

Crop Acreage Trends in North Dakota

By

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THE OFFICE OF THE AGRICULTURAL STATISTICIAN, Bureau of Agricultural Economics, United States Department of Agriculture, Fargo, North Dakota, has just released a 134 page mimeographed document entitled "North Dakota Agricultural Statistics." This report supplies crop statistics by counties for the period 1929-1942 inclusive, and livestock statistics by counties for the period 1930 to 1943. To those interested in long-time historical trends, State statistics are presented for the period 1879 to the present. The diagrams showing long-time crop trends, which are reproduced in this article, are accompanied by a short discussion furnished by the courtesy of Mr. Kienholz. In a subsequent article livestock statistics will be reproduced.

H. L. Walster, Director

CORN

Records of acreage and production of corn go back only to 1889. For the next 20 years there occurred a slow but gradual increase in the acreage as the rich lands of eastern North Dakota came under the plow.

With the influx of settlers into the western portions of the state around 1910, the acreage expanded rapidly and more than doubled in the five-year period from 1910 to 1915. Following the peak acreage of 600,000 in 1915 there was a decline for several years. The sharp decline in 1916 to 425,000 acres was probably occasioned by the unfavorable yield the previous year of 11.1 bushels.

From 1919 on to 1924 a steady increase in acreage occurred until in the latter year, the state harvested a record acreage of 1,320,000. Records show that corn yields during this five-year period were very favorable, reaching a high of 31.5 bushels in 1923, which may have been the chief cause for the 35 percent acreage increase the following year.

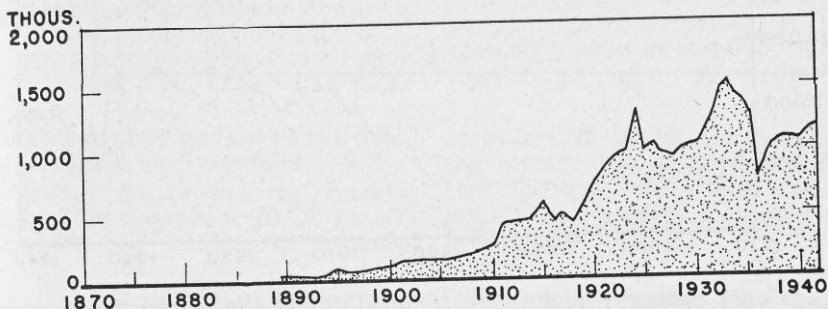
The year 1924, on the other hand, was a very unfavorable year for corn, the yield per acre dropping to 17 bushels which again may have been the chief reason for the 25 percent decrease in acreage in 1925. From 1925 on the acreage remained relatively stable at around 1 million acres until 1931 when the first year or several severe drought years brought farmers to a realization that corn was one of the surest feed crops in periods of sub-normal rainfall.

In 1933 the harvested acreage reached 1,530,000, a record for the state. The 1934 planted acreage was larger than that of the preceding year but severe drought reduced the harvested acreage

sharply. During the last five-year period the harvested acreage has fluctuated between a million and a million two hundred thousand acres.

It is possible that the acreage will be stabilized at around this level until there is a further expansion in the state's livestock enterprises, or until additional varieties adapted to our northern climate are developed and popularized.

NORTH DAKOTA - CORN - ACREAGE HARVESTED-1889-1942



Corn Acreage Utilization

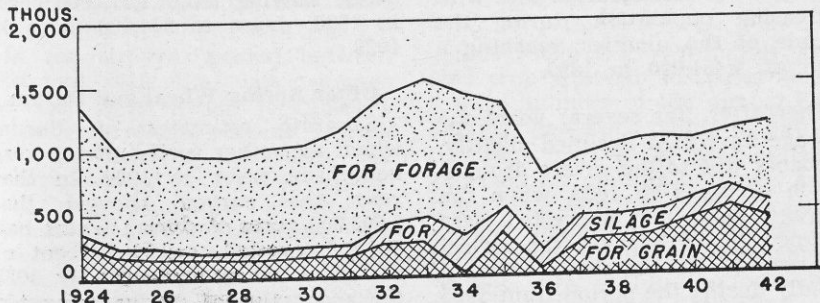
As a rule, over 50 percent of the total harvested corn acreage is utilized as forage, although as the diagram shows, since 1936 the proportion so utilized has declined, while the acreage utilized for grain has increased. In 1940 and 1941 favorable weather conditions resulted in the maturing and the utilization for grain of a larger portion of the total acreage than in any previous years of record.

