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# THE DESTINATION OF IOWA'S COMMERCIAL CORN

By RONALD C. BENT

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AGRICULTURAL EXPERIMENT STATION  
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## SUMMARY

IOWA'S commercial corn represents only 15 percent of the total crop, yet that 15 percent returns from 9 to 12 percent of Iowa's farm income.

Three-fourths of the 63 million bushels of commercial corn originate in 35 of the 99 counties.

Over 50 percent of the commercial corn leaves the state on first billing, of which 42 percent goes direct to terminal markets.

Of the reshipment from Iowa's primary markets 85 percent goes outside the state—23 percent reaches terminal markets.

Grain handling agencies located at Iowa's primary markets place a larger percentage of total shipments into the hands of the ultimate consumer than does the country shipper. This is true because the agencies at the primary markets have far-reaching contacts with both the surplus and deficit areas and they are able to merchandise grain enroute to the ultimate consumer.

The quantity and quality of corn production in the neighboring states is the most important factor in determining the direction of commercial corn shipments from Iowa.

Two peaks of shipments occur during the movement season: The first comes during the winter months, December to February; the second, more uncertain, comes any time after midsummer.

An increasing percentage of the commercial corn, to be shipped, is moved during the winter months of the crop year as we go from eastern to western Iowa. The percentage sold the first 6 months of the crop year ranges from 44 percent in the eastern feeding area to 60 percent in the western cash grain area.

The seasonality of marketing practiced by these different areas is the result of the type of farming, type of tenancy and storage capacity of country elevators rather than any conscious effort on the part of the farmers to secure a maximum price.

The individual terminal markets have a rather definite territory which they serve. The volume varies markedly from year to year.

The larger terminals show the greatest changes in volume handled from year to year. They serve as storage places for commercial corn from year to year and from season to season.

The local shipping points are limited in the distribution of their shipments by the railroad facilities and the demand from the neighboring territory.

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# The Destination of Iowa's Commercial Corn

BY RONALD C. BENTLEY<sup>1</sup>

This is the first of a series of three bulletins dealing with the commercial movement of Iowa's corn and oat crops. The first two deal with the destinations of the corn and oats, respectively, grown and shipped from local points in Iowa; and the third will deal with the origins of corn and oats shipped into areas of the state which do not grow enough of these grains to supply their own needs. This bulletin brings to date material on volume of shipments as presented in an earlier publication, Bulletin 252 of this station.<sup>2</sup>

Although the data covering destinations are not as complete as the data on volume of shipments, the sample is adequately representative of the total movement. For example, the data covering volume of shipments shows every carload of grain for each railroad in the state, while the destination data show only 75 to 85 percent of the total carloads, and these are for only 6 of the 19 railroads operating in Iowa.

## SOURCE OF DATA<sup>3</sup>

The railroads operating within the state have made available the basic data for this study. Since January, 1924, monthly reports of carload shipments and receipts of corn and oats for every station in Iowa have been received by the author through the division agents of the different railroads in the state. Monthly summaries of these data have been made.

But these data do not show where the grain goes after leaving the local shipping point. The railroads were again appealed to for information on destination. Some prepared the reports, while others made available their records for our use. While

<sup>1</sup>Project 8 of the Iowa Agricultural Experiment Station

<sup>2</sup>The writer is indebted to Prof. P. L. Miller under whose direction this manuscript was prepared; also to professors Frank Robotka, T. W. Schults and Geoffrey Shepherd for helpful suggestions and criticisms of the manuscript.

<sup>3</sup>Bentley, Ronald C. The movement of Iowa's commercial corn and oats. Iowa Agr. Exp. Sta., Bul. No. 252, 1928. This bulletin shows the volume and origin of commercial corn for the years 1923-24 to 1926-27 and the same for oats covering the years 1924-25 to 1926-27.

<sup>4</sup>The author appreciates the excellent cooperation given by the railroad officials in preparing and making available the above reports.

these data show only first billing from the local shipping point, by following the reshipments from Iowa's primary markets the reader gets a fairly clear picture of final destination.

All railroads did not report on the destination of grains. The following table shows the railroads and years for which we have complete figures:

Railroad	Years Reporting
Chicago & Northwestern .....	1923-24 to 1930-31
Chicago Rock Island & Pacific.....	1923-24 to 1930-31
Minneapolis & St. Louis .....	1923-24 to 1930-31
Chicago Burlington & Quincy.....	1925-26 to 1930-31
Chicago Milwaukee St. Paul & Pacific.....	1926-27 to 1930-31
Chicago & Great Western.....	1927-28 to 1930-31
Illinois Central .....	One Year - 1927-28

## PART I—VOLUME AND ORIGIN OF IOWA'S COMMERCIAL CORN

Iowa produces more corn than any other state, averaging during the years 1922-31, 15.7 percent of the total United States crop, or 419 million bushels yearly. Its nearest rival in production is Illinois with 12.2 percent of the total production.

Is Iowa a corn surplus producing state? If the state is considered as a unit, the answer is yes. But when we look at different sections within the state, we find that some produce more corn than they use and some produce less.

Local grain dealers in certain sections of the state have been, for a number of years, lamenting the fact that Iowa is selling less and less corn. With the exception of the last 2 of the past 9 years, this statement would not hold true for the state as a whole. In small areas there has been some shift from cash grain farming to feeding or dairying, and in these areas grain shipments have decreased. But no doubt much of the feeling that Iowa is selling less grain is based on the memory of the war period when every effort was made to produce more cash crops and to sell all the corn and oats that could be spared from the feedlot.

### HOW MUCH OF IOWA'S CORN ENTERS COMMERCIAL CHANNELS?

A study of corn shipments for the past 9 years shows that Iowa loads into boxcars for commercial shipment, on the average, 63 million bushels each year. From 1923-24 to 1928-29 both the percentage and the total bushels shipped showed an upward trend.

Figure 1 and table I show the production, shipments and the percentage of total production shipped each year. The height of the bars represents total production; the shaded portions the shipments; the irregular line running through the bars the percentage the shipments are of total production.

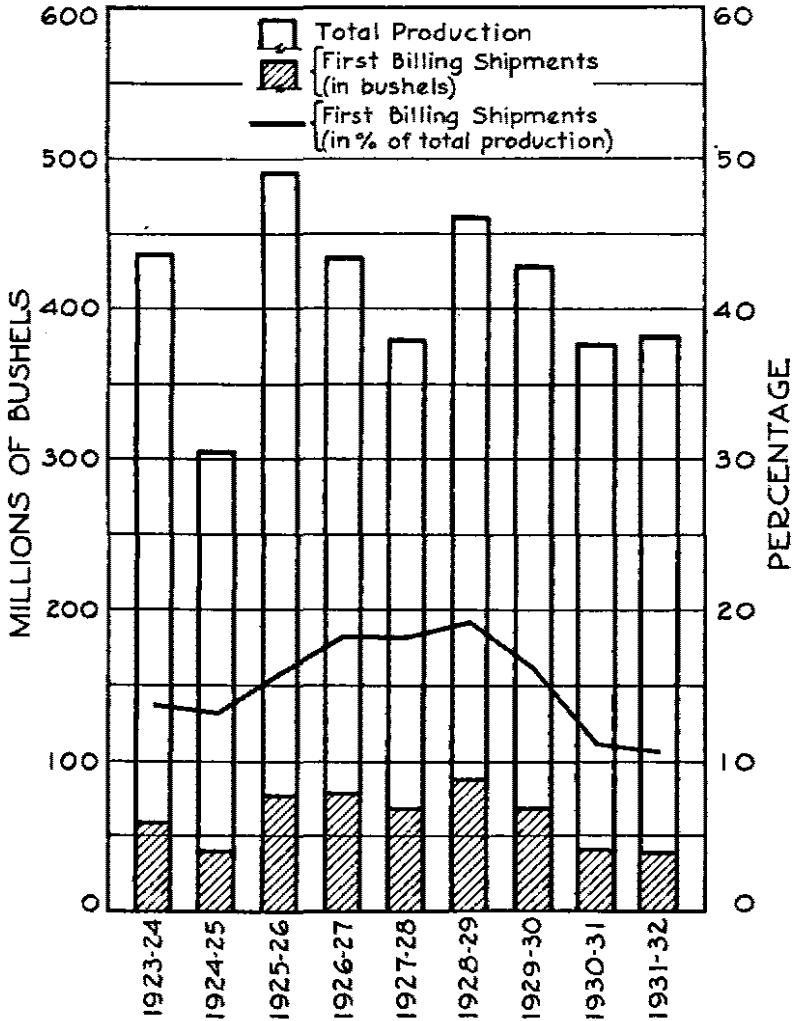


Fig. 1. Total production first billing shipments and percentage shipments are of total production.

TABLE 1.—PRODUCTION AND FIRST BILLING SHIPMENTS OF IOWA'S COMMERCIAL CORN

Crop year <sup>1</sup>	Total production <sup>2</sup> (thousands of bu.)	Percentage of normal <sup>3</sup> (1922-31)	First billing shipments	
			Thousands of bushels	Percentage of total produc- tion
1923-24	486,482	104.7	59,556 <sup>4</sup>	13.6
1924-25	304,928	78.2	40,401	13.3
1925-26	492,648	118.2	77,546	15.7
1926-27	435,247	104.5	79,608	18.3
1927-28	380,005	91.2	69,266	18.2
1928-29	460,988	110.6	88,682	19.2
1929-30	429,658	103.1	69,749	16.2
1930-31	378,238	90.8	42,342	11.2
1931-32	382,626	91.8	41,089	10.7
Average	411,197	98.7	63,188	15.2

<sup>1</sup> Crop year runs from Nov. 1 of one year to Oct. 31 of the following year.

<sup>2</sup> State assessor's figures.

<sup>3</sup> "Normal" means the average of the 10-year period (1922-31, inclusive.)

<sup>4</sup> November and December shipments of 1923 had to be estimated. The shipments of the first 10 months of 1924 were multiplied by the fraction, 1.13. The fraction 1.13 was obtained by dividing the bu. shipped during the 10 mos. (Jan. to Oct.) for the 3 years (1924-25 to 1926-27) into the total shipments for the crop years (1924-25 to 1926-27). In converting carloads to bushels, 1400 bushels per car were used

Shipments during the 1929-30 season held well above the average in both percentage and actual bushels shipped. The shipments for the 2 years 1930-31 and 1931-32 fell far below any of the other years with the exception of 1924-25. The corn crop that year was the smallest of the 9 years. A large part of this drop was because of decreased production but there were also other factors.

A decrease in production does not always accompany a decrease in the percentage of corn shipped; neither does an increase in production always result in an increase in the percentage shipped. For example, in 1926-27, with a decrease of 14 percent in production from the previous year there was an increase of 3 percent in shipments, while in 1931-32, with an increase of 1 percent in production over the previous year, there was a decrease of 0.5 percent in shipments.

A study of the carry-over of Iowa's corn crop will help in an analysis of these yearly variations. The annual carry-over as shown in the fifth column of table 2 reflects crop and marketing conditions for the given year and affects the amount of corn available for shipment the following season.

The largest carry-over of the whole period was following the 1925-26 crop year, which yielded the largest corn crop ever harvested in Iowa. This large carry-over was partially the result

of a good corn crop throughout the Corn Belt. It more than satisfied the strong demand which usually follows a short crop such as most of the Corn Belt had in 1924-25.

In 1926-27, although there was a considerable drop in production, the volume shipped continued to rise because of the sale of a considerable share of the large carry-over from the 1925-26 crop. The same thing occurred in 1927-28 when, with a still further drop in production the percentage shipped remained about the same. This was accomplished by a decrease in the carry-over at the close of the season. In the 2 years the carry-over had dropped from 34 million to less than 5 million bushels.

During the last 3 years, when shipments have been decreasing year after year, the volume of corn on hand at the close of each year has increased.

The amount of carry-over for any one year is not the only shock-absorber for the tremendous shifts in total production. In years of large crops there is perhaps a tendency to use more corn in feeding because it is cheap. In short crop years feeders are more careful with corn and make their other feed crops go a little farther.

But this does not tell the whole story of our feeding operations. In some years the deficit feeding areas of eastern and southern Iowa do not produce enough corn to supply their own needs. Some years this deficit is largely supplied by our surplus producing areas to the west and north. In other years, when Iowa's corn quality is poor, much of this corn comes from states to the west. The 1927-28 season was a good example of heavy receipts

TABLE 2.—PRODUCTION UTILIZATION AND CARRY-OVER OF IOWA'S CORN CROP  
(Thousand bushels)

Crop year	Carry-over Nov. 1	Total crop production	Total shipments	Carry-over Oct. 31	Amount fed of total produced	Amount received for feed*	Total amount fed
1923-24	17,705	436,432	59,558	18,330	376,251	4,500	380,751
1924-25	18,330	304,323	40,401	6,097	276,550	9,355	285,905
1925-26	6,097	492,648	77,548	34,435	336,714	2,509	339,223
1926-27	34,435	435,347	79,698	20,025	376,198	5,972	376,170
1927-28	20,025	320,005	69,256	4,940	325,925	15,333	341,158
1928-29	4,940	450,938	88,592	15,135	361,111	1,928	363,039
1929-30	15,135	429,658	69,749	17,136	358,858	2,170	361,028
1930-31	17,136	378,233	42,342	22,594	330,388	2,167	332,555
1931-32	22,594	352,626	41,039	26,401	327,380	1,637	329,467
Average	17,511	411,197	63,136	18,477	347,093	5,063	352,156

\*This includes all corn received, some is from Iowa points and some is from outside the state.

from outside. The next to the last column of table 2 shows the amount of these receipts by years.

### THE SURPLUS AND DEFICIT PRODUCING AREAS

Seventy-five percent of the total state shipments of corn originate in 30 of the 99 counties.<sup>4</sup> In some areas of the state much more corn is produced than is used, while other areas produce just enough for their own needs and still others have a deficit.

As a basis for locating the surplus and deficit areas of the state, three factors have been considered: first, the volume of corn produced; second, the percentage of that production entering commercial channels; third, the seasonality of shipments. The third factor is discussed in a later section covering seasonality of the corn movement. These areas conform so closely to the type of farming areas presented by Holmes<sup>5</sup> that the same names have been used in this study.

Some of the areas presented by Holmes have been sub-divided, but mostly on the basis of the seasonality of movement rather than production or shipments.

Figure 2 shows these surplus and deficit areas. For each area the annual production and shipments, also the receipts in

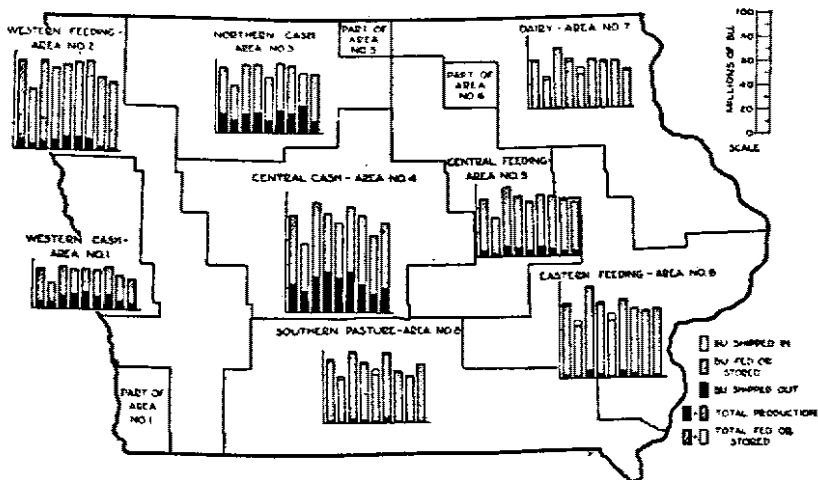


Fig. 2. Production, shipments and receipts of corn by areas and years. Note: The bars in each area represent the crop years 1923-24 to 1931-32 reading from left to right.

<sup>4</sup>These 30 counties have 35 percent of the crop land of the state.

<sup>5</sup>Holmes, C. L. Types of farming in Iowa. Iowa Agr. Exp. Sta., Bul. 256:149-161. 1929.



deficit areas, are shown for a period of 9 years by means of bar diagrams. Each bar shows: the annual shipments, indicated by the black area; the total production, made up of the black plus the shaded area; and, receipts in those areas were additional feed is needed, shown by the light-area. Reading from left to right the bars show the crop years 1923-24 to 1931-32, with the crop year meaning from Nov. 1 to Oct. 31.

A study of fig. 2 and table 3 shows that some areas produce much more corn than others even though the total acres in farms are nearly the same. For example, area No. 4 (area numbers will be used for convenience) is by far the largest producing area of the state. Yet area No. 8 has 2 percent more farm land. These percentage figures are shown in table 3, and it is well to use both the table and chart in visualizing production and shipments.

TABLE 3.—PROPORTION OF TOTAL FARM LAND, CROP LAND, PRODUCTION AND SHIPMENTS IN EIGHT DISTRICTS

	1930 Census		Nine-year average* 1923-24 to 1931-32		
	Percent- age of total farm land in the state	Percent- age of all crop land in the state	Percentage of total state production	Percentage of total state shipments	Percentage of area production that is shipped
Western cash-area No. 1 5 counties	5	6	7.4	13.8	28.3
Western feeding-area No. 2 12 counties	14	15	15.1	10.6	10.2
Northern cash-area No. 3 11 counties	11	18	12.4	21.8	28.5
Central cash-area No. 4 14 counties	15	16	18.7	30.7	31.9
Central feeding-area No. 5 10 counties	11	11	11.3	5.1	10.8
Eastern feeding-area No. 6 15 counties	14	18	14.0	3.8	4.2
Dairy-area No. 7 18 counties	13	12	8.6	.3	.4
Southern pasture-area No. 8 19 counties	17	14	11.3	1.9	2.6

\* For yearly percentages see table 7 in the appendix "Commercial Production and Shipments by Areas."

Table 3, moreover, shows western and north central Iowa as the largest corn producing area of the state. Areas 1 to 4 show a high percentage of crop land in proportion to all land and, with one exception, a still higher percentage of total state production. Area No. 3 has 13 percent crop land as compared with 11 percent all land, yet only 12 percent of the total state production. This drop in corn production is because of the high percentage of small grain produced in this area. It is the largest oat producing area of the state.

Conversely, areas 5 to 8 show the same or less crop land compared with all land; and with this drop in percentage of crop land a decrease in percentage of total production follows. Area 6 is an exception, with 13 percent of crop land compared with 14 percent of all land the production increases. This increase is because of the high yield per acre for this area as compared with the state.

