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Market Movements of Ohio Eggs

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MARKET MOVEMENTS OF OHIO EGGS

L. G. FOSTER AND F. E. DAVIS

INTRODUCTION

The increasing importance of poultry and eggs in Ohio in the past decade has been so significant that a study of certain aspects of the changing conditions in the marketing of Ohio eggs becomes a major problem for Ohio farmers, dealers, and consumers. This study does not attempt to cover all the aspects of the problem but is confined to the marketing of eggs through the large assemblers located in the various parts of the State. No attempt was made in this study to take into account the activities of farmers who sell direct, of roadside markets and auctions, or of wholesalers and jobbers at terminal markets. The main emphasis has been to get at the problem of the "county shipper" or "packer", who either has contacts with local stores or may have local branch stations that make direct contact with the farmer.

Data were secured directly from the records of 46 private dealers and five farmer-owned cooperative marketing associations.

FACTS PERTAINING TO MARKET MOVEMENTS OF EGGS

Income from the poultry industry of the United States compares favorably with other sources of income from farm production. The seven most important sources of income from farm production are shown in Table 1. The gross income from poultry and eggs was fifth in importance for the years 1924-1928 and 1929; third in 1930 and 1931; and second in 1932. Income from eggs comprises about 60.7[1] per cent of the income from poultry and eggs.

TABLE 1.—Percentage of the Total Gross Income from Farm Production in the United States Derived from Each of the Most Important Sources, 1924-1928 Average, 1929, 1930, 1931, and 1932*

Source	Av. 1924-1928		1929		1930		1931		1932	
	Per cent	Rank	Per cent	Rank	Per cent	Rank	Per cent	Rank	Per cent	Rank
Dairy products	15.7	1	19.5	1	21.6	1	23.4	1	24.5	1
Poultry and eggs	9.6	5	10.3	5	11.2	3	11.7	3	11.7	2
Vegetables	9.1	6	9.5	6	10.0	5	10.5	4	11.6	3
Hogs	13.3	3	12.8	2	14.3	2	13.2	2	10.5	4
Cattle	8.6	7	9.3	7	10.1	4	9.9	5	9.8	5
Cotton and cotton-seed	13.1	4	11.7	3	8.0	7	7.6	6	8.4	6
Grains	13.4	2	10.8	4	8.3	6	6.9	7	6.3	7
All others	17.1	.....	16.1	.....	16.5	.....	16.8	.....	17.2	.....
Total	100.0	.....	100.0	.....	100.0	.....	100.0	.....	100.0	.....
Total value in millions of dollars	11,628	.....	11,918	.....	9,414	.....	6,911	....	5,143	.....

*Compiled from figures issued by Bureau of Agricultural Economics, U. S. Department of Agriculture Year Book 1932 and Crops and Markets, Vol. 10: No. 4, April 1933.

[1]Three-year average calculated from gross income figures, Crops and Markets, Vol. 9: No. 11, p. 441, November 1932.

The Census of 1930 reports 6,288,648 farms in the United States. Of these 5,372,597, or 85 per cent, were reported as having chickens and 62 per cent as selling chicken eggs. Comparable figures for the dairy industry, the most important source of farm income, show that 71 per cent of the farms in the United States report cows kept for milk production, with 50 per cent reporting sales of dairy products.

The Census reports 378,878,281 chickens on farms in the United States on April 1, 1930. The number of chicken eggs produced in 1929 was 2,689,719,158 dozens, and the number sold was 1,955,459,439 dozens.

Approximately 79 per cent of the eggs produced in the United States is produced by farm flocks and only 21 per cent on poultry farms[2]. There are 163,751 poultry farms in the United States. The average size of flocks on poultry farms is 340 birds, with an average annual production of 10 dozens per bird. The average size of flocks on farms other than poultry farms is 62 birds, and the average annual production is 6.6 dozens per bird.

TABLE 2.—Population of the United States (1910, 1920, and 1930) with Percentage Change in 1930 Over 1910 and 1920 by Geographical Divisions*

Geographical division	1910	1920	1930	Percentage change	
				1930 / 1910	1930 / 1920
United States	91,972,266	105,710,620	122,775,046	33.5	16.1
New England	6,552,681	7,400,909	8,166,341	24.6	11.0
Middle Atlantic	19,315,892	22,261,144	26,260,750	36.0	18.0
East North Central	18,250,621	21,475,543	25,297,185	38.6	17.8
West North Central	11,637,921	12,544,249	13,296,915	14.3	6.0
South Atlantic	12,194,895	13,990,272	15,793,589	29.5	12.9
East South Central	8,409,901	8,893,307	9,887,214	17.6	11.2
West South Central	8,784,534	10,242,224	12,176,830	38.6	18.9
Mountain	2,633,517	3,336,101	3,701,789	40.6	11.0
Pacific	4,192,304	5,566,871	8,194,433	95.5	47.2

*Source: Census of 1910, 1920, and 1930.

TABLE 3.—Chicken Eggs Produced (1909, 1919, and 1929) with Percentage Change in 1929 Over 1909 and 1919 in the United States and by Geographical Divisions*

Geographical divisions	1909 Thousand dozens	1919 Thousand dozens	1929 Thousand dozens	Percentage change	
				1929 / 1909	1929 / 1919
United States	1,574,979	1,654,045	2,689,719	70.8	62.6
New England	54,669	37,632	63,103	15.4	67.7
Middle Atlantic	159,465	151,454	253,507	59.0	67.4
East North Central	389,257	400,446	543,261	39.6	35.7
West North Central	442,168	474,592	778,028	76.0	63.9
South Atlantic	134,290	144,662	222,457	65.7	53.8
East South Central	127,309	138,152	176,281	38.5	27.6
West South Central	163,644	157,008	296,460	81.2	88.8
Mountain	35,233	49,993	97,429	176.5	94.9
Pacific	68,944	100,106	259,193	275.9	158.9

*Source: Census of 1910, 1920, and 1930.

[2]The Census definition for a poultry farm is one on which 40 per cent or more of the total farm income comes from poultry.

The geographical relationship of producing and consuming areas is a fundamental factor affecting market movements of eggs in the United States. The geographical distribution of egg production does not coincide with that of population (Tables 2 and 3). Table 4 gives the percentage of the total population in the United States and the percentage of the total number of eggs produced in each of the major geographical divisions of the United States. The eastern part of the United States, particularly the New England, Middle Atlantic, and South Atlantic groups of states, have a higher proportion of the total population than they do of the total number of eggs produced in the country. In the West North Central, West South Central, and the Pacific groups of states the opposite is true. The East North Central group of states, in which Ohio is located, has an equal proportion of population and egg production. Ohio, the extreme eastern state in that group, occupies an advantageous position insofar as movement of eggs to eastern markets is concerned.

TABLE 4.—Percentage of the Total Population and Percentage of the Total Number of Eggs Produced in the United States, by Geographical Divisions, Calculated from Census of 1930

Geographical divisions	Percentage of total population	Percentage of total number of eggs produced
United States	100.00	100.00
New England	6.65	2.35
Middle Atlantic	21.39	9.43
East North Central	20.60	20.20
West North Central	10.83	28.92
South Atlantic	12.86	8.27
East South Central	8.05	6.55
West South Central	9.92	11.02
Mountain	3.02	3.62
Pacific	6.68	9.64

The combined North Central States produce approximately one-half of the eggs in the United States. This is roughly the corn belt area where production is mainly from farm flocks. The commercialized areas of production are situated on the Pacific Coast and along the Atlantic seaboard. The producing areas on the Pacific Coast have climatic conditions very favorable to egg production. The areas along the Atlantic Coast secure their main advantage by being near the large eastern markets.

The wide distribution of production enlarges the problem of assembling eggs for shipment to market. Since many of the markets are at some distance from the producing sections, transportation is an important item in egg marketing. The fact that eggs are perishable further complicates the assembling, packing, and handling procedure.

The seasonal character of egg production affects the market movement of eggs. Under common production practices the chicken hen lays a large part of her eggs during the spring months. When particular production practices are employed in managing a flock of hens, the laying season can be altered. Commercial egg farms employ practices to bring their flocks into production during the fall and winter months. Most farm flocks are not given any particular attention and they produce most of their eggs during the spring months. Since a large proportion of the eggs are produced in the corn belt states by farm flocks, there is a high seasonal variation in production.

A 10-year average (1923-1932) of receipts by months at Boston, New York, and Philadelphia (Table 5), as reported by the U. S. Department of Agriculture, shows that 51.6 per cent of the eggs was received during the 4 months of March, April, May, and June. Average Ohio receipts for the same period represented 61.5 per cent of shipments to these markets. The proportion of total receipts for these markets for the same period during October, November, December, and January was 19.9 per cent; during these winter months Ohio shipped 13 per cent.

