THE INFLUENCE OF NATURAL ENVIRONMENT IN NORTH-CENTRAL IOWA

The opinion of the majority of farmers on the prairie lands of north-central Iowa in 1878 was voiced by Henry Bolander in the following words:

> The best thing for us to do is to leave these broad acres and go back to Ohio. This is not a white man's country. The railways have missed us by thirty miles and no more will extend their lines into these frog ponds. We can grow ever so much corn and wheat, and rear ever so many hogs, but where can we hope to sell them? The roads are too bad for hauling, usually, even though our things were worth something on the market.

But Mr. Bolander spoke without prophetic vision. When he left his farm some five years ago two railways crossed his land and another passed within half a mile of it. A town had grown up within a mile of his house. The frog ponds had been converted into the best of corn lands. Gravelled roads led from his home in all directions. A good market for farm produce had been established at his very door.

Yet he was right in his contention that the prairie lands had been too rapidly exploited and that the time had not come for making the most of the rich soil. Even to-day farmers are looking over their productive acres and wondering whether, during their lifetime, farming the Iowa prairies will pay; whether it would not have been better for them if they had stayed in the East where urban activities would yield a larger return for the labor and money invested. The difficulties of to-day have much in common with those of the time mentioned above. The land hunger

then had brought into action too many farmers while more recently it has raised the price of land to a height unwarranted by the market value of the farm products.

Immigration into north-central Iowa may be looked upon as coming in two great waves. No very evident break in time separates these waves, the division being based on the purpose of the settlers, their mode of living, and the character of the land they took up. The first settlers came in covered wagons; those of the second wave came with the railroads. The first were subsistence farmers; the others hoped to trade extensively beyond their own community. The earlier group took up only timbered lands; the others took up open prairie lands.

Nor was the time of each wave the same in every part of the State. In Boone County the first settlements began as early as 1846, while in the counties farther to the north no settlers came until a decade later. A railway was built into Story and Boone counties in 1865 and another into Hardin County the same year. The second wave set in when the plans for these railways were made. Extensive settlement did not begin in Clay County for another decade. The census report for 1860 shows this difference in time of settlement. In that year Hardin County, on the Iowa River, with much timber land, had 5440 people. Boone and Webster, Des Moines River counties, had respectively 4332 and 2504. At the same time Calhoun, Pocahontas, and Buena Vista counties with but little wooded land had 147, 103, and 57 people.[1]

For two decades after the second wave began immigrants poured in by the thousands. Fewer came during the third decade, but by its end all the land had been taken up and the rural population of the area had reached its highest figure.

[1] Gue's *History of Iowa,* Vol. III, pp. 311–426.

THE FIRST WAVE OF SETTLEMENT

The people who made up the first influx of immigration were the first white people of importance, numerically or otherwise, in north-central Iowa. Trappers had occasionally come in, but they were not of sufficient importance to receive mention in the literature of the time. In 1832 Captain Nathan Boone and his rangers explored a little of the southern part of the area but, apparently, the only importance of their excursion was the favorable impression of the Indian land gotten by a few of the men.[2]

Ranching has never been of importance in Iowa in spite of the unlimited amount of grass land at hand. The subsistence farmers of the 50's were the first white people to exploit the land to any appreciable extent.

The narrative of their settlement is similar to the story that has been repeated with each successive thrust of the frontier westward.[3] The pioneer chose his home site with a view of securing wood for buildings and fuel, a supply of good drinking water, waterpower to turn a mill that he hoped eventually to erect, and well-drained land to till. Doubtless, also, the possibility of navigation on the Des Moines River must have been a factor with many an early settler.

The major waterways of the area provided just what the newcomer desired. On either side was usually a narrow strip of rolling land covered with trees large enough for his purpose. Along the streams were numerous rapids that appeared to be good power sites. And just beyond the "breaks" were many acres of open grass land awaiting the plow.

The pioneer homes were built after the fashion found

[2] Gue's *History of Iowa,* Vol. III, p. 311.