It is evident from the last column of table 3 that areas 1, 3 and 4 should be called cash grain areas, because a high percentage of the total grain produced is shipped as shown in fig. 3. Figure 3 shows one county (Calhoun) that has for the past 9 years shipped out on the average more than 58 percent of the corn produced. In some years as high as 70 percent of this county's production entered commercial channels.

The deficit commercial areas of Iowa are shown in fig. 2 by the open space at the top of each bar. Areas 6, 7 and 8 fall within this group. The dairy area No. 7 is the most striking example, but the other two areas show some shipments each year indicating that there are sections within the area that produce a surplus of corn. Areas No. 6 and 8 come nearer being self-sufficing than deficit areas for it is only in 3 out of 9 years that any large volume of corn moves into this part of the state.

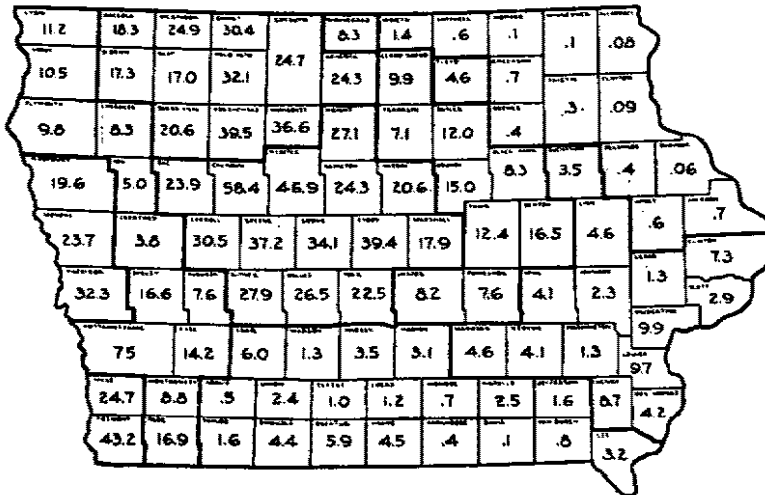


Fig. 3. Average percentage of corn shipped on first billing (1923-24 to 1931-32).

## PART II. MARKET MOVEMENT OF IOWA'S COMMERCIAL CORN

Fifty-two percent of the commercial shipments of Iowa corn leave the state on first billing. It must not be inferred that Iowa sends corn to the four corners of the United States, for the distance of her shipments on first billing is very limited. Practically all of the first billing shipments go to markets located in the heart of the Corn Belt.

The remaining 48 percent of the corn shipments are billed to Iowa's primary markets or to local areas within the state. Corn that is billed to Iowa's primary markets is subsequently either used by the manufacturing plants, processed or reshipped to larger terminals and consuming areas. Much corn is used by manufacturing and processing plants in Iowa. An earlier study reveals that the corn manufacturing industries of Iowa use from one-sixth to (nearly) one-third of the commercial corn of the state, depending on the quality and quantity of the crop.\*

### RELATIVE IMPORTANCE OF THE VARIOUS MARKETS

Chicago and Cedar Rapids vie with one another for first place in the amount of corn received from Iowa. Chicago is the leading market to which Iowa's corn goes outside the state, but Cedar Rapids is by far the largest receiver of corn among the primary markets within the state.

The other markets and their importance as receivers of Iowa's corn are shown in fig. 4. The open circles indicate individual terminal markets to which Iowa's corn is shipped. The black areas represent shipments into consuming channels, a good share of which goes direct to feeder markets while the rest goes to processing plants. The areas of the circles indicate the percentage of the total corn shipments going to each market. Five years of shipments are presented in this chart covering the crop years 1926-27 to 1930-31.<sup>1</sup>

Figure 4 also shows the production of corn in the three principal corn producing areas of the Corn Belt. The production of these areas is given in percentage of normal, normal being taken as the 10-year average for the years 1922 to 1931. The northeast-

\*Bentley R. C. Movement of Iowa's commercial corn and oats. Iowa Agr. Exp. Sta., Bul. 252:354-5. 1928.

<sup>1</sup>Table 3 in the appendix shows percentages for the earlier years.

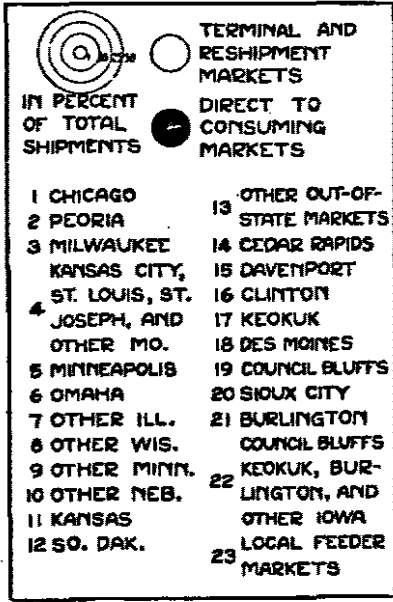
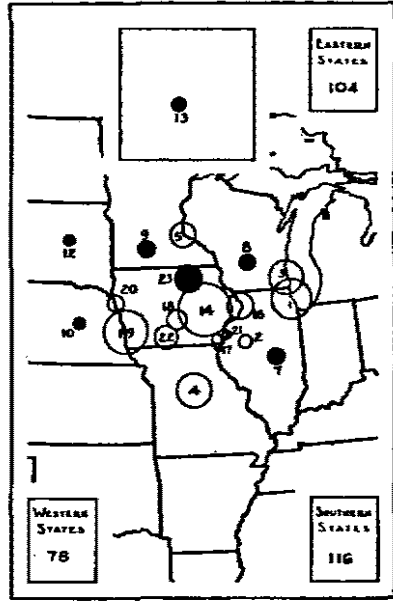
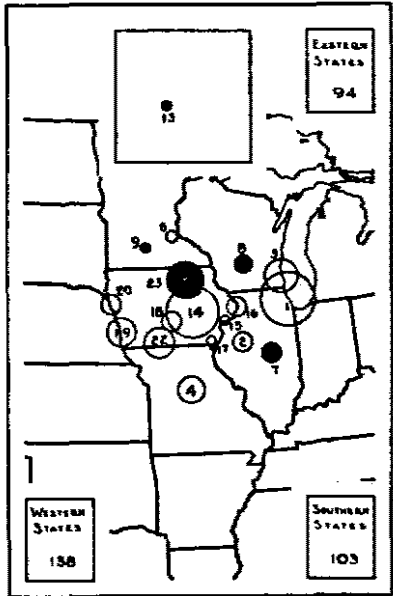


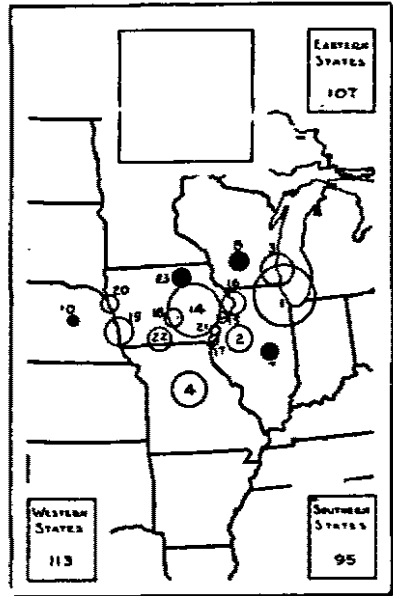
Fig. 4. Legend.



Crop year 1926-27.



Crop year 1927-28.



Crop year 1928-29.

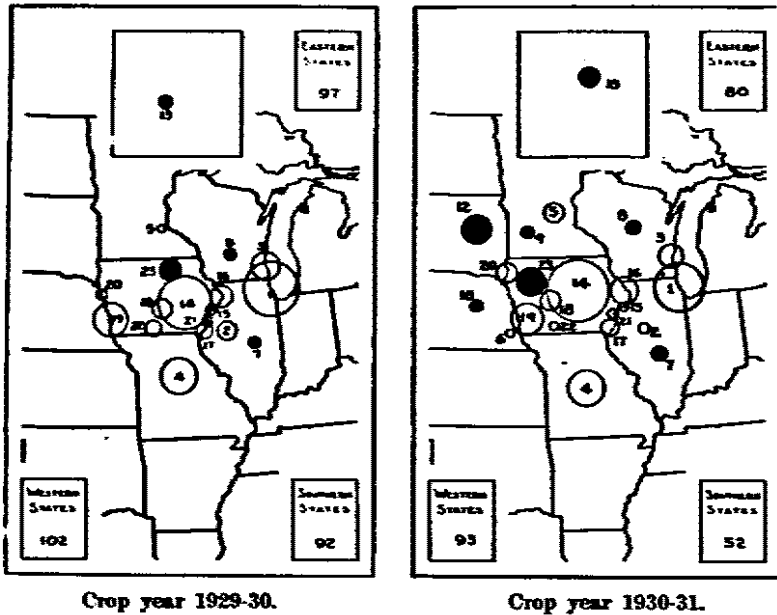


Fig. 4. Market destination of Iowa's commercial corn on first billing.

ern area is made up of those states bordering the Great Lakes, including Iowa. The southeastern area is made up of Missouri and those states south of the Ohio river and east of the Oklahoma-Texas border. The western area is made up of the states west of the two areas already described.

Feed grains move quite differently from wheat. Wheat moves almost entirely in one direction, from the producing areas in the north and west to the large milling centers in the south and east where it is processed and consumed. The bulk of the corn crop, on the other hand, is consumed by livestock which causes a decided difference in movement. Though each year's movement is different from any other year's, a similarity exists between certain years.

The volume and quality of the corn crop in the neighboring states is, perhaps, the most important factor affecting the direction in which the Iowa crop tends to move. For 5 years presented graphically there seem to be three distinct variations in directional movement of corn to market.

### Movement To West

First, the years 1926-27 and 1930-31 showed a decided westward movement of corn. For the year 1926-27 this movement is very easily understood by looking at the production figures in the neighboring states.

The 1926 production figures showed that the states to the west of Iowa had a very short crop. Kansas, Nebraska and South Dakota were especially poor. Wisconsin and Illinois were slightly below normal, otherwise the eastern and southern Corn Belt had a very good crop. The normal shipments into the states west of Iowa range from 1 to 3 percent but for 1926-27 they were 10 percent. The shipments of corn to Council Bluffs and Sioux City, Iowa's western primary markets, were unusually large.

Although the 1930 production was below normal in the western states, it was still smaller in the eastern and southern states. The demand from the western states however was sufficient to draw 11 percent of Iowa's corn. The reduced freight rates to drought areas stimulated the movement. The shipments to Iowa's western primary markets, Council Bluffs and Sioux City, were much smaller than in 1926-27. The corn shipped to the southern states moved through Cedar Rapids instead of the western outlet.\*

Though the shipments to the eastern and southern markets remained approximately the same for the 2 years 1926-27 and 1930-31, they were the smallest of the 5 years shown, for the large receipts in Iowa's own deficit area helped to take some of the corn out of circulation before it could reach the eastern and southern terminals. In these 2 years, with the demand for corn the strongest in those immediate areas bordering Iowa, Cedar Rapids was by far the largest receiver of Iowa's corn.

### Movement to East and Southeast

In the years 1927-28 and 1929-30 there was a decided movement to the east and southeast. Corn production in the three neighboring areas foretold the direction of the movement. In these 2 years the western area of the Corn Belt had well above average crops which eliminated any appreciable demand from that section. But the 1927 corn crop was most peculiar from the standpoint of geographical distribution. The Mississippi valley and

\*Percentage figures for directional movement may be found in table 10 in the appendix.

the eastern Corn Belt had the poorest crop on record, while the western states harvested the largest crop in their history. Eastern Iowa, southeastern Minnesota, and the feeding areas of Illinois and Wisconsin were very short of corn and what they did produce was of exceedingly poor quality. As a result, large quantities of corn moved directly into these areas from the western part of Iowa, and the movement to the west and south was very small.

The 1929 crop was good in the western states, while that of the eastern and southeastern areas was below normal, especially the southeastern area. As a result of the strong demand from the South, Council Bluffs and the Kansas City and St. Louis markets showed large shipments.

The shipments to Chicago and eastern terminals for the 2 years just mentioned were from 12 to 14 percent larger than for the 2 years 1926-27 and 1930-31. In both years Chicago received more of the Iowa shipment than did Cedar Rapids. As the deficit producing area shifts from west to east, more corn tends to go through those markets nearest to the point of consumption.

#### **Movement to Terminal Markets**

The year 1928-29 presented still another variation in the market movement of Iowa's corn. The corn crop in both the western and eastern Corn Belt states was well above average, which eliminated these two areas as possible outlets. The southeastern states, which had virtually normal crops, afforded but little demand through the Kansas City and St. Louis markets. This situation resulted in a large increase of receipts at the terminal markets, especially Chicago and Peoria. With a good supply of feed in most of the Corn Belt the commercial movement goes to those terminals where adequate storage facilities exist. Here the grain is processed and stored ready for the feeder or manufacturer.

One further outstanding feature of this entire picture is the fact that Cedar Rapids is the only market that has grown steadily throughout the period. The increase of plant and storage facilities by the manufacturer and merchandiser of corn and corn products in Cedar Rapids is chiefly responsible for its rapid growth as a corn market. All the other markets increase or decrease as production varies in the territory which they serve. The

feeder markets rise and fall with production and quality in the immediate territory. Manufacturing centers increase or decrease with the demand for their finished products.

#### RESHIPMENT OF CORN FROM IOWA'S PRIMARY MARKETS

There are 12 to 15 markets in Iowa where grain is received, processed and reshipped. Of this number only eight might be classed as primary markets<sup>\*</sup> and six that reship a large volume of grain year after year.

These primary markets receive each year 20 to 30 thousand cars of corn, not all of which, however, originate within the state. Many of them come from states to the west, especially in years when the local crop is of poor quality. Receipts at Iowa's primary markets, of Iowa origin, vary from 14 to 28 thousand carloads or 41 to 51 percent of the total commercial movement. From these figures it is evident that Iowa's primary markets play a large part in the marketing and distribution of the corn crop.

Shipments from Iowa's primary markets not only reach a much wider range of markets geographically than the first billing shipments, but they also go to a different type of market. For instance, the first billing shipments from local producing points go almost entirely to terminals, either outside the state or to the primary markets within the state. The percentages reaching these markets for the 8 years studied range from 83 to 93 percent of the total. The reshipments from Iowa's primary markets take the opposite course. From 55 to 71 percent of the reshipments moved directly into consuming channels. The reasons for these differences will be shown as we proceed.

Figure 5 pictures the reshipments from Iowa's primary markets. A comparison of this with fig. 4, page 13, showing the first billing shipments, brings out more clearly the difference in markets used for first billing shipments and primary market reshipments. The same scale was used in preparing both charts.

Corn production in the neighboring states is as important a factor in determining the direction of movement from Iowa's primary markets as it is in determining the direction of the first billing shipments. In 1927-28, with the extremely short and poor

<sup>\*</sup>Cedar Rapids, Council Bluffs, Sioux City, Des Moines, Davenport, Keokuk, Burlington, Muscatine.



crop in the Mississippi valley, the feeding areas to the east furnished a market for many of Iowa's reshipments. The livestock feeder in eastern Iowa depends upon these primary markets for corn as indicated by the black dot 23, especially when the quality of local feed is poor.

While the 1928-29 crop was very good in the heart of the Corn Belt it was short in some areas on the edges. Considerable corn moved into Kansas, South Dakota, Wyoming, Colorado and New Mexico, as shown by dots 11, 12, 15.<sup>10</sup> The extreme eastern edge of the Corn Belt, see dot 14, was short of corn. With a good crop of quality corn in Illinois and Wisconsin, Chicago and Milwaukee absorbed a larger share of the Iowa reshipments.

In other words, the terminal markets absorb the heavy winter marketings in years when feeder demand is light.

In 1929-30, with a still smaller crop to the south and southwest, the flow into this area continued strong. Missouri and Arkansas harvested exceptionally small crops.

The 1930-31 crop was the smallest United States corn crop since 1901, but the Iowa crop was relatively good. As a result corn moved into all of the deficit areas, Wisconsin taking its proportional share. Iowa's own deficit area again received a fair volume of corn from the primary markets.<sup>11</sup>

Why is it that Iowa's primary markets are able to ship grain to feeding areas in states far removed from the border of Iowa, as shown by dots 13, 14, 15, 16? This is true for a number of reasons. First among them is the demand from the cattle feeder for strictly quality corn. The feeder wants a dry corn, preferably of high oil content. As one "old timer" commented, "To be good feeding corn it must crackle and snap as it rolls out of the car." Further, this feeder wants quality corn throughout the season. Iowa's primary markets, with far reaching contacts in the various producing areas and with physical facilities to dry, clean and mix and store, are able to supply these demands at all seasons. The feeders admit that country-run corn is the best feed if they could just depend upon its being uniform. And much corn goes directly to the cattle feeders during seasons when the corn is normally of high quality. Furthermore, transit privileges,

<sup>10</sup>Table 11 in the appendix shows percentage of reshipments going to individual markets.

<sup>11</sup>Table 13 in the appendix shows directional reshipments by years.