Almost half of the total corn acreage was harvested for grain in 1941, in contrast to a percentage of from 13 to 20 during the ten-year

period 1924-1933. The average percentage of the acreage harvested for grain during the ten-year period 1924-1933 was 16.4 percent whereas, for the period 1933-1942, it was 27.8 percent. If the two drought years, 1934 and 1936 are excluded, years in which very little corn matured as grain, the percentage rises to 33.6 percent.

A relatively small percentage of the total acreage is used for silage, the proportion varying from a low of 5 percent in 1924 and 1927 to a high of 21 percent in 1937. In the last 5 years, from 9 to 14 percent has been utilized for silage. The

NORTH DAKOTA-UTILIZATION OF CORN ACREAGE - 1924-42

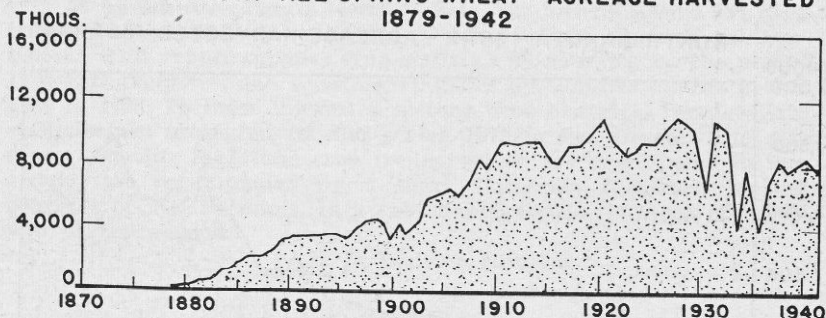


larger percentages utilized for silage occurred during the drought period from 1932 to 1937 inclusive, when the number of pit and trench silos increased greatly.

Approximately one-half of the

total corn acreage has been utilized for forage, fodder, and hogging off during the recent five-year period 1938-1942. This is in contrast to an average of over 78 percent for the period 1924-1928.

NORTH DAKOTA- ALL SPRING WHEAT - ACREAGE HARVESTED 1879-1942



All Spring Wheat

The estimates for the years prior to the date when North Dakota was admitted to the Union are for that portion of Dakota Territory now included within the boundaries of the state. The population of the North Dakota portion of the territory is given as 2,405 in 1870. This had increased to 36,909 by 1880, largely rural.

Settlers began arriving in numbers in about 1878 and by 1879 it was estimated that 85,000 acres of spring wheat had been harvested. Settlers kept pouring into the Red River Valley, attracted by the fabulous richness of the soil, until by 1890 the wheat acreage had increased to 2,960,000 acres. Increases in the wheat acreage kept pace with increasing population during the decade of the nineties, reaching a high of 4,451,000 in 1899.

Thereafter, for several years the acreage harvested declined slightly, probably due to the severe drought which occurred in 1900, when the average yield per harvested acre dropped to 4.5 bushels, the lowest on record. The acreage increased rapidly during the period from 1905

to 1915 as the virgin lands were taken up by the incoming settlers, and by 1915 had reached 9,370,000 acres.