[3] Bulletin 15, the Illinois Survey, pp. 77–82, could be applied almost word for word to the early immigrants into Iowa.

most expedient by the thousands of pioneers who had built houses in frontier communities farther east. The only tools needed in their construction were an axe and an auger. No nails were used. All joints were secured by notches cut into the logs and by pegs in auger holes. The walls were plastered inside and out with lime plaster if the pioneer could afford it but more commonly mud was used. The cabins usually had but a single room. Earth was piled up about the house to the window sills as an added means of keeping out the cold of winter. All furniture was home-made.

Even at this late date these people were nearly self-sufficient. Practically nothing found a use within the settler's community which was not produced there. Corn and wheat were grown and milled into meal and flour, the miller taking his "share" in payment for his services. Meat could be secured with but little effort for cattle very nearly took care of themselves. In summer the only attention necessary was a brand to signify ownership, though milch cows were often tethered. In winter the animals could usually find enough dry grass sticking through the snow to sustain them. Elk and deer were plentiful[4] and wild ducks, geese, prairie chickens, and quail were to be found everywhere. Nor was the self-sufficiency of the pioneer limited to the getting of food. Sheep were raised and their wool made into rough homespun in the pioneer's home.[5]

One reason for the self-sufficiency of these people was the difficulty of selling their own commodities under existing circumstances. Only such things were salable as could be taken to the distant trading posts at Des Moines, Council Bluffs, Independence, or even Mankato, and sold there in competition with like commodities produced near at hand.

[4] McCarthy's *History of Palo Alto County, Iowa,* p. 24.

[5] Stonebraker's *History of Calhoun County, Iowa,* p. 67.

Hides, skins, homemade shingles, and perhaps a little wheat were sold. One writer speaks of furs being the salvation of the early settlers.[6] It would seem also that the newly arriving settlers furnished a remunerative market for home products. The newcomers needed such commodities as meal, lard, poultry, etc. Each brought with him a few dollars to be spent for supplies and those few dollars went a long way with the self-sufficient farmer.

Mention should be made also of the urban, or village, developments of the period. The towns were generally laid out near the fork of two streams, the advantage being that from it would radiate narrow settled areas in three directions. This was the case with Fort Dodge, Humboldt, Lake City, Homer, and Dakotah. Others, such as Algona and Rippey, sprang up near mill sites. Some were platted near the center of a county and planned from the first to be county seats. Jefferson and Nevada are examples. It is significant that at least two county seats so laid out — those of Calhoun and Franklin counties — failed to grow and were soon abandoned. Other villages grew up without any apparent advantage as to location. Many were short lived: about two-thirds of the hamlets shown on the 1856 map[7] are not now in existence.

The establishment of the military post at Fort Dodge in 1850 is of interest. It is difficult indeed to see any strategic value in this site. Early in that year the people of Boone County asked Congress for a fort to protect them from bands of Indians that might come down the Des Moines Valley. The military authorities at Washington thereupon directed that a post be established at the mouth of Lizzard Creek. This stream was an unimportant stream and the fact that it was near the south-westernmost point of the

[6] McCarthy's *History of Palo Alto County, Iowa*, p. 51.

[7] Keen and Lee's map of Iowa in Parker's *Iowa As It Is In 1856*.

Indian neutral lands added but little to its strategic value. A fort on the site of Homer or Humboldt would have been better situated.

SIGNIFICANT GEOGRAPHIC FACTS AND THE SECOND WAVE OF IMMIGRATION

In 1865 the Chicago and Northwestern Railroad extended a line into Boone County. The Dubuque and Sioux City built to Fort Dodge in 1869 and the next year extended the line to Storm Lake. Other roads followed so that by 1880 the level prairies were fairly well supplied by a network of railways. With them came the movement of population into the level, undrained prairie land, not before settled up to any extent. The conditions that the newcomers found were unlike those in other parts of Iowa.