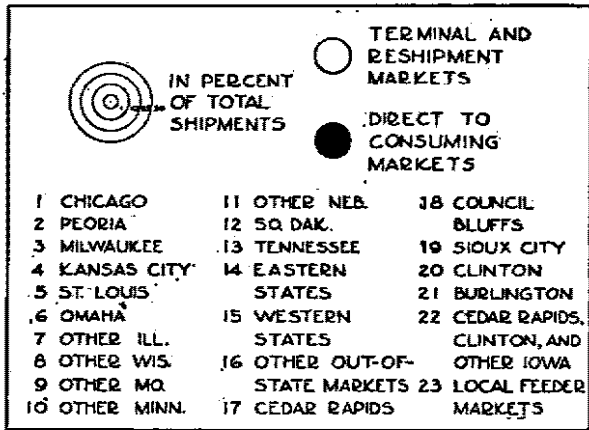
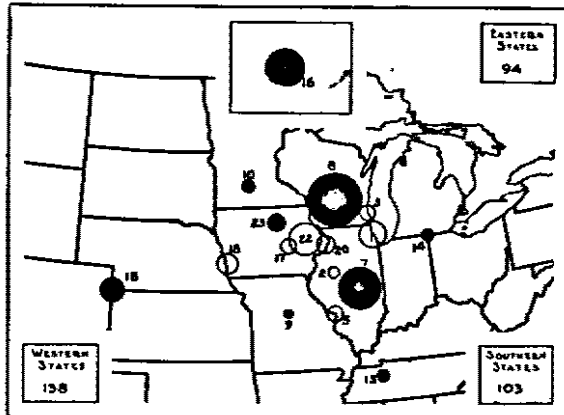
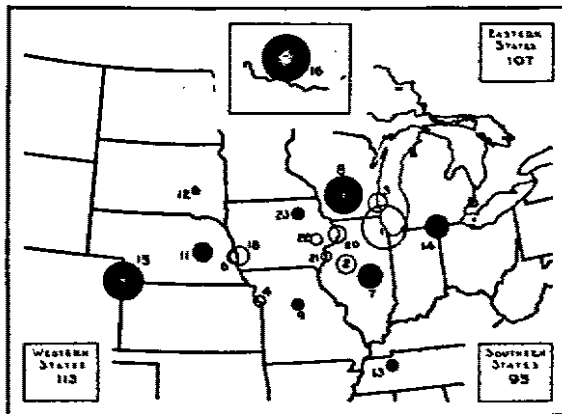


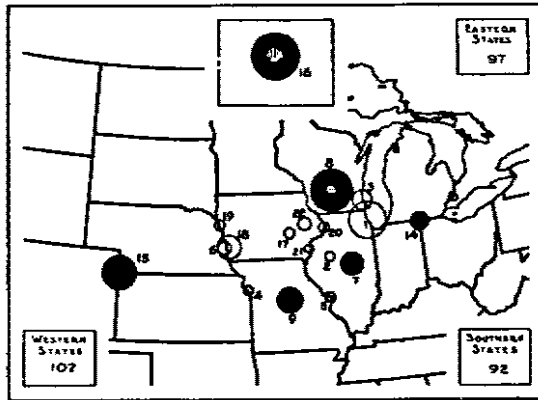
Fig. 5. Legend.



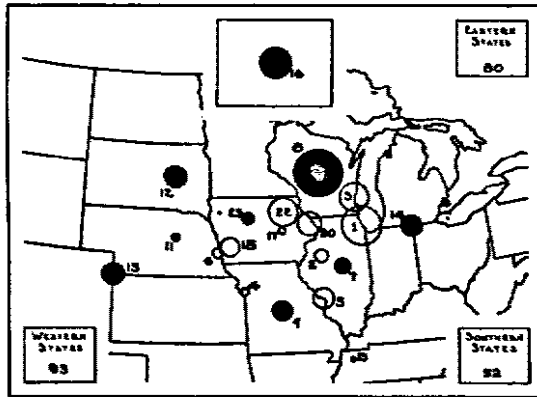
Crop year 1927-28.



Crop year 1928-29.



Crop year 1929-30.



Crop year 1930-31.

Fig. 5. Market destination of corn shipped from Iowa's primary markets.

through the primary markets, give advantage to dealers who process for distant outlets.

Then, too, most feeders prefer to deal through an agent who is close to the source of quality feed and who will at the same time be responsible if anything goes wrong with the shipment.

The demand for quality corn throughout the season comes not only from feeders but also from millers and manufacturers of corn products. If storage space is limited, the miller and the manufacturer, even more than the feeder, need a steady supply of quality corn to keep their plants in operation.

## CHANGES IN MARKET MOVEMENT OF FIRST BILLING SHIPMENTS BY AREAS

The markets used by the different areas vary in their importance from year to year. Some markets receive a constant amount of corn from the same areas year after year, other markets appear and disappear as crop conditions change in the neighboring states, and still others show either a steady growth or decline. A few of the factors affecting these differences are: geographic location of the market itself, crop conditions in the area served by the markets, freight rates, storage facilities and price differentials.

Figure 6 depicts a grouping of the markets to which goes the corn produced by the different areas of the state.<sup>12</sup> This chart is based on 5 years of shipments, covering the years, 1926-27 to 1930-31. The out-of-state markets are shown separately from Iowa's primary and local markets. Some groupings might be made on a purely directional basis. For example, Iowa's western outlet might be grouped with the out-of-state western outlet and Iowa's manufacturing and eastern reshipment outlets might be grouped with the out-of-state east and southern outlets. The subdivision is necessary to show changes in the directional movement for the period as a whole. Areas 7 and 8 are not shown in this chart because of their small volume of shipments.

The out-of-state eastern markets and the Iowa manufacturing markets are the two outlets which show the most consistent receipts and which are used by nearly all areas. The out-of-state southern and Iowa's local feeder markets<sup>13</sup> are also used by all areas, but the variations from year to year are much greater.

Some markets like Iowa's western outlets are used by the two western areas almost to the exclusion of the other areas. If the demand is great enough, however, as it was in 1926-27 and 1930-31, considerable corn may be sent to this outlet from the central cash grain area. The out-of-state southern market is another outlet used by the two western areas almost to the exclusion of the others.

Out-of-state western markets are most representative of those that appear and disappear in the movement from year to year.

<sup>12</sup>This grouping is shown in table 12 appendix, directional market movement by areas.

<sup>13</sup>Iowa's local feeder markets, meaning local stations throughout Iowa that receive Corn which is fed locally to livestock.

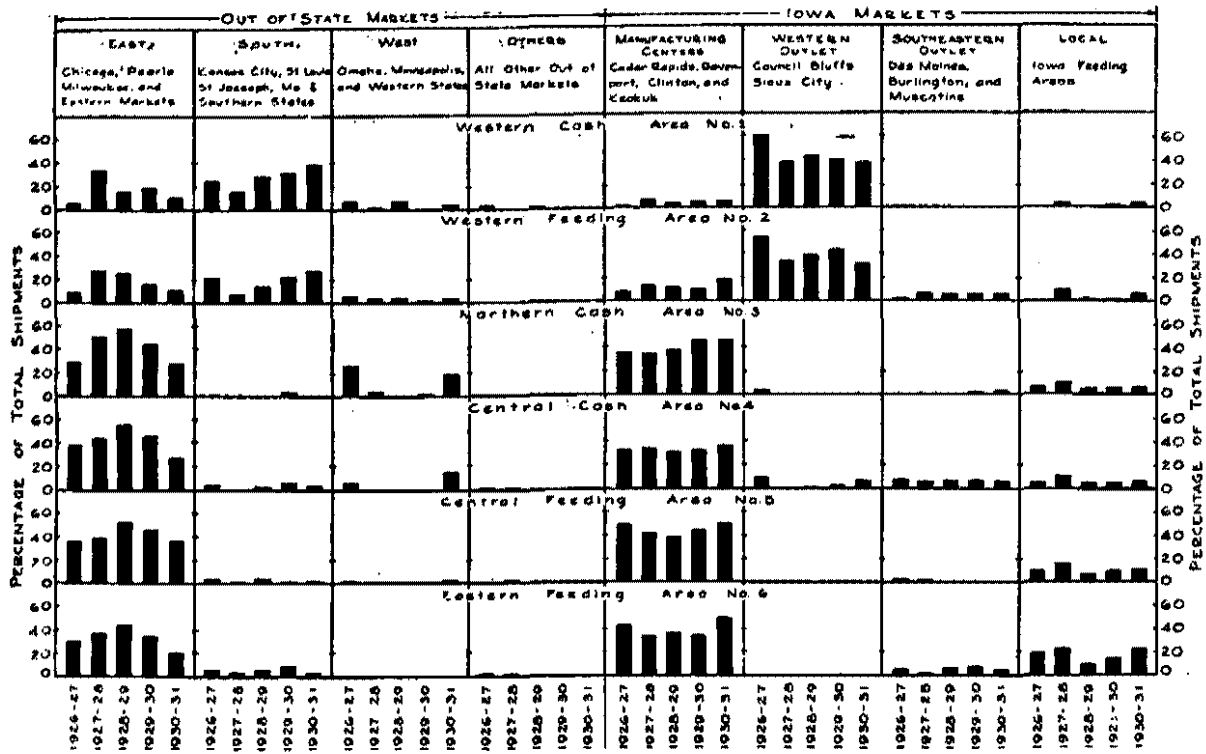


Fig. 6. Percentage of total shipments of corn moving annually to various markets by areas. Note: First billing shipments.

Iowa's local feeder markets are of this nature to some extent. These outlets are dependent almost entirely on the production and quality of feedstuffs in the immediate territory.

Two or three market outlets present rather striking cases of steadily increasing receipts from certain areas. The most notable one is the increased movement of corn to the out-of-state southern markets from the two western areas. Another case is the increased shipment to Iowa's manufacturing markets from the northern cash grain area. There has been a similar, though lesser, movement to Iowa's eastern outlet from the western feeding area.

One more important point needs explanation before leaving this topic—the changes in volume of shipments to the out-of-state eastern outlet from each of the areas. These changes are large from year to year, and all of the areas are affected, which indicates that this outlet serves as a long and short market, a shock-absorber, or a "catch all" for the surplus grain.

This is exactly what happens. For example, in the years 1926-27 and 1930-31 when short crops were harvested in the western Corn Belt the surplus corn moved into this area. Likewise, when the Mississippi valley produced a light crop in 1927, the excess corn moved to this territory. In 1929, with a short crop in the South, the movement shifted to this outlet but to a lesser degree than in the other years. Then in 1928, when a good crop was harvested throughout the corn belt, the large terminals such as Chicago, Peoria and Milwaukee received much of the corn from Iowa.

With the large storage facilities, the drying, cleaning and processing equipment, these terminals are in a position to purchase, process and store for future demand. More concerning storage at the terminal markets will be presented when the seasonal movement is discussed in a later section.

### PART III. SEASONAL MOVEMENT OF IOWA'S COMMERCIAL CORN

To the shrewd grain merchandiser it is not enough to know that Iowa ships from 11 to 19 percent of its corn crop and that the particular area in which he is located ships from 1 to 32 percent of its production. He wants to know at what season during the grain marketing year the large and small volumes go to market.

#### SEASONAL MOVEMENT FOR THE STATE AS A WHOLE

Data covering the past 9 years of corn shipments substantiate the common belief that Iowa markets a considerable volume of corn during the winter months when prices are low. During the 3 winter months, December, January and February, one-third of the commercial corn leaves the local shipping point. When the crop year is divided into halves, however, we find by April 30 slightly more than half, or 52 percent, has gone to market.

Figure 7 shows the heavy movement of commercial corn during the winter months when the price is relatively low. To say that the large monthly movement is responsible for the low price is not enough for in other months during the winter and spring the

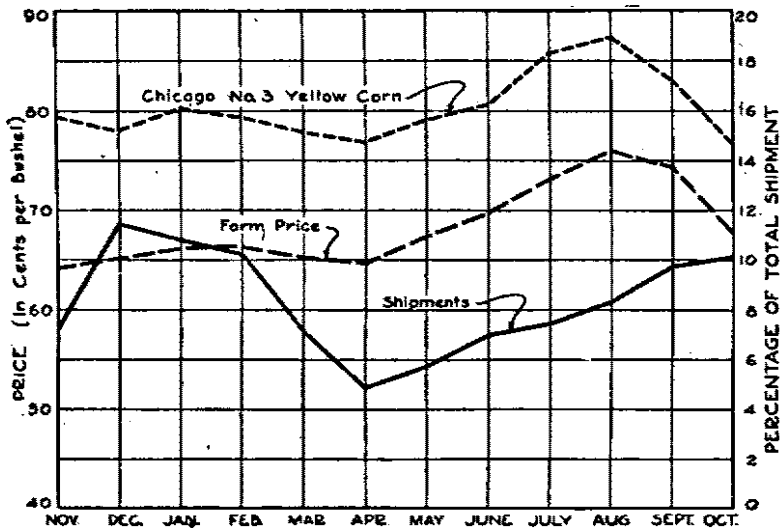


Fig. 7. Average percentage shipments and prices of corn by month. Note: Farm price means the average price received by Iowa farmers for corn sold. U. S. Dept. Agr., monthly price.

shipments are very small and the price continues at a low level. These two periods of low shipment are also periods of small demand. In November with the new crop available and heavy feeding not yet underway there is little demand. March, April and May are months when livestock are turned on to pasture and the heavy feed requirements fall off rather sharply.

An earlier study has shown that this is not only the season of low prices but also the season of low grade, because of high moisture content." This may help explain the larger spread between the farm price and the Chicago price, shown in fig. 7, during the winter months. As the corn dries out and the grade becomes more uniform the spread during the second half of the season becomes narrower.

The seasonal flow of corn to market fluctuates more than that of any other grain crop. The high shipment month may come in December, January, February, July or October. The low month, however, is a little more limited; April, May or June always holds this distinction.

Some general observations may be made. Two periods of large shipments develop each season: the first during the 3 winter months, December to February; and the second, any time after midsummer until the close of the season. The low marketing periods come at the time when farm operations are most urgent; such as corn picking time in the fall, and planting time in the spring.

So much for the seasonal variations in volume of shipments: now, let us investigate the seasonal movement in prices. Are we to assume from the price curve in fig. 7 that each year is the same? From the earlier study just quoted we learn that normally there is some seasonal advance in price. This rise is greater following large crops than following small crops. It was found that it did not pay to store for the seasonal advance if the United States crop was below 95 percent of normal. Figure 8, showing 9 years of monthly shipments of corn and monthly prices of No. 3 yellow corn, will shed some light on whether Iowa farmers have been following the above rule.

In 2 of the past 9 years the United States corn crop was below the 95 percent figure mentioned above. In these 2 years, 1924-

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\*Shepherd, G. S. When shall we sell our corn? Iowa Agr. Exp. Sta., Cir. 113. 1929.



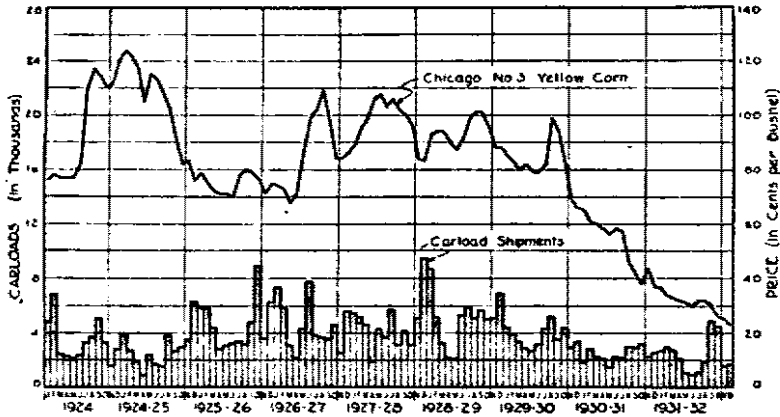


Fig. 8. Shipments and prices of corn by year and month (Iowa, 1924 to 1932).

25 and 1930-31, as the chart shows, the price of corn in the second half of the season was much lower than in the first half. The price decline, however, during the 1930-31 season was increased by a decline in the general price level. The shipment figures indicate that during the early part of the season the farmers did not take advantage of the high prices brought about by the short crops. In fact, the marketings during the first half of the season for these 2 years show the smallest percentage of shipments for any of the years.<sup>14</sup>

There were 2 other years during this 9-year period when it did not pay to carry corn through the winter. In 1925-26, with the above-normal crop, according to our assumption in the preceding paragraph, the price should have advanced during the second half of the season. All of the states in the feeding areas were well supplied with corn, and with good prospects for the 1926 crop, and a marked reduction of spring pigs, the late summer demand did not develop. In 1931-32 it was not the size of the crop that kept down the price but rather the fact that the general price level was on the decline.

For the other 5 years, 1923-24 and 1926-27 to 1929-30, inclusive, the seasonal price advance was sufficient to yield a fair profit over and above storage costs. In other words, the corn producers of Iowa, had they used the above formula, would have found it profitable seven times out of nine.

<sup>14</sup>See table 14 in the appendix for monthly shipments by years.

### SEASONAL FLUCTUATIONS BY AREAS

The question now arises, "Do all areas of the state market their corn at the same time?" And the answer is "No." The further west and north one goes in the state the larger the percentage of the corn crop marketed during the early months of the season.

The variation in seasonal marketing of the areas is rather large. The area showing the highest percentage of its crop marketed during the first 6 months of the season is made up of those counties on the western border of the state. This western cash grain area, No. 1, sends to market 60 percent of its commercial corn in the first half of the season. On the other hand, area No. 4, which lies in the center of the state, shows the smallest percentage marketed during this period. By the end of April only 44 percent of the corn to be moved, has left the local shipping point.

To visualize the variation among the areas a chart, fig. 9, has been prepared showing how each area differs from the state average. The areas have been divided into two groups: one, shows those which market the larger part of the crop in the first half of the season; and the other, shows those which market the larger part of the crop in the last half of the season. The zero

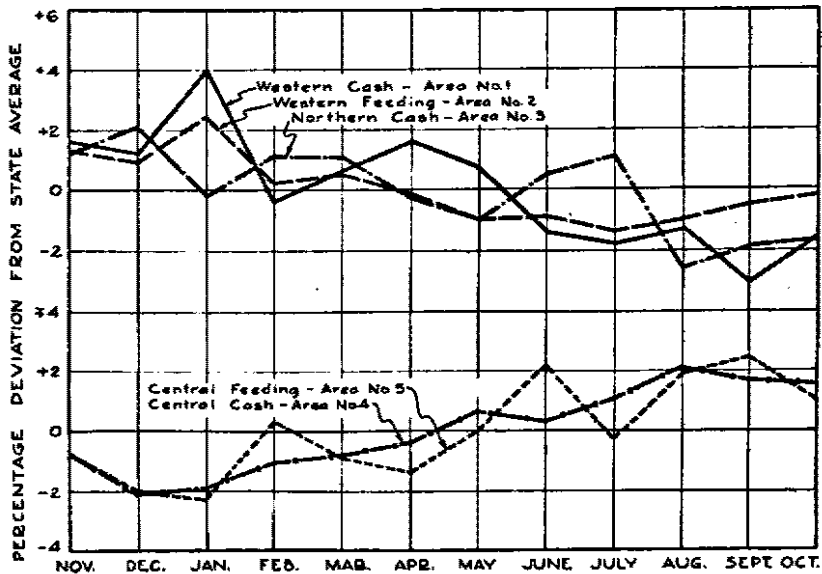


Fig. 9. Percentage deviation from state average of shipments from various areas by months (1923-24 to 1931-32).

line in each case represents the average monthly shipments for the state as presented in fig. 2. If from an area, in a given month, the shipments are a larger percentage of the total marketings than the state average, they will show above this zero line and if the shipments are less they will appear below the zero line.

The upper half of the chart shows those areas which ship a large volume of grain during the early months of the season. The areas shown in the lower half of the chart take quite the reverse order of marketing. In fact, they are considerably below state average, especially for the 2 months of heaviest movement."