TABLE 5.—Variation of Ohio and Total Receipts at Boston, New York, and Philadelphia

Average of 1923-1932 by Months in Per Cent

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Ohio	3.27	3.52	8.56	17.17	19.42	15.36	9.38	7.34	6.21	4.54	2.42	2.81	100.0
Total	5.88	7.03	11.79	14.34	14.25	11.21	8.30	6.94	6.28	5.28	4.05	4.65	100.0

COLD STORAGE

The use of cold storage in holding eggs, both shell and frozen, serves to adjust the seasonal production to the needs of consumption channels. Without the aid of cold storage there would be a limited market for many of the eggs produced during the months of high production. Likewise, there would be too few eggs to meet the market demands of consumers during months of low production.

Operators in the storage business expect to profit from the spread they can get between the price they pay during the spring season and what they receive during the fall and winter. Competition between storage operators tends to strengthen the price of eggs in the spring and to hold the price down in the fall and winter. This is beneficial to the producer through receipt of higher prices in the spring and to the consumer through furnishing a supply of eggs in the fall and winter at prices that are not prohibitive.

The storage season for eggs begins in March. The storage stocks accumulate rapidly during April and May, and the season closes about August 1. The opposite movement begins with slight withdrawals in August and continues with a gradual increase during September. The movement out of storage is heaviest in October and November and continues heavy in December. The remainder of the stocks is gradually exhausted during January and February. No stocks are carried over from one storage season to another, Table 6.

TABLE 6.—Shell Eggs in Storage at the First of Each Month

Average of 1923-1932*

Month	Cases	Month	Cases
	Millions		*Millions*
January	1344	July	9319
February	344	August	9698
March	107	September	9160
April	1148	October	7853
May	4379	November	5654
June	7599	December	3206

*Yearbook of Agriculture, 1933, page 664.

Storage holdings have increased during the last 10 or 20 years, Table 7. Any change in the volume stored from year to year can best be shown by the August 1 figures for total holdings in the United States. Statistics of cold storage holdings were first compiled in a comprehensive way in 1916. Combined cold storage holdings of shell and frozen eggs in the United States for August 1 of the years 1916-1920 were 7,281,000 cases; for 1921-1925, 10,485,000 cases; and for 1926-1930, 12,664,000 cases. These combined holdings for August 1 were 12,781,000 cases in 1931, 9,263,000 cases in 1932, and 12,313,000 in 1933. From the period 1916-1920 to 1926-1930 there was a 74 per cent increase in combined storage holdings in the United States. In past years, approximately 12 to 15 per cent of the total annual production of eggs has been stored[3].

TABLE 7.—Combined Cold Storage Holdings in the United States of Shell and Frozen Eggs* on August 1
1916-1933

Year	Cases	Year	Cases
1916–1920 average	7,281,000†	1931	12,781,000
1921–1925 average	10,485,000†	1932	9,263,000
1926–1930 average	12,664,000	1933	12,313,000

*Frozen eggs converted on the basis of 35 pounds of frozen eggs to one case of 30 dozens of shell eggs.

†F. A. Buechel and S. L. Kedzierski. *Analysis of the Price-Making Forces in the New York Egg Market.* U. S. D. A., Bureau of Agricultural Economics, Washington, D. C. 1932.

OHIO'S POSITION IN THE PRODUCTION OF EGGS

The poultry industry is one of the more important phases of agricultural production in Ohio. It is exceeded in importance only by the products of dairying and of hog raising (Table 8).

TABLE 8.—Percentage of the Estimated Gross Cash Income from the Sale of Agricultural Products from Ohio Farms Derived from Each of the Most Important Enterprises, with Their Relative Importance
1927, 1929, 1930, 1931, and 1932*

	1927		1929		1930		1931		1932	
	Per cent	Rank	Per cent	Rank	Per cent	Rank	Per cent	Rank	Per cent	Rank
Dairy	26	1	26	1	27	1	27	1	28	1
Hogs	21	2	18	2	20	2	16	2	16	2
Poultry	13	3	15	3	15	3	15	3	16	3
Cattle	7	5	9	4	10	4	7	4	9	4
Vegetables	.....	.....	.....	.....	6	5	7	5	7	5
Wheat	9	4	9	5	5	6	7	6	6	6
Sheep	4	6	4	6	.....	.....	.....	.....	.....	.....
Other	20	.....	19	.....	17	.....	21	.....	18	.....
Total	100	.....	100	.....	100	.....	100	.....	100	.....
Total value in thousands of dollars	321,305		333,291		265,115		207,147		141,061	

*Source: Mimeograph Bulletins No. 22 (1928), No. 27 (1930), No. 48 (1932), and No. 60 (1933) of the Department of Rural Economics, the Ohio State University and the Ohio Agricultural Experiment Station.

Estimates of the Department of Rural Economics of the Ohio State University and the Ohio Agricultural Experiment Station, Mimeograph Bulletins

[3]U. S. Department of Agriculture, Farmers' Bulletin 1378 (Revised), p. 4. 1932.

No. 22 (1928), 27 (1930), 48 (1932), and 60 (1933), reveal that in 1927, 26 per cent of the gross cash income from Ohio farms was derived from the sale of dairy products, 21 per cent from the sale of hogs, and 13 per cent from the sale of poultry products. For 1932 similar estimates reveal that 28 per cent of the gross cash income was derived from dairy products, 16 per cent from the sale of hogs, and 16 per cent from the sale of poultry products.

The Census of 1930 gives the production of eggs in Ohio for the year 1929 at 135,990,334 dozens. The value of the eggs produced was $43,149,325. The number of chicken eggs sold by farmers was 109,023,910 dozens, at a value of $34,570,878.

In 1929 Ohio had an increase in egg production of 35.6 per cent over the number produced in 1909, but, in comparison to other states as to number of dozens produced, Ohio fell from third to fifth place. The production of eggs in Ohio for 1929 was 32.8 per cent greater than in 1919. Ohio ranked fourth in the production of eggs in 1919.

Although Ohio is important as a state in the production of eggs, it ships comparatively few eggs to the large eastern markets. During the 5 years 1928-1932, 11 states shipped more eggs to Boston, New York, and Philadelphia than did Ohio (Table 9).

TABLE 9.—Receipts of Eggs at Boston, New York, and Philadelphia by States
Average of years 1928-1932

State	1000 cases	State	1000 cases
Iowa	1625	Kansas	590
Illinois	1081	Indiana	577
Washington	789	Pennsylvania	434
Minnesota	734	Nebraska	339
California	677	Ohio	337
Missouri	610		
New York	608	All others	2169

Since the movement of eggs is primarily from the West to the East, practically no eggs move from Ohio to western markets. For the 10 years 1923-1932 only 4.2 per cent of the combined total receipts at Boston, New York, and Philadelphia were from Ohio (Table 10). The receipts from Ohio have declined during these 10 years (Table 11). Total receipts followed a more nearly constant level with a significant decrease in receipts for only 2 years, 1926 and 1932 (Table 12).

For comparison, receipts from Ohio at Boston, New York, and Philadelphia can easily be separated into two periods of 5 years each (Table 11).

For the 5-year period 1923-1928 receipts from Ohio at Boston, New York, and Philadelphia were 5.3 per cent of the total receipts. For the second period, 1928-1932, they were only 3.2 per cent of the total. Receipts at these three markets from Ohio for the first period averaged 546,465 cases per year; whereas for the last period only 337,093 cases per year were received. Receipts from Ohio were lowest in 1930, with only 300,381 cases. In 1932 receipts from Ohio amounted to 385,682 cases.

The month of highest receipts from Ohio at Boston, New York, and Philadelphia was most often May but occasionally was April or June. Although the yearly receipts of eggs from Ohio at Boston, New York, and Philadelphia have been light during the 5 years 1928-1932, the receipts during some of the winter months in this period have been higher in comparison to the 1923-1932 average receipts for these months than were the winter months during the period 1923-1927.