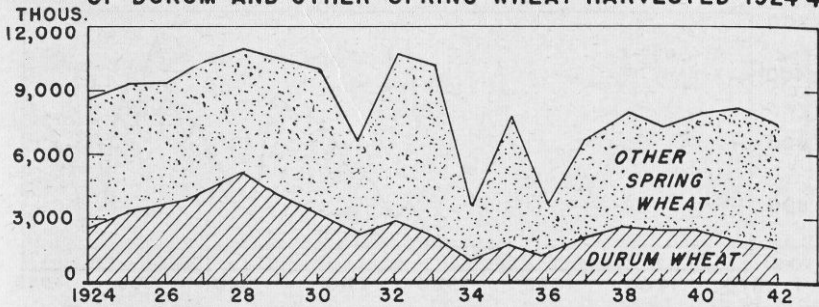
The severe rust epidemic of 1916 resulted in a reduced acreage for several years, but the upward trend was resumed in 1918, and by 1921 had reached 10,734,000, the second largest wheat acreage to be harvested, being exceeded only by the 1928 acreage of 10,832,000.

During the ten-year period from 1929 to 1938, the harvested acreage averaged 7,713,000 acres, a period marked by three years of severe drought and two years of heavy black rust infection. The wheat acreage abandonment during this ten-year period averaged 2,611,000 acres, ranging from 7,111,000 acres in 1936, down to 254,000 acres in 1929.

Other Spring Wheat and Durum

Separate estimates of durum wheat and other spring wheat were not made prior to 1924. In that year the survey showed that 2,605,000 acres of durum wheat had been harvested, or 31 percent of the total wheat acreage. By 1928 the proportion of durum harvested

**NORTH DAKOTA ACREAGE
OF DURUM AND OTHER SPRING WHEAT HARVESTED-1924-42**

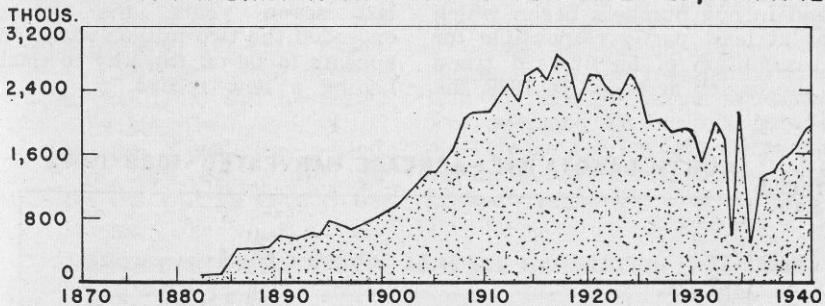


had risen to 46 percent of the total, the highest ever recorded.

During the thirties the acreage fluctuated between a low of 780,000 in 1934 and a high of 3,000,000

acres in 1930. In the last two years, the acreage has declined still further and less than a fourth of the total wheat acreage harvested has been durum.

— NORTH DAKOTA OATS — ACREAGE HARVESTED, 1882-1942



Oats

Oats has been grown largely as a feed crop in North Dakota. The acreage expanded gradually along with the expansion in livestock numbers, with the largest increase coming during the period between 1900 and 1915 when the new lands were being rapidly taken up.

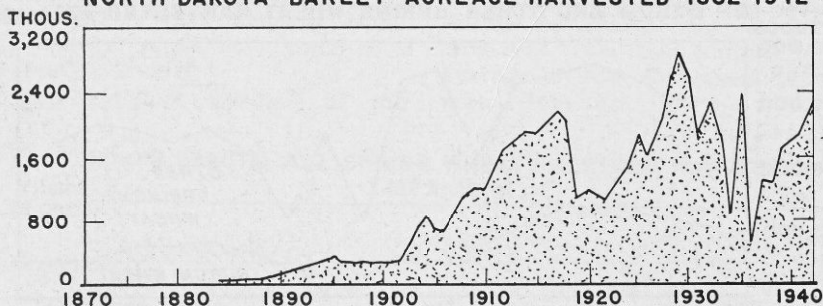
In the ten-year period between 1900 and 1910, the oats acreage increased from 840,000 to 2,150,000, an increase of 150 percent. During the next five to ten years, the acreage reached its greatest expansion, with a record acreage of 2,870,000 in 1917. Thereafter, the general trend was downward, until in the late twenties the acreage of oats averaged around two million.

The acreage harvested in the past few years has fluctuated between one and one-half to two million. Increasing numbers of cattle in the past few years appear to be pointing the way to another upward swing in the oats acreage.