Seasonal movement for the three areas in southern and eastern Iowa is not shown partly because of the small volume of shipments. Besides, within these areas are found localities where cash grain farming predominates and here marketings may come largely during the winter months just as in our western areas. Again there are sections in which the movement follows closely the central cash grain area movements. These areas lack the homogeneity of market movement that the other areas possess.

Now let us compare the results obtained by the first two groups. Which group placed the largest volume of its corn on the highest market during the 9-year period? To make this comparison the shipments for one area from each group were chosen; area No. 1, to represent the early seasonal marketing; and area No. 4, to represent the late seasonal marketing. Remember, area No. 1 markets 60 percent of the commercial corn during the first half of the season, whereas area No. 4 markets only 44 percent during the same period.

Figure 10 presents the monthly shipments of these two areas shown by the irregular lines. The average farm price received by producers in the area is shown by the line. This price is an average of reports made by farmers in these two areas.

The yearly shipments show that area No. 1 markets the largest part of its commercial crop during the first half of the season and that most of this corn is shipped during the 3 winter months. Three exceptions are 1924-25, 1930-31 and 1931-32, when selling on the early market was more profitable than holding for the seasonal rise. Two of these years, however, were predictable by the short corn crops, as pointed out earlier in this section.

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\*For monthly shipments from areas by years see table 9 in the appendix.

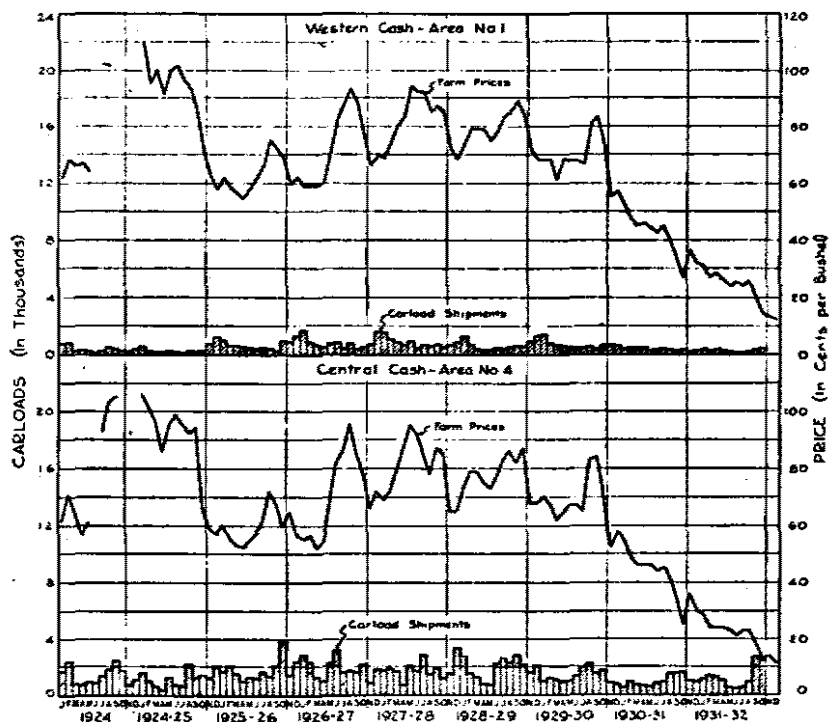


Fig. 10. Shipments and prices by years and months in two contrasted areas. Note: Farm price means the average received by farmers for corn sold. U. S. Dept. Agr., monthly price.

Yearly marketings for area No. 4 show that the largest part of its commercial corn is carried into the second half of the season and usually a better price is the result. In 6 of the 9 years farmers of this area received a higher price by holding.

Should we, from the foregoing, assume that farmers and grain dealers in eastern Iowa are closer observers of the market than those in western Iowa? The answer probably must be in the negative, at least there is evidence that opportunities have been passed up by the producers in eastern Iowa. For example, in the 2 years 1924-25 and 1930-31, when crop conditions indicate that storing corn would not be profitable, area No. 4, instead of going to market early, shipped less during the first half of the season than in any of the other years." The result was a much lower price for a larger volume than in any of the other years.

<sup>10</sup>Monthly shipments by areas by years are shown in table 9 of the appendix.

A number of factors, other than price, cause these areas to market the grain as they do. Important among them is that of storage, not only on the farm but at the local country elevator. To date we have no authentic figures on the extent or volume of farm storage. There is, however, much valuable information on elevator capacity.

A check-up of 1,418 country elevators in 1931 revealed a total storage capacity of 32,690,000 bushels, or an average of 23,100 bushels per elevator. By areas and for types of elevators the capacity varied considerably. For the areas the average capacity per elevator ranged from 13,000 in area No. 8 to 30,000 in area No. 3. With the exception of area No. 1 the capacity is larger in the cash grain sections than in the feeding areas. The total and average capacity by areas is shown in table 4.

TABLE 4.—DATA ON NUMBER AND CAPACITY OF IOWA'S COUNTRY ELEVATORS

Area	All elevators			Cooperative elevators			
	Number*	Total capacity thousand bushel	Average capacity thousand bushel	Number**	Total capacity thousand bushel	Average capacity thousand bushel	Percent cooperative elevator capacity is of total capacity
1. Western cash	81	1,537	19.0	27	720	26.7	46.6
2. Western feeding	186	4,683	25.2	62	1,579	25.5	33.7
3. Northern cash	241	7,195	29.8	84	2,512	29.9	34.9
4. Central cash	340	9,299	27.3	137	3,577	25.1	33.5
5. Central feeding	184	3,885	21.1	72	1,658	23.0	42.5
6. Eastern feeding	181	3,157	17.4	53	1,112	19.2	35.2
7. Dairy section	91	1,436	15.8	30	547	18.2	36.8
8. Southern pasture	114	1,467	12.8	23	268	11.6	18.4
State totals	1,418	32,690	23.1	493	11,968	24.3	35.6

\* Source of data:

Western Grain Dealers' Association, Des Moines directory.  
Farmers' Grain Dealers' Association of Iowa, Fort Dodge directory.  
Railroad reports of elevators on their lines.  
Questionnaire for county agents.

\*\* Farmers Grain. Dealers' Association directory, Fort Dodge.

This table also shows the number of farmers' elevators for the same period. With the exception of two areas, the average capacity of the farmers' elevators is larger than that of the independent elevators. For the state as a whole, one-third of the elevator capacity is held by the farmer. This varies among the areas, with the largest percentage in the western cash, central cash and central feeding sections.

What does this elevator capacity mean in terms of the total volume of grain shipped from the different sections of the state? Elevator capacity shows the ability of these country elevators to store corn for short or long periods. For example, if an elevator handles such a large volume currently that most of the bin space is used to receive, process and load for shipment, then there is little space left for storage. The number of times that the elevator is filled to capacity during the season will give some idea as to its ability to store.

By taking the total bushels of commercial corn and oats shipped out and into an area and dividing by the total bushels of elevator capacity we compute the maximum turnover capacity. Only the two grains, corn and oats, are used because we do not have rail shipments for the other grains. This will make a difference in some areas where considerable wheat, rye or barley is grown. A comparison of the areas is shown in table 5.

TABLE 5.—RATE OF UTILIZATION OF COUNTRY ELEVATOR CAPACITY

Area	Average yearly shipments and receipts corn and oats (1924-32 incl.) thousand bushels	Total elevator capacity 1930 (thousand bushels)	Number of times this elevator capacity is used each season	Percentage of commercial corn shipped first 6 months of the season*
1. Western cash	10,040	1,537	6.5	60.2
2. Western feeding	10,745	4,683	2.3	56.8
3. Northern cash	31,901	7,195	4.4	57.1
4. Central cash	47,665	9,290	5.1	44.4
5. Central feeding	11,921	3,885	3.1	44.5
6. Eastern feeding	6,721	3,157	2.1	54.0
7. Dairy section	3,683	1,486	2.5	**
8. Southern pasture	3,599	1,457	2.5	**

\* See table 9 in appendix for monthly percentages.

\*\* Movement so small percentage was not computed.

From this table it is evident that area 1 has very little country elevator storage to stop the heavy movement to market early in the season. Area 2, however, which has a very low turnover continues to ship more than half the commercial corn during the early half of the season. Areas 3 and 4, though they have about the same turnover capacity, show very different tendencies as to time of shipments. Area 5 does show an opportunity for the country elevators to assist in holding the corn for later marketing but whether the elevators actually do have a part will be shown later.

Though this table sheds light on the facilities available for storage, it does not present a solution to the storage question.

We need to know more about the merchandising policies of the various types of elevators. A group of 38 elevators scattered throughout the state, for which we have 3 years of purchases by months from the farmers as well as shipments by month by rail, were analyzed as to their storage activities. Most of these elevators are in central Iowa, with a few units located in the southwestern, southeastern and north-central counties. There were 17 cooperative and 21 independent or line elevators in the group. The volume of corn handled by these two groups was practically the same for the 3 year period.

Figure 11 pictures a striking difference in the storage activities of these two types of elevators. The upper half of the chart shows the marketing practices of the non-cooperative houses and the lower half the cooperatives. If the bar extends above the zero line it means that the elevators purchased more from the farmers than they shipped; or, in other words, that grain went into storage; and if the bar appears below the line, grain went out of storage. It is evident that the cooperative elevators store more corn than the non-cooperatives. Fairly large quantities of corn are put into storage during the winter months and carried over to the late summer and fall market.

For the cooperative elevators the 3-year average shows that 5.6 percent of the corn purchased by the elevators had been stored at the end of the first 6 months of the season. Two months later, or June 30, 9 percent of their purchases had gone into storage. During the next 4 months this stored grain was moved out rapidly.<sup>14</sup> For the non-cooperative elevators the grain stored by the end of the first half of the season was negligible; in fact, at no period during the year did they store more than 1 percent of the purchases.

Figure 11 helps explain some of the inconsistencies found in table 5. For example, in area No. 2, where low turnover was followed by high percentage of shipments early in the season, table 4 shows that the percentage of cooperative elevators in this area was small; also that in area No. 4, where high turnover was followed by low shipments early in the season, the percentage of

<sup>14</sup>For the averages of receipts and shipments by months see table 15 in the appendix.

cooperative elevators was relatively high. While country elevator storage is a factor in some areas and does have a tendency to smooth out the seasonal flow it by no means evens out the extreme differences in seasonal marketings.

Even if the farmers' cooperative elevators do store 9 percent of their purchases they represent only one-third of the storage

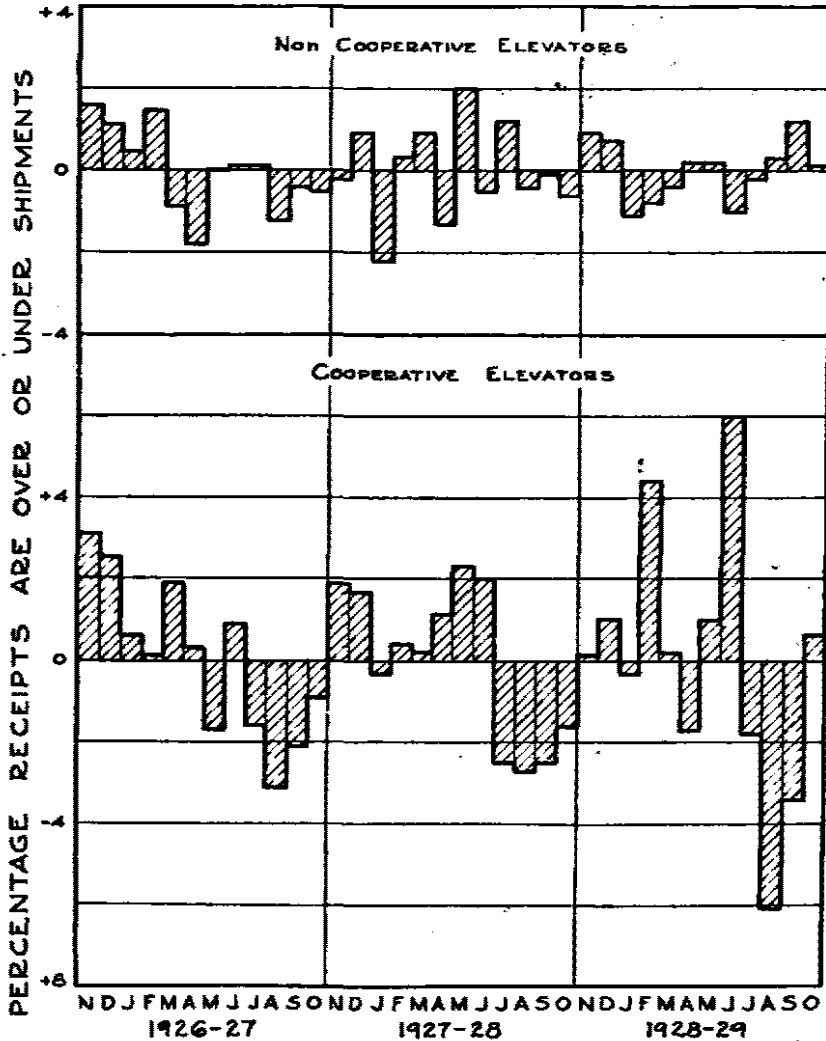


Fig. 11. Monthly percentage of corn receipts over or under shipments by two types of country elevators. Note: Figures showing receipts of corn at country elevators from farmers was furnished by the United States Department of Agriculture.



capacity while the difference between area marketings show as much as 16 percent. That is, the western cash area markets 60 percent of the commercial corn by April 30, while the central cash area markets only 44 percent during the same period. The country elevator storage cannot, from the figures just presented, take care of this difference. What, then, are some of the other factors affecting the seasonal flow to market?

Although there is no numerical measure of its influence, the type of farming has much to do with the time of marketing. For example, in the central and eastern counties of the state, where large-scale feeding is a part of the farm set-up, the farmer needs to know what the next year's prospects are for feed before he disposes of too much of his present supply. Therefore, the largest part of the commercial corn of this section leaves after seeding time. Furthermore, in years of small crops instead of selling early and taking advantage of high prices their desire to be sure of sufficient feed forces farmers to hold until the new crop shows what next year's prospects will be.

Also, the form of tenure influences marketing policy. In the northern and western counties where more of the grain is raised purely as a cash crop the tendency is to sell early. Much of this land is on a crop-share basis and that calls for early shipments for in most cases there is not sufficient crib space to take care of the total crop, and any corn stored outside a good crib needs to be disposed of before warm weather.

#### SEASONAL MOVEMENT TO TYPE OF MARKET BY AREAS

At what seasons of the crop year do the different types of markets receive corn from local shipping points in Iowa? Figure 6 in an earlier section showed the direction of the movement of Iowa shipments and how changing production affects the volume and direction of the movement. Now let us consider the type of market to which Iowa corn is shipped and note the effect of a changing volume on the type of market used from month to month.

Six groupings have been made, but this does not mean that there are six different types of markets. The out-of-state shipments are shown separately from the local movement to Iowa's primary markets. The out-of-state terminal group is made up of

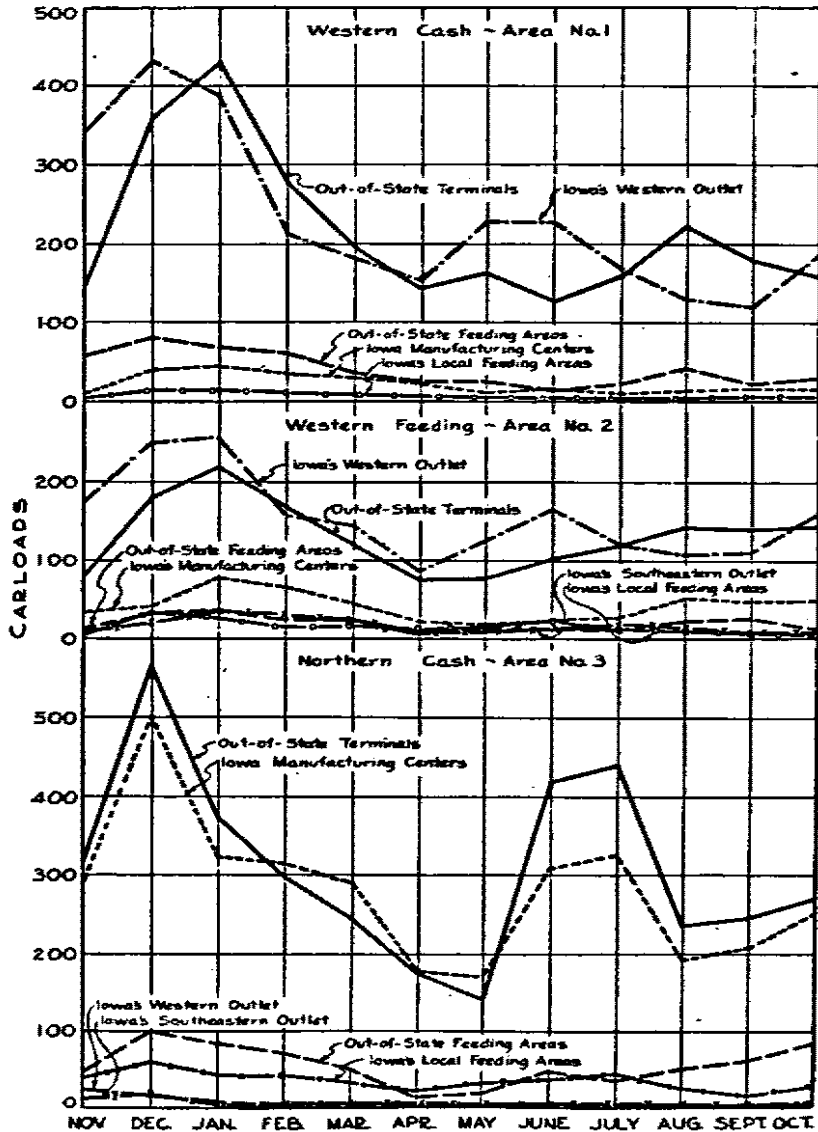


Fig. 12. Average monthly shipments by areas to six types of outlet (1926-27 to 1930-31).

those markets which have large storage facilities where corn is processed, stored and reshipped to commercial and feeder outlets or where the processed grain may be consumed by manufacturing plants in the larger centers. The out-of-state feeder group