TABLE 10.—Percentage of Total Receipts of Eggs at New York, Philadelphia, and Boston that are Shipped from Ohio

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1923.....	3.57	3.77	3.85	7.02	7.19	8.51	5.61	5.34	6.38	5.88	2.88	2.80	5.75
1924.....	3.54	1.99	2.47	5.57	7.25	6.64	5.88	5.10	6.02	4.81	2.99	1.95	5.07
1925.....	2.38	2.25	3.27	5.54	5.86	6.57	5.14	5.45	5.38	5.39	2.72	3.10	4.78
1926.....	2.28	2.00	3.62	5.45	6.43	7.78	7.45	7.13	6.82	5.79	2.81	2.28	5.36
1927.....	2.44	2.54	4.35	6.88	7.56	7.60	6.69	6.57	4.21	3.82	2.05	1.80	5.36
1928.....	1.15	1.39	2.31	4.61	5.88	4.83	4.54	3.17	3.29	2.19	1.84	2.43	3.56
1929.....	2.45	0.78	1.57	3.93	3.56	4.30	3.72	3.33	3.12	1.48	1.78	1.92	2.91
1930.....	1.35	1.37	2.75	3.53	4.04	3.40	2.83	2.80	1.98	1.39	1.34	2.51	2.75
1931.....	1.01	1.35	2.75	3.31	3.65	3.89	2.57	2.36	3.01	2.20	2.08	3.53	2.80
1932.....	3.79	3.71	3.65	4.73	5.62	3.77	3.52	3.49	2.85	3.49	4.73	3.00	4.00
10-year av...	2.35	2.11	3.06	5.05	5.75	5.78	4.77	4.46	4.18	3.63	2.52	2.55	5.22

TABLE 11.—Receipts of Eggs at Boston, New York, and Philadelphia from Ohio
1923-1932*

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	Cases	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*	*Cases*
1923.....	21,000	25,000	54,000	98,000	131,000	103,000	48,000	42,000	42,000	35,000	12,000	12,000	623,000
1924.....	17,000	12,000	26,000	91,000	115,000	77,000	53,000	34,000	36,000	26,000	10,000	8,000	505,000
1925.....	11,000	18,000	41,000	94,000	79,000	81,000	43,000	39,000	35,000	28,000	9,000	14,000	492,000
1926.....	14,000	14,000	42,000	68,000	87,000	102,000	64,000	53,000	47,000	30,000	12,000	13,000	546,000
1927.....	16,466	20,179	56,219	113,153	114,773	84,181	53,185	44,842	25,742	20,108	9,252	8,225	566,325
1928.....	7,044	12,348	30,854	67,899	93,646	55,138	41,643	22,885	21,170	12,956	7,730	10,672	383,985
1929.....	15,833	4,273	18,531	62,280	51,763	51,362	37,154	26,472	14,488	8,147	7,474	9,410	307,187
1930.....	8,841	9,000	37,126	57,349	62,376	38,734	26,260	18,142	13,686	7,360	6,382	15,125	300,381
1931.....	7,470	11,248	36,530	50,584	53,122	48,323	21,393	17,843	21,153	12,468	9,625	18,471	308,230
1932.....	26,033	29,587	35,750	56,057	70,031	37,589	26,922	26,213	18,292	20,535	23,620	15,053	385,682
10-year av...	14,469	15,564	37,801	75,832	85,771	67,833	41,456	32,440	27,453	20,057	10,708	12,396	441,779

*Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, Year Book 1927-1933.

TABLE 12.—Total Receipts of Eggs at New York, Philadelphia, and Boston
1923-1932*

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
	1000 cases	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*	*1000 cases*
1923.....	589	664	1,404	1,396	1,822	1,211	855	787	658	595	417	429	10,827
1924.....	480	603	1,054	1,634	1,586	1,159	901	667	598	541	335	409	9,967
1925.....	463	800	1,255	1,697	1,349	1,232	836	715	650	519	331	452	10,299
1926.....	615	699	1,160	1,248	1,353	1,311	859	743	689	518	427	570	10,192
1927.....	674	795	1,291	1,645	1,519	1,108	795	683	612	527	452	456	10,557
1928.....	611	891	1,336	1,473	1,593	1,142	917	723	643	591	421	439	10,780
1929.....	645	546	1,180	1,585	1,453	1,195	1,000	794	685	551	421	489	10,544
1930.....	657	735	1,351	1,626	1,545	1,138	928	647	692	530	476	602	10,927
1931.....	737	832	1,327	1,528	1,454	1,242	834	756	703	567	463	524	10,967
1932.....	686	798	980	1,184	1,245	997	765	752	642	589	499	500	9,637
10-year av...	616	736	1,234	1,502	1,492	1,174	869	727	657	553	424	487	10,470

*Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, Year Book 1927-1933.

OHIO EGG PRODUCTION IN RELATION TO CONSUMPTION NEEDS

The 135,990,334 dozens of chicken eggs produced in Ohio in 1929 were produced on 200,077 farms. The number of farms producing eggs in Ohio in 1929 was 91.2 per cent of all the farms in the State. Of the 135,990,334 dozens of eggs produced, 109,023,910 dozens, or 80.2 per cent, were sold from 172,482 Ohio farms, this number being 78.7 per cent of all farms in Ohio. On April 1, 1930, 200,077 farms reported chickens over 3 months old, the average sized flock being 90 birds. In Ohio there are 10,839 poultry farms. These farms have an average flock of 232 birds with an average annual production of 10.1 dozens of eggs per bird, as compared to an average flock of 82 birds with an average annual production of 7.1 dozens for other farms.

Eggs are produced in every county in Ohio. There is a wide variation between counties in the number of eggs produced and sold (Figs. 1 and 2). The counties of southeastern Ohio as a whole are of minor importance to market movements of eggs in Ohio. There are no highly specialized sections of egg production in Ohio which furnish the principal income of that section.

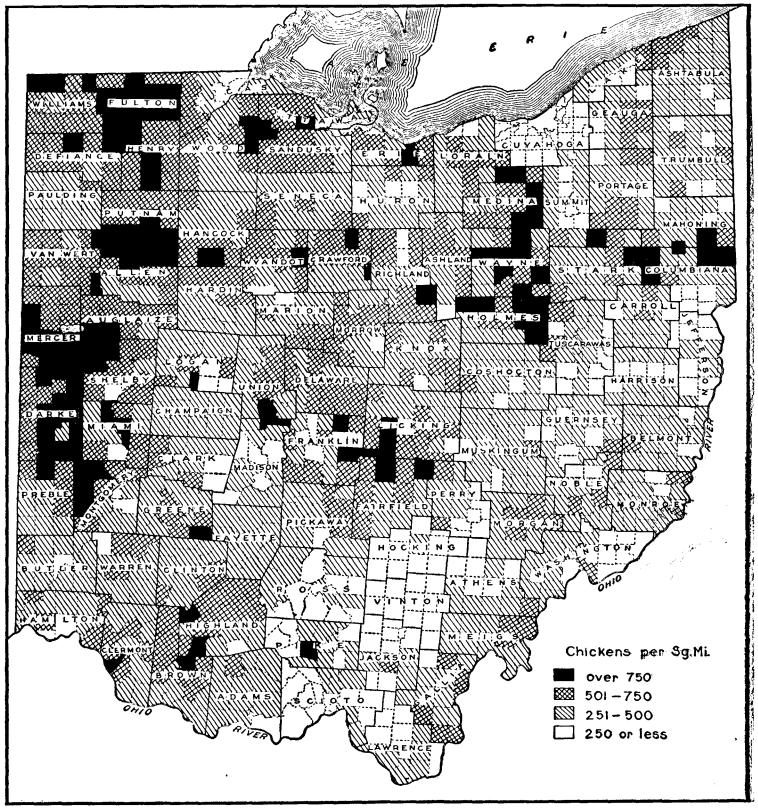

Fig. 1.—Number of chickens per square mile by townships in Ohio, April 1, 1930

The counties in western Ohio, including Darke and Miami, and all counties north, including Williams and Fulton Counties, with their large farm flocks, constitute a highly important area of production of eggs in Ohio. The other area of major importance centers around Wayne, Holmes, and Medina Counties. This area is important for its large farm flocks and, in addition, has numerous commercial and semi-commercial egg-producing farms. Three additional areas are significant to egg production in Ohio; namely, (1) an area in central Ohio, including Franklin, Delaware, Licking, Fairfield, and Pickaway Counties; (2) Highland and Brown Counties in southwestern Ohio; and (3) a small area in southeastern Ohio centering along the Ohio River in Meigs and Washington Counties. A limited number of commercial egg farms is found adjacent to many of the cities in Ohio. This is particularly true in northeastern Ohio.

The relation of egg production in Ohio to egg consumption materially affects the movement of Ohio eggs to market. This relation can be seen from estimates made of the surplus or deficit of production over consumption throughout the year.

