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SOME OF THE FACTORS AFFECTING THE PRICE OF CORN[1]

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Importance of the Corn Crop

Corn is the most important single crop grown in the United States from the standpoint of acreage and total value of the crop. For the year 1928, the acreage devoted to corn in the United States was 28 per cent of the acreage in all crops, and the value of the corn crop was 25 per cent of the total value of all crops. The value of the corn crop equaled the combined values of wheat and cotton.

The United States produces about 65 per cent of the worlds production. Argentina, which competes to a certain extent with the United States in the export trade, produces about 7.1 per cent. Most of the corn produced in the United States is consumed here. The exports amount to about 1.5 per cent of the total production.

Illinois and Iowa produce about 25 per cent and the seven states, Illinois, Indiana, Ohio, Missouri, Nebraska, Kansas and Minnesota, produce about 56 per cent of the entire United States production. For the period 1921-1925, Minnesota contributed 5 per cent of the total.

Corn production in Minnesota deserves special comment. The average acreage and production of corn in Minnesota for the five years, 1901-1905, were 1,469,000 acres and 40,231,000 bushels. For the period 1924-1928, the figures were 4,467,000 acres and 137,379,000 bushels. In 1929 Minnesota ranked fourth in production with 148,855,000 bushels. Further, the reports indicate that the value of the 1929 corn crop in Minnesota exceeds the value of any one other crop or product. The increase of the importance of corn in this state is quite remarkable. It is difficult to determine future tendencies since a further extension of the acreage will depend in part on the development of earlier maturing varieties,but it is thought that the acreage has reached a point where more or less uniformity from year to year may be expected.

Disposition of the Crop

It has been estimated that about 85.5 per cent of the corn crop in the United States is fed to livestock. Hogs consume 40 per cent; horses and mules, 20 per cent; cattle, 15 per cent; poultry, 4 per cent; and sheep, 1 per cent. About 5.5 per cent is fed to stock not on farms.

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(1) The discussion in this report is based for the most part on recent studies conducted by the Department of Farm Management and Agricultural Economics, University of Minnesota

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The remaining 14.5 per cent is used as follows: 3.5 per cent for human food on farms, 6.5 per cent is ground in merchant flour mills, 1.5 per cent is exported, and 3 per cent is used for other purposes.

Corn consumed either directly in the form of meal or indirectly in the form of meat or other animal products forms one of the principal sources of food for the people of the United States. Because of this close relationship between the supply of corn and the supply of human food, variation in the price of corn affects more people than variation in the price of any other crop.

Factors Influencing the Price of Corn

A discussion of the factors affecting the price of corn at the central market resolves itself into the identification of those factors which influence the traders in their estimates of supply and demand conditions. The supply of corn, including both production and carry over, is the most important consideration. In addition to the supply of corn, the supply of substitute crops such as oats and barley should be taken into consideration. The effect of a short corn crop is intensified if the supply of substitute feeding crops also is low. On the other hand, a large supply of the latter tends to lessen the effect of a short crop of corn.

The distribution of the crop in the United States has an important bearing on the price of corn at Chicago. Other factors remaining the same, the price at Chicago increases with an increased proportion of the crop produced in the states in the western part of the corn belt. Further, the differential between the price at Chicago and the price at Kansas City and Omaha increases. These facts indicate that the price in any one market is affected not only by the total United States supply of corn, but also by the production within the immediate area.

The quality of the crop is another important factor that influences the price of corn. The specific influence of this factor should be considered in connection with the size of the crop and the price of a particular grade. A crop of high quality indicates a larger amount of No. 2 corn or corn of the better grade and therefore a less price for this grade. On the other hand, a crop of the same size but one of low quality means a relatively higher price for this grade.

The part of the corn crop that moves from farms enters more or less into commercial channels, although part of this may pass from one county to the next and not be reported at a primary market. The number of hogs and cattle on farms and the opportunities for profitable feeding influence the amount of this movement, and as a consequence, a consideration of these factors is necessary in the study of the corn price situation. The number of hogs is of more influence than the number of beef cattle.