All of northern Iowa has, properly speaking, always been a prairie area, but the flat, poorly-drained triangle of land with its apex near Des Moines was an example of a different type of prairie. The farm that Henry Bolander bought is typical of this whole area. He built his home on the highest point, a "hill" some ten feet higher than any other point on the farm. From the back door he could view every square foot of his land, so flat was its surface. A large part he would, perhaps, rather not have seen for it was just enough lower than the rest to be poorly drained and was capable of producing nothing but wild rice, frogs, and mosquitoes. Extending from his house were stretches of fairly well drained land which afforded as much ground as Mr. Bolander cared to cultivate. These ridges furnished fertile fields surpassed in richness only by the yet-to-be-drained swamp lands. Since this land was being brought into cultivation for the first time weeds were few and little cultivation was necessary.

It was to make farms of these prairies that thousands of settlers came into this region during the two decades fol-

lowing the arrival of the first railways. A good idea of the comparative value of prairie and timber lands may be gotten from the fact that the former was selling in 1870 at from three to twelve dollars per acre while the latter sold from fifteen to forty dollars per acre.

After the lapse of half a century it is difficult to appreciate the motives that prompted the pioneers to settle in regions beyond the frontier. The prairies would seem to have offered the poorest inducements of all. Very probably if the homeseekers could have foreseen the toil, the privations, and the small return for their products, the land would not have been taken up so rapidly. True, those who held their farms for three or four decades were wealthy in the end, but it is difficult to imagine any commercial endeavor that would not have so rewarded the enforced toil and thrift of the prairie farmer.

Yet in the eyes of the young farmer of Ohio or Indiana, the prairie offered just what he sought. Glowing accounts of the richness of Iowa came to him from many sources. A handbook for immigrants published in 1856[8] mentions the following natural resources awaiting some one to claim ownership: water power, timber land, the richest of soils, building stone, coal, and iron.[9] By 1870 the first two had been taken up. The fourth existed in very limited quantities and the last not at all. The *Buffalo Journal* in 1839 declared: "Taking into consideration the soil, the timber, the water, and the climate, Iowa territory may be considered the best part of the Mississippi valley". *Niles' Register* also in 1839 told of a wheat field "consisting of six hundred and forty acres, which was a perfect level, so that it could be taken into one view".[10] So far as the soil was

[8] Parker's *Iowa As It Is In 1856.*

[9] Parker's *Iowa As It Is In 1856*, pp. 115, 136, 138.

[10] Goodwin's *The Trans-Mississippi West*, p. 251.

concerned, the writers could have spoken truthfully in much more glowing terms and it was the broad acres of level, fertile land that the young men were most interested in. They wanted farms of their own on which they could produce great quantities of corn, wheat, pork, and what not.

Many read the reports with more credulity than they should have. They interpreted the glowing accounts to mean that the Iowa prairies were a veritable paradise. It was the age-old theory of "greener fields just beyond the horizon", or, as Herbert Quick has one of his characters in *Vandermark's Folly* say again and again, "In Texas the trees are in constant varder". The homeseekers, like their successors up to the present time, gave no thought to the selling of their produce; they were content to labor mightily to turn out the maximum of bushels and pounds with the hope that a friendly market would spring up and take all of their surplus. Thus with a vision of fields of wheat and cribs full of corn they pressed into the prairies, buying as much of the cheap land as their wealth and credit could obtain.

The newcomers of the seventies were up against a number of situations that tended to prevent their life being easier than that of the settlers a score of years earlier. In the first place, the timbered lands had all been taken and the necessary forest products, second in importance only to the soil itself, could be secured only with the greatest difficulty. The elk and deer had been crowded out and little dependence could be placed on wild game as a source of food. The open prairies offered no shelter against the fierce storms of winter or the strong winds. Moreover, standards of living had changed. The newcomers had come mostly from communities of commercial agriculture farther east. They could not card, spin, and weave wool. They could not build a house with only an auger and an axe even

if the logs had been available. They demanded a more varied and "civilized" diet. The need of schooling for the children was considered on a par with food and water. The earliest pioneers could get but little money, but their simple standard of living, together with the natural resources at hand, enabled them to do with the little that they could obtain; the prairie settlers could, by means of the railways, market more produce and thus secure more money, but their struggles and privations were no less sharp than were those of the timber land settlers.