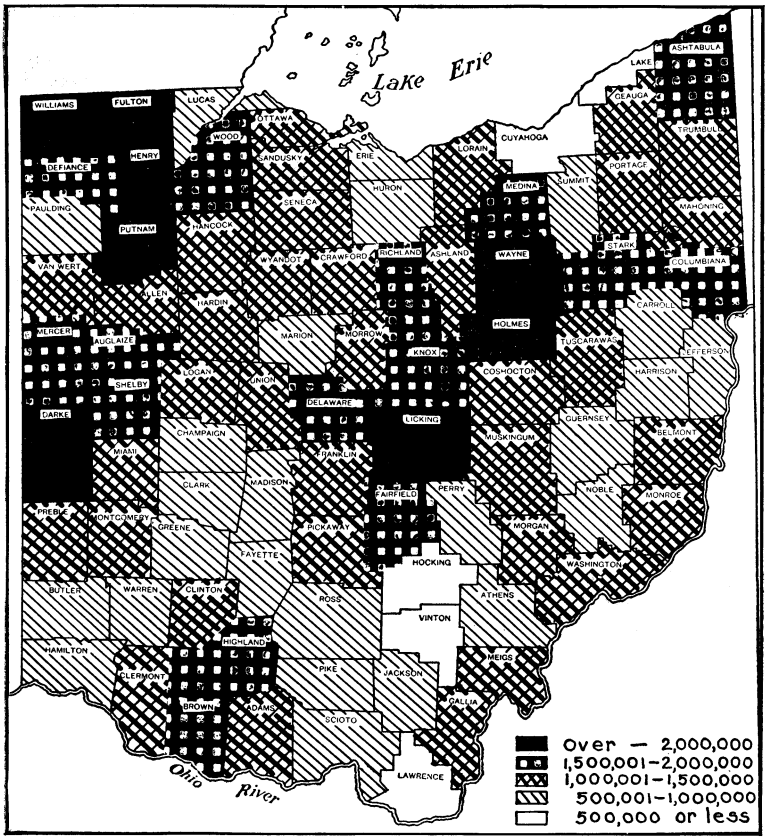

Fig. 2.—The number of dozens of chicken eggs sold in 1929 by counties in Ohio
Source: Census of 1930

The number of eggs consumed by people in Ohio was estimated by applying the yearly per capita consumption of eggs in the United States to the population of Ohio. The seasonal variation in consumption for the year was derived by calculating the quantity consumed monthly in the same proportion as monthly trade outputs of eggs are of the yearly total. The assumption is necessarily made that total yearly per capita consumption in Ohio is similar to the trade output to the consuming population.

TABLE 13.—Estimated Surplus or Deficit Production of Eggs for Ohio Counties, by Months—1929

County	Surplus or deficit in production over consumption			County	Surplus or deficit in production over consumption		
	Total for year	March to August	September to February		Total for year	March to August	September to February
	1000 doz.	*1000 doz.*	*1000 doz.*		*1000 doz.*	*1000 doz.*	*1000 doz.*
Adams	1,068	826	242	Logan	746	626	120
Allen	139	329	— 190	Lorain	— 1,033	— 325	— 708
Ashland	942	725	217	Lucas	— 6,467	— 3,158	— 3,309
Ashtabula	651	672	— 21	Madison	480	388	92
Athens	77	225	— 148	Mahoning	— 3,749	— 1,713	— 2,036
Auglaize	1,634	1,240	394	Marion	37	164	— 127
Belmont	— 736	— 175	— 561	Medina	1,608	1,195	413
Brown	1,410	1,064	346	Meigs	799	653	146
Butler	— 1,188	— 418	— 770	Mercer	1,591	1,203	388
Carroll	681	513	168	Miami	422	484	— 62
Champaign	533	461	72	Monroe	960	787	173
Clark	— 956	— 321	— 635	Montgomery	— 4,258	— 1,956	— 2,302
Clermont	825	658	167	Morgan	1,191	889	302
Clinton	846	639	207	Morrow	1,038	748	290
Columbiana	122	376	— 254	Muskingum	15	273	— 258
Coshocton	649	535	114	Noble	711	557	154
Crawford	— 337	— 219	— 118	Ottawa	464	398	66
Cuyahoga	—24,950	—12,674	—12,276	Paulding	709	508	201
Darke	2,413	1,809	604	Perry	202	267	— 65
Defiance	1,367	1,011	356	Pickaway	710	570	140
Delaware	1,321	980	341	Pike	471	384	87
Erie	97	213	— 116	Portage	636	571	65
Fairfield	801	679	122	Preble	1,006	748	258
Fayette	295	247	48	Putnam	2,142	1,517	625
Franklin	— 5,907	— 2,745	— 3,162	Richland	444	527	— 83
Fulton	2,153	1,529	624	Ross	— 118	50	— 168
Gallia	1,084	848	236	Sandusky	633	554	79
Geauga	1,051	762	289	Scioto	— 1,025	— 399	— 626
Greene	430	399	31	Seneca	581	544	37
Guernsey	181	290	— 109	Shelby	1,380	1,049	331
Hamilton	—11,430	— 5,670	— 5,760	Stark	— 2,581	— 976	— 1,605
Hancock	739	630	109	Summit	— 6,393	— 3,118	— 3,275
Hardin	651	549	102	Trumbull	— 1,067	— 295	— 772
Harrison	242	226	16	Tuscarawas	— 53	200	— 253
Henry	1,812	1,294	518	Union	1,080	792	288
Highland	1,600	1,214	386	Van Wert	1,003	760	243
Hocking	109	158	— 49	Vinton	231	203	28
Holmes	1,871	1,319	552	Warren	681	551	130
Huron	378	359	19	Washington	468	494	— 26
Jackson	358	350	8	Wayne	2,031	1,526	505
Jefferson	— 1,128	— 453	— 675	Williams	1,619	1,174	445
Knox	1,070	810	260	Wood	930	786	144
Lake	— 296	— 59	— 237	Wyandot	584	435	149
Lawrence	— 258	— 4	— 254				
Licking	1,298	1,082	216	State	—15,429	—12,918	—28,347

In addition to eggs consumed as human food there are those used for hatching purposes. Commercial hatcheries in Ohio are important users of eggs during certain months of the year. Ohio hatcheries use approximately

7.4 per cent of the eggs sold in Ohio. Hatcheries use most of these eggs from January to June. Considerable quantities of eggs are also used for farm hatching. The total number of eggs used for these purposes, as well as the monthly distribution, has been estimated and subsequently used in determining surpluses or deficits in the production of eggs over their consumption.

Production of eggs in Ohio is available from the United States Census. Seasonal distribution of production is based on figures of the Federal-State Cooperative Crop and Livestock Reporting Service[4].

The surplus or deficit of production of eggs over consumption in Ohio has been estimated from Census figures and other sources already indicated for the year 1929, except that the population was as of April 1, 1930.

The surplus or deficit of production of eggs over consumption was estimated by counties in the State, as well as for the State of Ohio as a whole (Table 13).

The estimates made show that 151,419,000 dozens of eggs were consumed for human food and for hatching purposes in Ohio in 1929. The Census reports 135,990,334 dozens of eggs produced in Ohio in 1929. This makes an estimated yearly deficit in Ohio of 15,428,666 dozens of eggs. On this basis Ohio consumes 11.3 per cent more eggs than are produced. A deficit of production of eggs under consumption does not occur during every season of the year. There is a surplus in production during the months of May, June, July, and August. A deficit in production under consumption occurs during the other 8 months. Table 14 shows the extent of the deficit or surplus by months.

TABLE 14.—The Amount of Surplus and Deficit Production of Eggs in Ohio, 1929

Deficit months		Surplus months	
Months	Thousands of dozens	Months	Thousands of dozens
January	−5,777	May	5,462
February	−3,584	June	3,178
March	−1,139	July	5,071
April	−2,679	August	3,025
September	−2,091		
October	−3,592		
November	−6,478		
December	−6,825		

TABLE 15.—The Number of Counties That Have a Deficit Production of Eggs as Compared to Consumption—1929

Month	Number	Month	Number	Month	Number
January	39	May	14	September	25
February	28	June	16	October	30
March	21	July	13	November	49
April	21	August	17	December	48

A surplus occurred in some counties every month of the year; likewise, a deficit occurred in some counties every month of the year. Table 15 gives the number of counties with a deficit by months. To aid in securing a better picture the year was divided into two 6-month periods to correspond roughly

[4]Ohio Agricultural Statistics for 1929, 1930, and 1931. Ohio Agr. Exp. Sta. Bull. 503, p. 52. 1932.

with the two seasons of the egg year which begins March 1 and ends the beginning of the following March. This gives the two periods March to August and September to February. Thus, Table 16 shows that for the period March to August there were 18 deficit counties and 70 surplus counties. The deficit of the 18 counties for this period was 34,678,000 dozens and the surplus for the 70 counties was 47,596,000 dozens, or a net surplus in the State of 12,918,000 dozens. For the period of low production, September to February, there were 33 deficit counties and 55 surplus counties. The deficit for the 33 counties was 41,010,000 dozens and the surplus for the 55 counties was 12,663,000 dozens. The net deficit for this period was 28,346 dozens; the net deficit for the year was 15,429,000 dozens. Twenty counties had a total deficit of 73,930,000 dozens for the year and the remaining counties had a surplus of 58,501,000 dozens.