Barley

Barley too, is grown largely as a feed crop although in recent years, a third or more of the annual production has been shipped out of the State, part to be used as feed, and part for malting purposes. Less than three hundred thousand acres were grown in the State during the period from its early settlement to around 1900, but in the next ten years the acreage increased to

NORTH DAKOTA - BARLEY - ACREAGE HARVESTED - 1882-1942



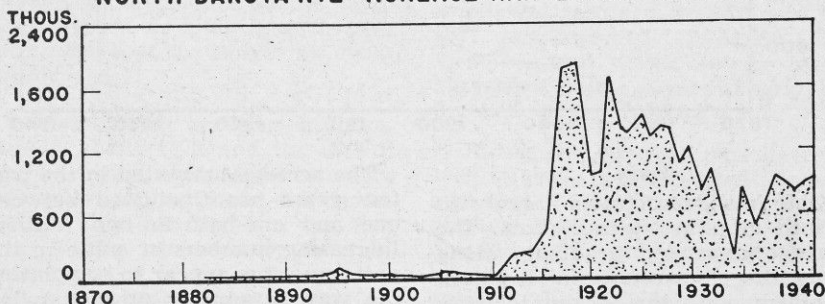
1,200,000 and by 1917 had risen to 2,110,000 acres, no doubt, as a result of the demands caused by the war.

Following the close of the war, there was a sharp drop in acreage to just slightly over a million acres in 1922. At this time an upward trend in hog numbers began which was at least partly responsible for a resumption of an upward trend in the barley acreage. By 1929, the

acreage had reached a record high of 2,875,000. Thereafter it dropped back sharply, partly as the result of a number of drought years, and in recent years has remained below two million acres.

In 1942, for the first time in the last seven years, the acreage exceeded the two million mark and appears to be on the way to establishing a new record.

NORTH DAKOTA RYE - ACREAGE HARVESTED - 1882-1942



Rye

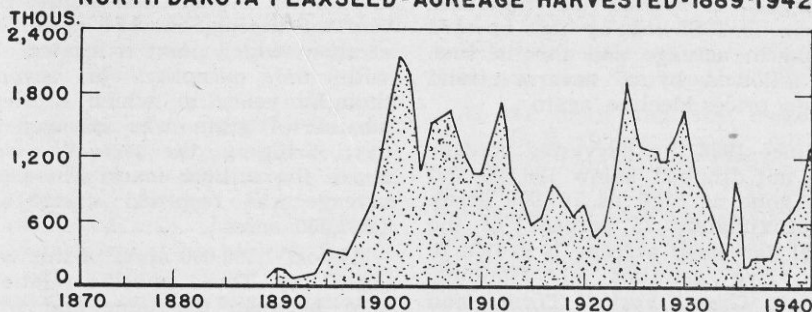
While a small acreage of rye was grown in the state ever since 1882 it was of minor importance until 1912, when 230,000 acres were harvested, almost $3\frac{1}{2}$ times the preceding year's acreage. But it was not until the World War stimulated the demand for bread grains that the state actually became the foremost producer of rye.

In 1917, almost one and one-half

million acres were harvested and the acreage had risen to 2,100,000 in the next two years, dropping back to less than a million in 1920. During the next ten years the acreage averaged between one and one and one-half million, but fell well below a million during the drought period.

During recent years, the acreage harvested has remained below a million. A comparatively small portion of the acreage is spring rye.

NORTH DAKOTA FLAXSEED-ACREAGE HARVESTED-1889-1942

**Flax**

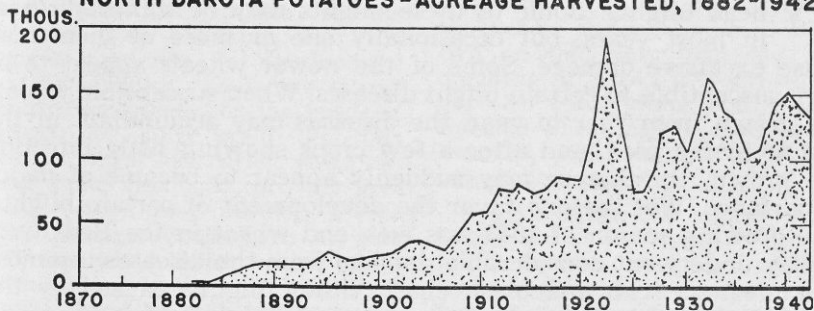
This chart shows that flaxseed has been an in-and-out crop. It was regarded as a new land crop by early settlers, and therefore, the largest acreages occurred during the period when the influx of settlers was most rapid, i. e., from 1900 to around 1912.