In the seventies there was still much homestead land some distance from the streams, but the major part was secured by purchase of railway land, school land, soldier grants, or from still earlier settlers who had become discouraged and had either gone back east or to rainbows farther west.

The first duty of the farmer was to erect some sort of shelter for his family and his stock and to make fences to enclose his holdings. The absence of timber was a serious drawback but it was somewhat offset by the services of the railways, which brought choice white pine fence boards to the trading stations of Fort Dodge and Boone where they sold at $15.00 a thousand.[11] Other lumber was priced at about the same figure. But since money was scarce only the rudest makeshifts were constructed. The commonest size of house, apparently, for the homesteaders was eight by ten feet. These houses were often sold, and taken from one farm to another. One was used to prove up three claims in O'Brien County. It was not an uncommon occurrence for a settler, upon returning from an extended absence, to find that his house had been stolen.[12]

Persons not fortunate enough to be able to purchase the

[11] Parker's *Iowa As It Is In 1856*, p. 70.

[12] Parker's *Iowa As It Is In 1856*, p. 44.

lumber for even such rude homes erected all sorts of contrivances to shelter themselves from the weather. The sod house was a favorite, though the loamy soil of this area was not at all satisfactory for the purpose. Often the farmer built board walls of a single thickness and put sod around it for greater warmth. The general use of the sod house is shown by the fact that even school houses were made of turf. The first school house in Union Township, Calhoun County, was so constructed.

Not all the prairie farmers, however, were content to build such rude habitations. The local historians usually picture the most striking things and omit such facts as tend to alter the tone of their picture. The writer knows of a house built in 1869 of lumber hauled at least forty miles. It had three rooms on the ground and a "chamber", or upstairs room, large enough to serve as a school room, the first school, by the way, in that township. It is difficult to see, however, how any serious school work could have been done there, for the room as it now appears is too tiny for a satisfactory attic.

The shelters for the stock were usually constructed of a framework of slender poles around which straw or prairie grass was piled. Doubtless a three-sided shed of this sort, if placed on a dry spot, was just as healthful and comfortable as the barns in use at present. The disadvantage was that the live stock often ate their habitat. In the most severe weather, when the animals would go least far afield for their food, the farmer would often be called upon to rebuild his sheds.

A number of schemes were tried in the hope of finding a substitute for the brush or rail fence of the eastern pioneers. The sod fences made by simply piling squares of turf were not, however, satisfactory. Parker speaks of them as being a "perfect failure", as the soil was too loamy

and mellow.[13] But successful fences were made by building two parallel walls of turf some three feet high and three or four feet apart, the enclosed space being filled with earth from a ditch dug on either side of the walls. When the farmer could afford it he made a board fence, but it was very expensive. When the landholder was not in too big a hurry he made a hedge fence. The osage orange made the most satisfactory fence of early times, being as formidable as any fence ever devised, rivalling the walls of a penitentiary. It has been pretty generally done away with, however, being too wasteful of land. An early and cheaper yet quite satisfactory substitute was the willow hedge. Its cost was practically nothing; it was easy to plant and after a few years was quite tight. It grew remarkably well on the swampy prairies and was the commonest type until the barbed wire fence came into use.[14]

The lack of forests to supply logs for houses and rails for fences was sorely felt by the prairie farmer but the lack of wood for fuel was much more difficult to meet than a shortage of building or fencing materials. Here and there on the prairies were small clumps of shrubs of various sorts. Some of them, because of the frequent burning of the prairie grass, developed root systems out of all proportion to the development above ground. These shrubs were carefully taken up, even to the roots, and hauled to the house for fuel.[15] Such scant supplies could suffice for little more than summer fuel for cooking. In winter the farmers at first purchased wood along the nearest watercourse, but these supplies soon gave out and they found it necessary to drive to the market for coal. There were mines at Boone, Rippey, and Fort Dodge, but the last being the farthest

[13] Parker's *Iowa As It Is In 1856*, p. 69.

[14] Gue's *History of Iowa*, Vol. III, pp. 101, 102.