TABLE 16.—The Number of Counties and the Amount of Surplus or Deficit Production of Eggs for the Whole Year and for 6-month Periods—1929

Period	Deficit		Surplus	
	No. of counties	Thousands of dozens	No. of counties	Thousands of dozens
March to August	18	—34,678	70	47,596
September to February	33	—41,010	55	12,663
Year	20	—73,930	68	58,501

Table 13 shows for each county the extent of surplus or deficit for the year and for each of the 6-month periods. Figure 3 A pictures the situation by showing the areas in which the deficit counties are located.

The proportion of the population of the State living in the different crop reporting districts differs widely from the proportion of the total production of eggs in those same districts (Fig. 3 B). The greatest discrepancies appear in Districts 3 and 7, which are primarily industrial and in which the proportion of the State's population shows a high degree of concentration, and in Districts 1, 2, 4, and 5, in which the proportion of the State's egg production is high in comparison with population.

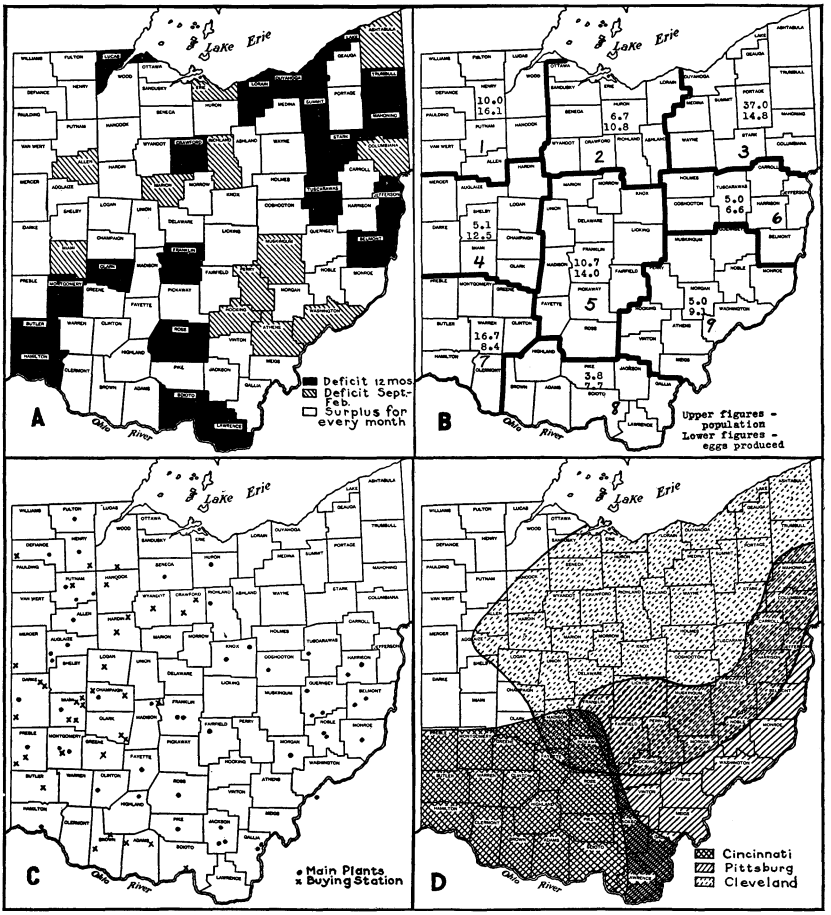

Fig. 3 A.—Estimated surplus or deficit production of eggs for Ohio counties by months.

B.—The per cent of the State population in Ohio (1930) and the per cent of eggs produced (1929) by crop reporting districts.

C.—The location of the Ohio egg dealers interviewed in this study.

D.—Areas in the State that used the Cincinnati, Pittsburgh, & Cleveland Market Quotations as a basis of buying prices at country points.

MOVEMENT OF EGGS FROM PRODUCING AREAS

PRESENT CHANNELS

Channels of trade through which Ohio eggs pass from the farm to the consumer vary widely. The prevailing types of agencies in Ohio that handle eggs and perform functions in the movement of eggs to market for distribution consist of country stores, hucksters or truckers, local buyers, auctions, packer-shippers, and producer-owned cooperative marketing associations. Not all eggs pass through the hands of these agencies and subsequent market channels to the consumer.

The producer may elect to sell his eggs directly to the consuming trade and not to the above-mentioned concentration agencies. In so doing he may sell to consumers, to retail agencies, to jobbing agencies in nearby cities, and to wholesalers or jobbers at the terminal markets.

Direct sales by producers to consumers usually take the form of sales from roadside stands and farmers' doors, parcel post and express shipments, or sales on a regular, established city route on which the producer contacts consumers. Much can be said for these methods of sale by those producers who live in fairly close proximity to terminal markets, within shipping distance, or on well travelled highways.

Retail agencies to which producers frequently sell direct are: retail grocery and food stores, restaurants, clubs, hotels, or to a dining car service.

As previously pointed out, there were 109,023,910 dozens of chicken eggs sold in Ohio in 1929. Commercial hatcheries in Ohio use approximately 8,096,542 dozens annually. The population in small communities in Ohio consumes about 9,709,000 dozens annually. These are consumed in the localities where they are produced and do not pass through the hands of local concentration agencies. This leaves approximately 91,218,368 dozens to be assembled and forwarded to terminal markets. The country shippers interviewed handle about 600,000 cases of eggs annually, or 18,000,000 dozens. This means that 20 per cent of the eggs produced in Ohio pass through dealers' plants. Data collected from the trade indicated that the dealers included in this study represent 80 per cent of the volume of eggs handled by agencies which assemble, pack, and ship over 10,000 cases of eggs annually. In other words, 25 per cent of all eggs in Ohio passing out of the immediate locality in which they are produced are handled by this type of agency.

The above information indicates the importance of the country shippers, or packer type of egg dealers, in Ohio. As regards the importance of other outlets for eggs in Ohio, we find that 415 producers in northeastern Ohio used 15 outlets[5] to some extent. A part of these producers used more than one outlet. The seven most frequently used outlets, together with the number of producers using them, are as follows: local grocer, 140; trucker, 139; direct to consumer, 107; roadside markets, 61; high-class retailers, 34; hatchery, 12; and wholesalers, 11. Information available on Trumbull, Portage, and Columbiana Counties[6] shows the outlets used by a group of farmers in each of these counties. The number of producers using the various outlets is as follows: *Trumbull County*—huckster, 109; grocery, 139; retail, 97; roadside, 29; hotels, 5;

[5]W. B. Stout. Department of Rural Economics, the Ohio State University and the Ohio Agricultural Experiment Station, Mimeograph Bulletin No. 35. 1931.

[6]C. M. Ferguson. *A Survey of Egg Marketing in Northeastern Ohio.* Ohio Agricultural Extension Service, Mimeograph Circular. May, 1933.

direct shippers, 4; other, 18. *Portage County*—huckster, 103; grocery, 51; retail and roadside, 79; other, 20. *Columbiana County*—huckster, 106; grocery, 43; retail, 35; roadside, 5; hatchery, 10; and other, 12.

From the above data it is evident that few eggs in northeastern Ohio are handled by country shippers or packers. The country shippers or packers are confined, for the most part, to the western half of the State. Figure 3 C indicates the location of firms from whom questionnaires were secured and shows that such firms are located largely in western Ohio. Since these firms are thus located and since they handle approximately 20 per cent of the eggs assembled in Ohio, one may conclude that a great deal more than 20 per cent of the eggs in western Ohio is handled by country shippers and packers and fewer in eastern Ohio.

During the years 1930-1931 and 1931-1932 fewer companies located at terminal markets were operating buying stations in producing areas of Ohio than during the 3 preceding years. These terminal companies were depending on local buyers or terminal-market supplies for their eggs.

Produce dealers who formerly assembled carlots of eggs and shipped to the various markets have in recent years turned to the truck as a means of getting their eggs to market. Frequently, a dealer's volume has decreased due to competition with local buyers or demands of nearby markets, and he finds it impossible to assemble carlots as formerly. He may wish to move his eggs to market more quickly or more frequently and economically and has found the use of the truck a solution to his problem. Occasionally, a change of freight schedule or the inadequacy of service has forced a dealer to cease shipping by freight.

Some dealers formerly shipping by express or by freight in carlots, who are located in areas being invaded by truckers and hucksters from nearby markets, are developing their business by selling to these buyers rather than competing with them in buying from the producers. The truckers and hucksters are either retailers or small jobbers of eggs in nearby cities and are interested in a reliable supply of fresh eggs for their trade. Many of these truckers and hucksters consider it to their advantage to be able to deal with the produce dealers who assemble from the producers instead of having to use their time in locating good producers and calling for their eggs frequently.

