	680,498	579,342	3,580,175	9,194.85	97,846.00	107,040.85	5,269	60,912.14	890.46
Montgomery	261,758	3,787,398	1,303,023	443,913	5,534,334	13,177.74	131,826.50	144,998.22	5,570	45,772.23	941.53
Muscatine	265,304	5,658,158	1,635,785	730,285	8,024,228	19,284.45	266,834.27	286,118.72	8,079	22,006.69	1,363.83
O'Brien	348,806	3,190,042	482,577	395,440	4,068,059	10,324.26	140,599.64	150,922.90	4,948	112,000.00	836.21
Osceola	242,415	1,449,309	218,352	299,220	1,966,881	4,460.13	80,078.80	84,538.93	2,603	98,460.73	439.91
Page	335,371	4,998,098	1,216,661	404,816	6,619,545	15,969.03	169,573.87	185,542.90	7,107	77,519.44	1,285.58
Palo Alto	350,597	2,372,830	400,368	337,864	3,111,062	7,560.38	93,180.93	100,740.41	4,135	46,989.23	698.82
Plymouth	540,567	5,572,465	734,179	503,651	6,810,295	16,318.25	195,546.93	211,865.18	7,325	121,506.24	1,237.93
Pocahontas	354,582	2,951,807	465,579	261,916	3,679,302	7,807.29	112,719.39	120,526.68	4,282	91,355.91	723.66
Polk	356,054	18,471,050	2,115,532	1,038,600	22,625,182	56,187.60	984,968.37	1,041,155.97	22,414	49,564.08	3,787.97
Pottawattamie	582,815	10,185,342	1,980,843	1,495,315	13,661,690	34,944.10	664,021.25	698,965.35	16,810	84,405.69	2,840.89
Poweshiek	366,223	4,198,316	1,164,963	571,364	5,934,643	15,126.66	153,301.20	168,427.86	6,145	54,996.69	1,038.50
Ringgold	343,025	2,611,939	664,271	314,389	3,590,618	9,229.67	91,408.44	100,638.11	5,160	59,367.50	872.04
Sac	357,148	3,555,701	536,968	273,191	4,365,860	10,692.42	127,796.15	138,488.57	5,464	18,292.43	923.42

Table giving acres of land, valuation of realty, personal and railroad property, as per assessment; state and county taxes; number of youth; amount of permanent school fund by counties ...

ASSESSED VALUATION OF PROPERTY—CONTINUED

COUNTIES.	Acres of land.	Assessed value of land and town lots.	Assessed value of personal property.	Assessed value of railroad property.	Total assessed value for taxation.	State tax.	County, district and city taxes.	Total taxes in state due in 1895.	Number of youth.	Amount of permanent fund held by counties and state, January 1, 1895.	Amount of interest apportioned.
Scott	277,063	8,175,683	2,244,393	505,748	10,925,824	26,846.96	424,060.55	450,947.51	15,620	503.59	2,639.78
Shelby	375,197	3,630,766	648,095	325,054	4,603,915	11,612.16	143,400.94	155,013.10	6,287	23,319.40	1,062.50
Sioux	472,019	4,257,171	756,113	729,363	5,742,647	13,880.74	164,670.24	178,350.98	7,306	146,585.31	1,234.70
Story	352,596	3,996,092	1,003,744	631,728	5,631,564	13,890.13	154,984.41	168,874.54	6,540	49,955.97	1,106.78
Tama	443,272	5,372,498	1,175,298	680,801	7,228,594	18,295.06	196,567.61	214,862.67	7,729	44,567.45	1,306.20
Taylor	329,393	3,334,977	994,047	246,106	4,575,130	11,126.12	121,207.88	132,334.00	6,121	54,092.61	1,034.45
Union	263,275	3,043,329	637,540	521,622	4,202,491	10,918.11	158,524.34	169,442.45	6,301	43,618.46	1,064.87
Van Buren	303,116	3,296,238	1,050,621	327,680	4,674,539	12,425.94	106,521.22	118,947.16	5,757	26,908.53	972.95
Wapello	263,951	6,300,315	1,411,480	756,943	8,468,738	21,460.35	301,469.62	322,929.97	10,643	56,373.13	1,798.67
Warren	260,096	3,896,583	1,085,707	373,614	5,325,964	13,101.82	124,888.53	137,990.35	6,437	39,252.18	1,087.85
Washington	355,824	4,785,401	1,911,808	433,791	7,131,000	17,695.50	143,231.98	160,927.48	5,953	29,737.03	1,006.06
Wayne	379,619	3,083,965	959,702	411,029	4,454,696	11,559.86	99,395.22	111,555.08	5,306	72,873.30	962.62
Webster	438,887	4,841,431	945,363	670,721	6,457,735	15,382.30	218,232.60	231,614.90	8,524	83,626.00	1,440.56
Winnebago	247,208	1,692,203	283,841	141,295	2,117,339	4,617.70	75,197.40	79,815.10	3,837	97,154.86	648.45
Winneshiek	429,018	4,394,693	963,892	329,856	5,678,441	12,830.78	125,149.42	137,980.20	7,680	29,093.93	1,259.44
Woodbury	535,414	12,045,977	4,866,879	615,269	17,528,125	51,436.93	888,623.79	940,060.72	17,787	91,693.00	2,997.55
Worth	250,489	1,622,968	359,355	208,078	2,190,401	5,025.19	63,118.29	68,143.48	3,885	36,850.53	636.57
Wright	301,137	2,724,445	498,124	354,070	3,575,639	8,492.47	138,017.87	146,510.34	5,317	44,509.83	898.57
State bonds										10,937.18	
Total	34,686,686	$ 413,970,588	$ 100,493,479	$ 44,521,225	$ 558,985,292	$1,388,226.12	$ 17,109,257.63	$ 18,497,483.75	697,228	$4,707,608.70	$ 117,831.53
Telegraph companies								14,909.53			
Telephone companies								4,800.00			
Grand total								$ 18,517,283.28			



TEMPERATURE AND PRECIPITATION DATA FOR 1895.