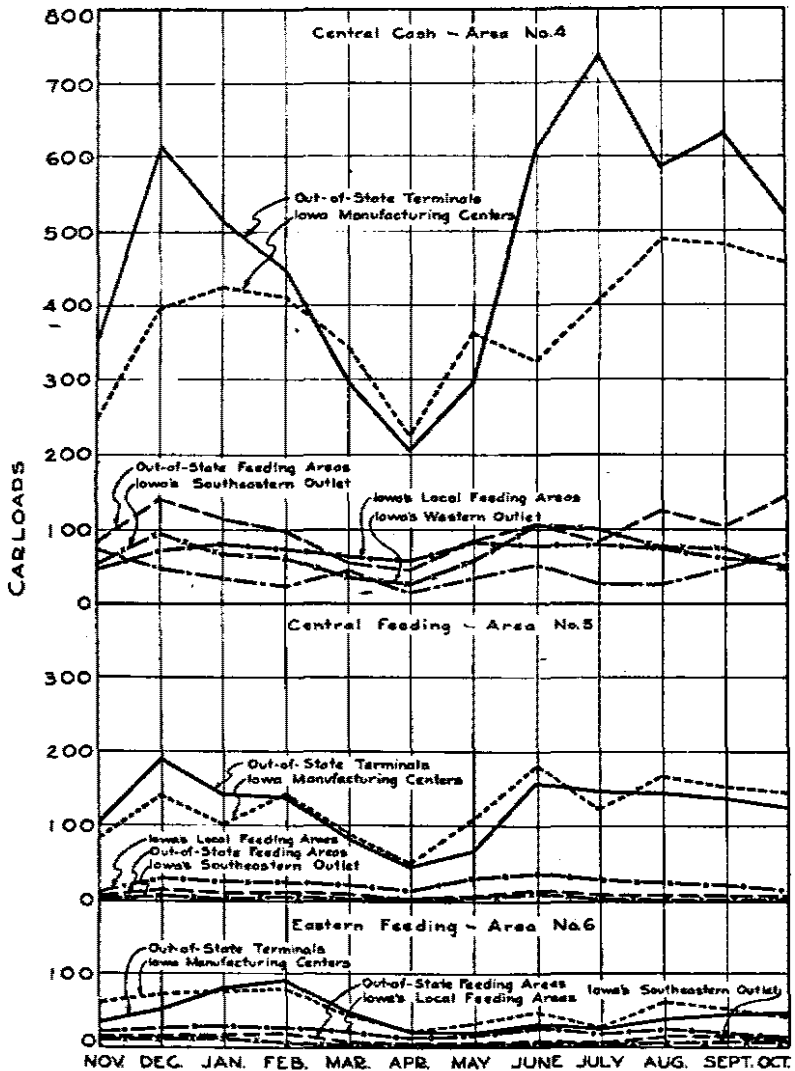


Fig. 12. Continued.

consists primarily of markets where the corn is fed locally. Some of this grain, however, goes to processing plants which supply local feeding areas. Iowa's manufacturing centers comprise those markets where most of the corn received is made into food products. Some, however, is processed and reshipped. Iowa's

western outlet consists of two markets on the western border whose activities are very similar to the outside terminal markets. Iowa's southeastern outlet is similar to the western outlet except for the storage facilities which are much more limited. Iowa's feeding outlet is purely a local movement of corn to feeders in the deficit areas.<sup>19</sup>

The 5-year average of monthly shipments to the outlets just described from each of the six areas is shown in fig. 12. The movement, covering the 5-year period, 1926-27 to 1930-31, is shown in carloads. Here again may be noted the large shipments from the western and northern areas during the early winter months as contrasted with the large shipments late in the season for the central and eastern areas.

Figure 12 discloses the fact that each area has two outlets which take the bulk of its corn, while the other outlets seem relatively unimportant. On closer observation we find these two outlets are not the same for all the areas. It seems that the markets nearest the source of supply get the largest share of the commercial corn. Therefore, Iowa's western outlet gets the largest percentage from the two western areas, and Iowa's manufacturing centers get the largest percentage from the central and eastern feeding areas. An exception is noted with the northern and central cash grain areas. Where there is no large market close at hand, the largest percentage flows into the out-of-state terminals. The next largest percentage from these two cash grain areas, however, goes to Iowa's manufacturing centers.<sup>20</sup>

The out-of-state terminal outlet takes more of Iowa's commercial corn than any other single outlet.<sup>21</sup> More than 45 per cent is marketed through this channel. The chart further shows that the heaviest movement goes to this outlet during the months of largest shipments, which holds true for all areas, but is most noticeable in the cash grain group. This helps substantiate a statement made earlier, to the effect that this outlet is a shock absorber or a "long and short" market for the corn trade.

The storage activities of these outside terminals do not come within the scope of this study, but a study of the receipts and shipments of Iowa's western outlet, which follows similar prac-

<sup>19</sup>These groupings are found in table 16 of the appendix.

<sup>20</sup>See table 17 in the appendix for yearly percentages by areas.

<sup>21</sup>See table 17 in the appendix.

TABLE 6.—MONTHLY PERCENTAGE OF ANNUAL TOTAL RECEIPTS AND SHIPMENTS BY IOWA'S WESTERN MARKETS

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
<b>Receipts</b>													
1926-27	9.6	16.1	16.0	9.6	7.9	6.5	5.4	14.8	6.2	3.2	2.8	9.7	100
1927-28	8.0	13.6	10.0	10.8	11.6	6.8	8.0	7.5	7.3	5.9	6.8	6.2	100
1928-29	15.8	21.6	19.9	7.8	3.3	2.0	2.1	4.7	6.9	6.0	5.0	6.9	100
1929-30	9.8	11.1	11.8	11.1	6.1	8.4	4.9	11.1	8.6	4.2	4.8	8.4	100
1930-31	16.3	19.4	6.9	6.6	6.4	4.5	2.6	5.2	6.8	6.0	5.5	14.3	100
<b>Average</b>	11.1	16.1	13.8	9.2	7.2	5.3	4.9	9.5	7.0	4.6	4.6	6.7	
<b>Shipments</b>													
1926-27	6.0	9.9	9.5	6.2	4.4	4.8	4.4	8.9	12.6	16.8	8.8	7.7	100
1927-28	5.0	14.0	15.6	13.4	11.4	9.0	5.5	6.8	7.7	5.4	8.2	2.9	100
1928-29	9.4	13.0	17.3	8.0	4.6	4.7	6.5	7.7	8.6	6.3	6.3	5.8	100
1929-30	6.6	11.4	13.7	10.0	8.2	12.6	9.0	9.2	7.0	4.0	4.4	3.8	100
1930-31	8.2	9.6	14.5	11.0	9.8	11.7	11.0	6.5	3.4	8.6	8.5	7.4	100
<b>Average</b>	6.7	12.5	14.6	10.5	8.4	8.7	6.7	7.7	7.8	6.5	4.8	5.2	
<b>Net average</b>	4.4	8.8	— .8	— 1.4	— 1.2	— 3.4	— 1.8	1.8	— .8	— 1.9	— .8	1.5	

tices, helps to show how commercial corn is carried from one season to another. Table 6 (on page 37) shows the monthly receipts of corn and the monthly shipments of corn by the western outlet for a period of 5 years. By following the monthly movements by years it is easy to see that during the winter months when a large volume of corn is being marketed this outlet receives more than it ships and that during the spring, when a small volume of corn is moving, the shipments are greater than the receipts. This same thing tends to happen again in the summer but to a lesser and more variable degree.

The next largest outlet is Iowa's manufacturing centers, which take, on the average, about 26 percent of the commercial corn. The movement to these markets shows the least seasonal variation of that to any of the types of markets. Since the bulk of the corn shipped to these markets goes into food products and since these plants plan to keep their help busy throughout the year they want a steady flow of raw materials. Most of these plants have limited storage space, necessitating a steady supply.

The feeder outlet is almost as varied in its seasonal shipments as is the terminal outlet. The large demand comes during the winter months when the largest number of cattle are on feed. The shipments fall to the lowest point during the spring months, but as the summer advances the demand again increases. In this season the demand broadens to include areas where home-grown feed has given out, but the shipments are smaller than those of the winter months.

#### **SEASONAL MOVEMENT TO TYPE OF MARKET FROM IOWA'S PRIMARY MARKETS**

The largest volume of shipments from Iowa's primary markets comes during the winter months. This early movement results from the fact that Council Bluffs and Sioux City make up more than half the total primary market shipments and it is from the areas surrounding these two markets that the earliest farm sales are made. While some of the early marketings are stored at these western markets much of the large volume must move on to other outlets as shown in table 6, page 37.

Figure 13 presents a 4-year average of monthly shipments from Iowa's primary markets. The same grouping of outlets as shown in fig. 12 is used. By comparing these two charts the

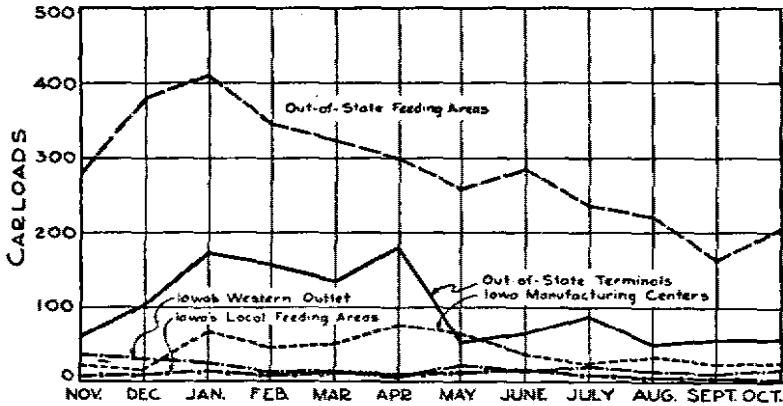


Fig. 13. Average monthly shipments from Iowa's primary markets to six types of outlet. (1927-28 to 1930-31).

similarity as to months of largest shipments between the primary markets and the western areas is noted. But the type of market to which the corn moves is very different.

Nearly two-thirds of the corn shipments of primary markets go into feeder territory.<sup>24</sup> This further substantiates an earlier discussion in which the distributive service performed by Iowa's primary markets was pointed out. But with all their contacts and distributive outlets a fairly large volume must go to the larger terminals. Especially is this true for the season of largest movement.

There is some movement between these primary markets. In years when quality is poor in territories neighboring the manufacturing centers, they receive quite large shipments from markets to the north and west. Some of the movement between markets is due to seasonal demand from local feeders; for example, we find in some sections of Iowa corn will be shipped out during the early months and shipped in later to meet the local demand for feed.

<sup>24</sup>See table 19 in the appendix for yearly shipments to type of market from Iowa's primary markets.

## PART IV—DESTINATION OF CORN FROM REPRESENTATIVE COUNTIES IN IOWA

We have followed the corn to market year by year for the state as a whole; the types of market used by the different areas of the state have been examined and the reshipment of grain from Iowa's primary markets has been examined. Now it is desirable to see just how a still smaller group of shipping points markets its surplus corn.

For this purpose four counties, each representative of a marketing area of the state, have been selected. Obviously, it would take too much space to picture the shipments from each county for each of the years as we did for the state. Instead, 2 years have been selected to show the effect of variation in production in neighboring Corn Belt states upon the choice of markets by these counties.

Pottawattamie, Pocahontas, Story and Benton are the four counties selected. The shipments from Pottawattamie do not include Council Bluffs for we are concerned only with first billings. The 1927-28 and the 1930-31 crop years were selected because of their peculiarity as to the geographic distribution of the corn produced.

### SHIPMENTS FOR THE 1927-28 CROP YEAR

The 1927-28 crop year was chosen because of the extreme contrast in production among the different sections of the Corn Belt. While the Mississippi valley as a whole and the eastern states harvested a very short crop of poor quality the western half of Iowa and the western states harvested the best crop in many years. With this distribution of feed grains the strong demand centered in Iowa deficit areas and the feeding states to the east.

Figure 14<sup>2</sup> shows the distribution of corn shipments leaving the local points, for each of the four counties. The figure in each county signifies the number of cars of corn shipped to local stations for feeding purposes; viz., a direct shipment from a local producing station to a local feeding station.

<sup>2</sup>The figure under Cedar Rapids in Linn County represents shipments to Cedar Rapids and that under Sioux City in Woodbury means Sioux City shipments, etc. "Other Iowa" for Pottawattamie is a grouping, part of which goes to the primary market and part to local feeding stations; as for the other three counties this symbol designates shipments into local feeding stations of which the exact destination was not given. The area of the dot in each of the four counties shows the relative volume of shipments.



The shipments into Iowa's deficit areas are the largest (1927-28) for any of the years studied, reaching a total of more than 15 million bushels for the state as a whole. Story County leads in the number of carloads shipped to this outlet; however, Pottawattamie shows the largest percentage of total shipments going to this outlet.\* The most interesting feature of this direct feeder movement is the territory served by each of the counties. Pottawattamie serves the southern territory; Pocahontas the northern; while Story seems to reach all of the deficit areas. Benton serves all adjacent counties and those directly east. This local feeder movement is not the largest outlet even in a year such as the one just shown.

For Pottawattamie the largest outlet is Iowa's western markets, Council Bluffs receiving by far the largest shipments. The other three counties ship their largest volume to Iowa's manufacturing centers, with Cedar Rapids far in excess of the others in total carloads. The next largest outlet is the out-of-state eastern movement with Chicago absorbing the largest volume. Some corn goes south, especially from Pottawattamie and Pocahontas.

#### SHIPMENTS FOR THE 1930-31 CROP YEAR

The 1930 crop proved to be the smallest United States production since 1901, but the distribution of the crop was much evenner than in 1927. Iowa was in a rather favorable position with a nearly normal production and short crops in most of the neighboring states. The southern and eastern states were the shortest in feed grains with the Dakotas running a close second.

Figures 14 and 15 present a marked contrast, between the 2 years, in the volume of corn going to Iowa's deficit areas. Benton County was the only one that showed any increase to this outlet during the 1930-31 season. The falling off in shipments to Iowa's deficit areas was more than offset by the large shipments to deficit feeding areas outside the state. Pocahontas, especially, shipped a large volume into the western and northwestern states. Pottawattamie moved a large volume to the southern feeding areas. Story County shipped corn into the Dakotas and Minnesota, and 20 carloads were shipped to Nebraska from Benton County.

The shipments to the out-of-state eastern outlet decreased most, while the primary markets received about the same. Potta-

\*See table 18 in the appendix for yearly percentages shipped to the different outlets.

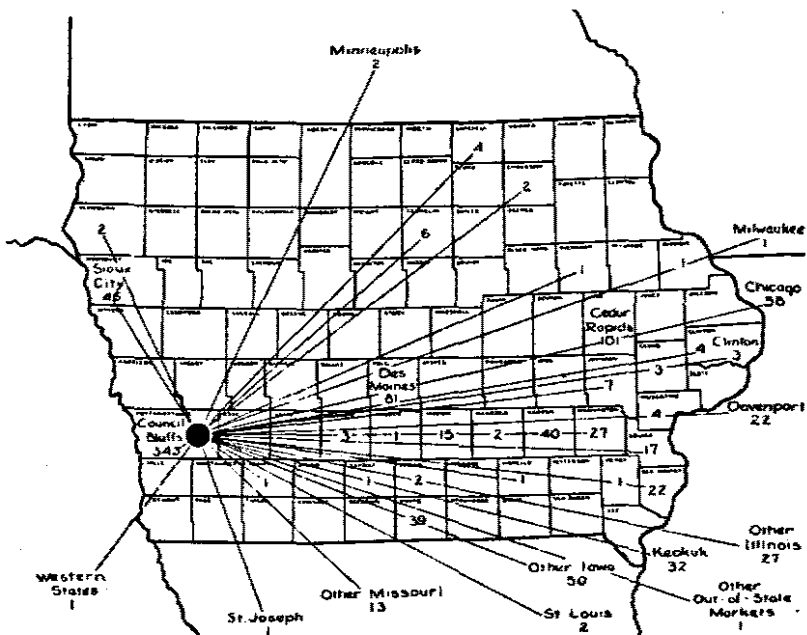


Fig. 14. Market destination of corn shipped from selected counties for the crop year 1927-28. Pottawattamie County.

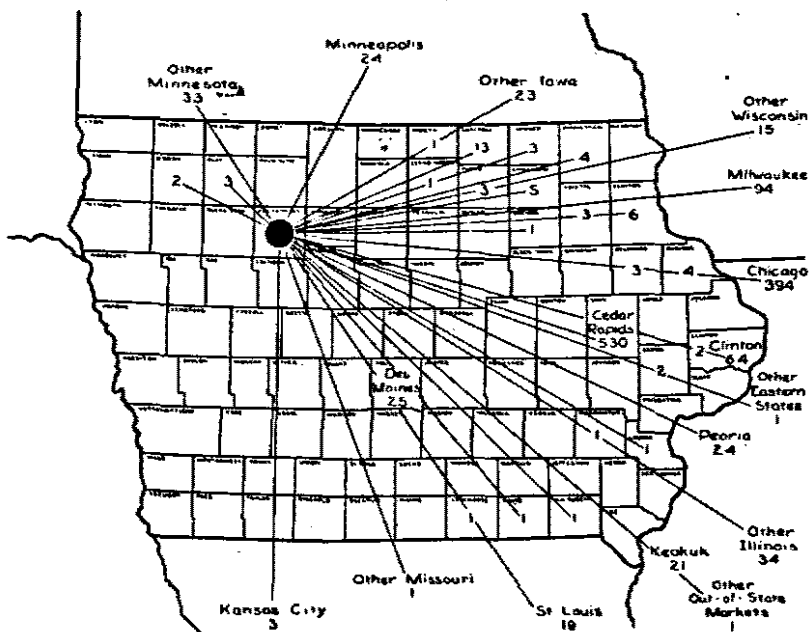


Fig. 14 (Cont.). Pocahontas County.



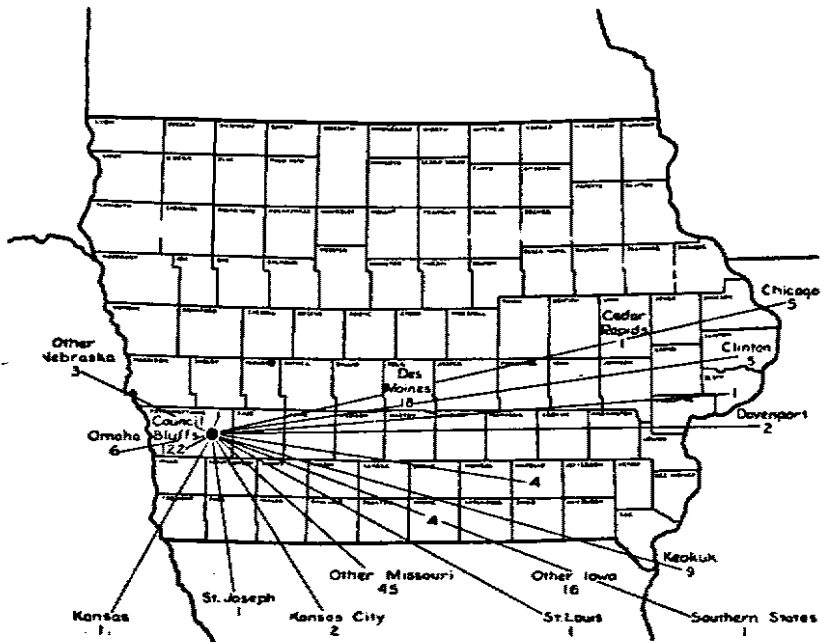


Fig. 15. Market destination of corn shipped from selected counties for the crop year 1930-31. Pottawattamie County.