Other carlot and l. c. l. shippers are developing a jobbing business that is taking an increasing proportion of their total egg volume. They make small express shipments to various types of retailers who need a constant and reliable supply of fresh eggs and can afford to pay the cost of the small shipments.

In analyzing the records of one of the larger dealers it was found that the nature of his outlets was changing in a rather pronounced way. During the season of 1927-1928, 75 per cent of his business was sold through freight shipments. In the year 1928-1929, 66 per cent was marketed by freight; whereas, in the year 1931-1932, 61 per cent was handled by freight. In considering his changed methods of shipments, it was found that express and truck shipments secured the proportion of the business formerly handled by freight. In this particular case this was due to a change in emphasis in merchandising methods in which sales in small lots of one or two cases showed a marked increase over the previous period. Dealers throughout the State were finding it necessary to change their marketing practices, because the advent of the motor truck and good roads had placed many sections of the State at the outskirts of markets in cities in Ohio and Pennsylvania and, in some cases, greater New York, which formerly played but a minor part in the Ohio market for eggs (except in the storage season).

TYPE OF BUSINESS OF THE COUNTRY DEALER

In most cases, either live or dressed poultry was an important part of the total business handled; cream was the other principal farm product handled. Frequently, a firm would manufacture butter. Other minor lines of business handled were: cheese, mayonnaise, feed and supplies, ice cream, and milk. The average Ohio packer has diversified his business to the extent that an economical operation of his plant is possible throughout the year. In certain seasons of the year he is distinctly a wholesaler; whereas in other seasons he does a jobbing and retail business.

These dealers assembled eggs from the territory around their plants and, on the average, received eggs from a radius of 40 miles. Some received eggs regularly from a distance of from 5 to 75 miles.

One-third of the dealers made no attempt to acquaint the producer with better methods of egg production and care of eggs; one-third actually had men visit the farms and suggest certain production practices; and the remaining third endeavored to get better eggs through circulating literature on better methods of egg production and through personal contact at the plant when producers came in.

Three-fourths or more of the firms operated pick-up routes to producers or buyers. These were operated nearly always by the firms' trucks. The firms operated on the average about seven routes, although the number operated ranged from 1 to 28 routes per firm. The average distance for the trip on each route was 44 miles, with an average of 36 patrons per route. Not more than half of the dealers collected their eggs more often in the warm seasons of the year than during cool seasons. Two-thirds of the dealers paid the same price for eggs collected on the routes as they did for those delivered to the plants. One-third paid less on their routes, usually paying about one cent per dozen less than they paid at the plant.

No common practices were used in determining what differential in price, if any, was paid to local buyers over the price to the producers. Whatever it was necessary to pay at a given time was paid, and this varied frequently. Eighteen dealers out of 51 visited made a practice of storing eggs for their own account. The amount stored varied from 100 to 13,000 cases per year. The average number stored by these dealers was 4213 cases. The principal points of storage were Cleveland, Detroit, Columbus, Toledo, Cincinnati, and Dayton. Some storing was done in eastern markets. With most dealers storing was carried on to furnish them an adequate supply of eggs for the jobbing trade which they carried on. Other dealers having no jobbing trade stored for the prospective speculative profits that might be gained. In only one instance did a dealer hedge his storage stock by selling a future contract against his storage holdings.

When the survey was made, 12 dealers in the State were buying eggs on a graded basis from producers. Many were still buying by case count. A few were buying with "loss off", and several were paying premiums to the better producers. Those dealers who expressed any preference as to the source of their supply of eggs preferred to get them from producers rather than from any of the various local buyers.

With only one or two exceptions, dealers bought at least half of their eggs from producers, many of them buying from 85 to 100 per cent from producers.

Those dealers who bought on grade from producers most often used two grades as the basis. The cooperative producer organizations paid their members on the basis of three principal grades. There was little uniformity among dealers in the spread in price that was paid for the various grades of eggs. Some dealers buying on two grades made as much as 10 cents per dozen difference in price from July to November; whereas their spread was 2 cents per dozen during May and June. Some dealers, using three grades, paid 2 cents per dozen premium for first grade over second grade and 2 cents premium for second grade over third grade. One of the main difficulties that dealers have encountered in buying eggs on a graded basis has been the problem of getting farmers to understand the differences between the various grades and reasons why various grades of eggs are worth different prices.

THE BASIS OF BUYING PRICES

The dealers interviewed were asked to name the market or markets on which they based their buying grades during the flush season of production and during the remainder of the year. For the flush season most of the larger shippers based their buying prices on New York quotations. Occasionally, a dealer used Chicago or Boston as a partial basis for his buying prices. The smaller shippers used the nearby markets as their basis during the entire year. Larger dealers used the nearby markets during the period of low production. Cleveland, Pittsburgh, and Cincinnati were the prevailing local markets used as a basis for local buying prices. Figure 3 D shows the areas in the State that used these three nearby market quotations as a basis for local prices. Prices in western and northwestern Ohio are, for the most part, based on New York quotations during the entire year.

TABLE 17.—Percentage of Eggs (Handled by Three Representative Firms in Ohio) that Fall into Three Market Grades, by Months for the Years 1929-1930, 1930-1931, and 1931-1932 and the Average for the 3 Years

	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total
Per cent in Grade 1													
1929-30.....	75.0	79.9	81.0	76.2	69.7	67.6	62.5	37.5	34.4	55.0	69.5	73.9	70.1
1930-31.....	75.4	83.5	84.9	79.2	68.5	62.6	63.1	41.1	33.1	44.5	55.5	72.6	68.6
1931-32.....	71.6	75.5	77.4	71.6	53.5	58.5	53.5	38.9	38.6	49.5	72.7	68.9	64.7
Av. for 3 years ..	74.0	79.6	81.1	75.7	63.9	62.9	59.7	39.1	35.4	49.7	65.9	71.8	67.8
Per cent in Grade 2													
1929-30.....	17.1	11.5	10.4	14.8	18.6	19.8	21.4	40.2	39.3	29.7	22.3	20.6	18.7
1930-31.....	19.2	11.8	11.4	15.5	21.2	28.1	22.1	38.5	44.0	30.9	25.7	21.7	21.3
1931-32.....	18.7	18.6	14.9	17.4	30.7	29.3	24.4	37.1	39.9	34.2	20.3	27.0	23.8
Av. for 3 years ..	18.3	13.9	12.2	15.9	23.5	25.8	22.6	38.6	41.0	31.6	22.8	23.1	21.3
Per cent in Grade 3													
1929-30.....	7.9	8.6	8.6	9.0	11.7	12.6	16.1	22.3	26.3	15.3	8.2	5.5	11.2
1930-31.....	5.4	4.7	3.7	5.3	10.3	9.3	14.8	20.4	22.9	24.6	18.8	5.7	10.1
1931-32.....	9.7	5.9	7.7	11.0	15.8	12.2	22.1	24.0	21.5	16.3	7.0	4.1	11.5
Av. for 3 years ..	7.7	6.5	6.7	8.4	12.6	11.3	17.7	22.3	23.6	18.7	11.3	5.1	10.9

Data from three representative firms were selected to make an analysis of what proportion of eggs handled were of different market grades. In making an analysis of this type a variation in grade terminology and in the meaning of a particular term was found. Three grades were used in making the

analysis. These conform generally with the U. S. Grades of Extras, Standards, and Trades. Other grades were omitted. Table 17 gives the results of this analysis. In this analysis Grade 1 is the top grade; Grade 2, the middle grade; and Grade 3, the lowest. The data for 3 years only could be used, and, therefore, no definite trend from year to year could be shown. However, these data depict in a clear way the proportion of eggs of the various grades at the different seasons of the year.

The highest percentage of good eggs, or Grade 1, is produced during the spring months, which constitute the high season of production. As the weather becomes warmer and production slumps off the percentage of Grade 1 decreases and that of the lower grades increases. During the 2 months of April and May the percentage of Grade 1 eggs is highest. For the 3 years the eggs handled in April averaged 79.6 per cent Grade 1 and those handled in May, 81.1 per cent. October and November stand out as the months having the lowest percentage of Grade 1 eggs. The 3-year average of Grade 1 eggs in October was 39.1 per cent and in November, 35.4 per cent.

Grades 2 and 3 are directly opposite to Grade 1 in the months of highest and lowest percentages. For the 3 years the months of the highest proportions of Grade 2 eggs are October and November and the months of lowest proportions are April and May. The grades, in per cent, were 28.6 and 41.0 for October and November, respectively, and 13.9 and 12.2 for April and May, respectively. The months with the highest proportion of Grade 3 eggs were also October and November, with 22.3 and 23.6 per cent, respectively. The months having the lowest proportion of Grade 3 eggs were February, with only 5.1 per cent, and April, with 6.5 per cent.