[15] Stonebraker's *History of Calhoun County, Iowa*, p. 63.

north and almost in the center of the prairie area was the place to which the largest numbers went for their fuel.

Pioneers now living in the area tell interesting stories of the trips to Fort Dodge for coal. The following account given by Mrs. Rasty of Lohrville is typical, though the distance, some forty miles, was less than that to many of the pioneer homes.

The trip to Fort Dodge was too full of dangers for one wagon to go by itself. There were no Indians but there were mud-holes, deep ruts, and danger of break-downs, any of which would be serious to a single wagoner. Then there was the ever-present peril of blizzards. (Any snowstorm of more than ordinary severity was called a blizzard.)

On the afternoon before the trip was to be made every family of the vicinity would meet at one home, usually Lem Parker's, and while the men were seeing to wagons, teams and harness the women would prepare the evening meal and provisions for the trip. The evening would be spent in games and other forms of sociability, but at an early hour all would retire, for the following day might call for all the strength that the men could muster. At three in the morning every one would be astir, and before four the men would be in their wagons and ready for the trip to the coal mines. Barring exceptional mishaps, they would reach their destination in time to load up before nightfall. Then, after seeing to the teams, the party would retire to the mine house to get a few winks of sleep sprawled out on the floor near the stove. Again at an early hour the next morning they would be on their way.

Favored by a fair day they would reach home in the evening, but a light rain or snow fall might slow them up so that they would not arrive till late at night. On more than one trip did they find it necessary to lighten the loads by throwing off coal in order to plow through gathering drifts. Every spring one could find wagons of coal drawn up by the side of the road where they had been abandoned during the winter for some reason or other.

Much has been written about the severity of the winters a half century ago and Weather Bureau records go only a short way toward convincing the old settlers that winters

of the present are no different from those they experienced when they were newcomers in the State. The suffering caused by the extremely variable weather was indeed more severe than that experienced by the people living there at present. Accounts of persons freezing to death in their homes or on their way to get food show how poorly prepared they were to meet existing conditions. The winter of 1856-57 was probably the most severe on record, but the amount of literature written about the cold, the snow, the wind, and the resulting suffering, narrow escapes, and heroic rescues of that winter might lead an unobserving reader to believe that it was typical of the pioneer period.

Then, too, this section of Iowa has always had a bad reputation for tornadoes, and elaborate precautions were taken against them. Typical "cyclone" cellars may still be seen beside many houses. It is somewhat doubtful if any of these cellars ever saved a life from a tornado, but for the storage of vegetables they were very useful. Prairie fires were a menace for a time but the cultivation of the land on an extensive scale soon brought them under control. The grasshopper scourges of the seventies likewise can never occur again because of the growing of cultivated crops. Plowing kills the eggs.

Early agricultural operations were greatly restricted by the lack of natural drainage. Creeks are fairly numerous but a short distance from them the only drainage is underground through the clay-loam sub-soil and that, before the advent of tiling, was very slow. Many a square mile may be circled without crossing the semblance of a drainage line. The pioneer farmers utilized only the higher land, or knolls, the intervening swales being given over to swamp life. On some quarter-sections the major part of the land could be cultivated, but many a newcomer found the opposite to be true.

From the first the production of corn has been outstandingly the center of agricultural interest of Iowa. Sometimes the pioneer farmer would plant it with no more preparation to the ground than the turning over of a spadeful of turf at each hill. Often the landholder would merely chop into the sod with his axe and deposit the seed, hoping that the crop would yield enough to pay for his labors and, at the same time, kill the native vegetation as well.[16] More often, perhaps usually, the sod would be plowed. Some of the farmers made a business of breaking the prairie for newcomers, charging $2.25 per acre for the service. For this they employed a huge plow which cut a twenty-two to thirty inch furrow and was drawn by five yoke of oxen.[17] The plowing was done as shallow as possible for thick sod rotted slowly. Flax was also important as a first crop, though its acreage fluctuated greatly from year to year.