STATIONS.	Jan. Mean	Jan. Max.	Jan. Min.	Jan. Total precip.	Jan. Total snowfall	Feb. Mean	Feb. Max.	Feb. Min.	Feb. Total precip.	Feb. Total snowfall	Mar. Mean	Mar. Max.	Mar. Min.	Mar. Total precip.	Mar. Total snowfall
Afton	15	63	-14	.40	4.0	19	61	-21	.32	2.0	37	87	-1	.76	2.5
Algona	10	....	....	.49	4.9	16	60	-24	.23	1.6	31	87	1	.33	2.0
Alta	10	45	-15	.44	5.0	16	61	-25	.22	1.0	31	82	-5	1.14	2.0
Amana	13	52	-19	1.26	9.0	15	60	-21	.26	2.0	34	85	4	.58	2.0
Ames	12	59	-22	.09	....	16	63	-27	.53	3.0	34	89	0	.69	1.0
Ames (Hellman)	....	....	....	.24	9.0	....	....	....	.34	3.0	....	....	....	.68	1.0
Atlantic	16	64	-14	.10	.5	18	65	-21	.47	1.0	34	85	0	.44	....
Atlantic (near)	17	61	-13	.32	1.5	18	61	-24	.45	.5	36	85	-1	.44	1.0
Audubon	15	60	-15	.40	4.0	18	63	-22	.70	4.0	35	85	-1	.96	1.0
Belknap	....	....	....	....	....	18	66	-20	.52	2.3	36	88	2	1.05	7.5
Belle Plaine	12	44	-16	2.08	17.0	15	66	-22	.88	3.2	35	87	3	.50	4.0
Bonaparte	18	64	-17	1.30	12.0	18	70	-20	.33	2.0	37	86	3	1.34	0
Carroll	13	63	-18	.58	....	16	65	-22	....	....	35	89	0	1.75	.8
Cedar Falls	11	42	-19	1.25	12.5	15	61	-24	1.11	11.0	33	89	0	.22	2.2
Cedar Rapids	15	54	-14	1.56	11.4	17	62	-19	.58	5.0	38	84	5	.60	2.4
Centerville	20	65	-11	2.65	9.0	22	72	-17	.15	1.5	49	90	-4	2.60	1.0
Chariton	....	....	....	....	....	20	67	-22	.42	1.9	37	83	4	.61	3.6
Charles City	8	40	-20	1.25	10.5	11	59	-26	1.01	9.0	32	86	0	.48	3.2
Clarinda	18	64	-14	.30	6.0	20	62	-21	1.34	5.5	36	84	0	.96	2.2
Clinton	14	49	-17	1.89	16.5	13	62	-21	.67	5.0	31	85	6	1.06	3.5
College Springs	22	67	-13	.40	4.0	21	67	-22	1.09	2.5	38	90	0	1.10	6.5
Corning	18	66	-15	.30	3.0	20	58	-20	.78	2.0	38	87	0	.48	2.5
Cresco	7	38	-20	.87	9.0	10	53	-30	.50	4.0	28	84	-5	.83	2.0
Davenport	15	64	-13	1.27	....	15	64	-20	.38	3.2	35	82	6	1.57	....
Decorah	7	37	-22	1.45	14.5	11	55	-30	.55	5.3	30	84	-4	.55	....
Delaware	9	41	-21	.72	8.8	10	60	-24	.23	2.0	30	86	1	.65	4.0
Denison	....	....	....	....	....	21	62	-25	....	....	33	79	2	....	....
Des Moines	17	64	-14	1.30	15.6	19	64	-18	.60	3.1	35	88	3	.50	3.6
Dubuque	13	40	-20	1.44	11.0	16	62	-21	.66	6.0	36	86	2	.99	1.0
Elkader	9	40	-31	1.37	15.0	11	62	-31	.57	6.0	32	88	-1	.79	4.0
Emmetsburg	9	38	-21	.20	3.4	15	63	-26	.10	.2	31	86	-6	.22	3.0
Estherville	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fairfield	16	60	-15	1.68	8.0	18	66	-21	.62	6.5	36	85	5	1.20	4.5
Fayette	10	48	-24	1.42	10.0	12	56	-28	.62	4.5	32	86	-2	.45	5.4
Forest City	22	48	-12	.74	2.3	9	57	-25	.50	6.0	29	86	-4	1.05	2.0
Ft. Madison	22	48	-12	.74	2.3	22	69	-21	.47	3.5	40	94	11	1.20	6.5
Galva	14	55	-15	.14	....	17	62	-24	.28	....	34	84	-4	.91	....
Garden Grove	....	....	....	....	....	19	67	-19	....	....	36	87	1	1.14	2.0
Glenwood	18	62	-18	.61	5.0	20	68	-22	....	....	39	88	-2	.77	....
Grand Meadow	10	37	-18	1.60	17.6	13	54	-25	.59	3.5	31	84	0	.88	6.2
Greenfield	17	64	-16	.57	5.9	19	62	-21	1.93	5.5	35	88	-1	1.13	4.0
Grinnell	11	50	-12	.73	5.8	17	58	-20	.50	3.5	33	85	-5	.38	2.5
Grundy Center	11	46	-22	.28	12.0	15	60	-24	.51	3.0	32	89	-1	.38	3.0
Guthrie Center	....	....	....	....	....	19	64	-21	.55	3.5	36	87	1	.80	3.1
Hampton	8	43	-20	.95	9.5	12	58	-21	.57	6.6	30	88	-4	.77	4.0
Hawkeye	....	....	....	1.80	18.5	....	....	....	.74	8.0	....	....	....	2.12	....
Hopeville	17	63	-13	.69	....	19	62	-22	.25	....	37	88	6	.50	....
Hopkinton	13	40	-16	1.59	11.5	14	58	-20	.9	6.0	33	82	2	.40	....
Humboldt	....	....	....	.19	1.0	....	....	....	.18	....	....	....	....	.80	....
Independence	11	47	-20	.96	9.7	14	60	-25	1.00	5.5	32	87	-1	.47	3.2
Indianola	18	63	-19	1.15	....	19	67	-22	.30	....	35	89	0	.52	.2
Iowa City	14	48	-21	2.37	18.7	16	63	-23	.64	5.0	38	87	5	1.25	4.0
Iowa Falls	10	47	-26	.89	....	11	58	-28	.25	....	31	87	-4	.47	....
Jefferson	14	65	-14	....	....	16	64	-20	....	....	36	89	5	.60	....