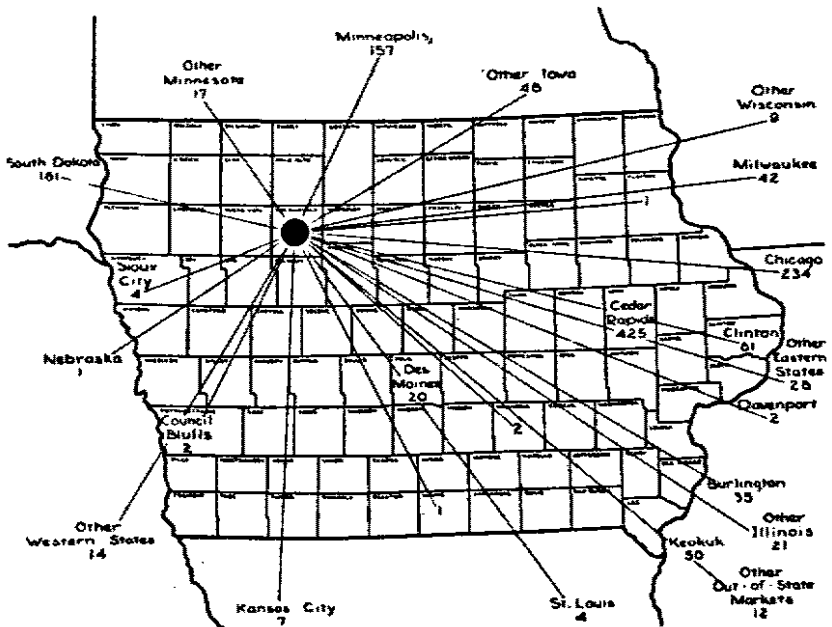


Fig. 15 (Cont.). Pocahontas County.



wattamie and Story showed some increase in corn sent to Iowa's primary markets.

The 1930-31 movement is a striking example of the extent to which feed grain may move counter to the normal flow when an abnormal demand arises. In only 1 other year, 1926-27, during the 9 years, 1923-24 to 1931-32, did any appreciable volume move westward; this was much less than that shipped in 1930-31.

A study of these 2 years alone, brings out the complexity of the marketing problem confronting the farmers of Iowa. To expect one individual operator to keep in touch with all of the possible outlets shown in these two charts is absurd. To get the most out of his product, however, the farmer must help to build the kind of marketing organization that will have access to that wide a range of service.

## APPENDIX

TABLE 7.—CORN PRODUCTION AND SHIPMENTS BY AREAS

Year	Total production of the area thousand bushels	Percentage area. Production is of state production	Total railroad shipments of the area thousand bushels	Percentage shipments are of total production	Total state shipments in carloads	Total area shipments in carloads	Percentage area. shipments are of state shipments
<b>Western cash area No. 1 (5 counties)</b>							
1923-24	32,913	7.4	5,905	17.9	42,540	4,213	9.9
1924-25	21,120	6.9	4,696	22.2	23,858	3,354	11.6
1925-26	34,848	7.0	10,661	30.6	55,390	7,616	13.7
1926-27	32,962	7.6	12,583	38.2	56,863	8,983	15.8
1927-28	32,965	8.7	13,944	42.3	49,476	9,960	20.1
1928-29	32,414	7.0	9,631	29.7	63,344	6,879	10.9
1929-30	34,633	8.1	11,742	33.9	49,321	8,337	16.8
1930-31	27,589	7.3	6,307	22.9	30,244	4,505	14.9
1931-32	24,835	6.5	4,243	17.1	29,349	3,081	10.3
<b>Average</b>	<b>30,475</b>	<b>7.4</b>	<b>8,857</b>	<b>28.3</b>	<b>45,098</b>	<b>6,326</b>	<b>13.8</b>
<b>Western feeding area No. 2 (12 counties)</b>							
1923-24	72,200	16.5	8,362	11.6	42,540	5,973	14.0
1924-25	49,621	16.3	3,955	8.0	23,858	2,825	9.8
1925-26	71,705	14.6	5,761	8.0	55,390	4,116	7.4
1926-27	66,831	15.4	8,107	12.1	56,863	5,791	10.2
1927-28	70,304	18.5	11,460	16.3	49,476	8,136	16.5
1928-29	73,260	15.8	11,099	15.2	63,344	7,923	12.5
1929-30	78,591	17.1	8,936	12.1	49,321	6,332	12.8
1930-31	60,738	16.1	3,221	5.3	30,244	2,301	7.6
1931-32	55,757	14.6	1,761	3.2	29,349	1,253	4.3
<b>Average</b>	<b>66,000</b>	<b>16.1</b>	<b>6,962</b>	<b>10.2</b>	<b>45,098</b>	<b>4,973</b>	<b>10.6</b>

TABLE 7.—CORN PRODUCTION AND SHIPMENTS BY AREAS (Cont.)

Year	Total production of the area thousand bushels	Percentage area production is of state production	Total railroad shipments of the area thousand bushels	Percentage shipments are of total production	Total state shipments in carloads	Total area shipments in carloads	Percentage area shipments are of state shipments
<b>Northern cash area No. 3 (11 counties)</b>							
1923-24	58,823	12.3	14,788	27.5	42,540	10,559	24.8
1924-25	39,199	12.9	10,199	26.0	28,858	7,285	25.2
1925-26	56,079	11.4	14,889	26.6	55,390	10,635	19.2
1926-27	56,016	12.9	16,036	28.6	56,863	11,454	20.1
1927-28	44,797	11.8	10,074	22.5	49,476	7,196	14.5
1928-29	55,829	12.3	19,294	34.0	63,344	18,067	20.6
1929-30	55,087	12.8	16,308	27.8	49,821	10,939	21.9
1930-31	48,816	12.9	21,575	44.2	30,244	8,268	27.3
1931-32	47,610	12.4	9,201	19.3	29,349	6,572	22.4
<b>Average</b>	<b>50,917</b>	<b>12.4</b>	<b>14,595</b>	<b>28.5</b>	<b>45,098</b>	<b>9,553</b>	<b>21.3</b>
<b>Central cash area No. 4 (14 counties)</b>							
1923-24	80,559	18.5	22,946	28.5	42,540	16,390	38.5
1924-25	56,632	18.6	17,336	30.6	28,858	12,384	42.9
1925-26	90,531	18.4	29,411	32.6	55,390	21,008	37.9
1926-27	82,234	18.9	32,378	40.0	56,863	23,481	41.3
1927-28	78,999	19.4	27,594	37.3	49,476	19,710	39.8
1928-29	88,417	19.2	33,382	37.8	63,344	28,844	37.6
1929-30	81,218	18.9	24,146	29.7	49,821	17,247	34.6
1930-31	68,584	16.8	15,274	24.0	30,244	10,910	36.1
1931-32	74,212	18.4	20,030	27.0	29,349	14,307	48.7
<b>Average</b>	<b>76,310</b>	<b>18.7</b>	<b>24,777</b>	<b>31.9</b>	<b>45,098</b>	<b>17,698</b>	<b>39.7</b>
<b>Central feeding area No. 5 (10 counties)</b>							
1923-24	46,651	19.7	4,451	9.5	42,540	3,179	7.5
1924-25	32,174	19.6	2,860	7.9	28,858	1,686	5.8
1925-26	57,392	11.8	8,273	14.4	55,390	5,909	10.7
1926-27	49,470	11.4	5,943	12.0	56,863	4,245	7.5
1927-28	44,280	11.7	4,250	9.6	49,476	3,036	6.1
1928-29	50,476	10.9	7,300	14.5	63,344	5,214	8.2
1929-30	48,506	11.3	6,280	12.9	49,821	4,436	9.0
1930-31	46,197	12.2	3,949	8.5	30,244	2,821	9.3
1931-32	44,119	11.5	3,773	8.6	29,349	2,895	9.2
<b>Average</b>	<b>46,585</b>	<b>11.8</b>	<b>5,175</b>	<b>10.8</b>	<b>45,098</b>	<b>3,697</b>	<b>8.1</b>
<b>Eastern feeding area No. 6 (15 counties)</b>							
1923-24	59,383	13.7	1,900	3.2	42,540	1,357	3.2
1924-25	42,628	14.0	1,294	3.0	28,858	924	3.2
1925-26	75,337	15.3	6,607	7.4	55,390	4,005	7.2
1926-27	61,180	14.1	2,461	4.2	56,863	1,758	3.1
1927-28	47,035	12.4	1,116	2.4	49,476	797	1.6
1928-29	64,324	13.7	4,794	7.5	63,344	3,424	5.4
1929-30	67,273	13.3	2,535	4.4	49,821	1,811	3.6
1930-31	54,602	14.4	1,460	2.7	30,244	1,048	3.4
1931-32	56,567	14.3	1,443	2.8	29,349	1,031	3.5
<b>Average</b>	<b>57,848</b>	<b>14.0</b>	<b>2,512</b>	<b>4.2</b>	<b>45,098</b>	<b>3,794</b>	<b>8.3</b>

TABLE 8.—PERCENTAGE OF IOWA'S COMMERCIAL CORN SHIPPED TO SPECIFIED MARKETS

	1923-24	1924-25	1925-26	1926-27	1927-28	1928-29	1929-30	1930-31
Chicago	45.0	36.0	29.5	11.0	22.0	28.0	24.5	17.5
Peoria	3.0	3.0	4.0	1.5	2.0	5.0	3.0	.7
Milwaukee	10.0	3.0	6.0	9.0	3.0	7.5	7.0	3.6
Missouri <sup>1</sup>	3.0	2.0	13.0	9.0	5.5	9.0	11.0	8.8
Minneapolis	—	1.0	2.5	5.0	1.9	—	.5	3.6
Omaha	1.0	—	—	—	—	—	—	.4
Illinois	1.0	—	1.0	2.0	3.0	2.0	1.0	1.1
Wisconsin	—	—	1.0	2.0	2.0	3.0	1.0	.7
Minnesota	—	—	—	2.0	.5	—	—	.5
Nebraska	—	—	—	1.0	—	1.9	—	.6
Kansas	—	—	—	—	—	—	—	—
South Dakota	—	—	.5	1.0	—	—	—	6.1
Other out-of-state markets	2.5	3.0	1.0	1.5	.5	—	1.5	1.6
Cedar Rapids	14.5	17.0	17.0	20.0	20.0	20.0	23.0	28.2
Clinton	5.0	5.0	5.0	5.0	3.0	4.0	4.0	4.9
Keokuk	—	1.0	1.0	1.0	1.0	1.0	2.0	1.3
Davenport	1.0	1.0	—	—	1.0	1.0	1.0	.5
Council Bluffs	7.0	13.0	13.0	15.0	6.0	6.0	10.0	6.6
Sioux City	1.0	2.0	3.0	2.0	3.0	2.0	1.0	2.8
Des Moines	2.0	2.0	1.0	3.0	3.0	3.0	2.5	2.0
Burlington	—	—	.5	.5	—	.5	1.0	.9
Iowa <sup>2</sup>	—	—	4.0	4.0	7.0	4.0	2.0	.9
Local deficit areas	4.0	6.0	2.0	4.5	10.0	3.0	4.0	6.1

<sup>1</sup> Most of this corn goes to Kansas City, St. Louis and St. Joseph. A small percentage goes to local feeders.

<sup>2</sup> Most of this corn goes to Council Bluffs, Keokuk and Burlington with a small part going to local feeder points.

TABLE 9.—MONTHLY SHIPMENTS OF CORN BY AREAS  
Accumulative percentage

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Western cash—area No. 1 (5 counties)												
1923-24	7.6	15.2	32.3	49.9	55.3	62.1	67.1	69.9	75.0	85.1	93.5	100.0
1924-25	6.2	17.9	34.9	42.8	49.9	54.6	63.2	69.2	74.0	82.3	89.3	100.0
1925-26	8.3	24.9	37.8	46.0	54.9	62.0	67.6	72.4	78.6	84.3	87.7	100.0
1926-27	9.4	23.8	41.3	50.4	57.2	61.9	70.1	73.1	83.2	91.1	95.0	100.0
1927-28	6.7	22.1	37.5	48.3	57.1	63.4	72.5	76.6	83.4	88.7	95.4	100.0
1928-29	9.5	22.3	40.0	49.5	55.3	59.4	63.7	69.9	76.0	83.2	91.9	100.0
1929-30	10.4	25.4	41.3	50.7	58.2	65.6	71.5	77.2	83.0	89.2	93.1	100.0
1930-31	12.8	25.3	33.1	41.2	49.1	57.8	63.1	70.9	79.0	86.5	91.4	100.0
1931-32	8.1	16.5	28.2	35.6	46.8	55.2	61.4	65.2	68.6	73.2	85.6	100.0
Average	8.8	21.4	36.3	46.1	53.8	60.2	66.7	72.3	79.9	84.8	91.4	100.0
Western feeding—area No. 2 (12 counties)												
1923-24	7.6	15.2	28.9	44.7	50.4	56.6	60.2	64.6	70.9	80.6	93.0	100.0
1924-25	8.8	22.7	37.4	47.2	53.2	56.5	61.8	66.2	72.1	79.4	89.7	100.0
1925-26	9.4	25.4	39.8	47.8	55.3	60.3	64.3	68.9	73.5	79.2	85.2	100.0
1926-27	4.1	14.9	27.1	35.8	42.5	46.1	54.7	60.6	76.4	83.8	90.3	100.0
1927-28	4.2	18.7	33.3	44.6	50.0	58.8	65.4	71.9	80.2	85.7	92.2	100.0
1928-29	10.9	24.0	41.9	50.6	56.4	60.1	62.9	67.2	74.0	81.8	90.9	100.0
1929-30	12.4	26.5	37.4	47.4	55.4	61.2	65.6	70.9	76.3	86.0	92.1	100.0
1930-31	10.0	32.3	29.5	37.3	44.5	50.5	55.3	62.5	69.1	79.1	90.3	100.0
1931-32	8.9	18.0	31.9	43.1	53.7	60.8	64.4	68.9	69.6	73.0	87.4	100.0
Average	8.5	20.7	33.9	44.3	51.9	56.3	61.6	67.7	73.6	80.9	90.1	100.0



TABLE 9.—MONTHLY SHIPMENTS OF CORN BY AREAS (Cont.)  
Accumulative percentage

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Northern cash—area No. 3 (11 counties)												
1923-24	10.2	20.4	31.5	50.9	57.0	64.1	68.5	74.5	84.1	87.7	95.0	100.0
1924-25	4.8	14.6	29.8	41.0	49.8	58.0	61.6	67.3	73.1	83.3	92.1	100.0
1925-26	5.9	17.0	28.6	41.6	51.1	57.0	62.6	68.3	74.3	78.3	87.4	100.0
1926-27	6.4	19.9	31.8	44.3	51.3	55.3	59.7	75.1	84.2	87.7	94.1	100.0
1927-28	4.8	18.4	28.2	36.2	48.5	51.2	56.5	64.5	78.3	83.3	91.2	100.0
1928-29	12.1	32.9	45.7	50.2	54.9	58.7	61.7	71.1	81.6	87.0	92.8	100.0
1929-30	12.6	30.8	37.9	45.1	51.7	56.7	60.7	66.9	77.0	85.2	91.8	100.0
1930-31	10.0	25.0	31.1	40.9	49.3	56.9	62.3	69.9	77.1	84.0	91.2	100.0
1931-32	9.3	24.2	33.5	44.7	54.5	61.3	64.0	67.1	71.5	78.9	83.2	100.0
Average	8.4	22.0	32.6	43.0	52.1	57.1	62.0	69.4	77.9	83.7	91.5	100.0
Central cash—area No. 4 (14 counties)												
1923-24	9.0	12.0	21.9	38.1	40.3	45.0	50.5	55.3	64.2	75.1	89.3	100.0
1924-25	5.3	13.7	25.9	33.5	38.9	41.5	51.0	53.7	62.1	79.1	89.4	100.0
1925-26	6.0	15.8	23.6	32.5	40.4	45.1	51.3	57.3	65.0	71.4	81.3	100.0
1926-27	5.7	15.6	27.9	37.7	43.1	47.1	56.8	70.3	77.0	84.3	91.0	100.0
1927-28	4.3	13.5	22.6	32.0	40.3	43.9	54.2	62.8	77.4	84.6	94.3	100.0
1928-29	5.9	19.3	31.2	37.7	42.6	45.3	48.3	53.2	69.5	79.1	91.0	100.0
1929-30	6.3	20.9	26.4	33.3	39.4	44.3	50.5	57.4	68.6	81.5	90.1	100.0
1930-31	3.0	15.0	19.5	27.3	34.0	39.9	44.3	51.9	59.4	72.5	86.0	100.0
1931-32	6.3	13.4	29.9	30.2	39.3	46.3	49.3	52.7	56.6	63.4	82.3	100.0
Average	6.4	15.5	22.2	32.2	39.9	44.4	50.3	58.1	66.6	76.3	88.3	100.0
Central feeding—area No. 5 (10 counties)												
1923-24	7.6	15.2	22.1	35.4	41.0	44.7	48.5	55.3	62.3	73.9	91.2	100.0
1924-25	3.3	9.5	20.5	30.3	37.3	39.5	47.1	65.5	60.7	77.9	90.1	100.0
1925-26	5.6	15.0	25.6	37.3	43.6	47.6	52.1	58.0	61.2	67.2	79.5	100.0
1926-27	6.2	12.9	23.0	35.0	39.9	42.2	47.0	65.6	71.9	77.5	87.9	100.0
1927-28	6.8	13.7	19.9	23.7	35.7	39.3	51.2	63.2	76.1	84.4	94.7	100.0
1928-29	6.2	19.5	23.3	40.0	44.6	46.7	50.9	63.1	73.2	85.4	93.1	100.0
1929-30	3.1	21.7	23.5	35.5	40.3	44.4	51.0	58.4	67.2	81.3	90.5	100.0
1930-31	9.9	23.1	30.3	41.4	49.3	55.1	59.2	66.7	73.2	81.5	90.4	100.0
1931-32	6.4	11.6	18.3	23.9	35.4	40.3	45.4	48.8	52.9	61.9	82.1	100.0
Average	6.4	15.8	24.2	34.3	41.0	44.5	50.3	59.6	66.6	78.3	88.3	100.0
Eastern feeding—area No. 6 (13 counties)												
1923-24	7.7	15.3	23.6	37.6	43.6	50.7	57.6	63.5	68.1	76.1	90.4	100.0
1924-25	5.0	17.0	29.0	39.2	47.3	50.1	56.3	63.7	69.0	80.3	91.4	100.0
1925-26	4.2	13.4	27.0	40.4	48.2	51.3	58.3	64.4	68.6	78.3	83.9	100.0
1926-27	9.4	18.4	31.3	44.6	51.4	54.3	59.2	71.5	77.2	84.0	90.3	100.0
1927-28	10.3	17.3	21.5	31.0	40.7	43.3	50.3	61.3	69.2	77.4	90.1	100.0
1928-29	7.2	20.6	37.3	53.6	63.4	66.2	69.6	76.5	81.1	83.7	95.6	100.0
1929-30	7.3	19.3	29.3	39.5	46.1	52.3	58.3	64.3	68.4	83.3	90.9	100.0
1930-31	13.4	29.7	36.2	43.1	57.3	60.3	64.4	69.0	74.5	81.6	91.7	100.0
1931-32	3.4	18.1	30.7	45.2	52.3	56.0	60.5	62.7	65.3	71.3	90.3	100.0
Average	8.3	18.3	29.3	42.5	50.0	54.0	59.3	66.4	71.3	76.7	90.5	100.0