TABLE 18.—Percentage of Their Yearly Volume of Eggs that Ohio Dealers Handle by Months—1927-1928 to 1931-1932

Year	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total
1927-28.....	10.21	19.65	18.64	13.80	9.48	6.14	4.93	3.29	2.24	3.12	3.82	4.68	100.0
1928-29.....	9.05	17.83	18.08	12.56	9.62	7.63	5.98	4.03	3.13	3.43	4.35	4.31	100.0
1929-30.....	10.47	20.02	17.87	11.84	8.79	6.93	5.26	3.39	2.64	2.97	4.08	5.74	100.0
1930-31.....	15.19	19.62	18.26	11.59	8.94	6.29	4.30	3.03	1.98	2.55	3.17	5.08	100.0
1931-32.....	11.32	21.89	17.66	11.90	7.75	6.12	5.01	3.16	2.53	2.61	4.41	5.64	100.0
Av. for 5 years.	11.79	20.05	18.02	12.06	8.73	6.57	5.01	3.32	2.47	2.84	3.93	5.21	100.0

As there were fewer good eggs during the summer and fall, the percentage of Grade 1 eggs decreased and that of Grades 2 and 3 increased. By October many pullets have begun production. These eggs are small and grade low, being usually graded as pullet eggs and later fall into Grade 3 eggs. As pullets continue in production they gradually produce larger eggs which grade higher. Flocks other than pullets may begin laying in the fall months, but these eggs are likely to be small until the birds progress farther into the laying season. By December the eggs become of better size both from pullets and older hens. As the eggs become larger there is a higher percentage of Grade 1 and lower percentage of Grades 2 and 3. In January and February as the normal laying season approaches, eggs are larger, more uniform, and less likely to be defective; also the percentage of Grade 1 eggs increases rapidly.

The monthly volume of eggs handled by dealers in Ohio is shown in Table 18. In every year except 1928-1929 the proportion handled in April was the

highest of any month; November was the lowest. For the 5 years, approximately 50 per cent of the eggs was handled during March, April, and May. The three lowest months (October, November, and December) handled only 8.6 per cent of the total.

METHODS OF TRANSPORTATION

TRANSPORTATION PRACTICES OF OHIO SHIPPERS

Methods of transportation and practices used varied with individual shippers due to the type of outlets they had, the markets to which they shipped, and the location of their plants in the producing areas. A picture of what the predominant practices were among Ohio shippers and any changes that have been taking place is essential to a study of this kind.

TABLE 19.—Percentage of Eggs Shipped by Different Methods by Ohio Dealers in 3-month Periods—1927-1928 to 1931-1932

Method of shipment	Mar., Apr., and May	June, July, and Aug.	Sept., Oct., and Nov.	Dec., Jan., and Feb.	Total
1927-28					
Freight	86.31	69.19	26.71	8.00	70.61
Truck	7.50	15.14	12.59	4.52	10.04
Express	6.19	15.67	60.70	87.48	19.35
Others	.....	.....	.....	.....	.....
Total	100.00	100.00	100.00	100.00	100.00
1928-29					
Freight	77.00	56.48	22.89	.....	59.52
Truck	16.49	28.88	25.96	33.58	22.18
Express	6.51	14.64	51.02	66.37	18.28
Others	.....	.....	0.13	0.05	0.02
Total	100.00	100.00	100.00	100.00	100.00
1929-30					
Freight	71.94	59.43	41.07	39.53	62.98
Truck	22.97	30.47	27.38	26.20	25.68
Express	5.09	10.10	31.48	34.26	11.33
Others	.....	.....	0.07	0.01	0.01
Total	100.00	100.00	100.00	100.00	100.00
1930-31					
Freight	81.55	60.88	33.45	47.22	68.82
Truck	16.13	30.18	29.97	31.91	22.54
Express	2.32	8.93	36.57	20.86	8.63
Others	.....	0.01	0.01	0.01	0.01
Total	100.00	100.00	100.00	100.00	100.00
1931-32					
Freight	82.18	59.20	34.52	53.50	70.55
Truck	15.63	31.96	33.29	29.46	21.99
Express	2.18	8.82	32.10	16.96	7.44
Others	0.01	0.02	0.09	0.08	0.02
Total	100.00	100.00	100.00	100.00	100.00

Information as to the method of transportation employed for each shipment for all dealers was a part of the data collected. These were tabulated and the proportionate volume of the total that was shipped by each method was secured.

Freight, truck, and express were the only methods employed which were of any significance. In the neighborhood of 60 to 70 per cent of the eggs shipped by Ohio dealers moved by freight, 20 to 25 per cent by truck, and from 7 to 20 per cent by express (Table 19). These figures are for the period as a whole. The percentage shipped by express was nearer the lower figure for the last 3 years of the study.

There is evidence of some change in the method of shipment during the 5 years 1927-1928 to 1931-1932. The percentage shipped by freight was 70.6 for the year 1927-1928. It declined to 59.5 and 63, respectively, for the years 1928-1929 and 1929-1930. The next year, 1930-1931, the percentage shipped by freight rose to 68.8 and the following year, 1931-1932, to 70.5 per cent. This change from more than 70 per cent shipped by freight to less than 60 per cent and back to above 70 per cent within the 5-year period is one well worth noting.

There was a definite increase in the percentage of eggs shipped by truck during the 5 years 1927-1928 to 1931-1932. The percentage of eggs shipped by truck for the year 1927-1928 was only 10 per cent, but for each of the 4 years following was between 22 and 25 per cent.

The proportion shipped by express was 19.4 per cent of total shipments for 1927-1928 but declined to 18.3 per cent in 1928-1929, to 11.3 per cent in 1929-1930, to 8.6 per cent in 1930-1931, and finally to 7.4 per cent in 1931-1932.

In addition to yearly changes in the method of shipping used by Ohio dealers, there occurred seasonal shifts in the methods of making shipments. For the purpose of determining these seasonal changes the year has been divided into quarters, beginning with March, April, and May and continuing by 3-month periods.

Approximately four-fifths of the total shipments of eggs were made by freight during March, April, and May. During other seasons of the year freight shipments declined to approximately one-third of the total shipments. Truck shipments, although constituting only 15 to 20 per cent of total shipments in the months of March, April, and May, increased during the remainder of the year to 25 to 35 per cent of the total shipments. Express shipments, while of practically no importance during the spring months, when less than 5 per cent of all eggs was moved by this method, became important in the fall and winter months when one-third or more of the eggs were shipped by this method.

As mentioned above, seasonal changes or shifts have occurred in the methods of making shipments. One important change is the increasing use of freight from September to February in 1927-1928 and 1928-1929; during these months in the succeeding 3 years 40 to 45 per cent of the eggs shipped were sent by freight.

Although truck shipments became more important in the last years of the 5-year period, there was only one seasonal shift of importance in this method. This occurred during the months of March, April, and May. Truck shipments gained in importance in these months for the years 1928-1929 and 1929-1930 over 1927-1928. The percentage shipped by truck for these months was 7.5 in 1927-1928, 16.5 in 1928-1929, and 23 in 1929-1930. For the following 2 years truck shipments became of less importance for the months of March, April, and May. The proportions which truck shipments were of the total shipments in these months for 1930-1931 and 1931-1932 were 16.1 and 15.6 per cent, respectively.

Seasonal shifts in express shipments were greater than for either freight or truck shipments. Although a minor method of shipment in the spring months, express shipments became less important each year for these months. This decline occurred for each of the other 3-month periods but is greatest for the months of December, January, and February. There was a definite shift of the period of highest proportion of express shipments from the period of December, January, and February to the period of September, October, and November.

As previously pointed out, methods used by dealers in Ohio in shipping eggs depended largely upon the type of outlets used, the volume of eggs handled, and their location in the State.

Some dealers with outlets in nearby cities usually trucked a large part or all of their eggs to these markets. Others who were mainly interested in a large volume during the flush season of the year and who did not grade or sort usually shipped them in carlots to terminal markets. Those who graded their eggs carefully and packed high quality eggs often had sufficient quantities of their better grades during the flush season to ship carlots to the terminal markets. During the season of the year when production was low, these same dealers did not have sufficient volume of good eggs for carlots. They often would ship their better eggs by express or l. c. l. freight to those markets that offered the best price. If these dealers had large quantities of good fresh eggs during the season of scarcity they were frequently able to dispose of them more advantageously by shipping a portion of them by express to various markets that paid a premium for quality. Some dealers had developed a jobbing business direct from their assembling plant that called for small express shipments of from one to five cases to widely scattered points throughout the East.

Material was available from part of the dealers that indicated what shipments were made in carlots for the years 1929-1930, 1930-1931, and 1931-1932. The proportion of all shipments that were carlot shipments is shown in Table 20. A change in the proportion of the total shipments that were carlots is apparent during the 3 years. This proportion increased from 40.2 per cent in 1929-1930 to 54.9 per cent in 1930-1931 and to 59.5 per cent in 1931-1932.