Keokuk	20	61	-11	1.44	11.7	19	68	-22	.19	1.8	38	84	8	1.65	5.3
Keosauqua	18	62	-15	.16	10.0	18	64	-20	.02	1.5	39	85	5	.76	5.0
Knoxville	16	68	-13	1.10	14.0	18	65	-20	.69	1.0	34	88	1	.67	2.5
Larrabee	11	40	-17	.23	2.6	15	62	-25	.39	1.3	33	82	-6	1.41	2.4
Le Claire	....	....	....	1.34	....	....	....	....	....	....	....	....	....	1.35	....
Logan	16	60	-16	.40	4.0	21	67	-22	.72	5.0	35	85	0	.20	2.0
Madrid	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Marshalltown	....	....	....	....	....	14	61	-22	.28	....	32	90	2	.48	....
Mason City	9	39	-18	.51	5.5	14	57	-25	.37	2.7	31	83	-4	.90	3.5
Maxon	14	64	-18	1.15	5.0	20	67	-20	.44	3.5	37	88	4	.58	3.2
Mechanicsville	13	41	-15	1.70	16.0	14	59	-22	.42	4.7	32	85	4	1.15	7.6
Mooar	9	42	-28	.58	....	14	68	-24	....	....	36	84	2	1.27	....
Monticello	12	45	-18	.98	9.5	13	69	-24	.43	3.2	31	86	1	.99	2.9
Mount Ayr	....	....	....	....	....	....	....	....	....	....	37	88	0	1.50	....
Mount Pleasant	17	50	-12	.25	2.5	15	66	....	.21	....	37	89	9	1.74	5.0
Mount Vernon	12	47	-19	....	....	14	52	-27	....	....	33	84	3	....	....
Neola	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Newton	15	58	-16	.81	9.6	16	59	-25	.44	2.8	35	89	2	.35	3.5
North McGregor	....	....	....	....	....	....	....	....	....	....	....	....	....	.22	3.0
Ogden	14	64	-20	.32	6.3	17	66	-24	.42	2.5	33	91	-2	.54	3.9
Omaha	19	63	-12	.35	....	22	68	-23	.65	....	37	85	0	.90	....
Osage	6	....	....	.86	8.5	10	....	-21	.73	6.0	26	84	0	.37	3.0
Osceola	16	64	-14	.76	7.8	19	60	-20	.39	3.5	35	86	0	.79	1.5
Ovid	18	62	-14	.94	7.7	19	68	-19	.53	3.5	36	88	1	1.30	6.9
Oskaloosa	17	61	-16	.62	5.8	18	65	-21	.27	2.0	35	88	3	....	2.1
Ottumwa	18	65	-12	1.59	9.9	19	69	-20	.22	.9	38	87	4	.56	2.5
Panama	16	58	-13	.17	1.2	18	60	-22	.36	.5	35	81	-1	.83	.2
Primghar	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Rock Rapids	6	37	-24	1.00	10.0	12	60	-31	.02	T	28	77	-11	1.63	3.5
Sac City	11	56	-15	.50	5.0	16	59	-22	1.00	2.5	31	83	-2	1.62	2.2
Seymour	19	65	-12	.60	6.0	21	68	-20	.70	7.0	40	87	3	.70	5.0
Sibley	8	37	-21	.61	6.5	12	58	-33	.32	2.0	31	77	-10	.54	.5
Sidney	....	....	....	....	....	....	....	....	....	....	45	90	0	.67	....
Sioux City	14	56	-15	.16	....	19	68	-23	.33	1.9	34	82	-4	.59	....
Spencer	....	....	....	....	....	15	60	-24	.12	1.2	32	81	-7	.28	1.6
Spirit Lake	7	45	-22	.60	6.0	....	....	....	....	....	36	81	....	.35	1.5
Toledo	13	49	-20	1.10	11.0	17	60	-23	.27	....	33	86	1	.55	1.0
Villisca	17	60	-15	.37	3.7	20	64	-20	.91	1.3	36	84	1	.74	....
Vinton	12	41	-17	1.65	16.5	14	61	-22	.66	5.0	34	88	3	.31	.5
Washington	15	54	-16	1.25	13.0	16	67	-22	1.21	2.0	35	88	5	1.11	2.0
Waterloo	....	....	....	....	....	12	59	-24	.48	4.2	32	85	0	.41	3.5
Waukee	18	61	-14	1.01	10.1	20	64	-23	.90	2.0	38	87	1	.45	.5
West Bend	....	....	....	....	....	....	....	....	....	....	29	84	-1	.60	3.0
Williams	9	49	-21	.50	12.8	13	61	-24	.50	1.5	32	87	-3	.56	5.5
Wilton Junction	15	51	-20	.82	15.5	14	62	-22	.20	2.0	34	83	6	1.49	3.0
Winterset	16	64	-17	.95	9.5	18	62	-21	.35	2.5	35	90	-2	.68	2.2

STATIONS.	Apr. Mean	Apr. Max.	Apr. Min.	Apr. Total precip.	May Mean	May Max.	May Min.	May Total precip.	June Mean	June Max.	June Min.	June Total precip.	July Mean	July Max.	July Min.	July Total precip.