TABLE 10.—DIRECTIONAL MOVEMENT OF IOWA'S COMMERCIAL CORN  
(In carloads and percentage)

Year	Out-of-state markets					Iowa's markets					Total	Percentage
	East	South	So. West	No. West	Others	Mfg. centers	Western outlet	Eastern outlet	Local			
	Chicago, Peoria, Illinois, Milwaukee, New York, E. states	Kansas City, St. Louis, St. Jo., Missouri, Ark., Tenn., So. states	Omaha, Nebr., Kansas, Texas, Western states	Minneapolis, Minnesota, So. Dakota, No. Dakota	All other out-of-state markets	Cedar Rapids, Clinton, Keokuk, Davenport	Council Bluffs, Sioux City	Des Moines, Burlington, Muscatine	County to county movement			
1923-24	10,198	535	143	34	189	3,494	1,485	850	548	17,026	39.9	
1924-25	5,181	248	76	89	214	2,595	1,620	237	675	10,935	37.9	
1925-26	9,020	3,334	107	822	474	6,180	5,089	348	460	26,784	45.4	
1926-27	9,505	3,548	628	3,124	511	10,285	8,180	1,209	1,698	33,688	63.2	
1927-28	14,871	2,099	67	491	315	9,230	5,937	1,183	3,652	37,975	74.7	
1928-29	23,280	4,381	422	235	260	13,078	5,756	1,990	1,816	50,718	80.0	
1929-30	15,087	4,479	98	268	225	11,989	5,454	1,277	1,747	40,607	81.6	
1930-31	8,297	2,384	347	2,654	112	9,179	2,664	788	1,873	25,923	85.7	
In percentage												
1923-24	59.8	3.1	.8	.2	1.1	20.5	8.4	2.1	3.8			
1924-25	47.4	2.3	.7	.5	1.9	23.7	14.8	2.2	6.2			
1925-26	35.0	12.9	.4	3.2	1.8	23.3	19.7	1.6	1.8			
1926-27	24.5	9.2	1.6	8.1	1.3	26.6	21.2	3.1	4.4			
1927-28	39.0	5.6	.2	1.3	.8	24.5	15.9	3.1	9.7			
1928-29	45.9	8.6	.8	.5	.5	25.3	11.3	3.3	3.2			
1929-30	37.1	11.0	.2	.7	.8	29.5	13.4	3.1	4.5			
1930-31	24.3	9.0	1.3	10.2	.4	35.4	10.3	2.9	6.1			
Average	39.1	7.7	.8	3.1	1.0	26.2	14.4	2.7	4.9			

TABLE 11.—MARKET MOVEMENT OF CORN SHIPPED FROM IOWA'S PRIMARY MARKETS  
(By years in carload and percentage)

	Carloads				Percentage			
	1927-28	1928-29	1929-30	1930-31	1927-28	1928-29	1929-30	1930-31
Chicago	477	1,027	880	549	6.7	19.7	15.9	15.4
Peoria	70	187	71	50	1.0	3.4	1.3	1.4
Milwaukee	111	140	222	258	1.6	2.6	4.1	7.2
Minneapolis	8	2	8	2	.1			.1
Omaha	1	63	106	28		1.1	2.0	.8
Kansas City	2	73	85	14		1.3	.6	.4
St. Louis	182	19	74	119	1.3	.3	1.4	3.3
Missouri	29	65	330	161	.4	1.2	6.1	4.2
Illinois	1,156	270	259	79	16.2	4.9	4.8	2.2
Wisconsin	2,086	776	887	814	29.2	14.1	16.4	22.8
Minnesota	69	2	8	1	1.0		.1	
Nebraska	5	168	8	16	.1	3.1	.1	.4
Kansas	2	2	1	1				
Dakotas	12	31	24	197	.2	.6	.4	5.5
Eastern States	59	897	222	122	.8	7.2	4.1	3.4
Southern States	60	56	88	4	.8	1.0	.7	.1
Western States	300	837	607	199	4.2	15.3	11.2	5.6
Other out-of-state	1,058	862	1,013	350	14.8	15.7	18.8	9.8
Cedar Rapids	106	17	34	16	1.5	.3	.6	.4
Clinton	205	153	112	206	2.9	2.8	2.1	5.8
Council Bluffs	272	170	262	96	3.8	3.1	4.9	2.7
Sioux City		13	85	1		.2	.8	
Keokuk, Des Moines		2	9	42			.2	1.2
Davenport, Burlington								
Muscatine	28	54	21	2	.3	1.0	.4	.1
Iowa*	653	46	119	215	9.1	.8	2.2	6.0
Local deficit areas	249	55	43	42	3.5	1.0	.8	1.2

\* Most of this corn goes to Iowa's manufacturing centers, some to the local deficit areas.

TABLE 12.—DIRECTIONAL MOVEMENT OF IOWA'S COMMERCIAL CORN BY AREAS  
(In carloads and percent)

Year	Out-of-state markets					Iowa markets				Totals	
	East	South	So. West	No. West	Others	Mfg. centers	Western outlet	So. East outlet	Local	Total	Percentage
	Chicago, Peoria, Illinois, Milwaukee, Wis., New York, Eastern states	Kansas City, St. Louis, St. Joe, Missouri, Ark., Tenn., Southern states	Omaha, Nebr., Kansas, Texas, Western states	Minnesota, Michigan, South Dakota, North Dakota	All other out of state markets	Cedar Rapids, Clinton, Keokuk, Davenport	Council Bluffs, Sioux City	Des Moines, Burlington, Muscatine	County to county movement	Carloads for which we have destination data	Destination data are of total loadings
Western cash—area No. 1											
1926-27	862	1,518	268	194	195	79	4,116	0	10	6,732	74.9
1927-28	2,917	1,374	12	47	80	582	3,289	7	221	3,478	85.1
1928-29	898	1,563	318	41	58	210	2,881	0	49	5,513	80.1
1929-30	1,248	1,958	82	12	54	280	2,648	0	90	6,307	75.2
1930-31	889	1,428	64	89	5	240	1,426	6	87	3,784	82.9
Percentage											
1926-27	5.4	22.5	3.9	2.9	2.9	1.2	61.1	.....	.1		
1927-28	34.4	16.2	.1	.5	.9	8.3	33.7	.....	2.6		
1928-29	16.2	28.4	5.8	.7	1.1	3.6	45.2	.....	.9		
1929-30	19.7	31.0	.5	.2	.9	4.4	41.9	.....	1.4		
1930-31	10.4	38.2	1.7	2.4	.1	6.4	38.2	.....	2.3		
Average	17.2	27.8	2.4	1.4	1.2	4.4	44.6	.....	1.5		
Western feeding—area No. 2											
1926-27	827	856	119	105	18	281	2,124	39	83	3,902	87.4
1927-28	1,780	491	12	224	20	958	2,251	328	641	6,600	80.6
1928-29	1,427	780	70	140	14	585	2,178	275	94	5,568	70.2
1929-30	789	1,035	38	50	6	470	2,137	286	67	4,808	75.3
1930-31	187	494	39	30	4	316	557	106	105	1,838	79.9

Percentage

1926-27	8.4	21.9	8.0	2.7	.5	7.2	54.4	1.0	.8		
1927-28	27.0	7.4	.2	3.4	.3	12.8	34.1	5.0	9.7		
1928-29	25.7	14.0	1.8	2.5	.3	10.5	39.2	4.9	1.7		
1929-30	16.0	21.8	.7	1.0	.1	9.8	44.5	4.9	1.4		
1930-31	10.2	26.9	2.1	1.6	.2	17.2	30.8	5.8	5.7		
Average	17.5	18.3	1.5	2.2	.2	11.5	40.5	4.8	8.9		

Northern Cash—area No. 8

1926-27	2,486	58	50	2,068	63	2,970	247	16	477	8,884	78.2
1927-28	2,623	28	12	158	14	1,842	42	27	508	5,239	72.5
1928-29	6,124	55	8	81	26	3,910	25	30	363	10,570	80.9
1929-30	4,299	266	2	139	25	4,495	12	190	414	9,752	89.1
1930-31	2,101	54	121	1,296	82	3,624	38	138	856	7,755	98.8

Percentage

1926-27	29.1	.7	.6	24.7	.8	35.4	2.9	.2	5.7		
1927-28	50.1	.4	.2	2.9	.3	35.1	.8	.5	9.6		
1928-29	57.9	.5	.1	.3	.2	37.0	.2	.3	3.4		
1929-30	44.1	2.7	-----	1.4	.3	46.1	.1	1.0	4.2		
1930-31	27.1	.7	1.6	16.7	.4	46.7	.4	1.8	4.6		
Average	41.7	1.0	.5	9.2	.4	40.1	.9	.8	5.5		

Central cash—area No. 4

1926-27	4,746	618	184	781	186	4,729	1,244	981	698	14,021	59.7
1927-28	6,069	86	26	66	147	4,681	88	751	1,701	13,614	69.0
1928-29	10,266	461	25	23	144	5,755	200	1,057	847	18,578	77.9
1929-30	6,286	861	14	55	123	4,580	304	782	634	13,529	75.4
1930-31	2,418	287	98	1,218	57	3,198	555	434	456	8,696	79.7

Percentage

1926-27	33.8	4.4	1.8	5.2	1.8	33.7	8.9	7.0	4.3		
1927-28	44.5	.6	.2	.5	1.1	34.4	.6	5.6	12.5		
1928-29	55.8	2.5	.1	.1	.8	31.0	1.1	5.7	8.5		
1929-30	46.1	6.3	.1	.4	.9	33.5	2.2	5.8	4.7		
1930-31	27.7	2.7	1.1	14.0	.7	26.8	6.7	5.0	5.2		
Average	41.5	3.3	.6	4.0	1.0	33.9	3.9	5.8	6.0		

TABLE 12.—DIRECTIONAL MOVEMENT OF IOWA'S COMMERCIAL CORN BY AREAS (Cont.)  
(In carloads and percentage)

Year	Out-of-state markets					Iowa markets				Totals	
	East	South	So. West	No. West	Others	Mfg. centers	Western outlet	So. East outlet	Local	Total	Percentage
Central feeding—area No. 5											
1926-27	1,182	108	8	22	18	1,621	2	95	264	8,318	78.0
1927-28	957	27	8	.....	88	1,030	1	32	397	2,465	81.8
1928-29	2,467	180	.....	8	15	1,753	.....	42	242	4,702	90.2
1929-30	1,859	50	4	6	12	1,749	.....	88	322	4,040	90.1
1930-31	985	28	24	18	7	1,264	5	24	263	2,558	90.7
Percentage											
1926-27	35.7	3.1	.2	.7	.5	48.9	.1	2.9	8.0		
1927-28	28.5	1.1	.1	.....	1.5	41.4	.....	1.3	16.0		
1928-29	52.5	3.8	.....	.1	.8	37.3	.....	.9	5.1		
1929-30	46.0	1.2	.1	.1	.3	43.3	.....	.9	8.0		
1930-31	36.6	1.1	.9	.7	.3	49.0	.2	.9	10.3		
Average	41.9	2.1	.3	.3	.6	44.0	.1	1.4	9.5		
Eastern feeding—area No. 6											
1926-27	406	80	.....	8	32	644	.....	62	284	1,511	86.0
1927-28	261	26	1	1	15	243	4	7	176	784	92.1
1928-29	1,368	131	1	.....	8	1,131	.....	170	296	3,170	92.6
1929-30	591	144	1	.....	5	685	.....	120	264	1,700	93.3
1930-31	189	25	1	.....	7	460	.....	39	218	939	90.0
Percentage											
1926-27	26.9	5.3	.....	.2	2.1	42.6	.....	4.1	18.8		
1927-28	35.6	3.5	.1	.1	2.0	38.1	.5	1.0	24.0		
1928-29	43.5	5.7	.....	.....	.1	35.7	.....	5.4	9.3		
1929-30	34.8	8.5	.1	.....	.3	34.4	.....	7.1	14.9		
1930-31	20.1	2.7	.1	.....	.7	49.0	.....	4.2	23.2		
Average	32.2	5.1	.1	.1	1.0	39.0	.1	4.4	18.0		

TABLE 13.—DIRECTIONAL SHIPMENTS OF CORN FROM IOWA'S PRIMARY MARKETS  
(In carloads and percentage)

Year	Out-of-state markets					Iowa's markets			
	East	South	Southwest	Northwest	Other out of state	Manufacturing centers	Western outlet	Eastern outlet	Local
	Chicago, Peoria, Illinois, Milwaukee, Wis., New York, Eastern states	Kansas City, St. Louis, St. Joseph, Mo., Arkansas, Tennessee, So. states	Omaha, Nebr., Kansas, Texas, Western states	Minneapolis, Minnesota, South Dakota, North Dakota	All other out-of-state markets	Cedar Rapids, Clinton, Keokuk, Davenport	Council Bluffs, Sioux City	Des Moines, Burlington, Muscatine	County to county movement
1927-28	3,959	220	311	89	1,058	964	272	28	249
1928-29	2,797	211	1,072	35	862	217	188	54	56
1929-30	2,521	461	788	35	1,013	272	297	28	43
1930-31	1,872	288	244	200	350	479	97	2	42
In percentage									
1927-28	55.4	3.1	4.4	1.2	14.8	13.5	3.8	.3	3.5
1928-29	51.0	3.8	19.5	.6	15.7	4.0	3.2	1.0	1.0
1929-30	46.7	2.5	13.6	.6	13.8	5.0	5.5	.4	.3
1930-31	52.4	3.0	6.8	5.6	9.8	13.4	2.7	.1	1.2
Average	51.4	3.8	11.1	2.0	14.8	9.0	3.8	.4	1.6

TABLE 14.—MONTHLY SHIPMENTS OF IOWA'S COMMERCIAL CORN  
(In carloads and percentage)

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
1923-24	4459*		4,791	6,828	2,374	2,845	2,052	2,248	8,298	8,682	5,100	8,888	42,540
1924-25	1,594	2,779	8,988	2,815	1,910	891	2,457	1,688	1,695	8,788	2,855	2,918	28,868
1925-26	8,498	5,295	5,946	5,954	4,378	2,850	3,089	8,215	3,407	3,144	4,759	8,955	55,890
1926-27	8,592	8,332	7,482	5,917	3,527	2,184	4,388	7,815	8,806	8,714	3,672	4,555	56,868
1927-28	2,489	5,576	5,498	5,170	4,598	1,979	4,325	8,714	5,720	3,180	4,161	3,116	49,478
1928-29	5,154	9,481	8,750	5,248	3,386	2,148	2,092	5,282	5,986	5,068	5,748	5,066	63,344
1929-30	5,217	6,986	4,460	8,944	3,317	2,781	2,596	3,187	4,350	5,207	3,496	4,800	49,821
1930-31	2,982	8,432	1,820	2,768	2,224	2,017	1,476	2,227	2,187	2,946	2,937	3,229	30,244
1931-32	2,238	2,551	2,598	2,912	2,719	2,016	1,136	907	1,188	1,850	4,858	4,486	29,840
Average	3,345	5,427	5,080	4,595	3,154	2,182	2,518	3,884	3,498	3,613	4,158	4,428	
Percentage													
1923-24	5.4*	9.9*	11.8	16.1	5.6	5.5	4.8	5.8	7.7	8.6	12.0	7.8	
1924-25	5.5	9.6	18.8	9.1	6.6	3.1	8.5	5.8	5.5	13.1	9.2	10.1	
1925-26	6.8	11.4	10.7	10.7	7.9	5.1	5.5	5.8	6.2	5.7	8.6	16.0	
1926-27	6.8	11.1	13.1	10.4	6.2	3.8	7.6	13.7	6.7	6.5	6.5	8.0	
1927-28	5.0	11.3	11.1	10.4	9.3	4.0	5.7	7.5	11.5	6.3	8.4	6.8	
1928-29	8.1	15.0	13.8	8.3	5.3	3.4	3.8	8.3	9.4	3.0	9.1	8.0	
1929-30	10.5	14.0	9.0	7.9	6.6	5.6	5.2	6.4	8.7	10.5	7.0	8.6	
1930-31	9.8	11.3	6.0	9.2	7.4	6.7	4.9	7.4	7.2	9.7	9.7	10.7	
1931-32	7.6	8.7	8.8	9.9	9.3	6.9	3.9	3.1	3.9	6.3	16.5	15.1	
Average	7.2	11.4	10.8	10.2	7.1	4.9	5.8	7.0	7.4	8.3	9.7	10.1	
Accumulative percentage													
1923-24	16.3*		26.8	42.7	48.8	53.8	58.6	63.0	71.6	80.2	92.2	100.0	
1924-25	5.5	15.1	23.9	33.0	44.6	47.7	56.2	62.0	67.5	80.6	89.8	100.0	
1925-26	6.8	17.7	28.4	39.1	47.0	52.1	57.7	63.5	69.7	75.4	84.0	100.0	
1926-27	6.8	17.4	30.5	40.9	47.1	50.9	58.5	72.2	78.9	85.4	91.9	100.0	
1927-28	5.0	16.3	27.4	37.8	47.1	51.1	59.8	67.3	78.9	85.2	88.6	100.0	
1928-29	8.1	23.1	36.9	45.2	50.5	53.9	57.2	65.5	74.9	82.9	92.0	100.0	
1929-30	10.5	24.5	33.5	41.4	48.0	53.6	58.8	65.3	73.9	84.4	91.4	100.0	
1930-31	9.8	21.1	27.1	36.8	43.7	50.4	55.8	62.7	69.9	79.6	89.8	100.0	
1931-32	7.6	16.8	25.1	35.0	44.3	51.2	55.1	59.2	62.1	68.4	84.9	100.0	
Average	7.4	18.9	29.4	39.6	46.7	51.6	57.5	64.5	71.9	80.2	89.9	100.0	

\* Estimated.