After the sod had deteriorated sufficiently other crops were planted. Wheat was at first the second crop in importance but its acreage did not increase with that of corn and oats: in fact the wheat acreage of 1880 was almost three times that of 1920. Rye and barley have never been grown in Iowa to any considerable extent. Each farmer had his sorghum patch, which provided practically the only form of sweet for the family. The molasses produced within a county occasionally exceeded two gallons per person. The census figures show a good deal of fluctuation with this product also, owing, doubtless, to occasional early frosts. The writer once heard an old settler say: "We didn't make many molasses that year, just enough to sweeten our coffee".

Hog raising very early took an important place in the

[16] Parker's *Iowa As It Is In 1856*, p. 69.

[17] Coffin's *Breaking Prairie* in the *Annals of Iowa* (Third Series), Vol. V, p. 447.

activity of the prairie farmers. In 1860 Boone County had 8500 swine and only 4000 head of cattle. The following figures show the trend: 1870, swine 10,800, cattle 9500; 1880, swine 75,620, cattle 35,000; 1890, swine 103,360, cattle 54,800.[18] The great production of corn tended to promote hog raising but the poor drainage operated to the contrary, making the pens wet and unsanitary. Sheep raising has never been important in this section for sheep are ill suited to wet lands.

EFFECTS OF THE RAILWAYS UPON EARLY URBAN DEVELOPMENT

Two-thirds of the towns shown on the map of Keen and Lee in 1856 are no longer in existence. They were abandoned chiefly because they were missed by the railways that built into the area for the natural advantages of an early time were not sufficient to counteract the lack of a railway.

The story of Boonsboro is interesting and also typical of what happened to a good many towns. At one time Boonsboro had a population of almost a thousand persons. In 1865 a railway built as far as Montana, a hamlet a mile or so east of Boonsboro, and the citizens of the latter town were asked to pay a large bonus to secure the road. This they refused to do. The next year the road was extended but it swung to the southwest and missed Boonsboro by a mile. "Then began a life and death struggle between the proprietors of Montana and the citizens of Boonsboro for supremacy which lasted for many years. Buildings were erected in each town but in the end the citizens of Boonsboro began to move to Montana, its name was changed to Boone and the old county seat became a suburb of the new city which had absorbed its business and much of its population."[19] Homer, at one time a county seat town of im-

[18] Reports of the United States Census.

[19] Gue's *History of Iowa*, Vol. III, p. 312.

portance, was also abandoned with the coming of the railways, though it had for some time been on the decline. The fate of New Munic, Carrollton, and dozens of smaller towns was similar.

Many other towns sprang into existence along the railroads to serve as trading posts and shipping stations for the rural communities. The first of these were laid out where a natural feature such as a well-drained knoll or river terrace along the road offered a good town site. Carroll was platted for the county seat near the center of the county where the railway passed a spot of good drainage large enough for a city. Emmetsburg was platted where a railway was to cross the Des Moines. Storm Lake grew up where a railroad touched the lake of that name. Several older towns, such as Webster City, Algona, Spencer, Nevada, and Fort Dodge were fortunate enough to be situated along the line of the new railways and prospered accordingly. Between these more favored towns others sprang up at intervals of eight or ten miles, apparently with no environmental advantage. With the completion of the network of railways additional centers of population grew wherever the roads crossed.

LATER AGRICULTURAL DEVELOPMENTS

As a basis for a discussion of more recent agricultural developments in the prairies of north-central Iowa, four tables have been prepared. The data are taken from census reports, both State and Federal. The four counties are representative of conditions throughout the area we have been discussing. Boone County is the oldest of the prairie counties and was the first to be fully settled up. Calhoun and Pocahontas are the flattest and have the poorest natural drainage. Clay is one of the northern counties. Corn is not grown in it with the same certainty as in the other

counties. It was the last of the four to be crossed by a railway.