Afton	55	85	27	4.63	63	96	32	3.04	70	93	47	6.58	73	98	51	3.54
Algona	52	84	30	2.31	60	96	34	3.39	69	93	49	4.83	71	95	55	3.18
Alta	54	85	26	3.56	60	98	28	1.40	68	91	44	4.99	71	94	44	1.35
Amana	53	90	16	1.17	62	91	27	4.41	72	93	47	.98	73	100	48	6.46
Ames	54	85	10	4.08	61	93	29	4.28	68	89	47	4.69	70	94	39	2.70
Ames (Hellman)	....	....	....	3.44	....	....	....	4.41	....	90	....	5.26	....	....	....	2.87
Atlantic	59	84	17	5.18	61	98	25	1.20	68	92	42	8.06	71	100	37	.92
Atlantic (near)	55	83	21	4.01	63	95	32	1.95	70	89	48	4.15	73	98	44	1.50
Audubon	54	81	20	4.69	61	94	27	1.71	68	90	45	3.65	72	96	41	1.71
Belknap	56	87	24	2.60	62	90	35	2.80	71	90	50	4.15	75	97	51	5.45
Belle Plaine	53	89	19	1.44	62	93	28	3.43	71	94	48	2.72	73	104	47	4.27
Bonaparte	54	91	29	2.20	63	90	31	4.37	72	95	47	2.95	74	99	49	5.27
Carroll	53	84	20	3.75	61	95	28	1.61	69	90	47	4.48	71	94	40	2.47
Cedar Falls	54	92	23	2.39	61	92	29	4.26	69	93	45	2.87	73	95	45	1.86
Cedar Rapids	54	86	27	1.36	63	90	33	2.84	73	92	52	2.23	74	97	51	3.22
Centerville	59	89	26	4.80	64	93	34	3.45	....	....	....	....	74	97	50	6.51
Chariton	55	84	28	2.95	64	89	34	3.04	72	89	52	5.29	73	94	52	4.33
Charles City	53	90	26	.91	60	92	29	3.50	68	88	42	5.64	72	95	44	1.77
Clarinda	54	80	31	2.54	62	97	31	2.99	69	87	50	8.33	70	92	45	6.44
Clinton	53	90	28	.28	62	94	29	3.79	74	93	47	4.68	74	99	49	4.69
College Springs	55	85	14	2.74	64	98	33	1.49	69	91	50	7.94	71	98	45	8.64
Corning	55	83	25	3.59	63	94	30	3.78	68	87	48	8.22	70	94	45	2.71
Cresco	51	83	23	1.69	58	90	29	3.30	67	85	41	3.83	69	93	41	4.37
Davenport	55	87	30	.32	65	99	34	2.28	73	92	54	1.22	73	96	52	5.16
Decorah	52	88	30	1.16	61	92	27	4.42	65	93	40	3.13	70	94	42	1.97
Delaware	51	87	22	.95	60	91	29	2.51	70	90	50	3.11	71	101	48	2.70
Denison	56	89	28	4.76	60	98	27	1.98	66	92	46	3.87	70	99	39	1.95
Des Moines	55	85	27	3.41	63	94	35	2.85	70	89	53	5.26	73	98	48	3.10
Dubuque	51	88	21	.49	62	93	30	2.63	74	91	50	1.05	74	98	40	3.00
Elkader	52	92	25	.80	61	94	26	3.88	70	94	43	3.08	72	99	39	1.81
Emmetsburg	51	85	22	2.68	59	95	26	3.37	66	93	40	3.91	71	96	40	1.21
Estherville	56	84	28	2.54	62	96	31	1.67	67	90	39	2.19	73	97	46	1.51
Fairfield	57	89	22	2.38	61	89	24	4.19	72	93	48	2.82	72	97	47	4.60
Fayette	52	88	22	1.64	60	91	25	4.28	69	91	42	3.87	72	96	40	2.67
Forest City	53	87	29	2.28	....	....	....	....	....	....	....	....	73	98	38	2.63
Ft. Madison	58	88	32	3.22	66	95	30	2.23	77	91	58	2.79	77	93	59	5.51
Galva	52	86	26	3.46	63	98	28	2.16	67	94	43	7.03	72	95	37	2.47
Garden Grove	58	84	28	3.29	64	92	33	2.18	70	92	48	6.51	71	96	42	4.79
Glenwood	59	98	24	2.49	66	101	32	1.40	72	100	40	6.27	74	102	48	2.26
Grand Meadow	50	88	30	.78	61	90	35	3.54	67	89	48	2.85	69	90	48	1.74
Greenfield	55	85	20	4.65	60	95	30	4.59	70	91	46	4.45	73	98	43	1.85
Grinnell	55	86	28	1.73	62	90	38	5.28	....	....	....	....	....	....	....	....
Grundy Center	53	89	12	3.67	60	102	30	4.87	69	92	46	3.75	71	95	44	4.92
Guthrie Center	54	85	20	5.88	60	92	25	3.11	69	91	46	3.57	71	98	40	2.64
Hampton	52	85	21	2.56	59	93	27	3.70	67	88	42	4.40	70	94	40	3.54
Hawkeye	....	....	....	.84	....	....	....	3.70	....	....	....	2.84	....	....	....	1.43
Hopeville	55	83	27	3.84	62	91	33	2.98	69	90	48	6.03	71	93	45	3.55
Hopkinton	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Humboldt	54	85	8	2.72	62	98	28	2.48	69	93	40	4.86	72	98	37	1.36
Independence	52	89	9	1.09	60	90	29	3.45	68	92	45	1.73	71	101	44	1.17
Indianola	55	90	28	2.35	62	97	31	3.64	....	....	....	....	....	....	....	....
Iowa City	54	92	21	1.66	62	91	30	4.26	73	96	50	1.10	74	100	51	10.10
Iowa Falls	52	87	18	2.78	61	94	24	4.37	68	92	40	4.15	70	95	36	3.79
Jefferson	....	....	....	....	55	92	30	....	65	94	48	5.26	71	95	40	2.00
Keokuk	56	88	31	4.28	64	90	35	3.15	74	92	52	2.61	74	96	54	5.46
Keosauqua	54	88	24	2.28	63	90	33	5.05	72	92	51	2.15	74	96	51	5.31
Knoxville	54	88	27	2.28	62	93	33	1.76	71	92	49	4.12	73	97	48	3.68
Larrabee	54	85	19	3.73	60	94	26	2.44	68	92	39	6.75	72	96	36	2.41
Le Claire	....	....	....	.40	....	....	....	1.77	....	....	....	3.42	....	....	....	4.81
Logan	55	89	20	3.70	64	100	29	.84	70	95	44	5.24	72	99	35	1.68
Madrid	54	88	15	3.18	62	94	25	4.00	70	94	47	4.37	72	95	40	2.38
Marshalltown	53	89	15	1.58	61	92	29	3.45	70	93	48	3.08	72	96	46	3.07
Mason City	51	86	19	1.61	59	92	26	2.91	67	89	38	3.37	70	95	39	2.01
Maxon	56	89	30	3.77	63	91	35	3.02	74	94	54	3.05	75	100	60	4.33
Mechanicsville	52	97	2	.48	60	90	29	2.95	70	92	47	1.63	73	96	45	3.34
Mooar	51	88	30	3.21	63	92	33	3.11	73	93	53	2.92	75	94	43	2.89
Monticello	52	90	20	.50	61	90	30	2.82	69	92	46	1.27	70	94	46	2.43
Mount Ayr	55	87	27	2.28	62	96	31	2.10	70	94	44	9.26	73	97	45	7.21
Mount Pleasant	56	81	22	1.90	63	89	38	4.21	76	90	59	3.12	77	94	62	5.58
Mount Vernon	54	89	26	....	62	92	38	....	73	92	53	....	....	....	....	....