During this 13-year period the harvested acreage averaged 1,490,000 acres, and the largest acreage on record 2,240,000, was harvested in 1902. The harvested acreage fell off during the World War period, because the land was wanted for wheat and rye, but as soon as the

bottom had dropped out of wheat prices there was a sharp increase in flax.

During the twenties the acreage averaged well over a million going almost to two million in 1924. In 1930 there occurred another peak acreage, but thereafter, there was a quick decline as drought conditions caused growers to experience a period of discouragingly low yields. In the ten-year period from 1930 to 1939, yields per harvested acre averaged 4.3 bushels. In 1942 the acreage for harvest went over the million mark for the first time in seven years.

NORTH DAKOTA POTATOES - ACREAGE HARVESTED, 1882-1942

**Potatoes**

North Dakota is one of the important surplus late potato producing states. Production was stimulated by the World War and the acreage climbed to over one hundred thousand in 1921, and close to two hundred thousand the following year. This was a record acreage

for the State and was the result of relatively good prices during the preceding three years.

In the next three years the acreage had dropped back to the 1912-1920 level of around 80,000, as prices declined to unprofitable levels. Records show that the potato acreage is very sensitive to price

changes. A period of favorable prices is followed by an upward trend in acreage and this in turn is followed by a reverse trend when prices decline again.

Since 1928 the harvested acreage has not dropped below 100,000 and has gone as high as 167,000 acres. Approximately 75 percent of the total harvested acreage is grown in the five counties of Pembina, Walsh, Grand Forks, Traill, and Cass.

All Tame Hay

Ninety-five percent and more of the tame hay crop is fed on the farms. The acreage increased very gradually after settlement began and did not reach the half million mark until 1911.

Another 13 years had to pass before the acreage reached a million at about which point it leveled off, with the exception of several drought years in which a large amount of grain was salvaged as hay, bringing the acreage well above the million mark. The peak acreage was recorded in 1931 at 1,847,000 acres.

Almost 1,100,000 acres of this was grain hay. There is some relationship between the tame and wild hay acreages. In seasons when wild hay is a good crop, the tame hay acreage drops off somewhat. The last two years are examples of this.

The tame hay acreage in this State is made up of varying proportions of alfalfa, sweet clover, grain hay, millet, sudan, crested wheat, and brome grass.

Common Head Disease of Wheat

By

W. E. BRENTZEL, Plant Pathologist

WHEAT AND OTHER GRAINS are attacked by a number of head blights. Some of these blights may be minor diseases in most years, but occasionally one or more of them may cause excessive damage. Some of the newer wheats appear to be very susceptible to certain blight diseases. When susceptible wheats are grown from year to year, the diseases may accumulate in the soil or in the seed, and after a few crops showing little infection are grown, the disease may suddenly appear to become of major importance. Wet seasons favor the development of certain blights. The growing season of 1943 was wet, and wheat in the Red River Valley underwent considerable damage from the diseases commonly known as scab and black chaff. Other blights, caused by the fungi *Helminthosporium* and *Septoria*, were prevalent in many fields also.

Wheat Scab: During the recent dry years wheat scab was of minor importance in this region, contrasted with the major injury caused by this blight in the last two years. Scab is a doubly destructive disease because it attacks not only the heads, but also the roots of

wheats and other grains. One seldom notices the work of the scab organism on the roots of wheat, but the symptoms are quite obvious on the heads, which often become infected, generally resulting in a shrivelled condition of most of the grain. In minor infections, only a