Table I shows that the number of farms kept steadily increasing until about 1900, after which there has been a

TABLE I

NUMBER OF FARMS IN FOUR PRAIRIE COUNTIES, 1870–1925

	BOONE	CALHOUN	POCAHONTAS	CLAY
1870	1277	167	221	207
1880	2340	862	654	697
1890	2451	1709	1437	1300
1900	2670	2134	2005	1684
1910	2581	1958	1932	1668
1915	2343	1918	1960	1651
1920	2541	2060	1992	1769
1925	2506	1949	2009	1801

slight decrease. The rural population declined with the number of farms. These facts might suggest that farms were abandoned, but what really happened was that farms increased in size. Table II shows that, despite the decrease in number of farms, both the acreage and the production of corn has steadily increased from the time of the first settlers. This increase in the effective utilization of the land calls for an explanation.

Three factors have contributed toward the end mentioned. Draining the swamp lands has brought into use much additional land, as can be seen by comparing the 1895 or 1900 acreage with that of 1922, and has increased the utility of perhaps half of the land already in crop. The use of labor-saving machines, such as gang plows, two row cultivators, corn huskers, and the like has increased the acreage per farmer. The development of better varieties of corn has done much to increase the yield per acre on the cropped land.

Drainage on a large scale began about 1888. Each year thereafter an increasingly large acreage was brought into cultivation until about 1918 or 1920 when practically all of the swamp land had been made cultivable. The drainage of

TABLE II

PRODUCTION OF CORN IN FOUR PRAIRIE COUNTIES, 1860–1925

		BOONE	CALHOUN	POCAHONTAS	CLAY
1860	bushels	304,375	5,980	1,280	385
1870	bushels	727,831	36,589	32,860	12,105
1875	acres	46,151	10,656	8,981	8,797
	bushels	1,595,752	351,120	229,263	180,120
1880	acres	94,109	27,019	20,390	21,795
	bushels	3,916,693	981,698	686,602	753,600
1885	acres	92,981	53,532	30,300	28,845
	bushels	3,287,759	1,506,417	889,176	536,599
1890	acres	104,106	77,348	57,529	45,762
	bushels	4,815,379	2,975,258	2,131,955	1,392,147
1895	acres	115,838	111,813	92,214	88,937
	bushels	4,117,838	4,150,960	3,071,200	2,621,191
1900	acres	117,303	116,026	102,979	88,261
	bushels	4,714,840	4,340,650	3,187,630	3,186,660
1905	acres	115,838	111,813	92,214	88,937
	bushels	4,617,370	4,150,962	3,071,561	2,621,191
1910	acres	108,059	107,137	99,649	82,035
	bushels	3,746,355	3,395,057	3,578,620	2,634,940
1915	acres	125,250	134,101	124,121	104,456
	bushels	5,480,018	6,285,443	5,885,734	4,424,360
1920	acres	119,181	136,271	125,063	99,146
	bushels	5,367,297	6,560,106	5,517,898	4,077,278
1925	acres	139,747	145,752	145,934	123,963
	bushels	6,400,413	7,345,901	6,202,195	4,214,742

swamp lands is a community enterprise requiring the approval of a majority of the land owners in the district for the expense is too great to be met by the average farmer unless the payments are spread over a period of years. To meet these conditions drainage districts were formed and bonds issued to cover the costs of laying the large tile or

digging the open ditches. Each farmer put into his land as many lines of small tile feeding into the main ditches as he desired.

Tiling has been a great aid to the utilization of the prairie lands in north-central Iowa. To it more than to anything else Calhoun County owes its increase in corn production from three million bushels in 1890 to over seven million in 1922. Without artificial drainage thousands of acres of the richest of land could not have been brought into effective use. In fact, no single factor save the railways has been as important as drainage in the bringing of new prairie lands into use.

But notwithstanding the additions to cereal production and the increased prosperity that it has brought to north-central Iowa, there is some question as to whether or not the State and the United States as a whole have yet received any real benefits from this drainage. It has, indeed, enabled the farmers to produce more corn, but more than the markets could absorb could have been produced on the corn lands already in use. With the exception of the few war-time years drainage has merely contributed to a surplus that has so upset farming conditions as to threaten the very foundation of agriculture.