TABLE 15.—MONTHLY PERCENTAGE OF ANNUAL TOTAL RECEIPTS AND SHIPMENTS BY TYPES OF COUNTY ELEVATORS

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
<b>Cooperative elevators:</b>													
1926-27													
Receipts*	7.0	8.5	11.5	10.8	5.1	2.0	8.0	14.6	5.1	7.2	10.7	10.0	100.0
Shipments	3.9	6.0	10.9	10.2	8.2	1.7	9.7	13.7	6.7	10.8	12.8	10.9	100.0
1927-28													
Receipts*	4.2	10.0	9.4	8.8	8.8	3.8	11.8	8.8	11.4	11.2	8.6	8.6	100.0
Shipments	2.2	8.8	9.7	8.2	8.6	2.5	9.5	6.8	18.9	18.9	11.1	5.2	100.0
1928-29													
Receipts*	5.7	11.9	11.8	11.2	5.1	1.8	2.7	18.6	8.5	8.6	11.4	7.7	100.0
Shipments	5.8	10.9	12.1	6.8	4.9	3.5	1.7	7.8	10.8	14.7	14.8	7.1	100.0
Average													
Receipts*	5.8	10.1	10.9	10.0	6.3	2.5	7.5	12.8	8.3	9.0	10.2	7.1	100.0
Shipments	3.9	8.4	10.9	8.4	5.5	2.8	7.0	9.4	10.3	18.0	12.9	7.7	100.0
Net	1.7	1.7		1.6	.7	—1	.5	2.9	—2.0	—4.0	—2.7	—6	
<b>Non-cooperative elevators:</b>													
1926-27													
Receipts*	5.6	12.3	16.6	10.4	5.8	2.0	10.2	10.7	6.3	6.4	4.5	9.8	100.0
Shipments	4.0	11.2	16.1	8.9	6.7	3.8	10.2	10.6	6.2	7.5	4.9	9.8	100.0
1927-28													
Receipts*	3.8	10.5	10.9	8.8	10.5	3.9	10.6	7.7	12.5	9.1	7.0	4.9	100.0
Shipments	3.5	9.6	18.1	9.5	9.9	5.2	8.8	3.2	11.3	9.5	7.1	5.5	100.0
1928-29													
Receipts*	6.2	11.3	9.4	12.0	4.7	4.1	3.7	9.8	10.1	8.5	11.8	8.9	100.0
Shipments	5.3	10.6	10.5	12.8	5.1	3.9	3.5	10.8	10.3	8.2	10.1	8.8	100.0
Average													
Receipts*	5.0	11.4	12.3	10.4	7.1	3.3	8.2	9.4	9.6	8.0	7.6	7.7	100.0
Shipments	4.3	10.5	13.2	10.1	7.2	4.8	7.4	9.9	9.3	8.4	7.4	8.0	100.0
Net	.7	.9	—9	.8	—1	—1.0	.8	—5	.8	—4	.2	—3	

\* Source of data: The receipts, representing monthly purchases by elevators from farmers, were secured from the U. S. D. A. through the state statistician's office in Des Moines.

TABLE 16.—TYPE OF MARKET TO WHICH IOWA'S COMMERCIAL CORN IS SHIPPED  
(In carloads and percentage)

	Out-of-state markets		Iowa's markets			Totals	
	Terminal	Feeder markets	Mfg. centers	Reshipment markets	Local	Total	Percentage
	Chicago, Peoria, Milwaukee, Kansas City, St. Louis, St. Joseph, Minneapolis, Omaha	Illinois, Wisconsin, Minnesota, Nebraska, Kansas, South Dakota, North Dakota, Other outside markets	Cedar Rapids, Clinton, Keokuk, Davenport	Council Bluffs, Sioux City, Des Moines, Burlington, Muscatine	Deficit areas	Number of carloads for which we are able to show destination	Percentage destination data are of total state shipments
1923-24	10,539	560	3,494	1,785	648	17,026	89.9
1924-25	5,495	318	2,595	1,857	875	10,935	87.9
1925-26	12,892	1,065	6,130	5,487	460	25,784	46.4
1926-27	13,611	3,760	10,235	9,389	1,898	38,888	66.2
1927-28	15,161	2,482	9,230	7,150	3,652	37,675	74.7
1928-29	25,086	3,492	13,078	7,446	1,616	50,718	80.0
1929-30	18,847	1,398	11,989	6,781	1,747	40,807	81.5
1930-31	3,969	2,775	9,179	3,427	1,573	25,928	85.7
In percentage							
1923-24	61.8	3.2	20.5	10.4	3.8		
1924-25	50.2	2.9	23.7	17.0	6.2		
1925-26	49.1	4.4	23.8	20.9	1.8		
1926-27	35.1	9.7	26.5	24.2	4.5		
1927-28	40.2	6.5	24.5	18.9	9.7		
1928-29	49.5	6.8	25.8	14.7	3.2		
1929-30	46.4	2.9	29.6	16.5	4.3		
1930-31	34.6	10.7	35.4	13.2	6.1		
Average	45.9	6.9	26.2	17.0	5.0		

TABLE 17.—TYPE OF MARKET SHIPMENTS BY AREAS  
(Actual carloads and percentage)

Year	Out-of-state markets		Iowa's markets			Totals		
	Terminal	Feeder markets	Mfg. centers	Reshipment markets	Local	Carloads showing destination	Area car-loadings	Percentage destination data are of total loadings
	Chicago, Peoria, Milwaukee, Kansas City, St. Louis, St. Joseph, Minneapolis, Omaha	Illinois, Wisconsin, Minnesota, Nebraska, Kansas, Dakotas, Other—Outside	Cedar Rapids, Clinton, Keokuk, Davenport	Council Bluffs, Sioux City, Des Moines, Burlington, Muscatine	Deficit areas			
<b>Western Cash—Area No. 1</b>								
1926-27	1,828	694	79	4,116	10	6,782	8,988	74.9
1927-28	8,820	610	582	3,280	221	8,478	9,960	85.1
1928-29	2,306	568	210	2,381	49	5,518	6,379	80.1
1929-30	3,111	183	280	2,643	90	6,307	8,887	75.2
1930-31	1,697	278	240	1,482	87	3,734	4,605	82.9
Percentage								
1926-27	27.1	10.3	1.2	61.1	.2			
1927-28	46.1	7.2	6.3	38.8	2.6			
1928-29	41.8	10.3	3.8	48.2	.9			
1929-30	49.3	2.9	4.4	41.9	1.4			
1930-31	45.4	7.4	6.5	38.3	2.3			
Average	41.7	7.6	4.4	44.7	1.5			
<b>Western Feeding—Area No. 2</b>								
1926-27	1,179	246	281	2,168	88	3,902	5,791	67.4
1927-28	2,128	404	353	2,579	641	6,600	8,186	80.6
1928-29	2,140	291	585	2,453	94	5,588	7,928	70.2
1929-30	1,760	148	470	2,378	67	4,808	6,382	75.3
1930-31	669	86	316	668	105	1,838	2,301	79.9
Percentage								
1926-27	30.2	6.3	7.2	55.4	.9			
1927-28	32.2	6.1	12.9	39.1	9.7			
1928-29	33.5	5.2	10.5	44.1	1.7			
1929-30	36.4	3.0	9.8	49.4	1.4			
1930-31	28.4	4.5	17.2	36.1	5.7			
Average	34.7	5.0	11.5	44.8	3.9			

TABLE 17.—TYPE OF MARKET SHIPMENTS BY AREAS (Cont.)  
(Actual carloads and percentage)

Year	Out-of-state markets		Iowa's markets			Totals			
	Terminal	Feeder markets	Mfg. centers	Reshipment markets	Local	Carloads showing destination	Area car-loadings	Percentage destination data are of total loadings	
	Chicago, Peoria, Milwaukee, Kansas City, St. Louis, St. Joseph, Minneapolis, Omaha	Illinois, Wisconsin, Minnesota, Nebraska, Kansas, Dakotas, Other—Outalde	Cedar Rapids, Clinton, Keokuk, Davenport	Council Bluffs, Sioux City, Des Moines, Burlington, Muscatine	Deficit areas				
Northern Cash—Area No. 3									
1926-27	8,518	1,162	2,970	262	477	8,884	11,454	73.2	
1927-28	2,581	294	1,842	89	508	5,239	7,198	72.8	
1928-29	5,606	538	3,910	53	868	10,570	13,087	80.9	
1929-30	4,420	311	4,495	112	414	9,752	10,939	89.1	
1930-31	2,640	964	3,624	171	356	7,765	8,268	93.8	
Percentage									
1926-27	41.9	13.9	35.4	3.1	5.7				
1927-28	48.3	5.6	35.2	1.3	9.6				
1928-29	53.0	6.0	37.0	.5	3.4				
1929-30	45.3	3.2	46.1	1.1	4.2				
1930-31	34.0	12.4	46.7	2.2	4.6				
Average	44.5	8.2	40.1	1.6	5.5				
Central Cash—Area No. 4									
1926-27	5,002	1,457	4,720	2,225	608	14,021	23,481	59.7	
1927-28	5,466	927	4,681	839	1,701	13,614	19,710	69.0	
1928-29	9,616	1,308	5,755	1,257	647	18,578	28,844	77.9	
1929-30	6,450	829	4,530	1,086	634	13,529	17,247	78.4	
1930-31	2,586	1,437	3,198	1,019	456	8,696	10,910	79.7	
Percentage									
1926-27	35.7	10.4	33.7	15.9	4.3				
1927-28	40.1	6.8	34.4	6.2	12.5				
1928-29	51.8	7.0	31.0	6.8	3.5				
1929-30	47.7	6.1	33.5	8.0	4.7				
1930-31	23.7	16.5	36.8	11.7	5.2				
Average	41.0	9.4	33.9	9.7	6.0				

TABLE 17.—TYPE OF MARKET SHIPMENTS BY AREAS (Cont.)  
(Actual carloads and percentage)

Central Feeding—Area No. 5									
1926-27	1,175	156	1,821	97	264	3,818	4,245	78.0	
1927-28	901	124	1,080	88	397	2,485	8,086	81.8	
1928-29	2,518	147	1,753	42	242	4,702	5,214	90.2	
1929-30	1,868	68	1,749	38	322	4,040	4,486	90.1	
1930-31	965	47	1,254	29	268	2,558	2,821	90.7	
Percentage									
1926-27	35.5	4.7	48.9	2.9	8.0				
1927-28	36.3	4.9	41.4	1.8	16.0				
1928-29	58.6	8.1	37.3	.9	5.1				
1929-30	46.2	1.6	48.8	.9	8.0				
1930-31	37.7	1.8	49.0	1.1	10.8				
Average	41.9	3.2	44.0	1.4	9.5				
Eastern Feeding—Area No. 6									
1926-27	885	136	644	62	284	1,511	1,758	86.0	
1927-28	199	105	249	11	176	784	797	92.1	
1928-29	1,925	248	1,181	170	296	3,170	8,424	92.6	
1929-30	588	153	585	120	254	1,700	1,811	98.8	
1930-31	172	50	460	89	218	939	1,048	90.0	
Percentage									
1926-27	25.5	9.0	42.6	4.1	18.8				
1927-28	27.1	14.8	33.1	1.5	24.0				
1928-29	41.8	7.8	35.7	5.4	9.8				
1929-30	34.6	9.0	34.4	7.1	14.0				
1930-31	18.3	5.3	49.0	4.2	23.2				
Average	29.6	9.1	39.0	4.5	18.0				

TABLE 18.—DIRECTIONAL DESTINATION OF CORN FROM SELECTED COUNTIES  
(In carloads and percentage)

Year	Out-of-state markets				Iowa markets				Totals		
	East	South	West	Others	Mfg. centers	Western outlet	Southern outlet	Local	Total	Loading	Per-centage
	Chicago Peoria, Illinois Mil., Wis. New York Et. states	Kansas City St. Louis St. Joseph Missouri Ark., Tenn., So. states	Omaha Nebr., Kans., Texas, Mo., Minnesota, Dakota, Okla. W. states	All other out of state	Cedar Rapids Keokuk Davenport Clinton	Council Bluffs Sioux City	Des Moines Burlington Muscatine	County to county movement	Carloads showing destination	Total loadings for the county	Destination data are of total loadings
<b>Pottawattamie County</b>											
1926-27	14	26	19	---	32	428	8	1	517	686	81.3
1927-28	36	18	1	1	158	489	81	214	998	1,041	95.9
1928-29	61	41	5	---	30	586	74	1	738	821	89.9
1929-30	79	272	2	---	69	651	55	11	1,189	1,247	91.8
1930-31	8	50	10	---	17	198	18	10	251	281	89.8
In percentage											
1926-27	2.7	5.0	2.5	---	6.2	82.8	.6	.2	100.0		
1927-28	8.6	1.8	.1	.1	15.8	44.0	8.1	21.4	100.0		
1928-29	8.2	5.6	.7	---	4.1	72.6	8.7	.1	100.0		
1929-30	6.9	23.9	.2	---	8.1	57.2	4.8	.9	100.0		
1930-31	3.2	19.9	4.0	---	8.8	54.9	7.2	4.0	100.0		
Average	5.9	11.2	1.5	---	7.8	62.3	6.9	6.8			
<b>Pocahontas County</b>											
1926-27	290	38	486	---	514	46	16	80	1,419	1,711	82.9
1927-28	562	23	57	1	616	---	25	83	1,367	1,471	92.9
1928-29	889	25	7	3	881	3	26	23	1,657	1,849	89.6
1929-30	719	185	24	10	791	5	45	44	1,773	1,881	96.8
1930-31	334	11	350	12	558	6	55	52	1,378	1,380	99.8
In percentage											
1926-27	20.4	2.7	34.2	---	36.2	3.2	1.1	2.1	100.0		
1927-28	41.4	1.7	4.2	.1	45.0	---	1.8	6.1	100.0		
1928-29	58.6	1.6	.4	.2	41.1	.2	1.6	1.4	100.0		
1929-30	40.6	7.6	1.4	.6	44.6	.2	2.5	2.5	100.0		
1930-31	24.2	.8	25.4	.9	40.5	.4	4.0	3.8	100.0		
Average	36.0	2.9	13.1	.4	41.5	.8	2.2	3.2			

TABLE 18.—DIRECTIONAL DESTINATION OF CORN FROM SELECTED COUNTIES (Cont.)  
(In carloads and percentage)

Story County											
1926-27	753	64	37	68	890	9	146	167	2,134	2,344	91.0
1927-28	555	1	4	27	659	1	77	343	1,667	1,711	97.4
1928-29	945	29	4	22	891	7	66	136	2,099	2,149	97.7
1929-30	680	70	1	21	633	—	70	152	1,627	1,682	96.7
1930-31	199	13	50	5	462	7	42	94	872	888	98.2
In percentage											
1926-27	85.8	3.0	1.7	3.2	41.7	.4	6.9	7.8	100		
1927-28	38.3	.1	.2	1.6	39.5	.1	4.6	20.6	100		
1928-29	45.8	1.4	.2	1.0	42.6	.3	3.1	6.4	100		
1929-30	41.8	4.3	.1	1.3	38.9	—	4.3	9.3	100		
1930-31	22.8	1.5	5.7	.6	58.0	.8	4.8	10.8	100		
Average	35.8	2.1	1.6	1.5	43.1	.8	4.7	11.0			
Benton County											
1926-27	140	—	1	1	630	—	—	94	866	906	95.6
1927-28	150	—	—	2	488	—	1	113	669	669	100.0
1928-29	228	1	—	—	644	—	2	128	1,001	1,081	94.3
1929-30	199	—	—	2	628	—	—	191	1,020	1,067	96.5
1930-31	59	—	20	1	276	—	—	141	497	497	100.0
In percentage											
1926-27	16.2	—	.1	.1	72.7	—	—	10.9	100		
1927-28	22.4	—	—	.3	60.3	—	.1	16.9	100		
1928-29	22.6	.1	—	—	64.3	—	.2	12.3	100		
1929-30	19.5	—	—	.2	61.6	—	—	18.7	100		
1930-31	11.9	—	4.0	.2	55.5	—	—	28.4	100		
Average	18.5	—	.8	.2	62.9	—	.1	17.5			

**CHECKED**  
**2003-04**

**TABLE 19.—TYPE OF MARKET SHIPMENTS FROM IOWA'S PRIMARY MARKETS**  
(By years in carloads and percentage)

Year	Out-of-state markets		Iowa's markets			Totals		
	Terminal	Feeder markets	Local state mfg. centers	Reshipment markets	Local	Number of carloads for which we are able to show destination	Total shipments	Percentage destination data are of total state shipments
	Chicago, Peoria, Milwaukee, Kansas City, St. Louis, St. Joseph, Minneapolis, Omaha	Illinois, Wisconsin, Minnesota, Nebr., Kansas, So. Dak., No. Dak. Other outside markets	Cedar Rapids, Clinton, Keokuk, Davenport	Council Bluffs, Sioux City, Des Moines, Burlington, Muscatine	Deficit areas			
1927-28	801	4,836	964	295	249	7,145	15,695	45.5
1928-29	1,511	3,465	217	237	55	5,486	8,953	61.2
1929-30	1,371	3,392	272	325	42	5,398	10,021	53.9
1930-31	1,020	1,934	479	99	42	3,574	6,386	56.0
In percentage								
1927-28	11.2	67.7	13.5	4.1	3.5			
1928-29	27.5	63.2	4.0	4.3	1.0			
1929-30	25.4	62.3	5.0	5.9	.8			
1930-31	28.5	54.1	13.4	2.8	1.2			
Average	23.2	62.0	9.0	4.3	1.6			