During the past ten years the production in Europe has had an effect on the price of corn at Chicago. Although only 1.5 per cent of our crop is exported, this amount expressed as a per cent of the total receipts at the primary markets is considerable. In 1928 total exports amounted to about 7 per cent of the receipts at the primary markets. The effect of a large production in the United States is intensified when the European production is high. The effect of changes in the export demand on the price is almost negligible in the case of corn as compared to that of wheat.

Argentina production is of some influence on price. Argentina is a competitor of the United States in the export trade. The effects of a large production in Argentina is particularly evident when the production in Europe is above normal. The effects of either the production in Europe or Argentina on the price of corn in the United States are small compared to the effects of the factors previously named.

The various factors that have been mentioned above account for approximately 90 per cent of the variance in the price of No. 2 corn at Chicago. The ranking of these factors according to the relative importance is: (1) Corn supply, (2) Quality of the corn crop, (3) Distribution of the crop, (4) Number of hogs, (5) Oats and barley production, (6) Number of beef cattle, (7) Argentina production, (8) European production. Of these factors, the first four are much more important than the others.

The Minnesota Farm Price

In general the Minnesota farm price of corn corresponds to the Chicago price if one allows for transportation and other handling costs. As in the case of the Chicago price, the United States production is the most important factor affecting the Minnesota price. The production in Minnesota has some effect on the price, but the effect is small compared to the effect of the United States crop. In years when the United States crop is small, but the production in Minnesota is large, the farm price in Minnesota will average somewhat lower than would be indicated by the size of the U. S. crop. Other local factors which have an influence on the price in this state are the quality of the crop and the number of hogs. The number of steers in the state is a factor of much less significance than the number of hogs.

The Minnesota farm price of corn shows less variation from year to year than does the Iowa farm price. The variation corresponds closely to the variation of the price at Chicago. Since the war, the farm price has varied much more than during the pre-war period. One of the reasons for the higher degree of variation has been the high handling costs as compared to the retail price. When handling costs are high, a small change in the retail price is accompanied by a larger change in the producers price than when handling charges constitute a less per cent of the retail price.

Seasonal Movement of Corn Prices

The average advance in corn prices during the season is more than enough to pay the cost of holding, although there are years when the June price is less than the previous December price. According to available data, the largest seasonal advance occurs when the crop is considerably above the average in size. If a large crop has followed a large crop of the previous season, the upward movement from December to June is all the more evident.

MINNESOTA FARM PRICES FOR FEBRUARY 1930

The index number of Minnesota farm prices for the month of February 1930 was 102.5. When the average of farm prices for the three Februarys of 1924-25-26 is represented by 100, the indexes for February of each year from 1924 to date are as follows:

February	1924	88.2
"	1925	99.5
"	1926	115.2
"	1927	113.4
"	1928	100.7
"	1929	106.2*
"	1930	102.5*

* Preliminary

The price index of 102.5 for the past month is the net result of increases and decreases in the prices of farm products in February 1930 over the average of February 1924-25-26 weighted according to their relative importance. These increases ranged from approximately 52 per cent to 1, and the decreases from 26 per cent to 2. The products ranked according to the size of their percentage increases or decreases in this comparison are shown in the following list:

Principal Farm Products which Showed Price Increases and Decreases in February 1930 when Compared with Average Prices in February 1924-25-26
(arranged in descending order of percentage change)

Increase	Decrease
Cattle	Wheat
Calves	Barley
Potatoes	Butterfat
Flax	Rye
Hogs	Lambs-Sheep
Corn	Milk
Chickens	Oats
	Eggs
	Hay

Although the Minnesota index for February 1930, does not measure price changes from January 1930, a comparison of month to month changes in price has been made. The increases range from 7 per cent to 1, and the decrease from 17 per cent to 2. The products ranked according to the size of their percentage increase or decrease in February 1930 and January 1930, are shown in the following list:

Principal Farm Products which Showed Price Increases and Decreases in February 1930 when Compared with January 1930
(arranged in descending order of percentage change)

Increases	Decreases	No Change
Hogs	Eggs	Oats
Chickens	Rye	Potatoes
Hay	Lambs-Sheep	Butterfat
Cattle	Wheat	Calves
	Milk	
	Barley	
	Flax	
	Corn	

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