Neola	56	92	18	4.03	65	101	29	1.53	72	102	46	3.88	73	104	35	.45
Newton	54	89	19	2.73	62	95	31	5.03	71	90	49	6.45	73	98	50	5.22
North McGregor	....	....	....	.64	....	....	....	2.38	....	....	....	2.13	....	....	....	1.19
Ogden	54	86	10	4.13	61	97	28	3.20	69	99	43	5.39	70	96	40	3.48
Omaha	58	86	33	3.56	64	97	38	1.11	70	90	48	4.31	74	99	50	1.38
Osage	50	80	30	1.11	58	....	27	4.19	67	....	49	3.11	69	....	53	2.14
Osceola	54	81	24	2.74	63	92	34	3.54	71	91	50	5.95	....	....	....	....
Ovid	54	90	23	2.24	62	96	34	3.48	70	92	48	5.85	74	99	49	4.16
Oskaloosa	54	90	23	1.65	62	93	31	2.82	71	93	46	3.41	73	97	45	4.87
Ottumwa	55	90	25	3.05	63	93	33	5.54	72	92	50	2.95	74	98	50	5.16
Panama	56	86	25	3.22	61	97	23	.88	70	91	48	4.12	71	96	44	2.03
Primghar	56	88	28	2.90	60	93	24	2.24	67	89	42	5.28	71	94	40	1.76
Rock Rapids	55	86	30	3.29	58	92	21	4.81	66	90	34	5.40	71	96	32	2.10
Sac City	53	82	21	5.66	62	97	28	2.60	68	93	43	6.75	72	97	42	1.95
Seymour	56	88	25	4.30	63	94	33	2.48	70	97	48	6.90	72	91	46	3.59
Sibley	54	85	27	2.81	59	92	26	3.39	65	91	38	4.85	69	91	37	1.11
Sidney	58	85	20	3.45	64	97	33	3.08	70	91	48	8.38	74	104	48	5.22
Sioux City	57	85	28	3.20	62	95	31	2.15	68	91	46	4.95	72	97	41	2.63
Spencer	57	84	28	2.39	58	97	26	2.23	66	94	35	2.79	....	....	....	.91
Spirit Lake	55	80	29	2.50	62	96	28	1.33	68	95	38	2.27	73	101	40	1.59
Toledo	51	84	16	1.85	61	91	29	4.13	69	92	48	2.15	74	100	46	2.70
Villisca	55	85	24	3.74	63	95	29	3.44	69	90	46	7.24	71	94	41	5.68
Vinton	53	88	11	1.68	61	89	36	5.09	70	92	53	1.38	72	102	51	2.16
Washington	53	89	26	1.20	62	91	30	1.18	72	92	49	1.65	72	98	48	4.59
Waterloo	53	88	13	2.07	62	95	28	4.91	71	94	46	2.23	73	100	44	1.03
Waukee	56	84	23	3.91	64	95	31	3.40	71	92	48	3.21	73	98	42	3.46
West Bend	52	82	27	2.46	60	94	35	2.84	67	92	50	5.28	71	96	49	3.03
Williams	51	86	23	3.00	60	94	27	3.78	67	89	41	4.59	70	90	36	4.62
Wilton Junction	53	90	27	.69	62	92	25	3.01	73	99	46	1.66	73	100	45	9.10
Winterset	55	87	25	3.20	63	95	28	2.68	70	92	45	5.67	72	98	42	5.11

STATIONS.	Aug. Mean	Aug. Max.	Aug. Min.	Aug. Total precip.	Sept. Mean	Sept. Max.	Sept. Min.	Sept. Total precip.	Oct. Mean	Oct. Max.	Oct. Min.	Oct. Total precip.	Oct. Total snowfall
Afton	73	94	52	6.45	69	94	31	3.06	48	75	15	.50	....
Algona	71	95	48	6.92	65	94	30	3.82	44	72	16	.45	....
Alta	72	98	46	4.44	66	98	30	7.43	45	74	11	.32	....
Amana	73	95	48	2.34	68	93	30	2.71	44	72	9	1.07	....
Ames	72	96	44	4.93	68	94	28	3.93	49	74	10	.47	....
Ames (Hellman)	....	....	....	4.93	....	90	33	3.78	....	75	12	.77	....
Atlantic	70	98	45	7.69	68	97	22	4.59	45	78	8	.30	....
Atlantic (near)	74	95	53	6.49	68	92	28	4.27	48	74	11	.15	....
Audubon	72	94	45	7.57	67	92	24	3.26	44	73	8	.02	....
Belknap	74	94	54	5.25	71	101	32	1.91	47	77	12	.15	....
Belle Plaine	73	93	48	2.38	69	93	27	2.85	45	75	8	.93	....
Bonaparte	76	101	52	4.48	71	96	32	4.07	49	79	16	.23	....
Carroll	72	94	41	4.94	65	95	24	1.73	43	75	10	.30	....
Cedar Falls	73	95	47	4.63	68	94	31	3.98	46	77	9	.50	....
Cedar Rapids	75	94	48	1.50	70	94	34	3.64	46	79	16	1.23	....
Centerville	76	96	53	8.35	74	95	30	1.42	50	85	16	T	....
Chariton	73	92	58	3.84	70	92	34	3.51	48	73	16	.10	....
Charles City	71	90	47	4.95	66	92	25	2.05	42	70	9	.46	....
Clarinda	73	90	54	4.64	68	94	27	.95	45	74	14	.09	....
Clinton	74	98	50	1.87	69	93	31	3.40	46	74	13	1.04	....
College Springs	....	....	....	....	....	....	....	....	....	....	....	....	....
Corning	73	93	52	4.00	69	95	26	1.00	50	78	14	T	....
Cresco	70	93	48	2.52	65	95	27	1.62	42	73	8	.15	....
Davenport	75	94	55	4.79	69	92	34	1.30	47	74	20	.81	....
Decorah	71	95	41	1.74	67	97	30	3.20	43	76	6	....	....
Delaware	72	98	52	3.70	65	94	32	3.55	40	80	13	.85	....