Moreover, it has encouraged, in fact made almost necessary wasteful and expensive methods of farming throughout the corn belt. It has lowered the ground-water table throughout much of the State and it has destroyed the most valuable breeding grounds of migratory birds in central United States. It would have been better to have left the swamp lands in their original state until, even when the most careful farming methods were employed, the older lands of the corn belt were being taxed to produce the crops demanded by the markets. There is danger that "mining" the soil will result in the depletion of fertility both in the

drained and in the older lands before the swamp lands are really needed.

The outstanding feature of farm practice on the prairie lands in north-central Iowa is the lack of any considerable variation in the crops grown. A traveller is impressed by the predominance of corn and oats over all other crops. In 1922 Calhoun County had its land divided as follows:

Total area	363,520	acres,	or	100%
Land in farms	348,293	"	"	95.8% of total
Land planted to corn . .	145,000	"	"	41.6% " farms
Land planted to oats . .	108,000	"	"	31.0% " "
Land in pasture	51,786	"	"	14.8% " "

The pasture lands are mostly confined to the rough land along the streams and is seldom if ever put into any crop. Legumes, other cereals, and hay have an almost negligible acreage. In 1920, 58 per cent of the total area of Boone County, 69 per cent of Calhoun County, 68 per cent of Pocahontas County, and 56 per cent of Clay County were given over to corn and oats.

For the sake of contrast three counties of southern Iowa are tabulated much as Calhoun County above.

	VAN BUREN	DAVIS	APPANOOSE
Total area in acres . .	305,280	320,640	328,320
Acres planted to corn .	50,000	44,000	41,000
Area in oats	22,000	18,000	24,000
Area in pasture . . .	153,000	158,000	146,300

The per cent of land in corn and oats for these counties was: Van Buren, 25.1; Davis, 22.4; and Appanoose, 19.8.

PROBABLE FUTURE TREND IN AGRICULTURE

The type of farming, the large acreage per farmer, and the wasteful farming methods resulting therefrom suggest the present decline in rural population will not long continue, though the movement from the farms has not as yet

ended. The 1925 State census showed a continued decline in rural population. In time the trend will be back to the prairie lands. The prairies are very productive and will respond bountifully to any increase of labor. As the center of population moves westward the demand for farm products will increase and a larger rural population will result.

The development of great diversity in crops is probably far away. That corn is the crop best suited to present conditions may be inferred from the fact that, while the value of the corn crop fell from $499,680,000 in 1919 to $129,000,000 in 1921,[20] the corn acreage was increased both in 1921 and 1922. Less corn is being sold from the farms, however, and more is being fed to hogs. The report of the Iowa Department of Agriculture shows that the number of hogs in these counties was greater in 1922 than in any other year.

Farmers are now giving more attention to the marketing of their products. With a working organization, production could be kept fairly well in line with the demands of the markets. Farmers could do much in this way to ward off periods of great depression such as that of 1921–1926.

POLITICAL ATTITUDES TRACEABLE TO GEOGRAPHIC INFLUENCE

It is not always easy to see the connection between the political attitudes of the people of the prairies and their natural environmental influences. For the most part the people who settled here came from the northern States and brought their political traditions with them. Another reason for the dominance of Republican party sympathy is found in the close commercial connections of these people with the East, and especially with the Chicago district. Whatever political policy is favored by Chicago is sure to find hearty support throughout the prairies. Protective

[20] *International Yearbook*, 1919, 1921.

tariffs have been of some direct value in keeping out Argentine corn and beef, but otherwise they have operated only to keep the prices higher on things the farmer buys.

Railway legislation has at times taken on geographic significance within the area. The people who were well served by roads were always in favor of a strict regulation of rates and opposed to special taxes on their land for the sake of aiding the railways, while those living in poorly served communities were opposed to any State regulations that might discourage the extension of existing lines.

From time to time "progressive" movements have received considerable support from the prairie farmers, but this has been merely a reflection of low prices and a demand for a more mobile currency or for legislative aid such as price-fixing. At present the farmers are aware of the fact that they are using too many acres and producing more than can be consumed, but they hope to receive relief which will tide them over to a time when the population of the country will have increased sufficiently to make use of the great potential production of their prairie farms.

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