Denison	72	96	48	3.45	67	96	25	1.78	45	79	9	.18	....
Des Moines	74	95	51	3.57	69	94	32	3.20	48	75	15	.20	....
Dubuque	74	97	53	1.75	70	87	34	3.06	48	75	16	.80	....
Elkader	73	99	44	5.93	68	98	28	2.75	44	79	8	.81	....
Emmetsburg	71	96	41	3.94	64	98	24	5.47	44	79	9	.28	....
Estherville	73	96	41	3.16	67	101	27	4.72	45	78	13	.43	....
Fairfield	73	95	49	3.39	68	91	29	2.66	47	75	14	.38	....
Fayette	71	95	41	4.71	65	96	27	3.79	44	76	8	.78	....
Forest City	71	94	43	5.26	66	94	27	1.46	43	87	11	.32	....
Ft. Madison	75	90	68	3.15	71	91	30	3.97	50	75	24	.47	....
Galva	72	98	45	5.99	66	96	24	3.92	44	76	11	.27	....
Garden Grove	72	93	49	4.78	67	93	27	4.95	46	76	10	T	....
Glenwood	75	98	51	6.12	74	103	26	1.33	50	88	10	.12	....
Grand Meadow	70	94	52	3.93	67	92	31	3.37	44	68	17	.76	....
Greenfield	73	96	48	5.90	68	93	29	5.68	47	76	10	.14	....
Grinnell	....	....	....	....	....	....	32	....	47	71	17	.79	....
Grundy Center	71	93	49	5.50	65	92	31	3.84	45	76	11	1.17	....
Guthrie Center	71	94	40	8.89	67	94	24	5.01	45	73	9	.39	....
Hampton	70	92	48	4.73	65	93	28	2.15	43	74	11	.92	....
Hawkeye	....	....	....	6.50	....	....	....	3.83	....	....	....	.49	....
Hopeville	74	93	56	5.39	69	93	31	3.61	49	77	15	.06	....
Hopkinton	....	....	....	....	....	....	....	....	....	....	....	....	....
Humboldt	72	96	45	3.93	67	98	25	2.68	45	77	10	.80	....
Independence	72	97	47	3.12	66	93	27	4.20	44	74	16	.45	....
Indianola	75	96	54	4.01	69	96	28	2.17	48	80	12	.28	....
Iowa City	74	97	50	1.77	69	95	31	3.41	46	76	10	1.38	....
Iowa Falls	69	93	42	5.37	64	93	24	3.29	42	72	6	.80	....
Jefferson	....	....	....	....	67	95	30	.85	....	....	....	....	....
Keokuk	76	94	55	2.28	71	95	36	2.67	50	77	20	.87	....
Keosauqua	75	98	55	4.29	71	100	31	3.27	51	78	14	T	....
Knoxville	74	96	53	5.43	69	92	33	2.56	48	76	15	.40	....
Larrabee	72	9	41	2.8	67	100	26	5.17	45	77	7	.24	....
Le Claire	....	....	....	2.43	....	....	....	2.89	....	....	....	.35	....
Logan	72	97	46	9.84	67	98	24	1.71	48	76	8	.54	....
Madrid	74	9	42	4.99	67	93	24	4.43	44	76	9	.54	....
Marshalltown	73	91	42	3.87	68	96	29	2.77	43	77	9	.63	....
Mason City	68	93	40	5.71	69	94	26	3.24	....	73	....	.53	....
Maxon	75	99	56	4.21	71	96	38	4.09	48	78	18	T	....
Mechanicsville	73	95	44	1.47	67	94	32	2.95	45	72	15	1.13	....
Mooar	76	96	57	3.35	71	97	35	2.10	48	78	18	.75	....
Monticello	69	91	50	1.46	64	94	28	2.59	40	67	9	1.10	....
Mount Ayr	74	94	54	4.01	69	9	32	1.19	49	78	13	.11	....
Mount Pleasant	77	90	59	3.77	70	90	36	1.33	50	74	25	.37	....
Mount Vernon	75	95	60	2.10	69	95	32	2.62	46	74	18	1.20	....
Neola	74	103	42	5.87	69	102	27	1.16	47	84	0	T	....
Newton	74	95	51	3.10	69	93	30	4.32	46	74	15	.69	....
North McGregor	....	....	....	2.51	....	....	....	3.37	....	....	....	.86	....
Ogden	73	95	48	4.61	68	95	23	2.75	47	78	7	.78	....
Omaha	74	96	56	7.18	71	102	34	.90	50	77	17	.07	....
Osage	68	....	49	4.17	63	....	....	4.98	39	....	14	.38	....
Osceola	....	....	....	4.94	....	....	....	4.17	....	....	....	....	....
Ovid	74	98	53	5.06	69	93	29	3.90	48	79	12	.14	....
Oskaloosa	73	99	48	3.25	69	93	28	4.09	46	78	11	.42	....
Ottumwa	75	96	53	3.48	70	98	32	2.30	49	78	15	.90	....
Panama	73	93	49	10.63	67	98	27	2.67	42	76	12	.11	....
Primghar	72	97	44	1.04	65	100	26	3.97	45	75	8	.24	....
Rock Rapids	70	100	34	.41	65	104	27	3.80	47	80	4	.62	....
Sac City	69	94	42	7.89	66	94	29	2.95	45	75	19	.25	....
Seymour	76	100	59	6.26	71	96	30	3.05	49	83	15	.48	....
Sibley	....	....	41	.67	....	....	....	....	....	....	8	.45	....
Sidney	75	95	53	5.61	73	101	35	1.29	53	82	16	.48	T
Sioux City	73	98	47	1.54	68	103	27	3.91	47	76	12	.19	....
Spencer	70	97	37	3.16	65	99	25	5.85	....	....	....	....	....
Spirit Lake	74	99	41	1.14	68	101	27	5.50	45	80	18	.13	T
Toledo	74	95	46	2.58	68	94	29	2.59	45	72	10	.62	....
Villisca	71	93	48	6.33	68	94	23	1.15	46	78	8	.15	T
Vinton	73	95	50	2.24	68	94	32	2.73	46	75	9	.87	....
Washington	74	96	49	3.06	69	93	31	2.40	47	78	14	.67	....
Waterloo	73	97	49	4.68	67	94	29	4.01	46	74	12	.64	T
Waukee	74	95	52	6.40	67	....	29	3.99	49	75	12	.24	....
West Bend	70	94	47	5.07	62	95	28	4.14	42	72	10	.37	....
Williams	70	91	47	4.59	65	92	27	3.35	45	78	10	.86	.1
Wilton Junction	73	95	46	2.93	67	92	30	3.08	45	73	11	1.36	....
Winterset	72	97	48	6.07	68	93	28	4.06	45	78	10	.86	....

STATIONS.	Nov. Mean	Nov. Max.	Nov. Min.	Nov. Total precip.	Nov. Total snowfall	Dec. Mean	Dec. Max.	Dec. Min.	Dec. Total precip.	Dec. Total snowfall	Annual Mean	Annual Max.	Annual Min.	Annual Total precip.	Annual Total snowfall
Afton	36	73	0	1.13	T	26	57	-1	2.00	10.0	48.7	98	-21	33.61	18.5
Algona	32	70	2	1.53	8.5	22	41	-7	.24	2.0	45.7	96	-24	27.72	23.7
Alta	31	68	-6	.88	4.5	23	48	-7	.04	.5	45.6	98	-25	26.41	20.1
Amana	34	71	3	1.64	1.0	23	54	-5	2.52	3.8	46.9	100	-21	26.03	17.8
Ames	32	73	-7	1.09	4.1	25	54	-6	1.56	12.0	46.8	96	-27	28.95	....
Ames (Hellman)	....	72	-4	1.28	3.0	....	53	-5	1.45	12.8	....	....	....	29.45	28.8
Atlantic	34	73	-2	1.52	3.0	26	55	2	.66	4.0	47.0	103	-21	28.11	....
Atlantic (near)	....	....	....	....	....	30	58	....	.78	4.0	....	98	-24	....	....
Audubon	36	72	-3	1.45	3.5	23	53	-2	.65	4.0	47.3	96	-22	25.77	16.5
Belknap	37	75	3	1.70	6.0	28	48	0	3.26	5.1	....	101	-20	....	....
Belle Plaine	33	73	0	1.87	1.5	24	48	-8	2.66	4.6	47.1	104	-22	25.96	32.3
Bonaparte	37	75	4	2.19	4.5	29	58	-3	4.10	2.0	49.8	101	-20	31.83	....
Carroll	32	71	-8	1.41	3.5	24	53	-4	.30	3.0	41.5	95	-22	....	....
Cedar Falls	34	71	0	1.55	2.0	24	51	-4	.90	5.0	46.7	95	-24	25.43	32.7
Cedar Rapids	35	70	5	1.83	2.3	27	55	0	2.90	4.7	48.8	97	-19	23.30	26.2
Centerville	41	73	-1	1.91	3.0	....	....	-1	3.55	.7	....	....	-17	....	14.5
Chariton	37	73	1	1.50	1.5	28	54	2	2.40	7.5	....	94	....	....	....
Charles City	31	66	-9	1.96	9.6	21	40	-4	1.03	6.1	44.6	95	-26	25.01	30.3
Clarinda	34	73	0	1.28	1.0	28	57	-1	.89	7.0	47.8	94	-21	30.79	23.2
Clinton	35	71	2	2.75	8.5	28	55	-1	2.24	2.0	47.9	99	-21	30.38	35.5
College Springs	38	74	1	1.39	.9	29	60	1	.94	....	....	....	-22	....	....
Corning	37	74	0	1.78	2.0	28	60	0	.95	6.5	49.1	98	-20	27.59	14.0
Cresco	30	70	-9	1.60	7.0	20	49	-8	1.13	7.0	43.1	95	-30	24.38	29.0
Davenport	38	70	9	2.50	....	29	55	2	2.54	....	48.6	96	-20	27.14	....
Decorah	34	73	-3	1.36	6.0	23	51	-13	1.90	7.9	44.7	97	-30	20.53	....
Delaware	31	70	5	1.99	2.2	24	50	-2	2.53	3.2	44.4	101	-24	23.49	....
Denison	32	70	-3	.65	2.0	24	51	-3	T	T	....	99	....	....	....
Des Moines	36	74	2	.85	1.2	27	57	0	4.86	9.1	48.9	98	-18	26.80	32.8
Dubuque	36	71	11	2.12	8.0	28	53	0	2.75	3.0	48.7	98	-21	19.74	32.4
Elkader	33	74	3	1.77	5.0	25	51	-2	1.97	1.0	45.8	99	-31	25.53	34.0
Emmetsburg	30	74	-5	.68	2.8	21	44	-11	T	T	44.6	98	-26	22.18	6.6
Estherville	29	70	-5	.88	4.0	22	41	-11	T	T	....	101	....	....	....
Fairfield	38	72	2	1.58	3.0	27	55	-4	3.30	.5	48.2	97	-21	28.20	33.0
Fayette	32	73	-2	1.92	7.8	24	51	-10	1.96	4.7	45.4	96	-28	28.12	32.4
Forest City	28	71	-10	1.75	6.0	20	43	-8	.35	4.5	....	....	-26	....	....
Ft. Madison	40	77	10	2.62	7.0	32	56	1	5.74	4.7	52.5	95	-21	32.11	....
Galva	32	69	-3	.82	4.0	....	....	....	....	....	46.0	98	-24	27.50	....
Garden Grove	34	74	2	1.13	.3	26	60	-5	2.10	4.9	....	98	....	....	....
Glenwood	38	86	-2	1.27	2.5	31	58	0	.22	.8	51.3	104	-22	....	....
Grand Meadow	32	64	2	1.60	4.5	23	38	-2	1.27	4.5	44.8	94	-25	22.89	36.1
Greenfield	37	74	-3	1.77	1.8	27	57	0	1.36	7.9	48.6	98	-21	33.12	35.5
Grinnell	35	71	2	1.81	1.3	27	55	1	2.16	.8	....	....	-20	....	13.9
Grundy Center	33	70	-2	1.79	3.0	24	51	-4	1.38	6.5	45.8	95	-24	31.06	35.5
Guthrie Center	34	70	-5	.97	4.0	25	58	0	.67	6.2	....	98	....	....	....
Hampton	31	70	-8	2.17	8.0	21	43	-6	1.81	7.1	44.0	93	-27	27.77	37.2
Hawkeye	....	....	....	1.93	9.5	....	....	....	2.08	5.0	....	....	....	38.29	50.4
Hopeville	36	73	-1	1.15	1.5	26	59	0	1.65	4.0	48.7	93	-22	29.11	....
Hopkinton	....	....	....	....	....	....	....	....	....	....	....	....	-20	....	....
Humboldt	32	69	6	1.42	12.0	24	51	-8	.24	2.0	....	98	....	22.17	....
Independence	33	73	-2	1.40	4.5	24	43	-5	1.72	5.7	45.5	101	-25	20.67	33.6
Indianola	36	74	-2	1.03	T	26	59	-2	3.55	6.0	....	....	-22	....	....
Iowa City	36	73	3	1.78	3.1	27	55	-5	2.84	3.0	48.6	100	-23	32.56	33.8
Iowa Falls	31	70	-8	1.66	5.0	23	52	-7	1.27	8.0	44.3	95	-28	28.39	....
Jefferson	....	....	....	....	....	....	....	....	....	....	....	....	-20	....	....
Keokuk	39	73	7	2.68	3.7	31	63	2	4.24	....	50.8	96	-22	25.42	....
Keosauqua	38	76	5	1.14	3.0	29	52	-2	3.02	T	50.2	100	-20	27.45	18.5
Knoxville	36	73	0	1.43	1.5	28	56	0	1.53	6.8	48.4	97	-20	25.46	27.3
Larrabee	32	70	-9	1.66	5.6	24	46	-9	.08	.8	46.1	100	-25	26.74	18.2
Le Claire	....	....	....	1.88	....	....	....	....	2.56	....	....	....	....	....	....
Logan	35	74	-4	1.09	3.0	27	55	-1	.10	1.0	48.5	100	-22	26.12	13.2
Madrid	33	73	-10	1.20	2.03	23	50	-8	1.49	10.4	....	98	....	....	....
Marshalltown	31	70	-2	1.15	1.5	25	54	-8	1.76	.8	....	96	....	....	....
Mason City	....	69	....	1.92	12.2	....	46	....	.73	.8	....	95	-25	23.81	....
Maxon	37	74	-2	1.59	3.2	29	63	0	2.85	5.0	49.9	100	-20	26.97	19.9
Mechanicsville	34	71	6	2.39	3.0	26	53	-5	2.36	2.4	46.5	96	-22	21.76	33.8
Mooar	37	75	6	3.01	....	....	....	....	....	....	....	98	-28	....	....
Monticello	31	68	2	1.53	3.0	22	49	-8	2.47	7.0	44.6	94	-24	18.57	26.6
Mount Ayr	36	72	-1	1.04	1.0	26	59	-3	1.68	9.0	....	97	....	....	....
Mount Pleasant	38	71	5	2.46	7.6	30	57	2	3.86	1.2	50.3	94	....	28.80	....
Mount Vernon	35	72	4	1.81	....	26	54	-5	....	....	....	....	-27	....	....
Neola	35	76	-9	1.24	2.7	28	76	-7	.60	5.0	....	104	....	....	....
Newton	35	71	-1	1.30	3.0	26	56	-1	1.98	5.1	48.0	98	-23	22.40	24.5
North McGregor	....	....	....	....	....	....	....	....	1.70	....	....	....	....	....	....
Ogden	35	74	-8	1.74	3.8	25	54	-4	1.00	8.0	47.2	97	-24	28.54	29.5
Omaha	37	72	2	1.66	....	29	58	2	.16	T	50.4	102	-20	21.69	....
Osage	29	....	-6	1.95	1.2	20	....	....	1.28	5.5	42.1	....	-28	25.22	35.0
Osceola	....	....	....	....	....	....	....	....	....	....	....	....	-20	....	....
Ovid	35	75	-3	1.51	3.0	26	58	0	2.62	3.0	48.7	98	-19	31.41	26.5
Oskaloosa	36	74	0	1.17	2.5	26	59	-7	1.96	5.0	48.4	99	-21	....	17.9
Ottumwa	38	75	3	1.94	2.8	29	58	17	3.95	3.7	50.0	98	-20	31.70	20.8
Panama	....	....	-2	1.23	2.8	23	....	-2	T	T	....	97	-22	26.24	4.7
Primghar	31	68	-10	1.01	6.0	23	42	-10	.10	1.0	....	100	....	....	....
Rock Rapids	30	62	-10	1.06	6.0	18	42	-16	.10	1.0	43.8	104	-31	24.24	20.5
Sac City	32	62	-2	1.00	5.5	24	48	-3	.63	.8	45.8	97	-22	31.59	23.5
Seymour	38	74	-2	1.55	3.0	28	60	0	4.55	3.5	50.2	100	-20	35.25	24.5
Sibley	....	....	-9	.80	4.0	....	....	-11	.15	1.5	....	....	-33	....	14.5
Sidney	41	84	0	1.14	1.5	29	51	0	1.49	3.2	....	104	....	....	....
Sioux City	33	67	-1	.80	....	28	54	-5	.02	....	47.8	103	-23	20.29	....
Spencer	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Spirit Lake	29	71	-7	.67	4.0	21	43	-9	.95	.5	....	101	....	....	....
Toledo	33	76	0	1.37	3.0	24	52	-6	1.83	2.1	47.0	102	-22	21.99	....
Villisca	35	75	-1	1.55	1.5	26	60	-1	.90	5.5	48.0	95	-20	33.35	....
Vinton	34	70	2	1.11	2.0	26	44	-1	1.74	2.0	46.9	102	-22	21.62	26.0
Washington	35	74	4	1.54	2.5	27	57	-3	2.61	2.0	48.2	98	-22	24.47	22.0
Waterloo	34	73	0	1.73	5.4	25	52	-4	1.52	3.5	....	100	....	....	....
Waukee	39	78	2	1.15	1.5	....	....	....	....	....	....	....	-20	....	....
West Bend	30	85	0	1.70	10.0	21	43	-6	.40	4.0	....	96	....	....	....
Williams	33	76	-12	1.94	7.0	....	....	....	....	....	....	94	-24	....	....
Wilton Junction	36	70	7	2.48	6.0	28	54	-3	2.28	1.0	47.8	100	-22	29.00	27.5
Winterset	35	73	-5	.96	1.0	25	58	-3	.85	8.5	47.9	98	-21	31.95	....