TABLE 20.—Percentages the Carlot Shipments were of the Total Shipments for Six Ohio Shippers, 1929-1930, 1930-1931, and 1931-1932

Year	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Total
1929–30.....	36.3	77.7	69.6	36.2	24.0	6.0	.....	.....	.....	.....	9.3	14.3	40.2
1930–31.....	66.8	78.9	94.9	46.0	34.5	19.6	.....	.....	.....	.....	.....	33.7	54.9
1931–32.....	64.1	82.3	87.9	62.4	21.7	10.5	.....	.....	.....	.....	13.2	60.9	59.5

No carlot shipments of eggs were made by these dealers during the months of September, October, November, and December. April was the month with the highest proportion shipped by carlots for the year 1929-1930. In April 77.7 per cent of the eggs was shipped in carlots, and in May for the same year 69.6 per cent of the eggs was so shipped. For the years 1930-1931 and 1931-1932, May was the month in which the highest proportion was shipped by carlots. For these 2 years the percentages for May were 94.9 and 87.9, respectively, and for April, the next highest month, the percentages were 78.9 and 82.3, respectively. Table 20 shows an increase in the proportion of eggs shipped by carlots for the months of January, February, and June for the year 1931-1932, as compared to the preceding 2 years.

A knowledge of what it cost to ship eggs by the different methods to various localities is important in understanding the relation and possible changes in method of shipping eggs. The cost to ship by truck to those markets which are usually reached through this method can be safely estimated at one cent per dozen. Freight costs can be considered at 2 cents per dozen for most sections of the State. This will cover l. c. l. shipments to many of the markets for Ohio eggs and also carlot shipments to all the eastern markets. Express rates are highest of the three important methods of shipment. It costs from 3 to 4 cents per dozen to ship eggs to those eastern markets usually reached by Ohio eggs.

MARKET OUTLETS FOR OHIO EGGS

Although Ohio eggs are shipped to many points in eastern United States, a few cities stand out as the principal markets receiving the bulk of the eggs shipped. Four cities—Cleveland, Boston, Pittsburgh, and New York—are the outstanding markets (Table 21). These markets were the destination of 60.7

TABLE 21.—Markets Receiving Over 1500 Cases of Eggs per Year from Ohio Shippers and Percentage Each Received of Total Shipments

1929-1930, 1930-1931, and 1931-1932

Destination	1929-1930		1930-1931		1931-1932	
	Cases	Pct. of total	Cases	Pct. of total	Cases	Pct. of total
Cleveland	30,925	20.5	45,552	24.3	47,716	22.9
Boston	23,515	15.6	24,489	13.1	18,845	9.1
Pittsburgh	20,509	13.6	24,747	13.2	18,138	8.7
New York	16,593	11.0	20,461	10.9	60,617	29.1
Fort Wayne	7,599	5.0	13,582	7.2	14,850	7.2
Dayton	6,741	4.5	7,646	4.1	8,574	4.1
Detroit	6,677	4.4	14,786	7.9	2,988	1.4
Columbus	6,647	4.4	6,145	3.3	4,358	2.1
Philadelphia	6,115	4.0	3,470	1.9	3,507	1.7
Cincinnati	4,129	2.7	4,906	2.6	2,582	1.3
Buffalo	2,266	1.5	1,881	1.0	2,145	1.0
Hartford, Conn	1,968	1.3	1,600	0.9		
Wapakoneta	1,968	1.3	802	0.4	479	0.2
Youngstown	1,802	1 2	1,389	0.7	1,167	0.6
Toledo	1,551	1.0	1,967	1.0	2,081	1.0
All other	12,067	8.0	14,147	7.5	19,960	9.6
Total	151,072	100.0	187,570	100.0	208,007	100.0

per cent of the eggs shipped by Ohio dealers in 1929-1930, 61.5 per cent in 1930-1931, and 69.8 per cent in 1931-1932. Two of these—Cleveland and New York—received 31.5 per cent of the total volume shipped in 1929-1930, 35.2 per cent in 1930-1931, and 52.0 per cent in 1931-1932.

A second group of markets—Detroit, Michigan; Columbus, Dayton, and Cincinnati, Ohio; and Philadelphia, Pennsylvania—are of secondary importance.

A quantity of eggs from western Ohio first reached Fort Wayne, Indiana, before going to other markets.

The number of different markets to which eggs from Ohio were shipped and their distribution throughout eastern United States are shown in Figure 4. In this distribution the terminal markets are shown, but not all the smaller points which are naturally grouped around them are shown. The extent to

which Ohio dealers have developed many interior outlets rather than going through large terminal markets indicates a high degree of merchandising skill.

The proportion of the shipments of Ohio dealers that went to points in Ohio and outside Ohio was determined for the 3 years 1929-1930, 1930-1931, and 1931-1932 (Table 22). Approximately 60 per cent of the shipments was interstate and 40 per cent intrastate for the 3 years.

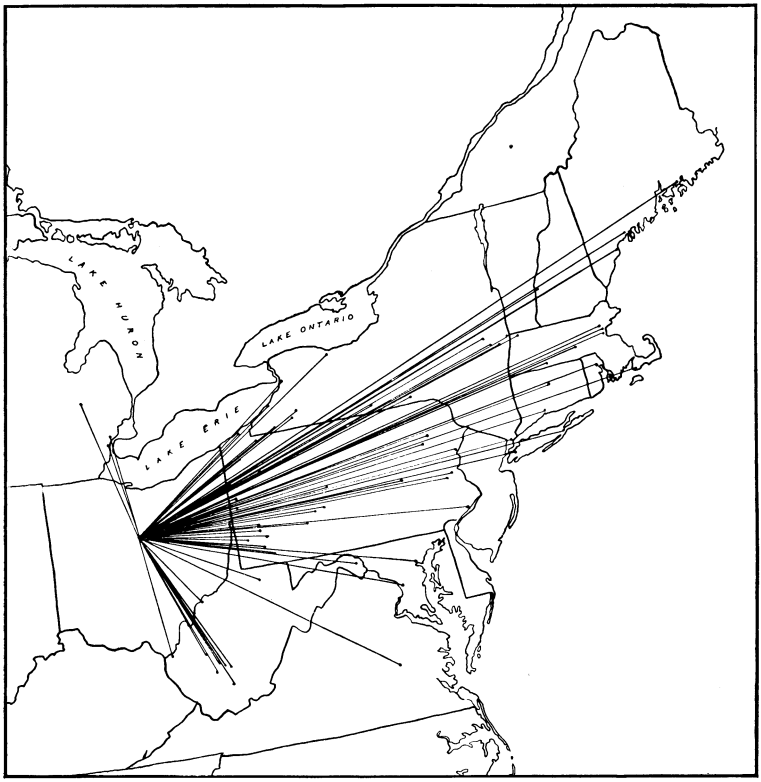

Fig. 4.—Destinations of eggs shipped from Ohio—1931-1932

TABLE 22.—Percentages of all the Shipments of Eggs by Nine Ohio Shippers that are Intrastate and Percentages that are Interstate
1929-1930, 1930-1931, and 1931-1932

Month	1929–1930			1930–1931			1931–1932		
	Intrastate shipments	Interstate shipments	Total shipments	Intrastate shipments	Interstate shipments	Total shipments	Intrastate shipments	Interstate shipments	Total shipments
	Pct. of total	*Pct. of total*	*Pct. of total*	*Pct. of total*	*Pct. of total*	*Pct. of total*	*Pct. of total*	*Pct. of total*	*Pct. of total*
March	48.1	51.9	100.0	22.2	77.8	100.0	28.1	71.9	100.0
April	34.7	65.3	100.0	36.5	63.5	100.0	54.0	46.0	100.0
May	32.9	67.1	100.0	35.1	64.9	100.0	42.5	57.5	100.0
June	44.4	55.6	100.0	62.2	37.8	100.0	19.0	81.0	100.0
July	31.1	68.9	100.0	45.2	54.8	100.0	32.5	67.5	100.0
August	48.9	51.1	100.0	54.0	46.0	100.0	40.6	59.4	100.0
September	51.1	48.9	100.0	49.4	50.6	100.0	35.3	64.7	100.0
October	52.6	47.4	100.0	49.9	50.1	100.0	48.7	51.3	100.0
November	46.2	53.8	100.0	55.1	44.9	100.0	36.5	63.5	100.0
December	44.8	55.2	100.0	24.3	75.7	100.0	32.3	67.7	100.0
January	36.1	63.9	100.0	51.4	48.6	100.0	31.8	68.2	100.0
February	40.8	59.2	100.0	27.9	72.1	100.0	22.7	77.3	100.0
Year	39.4	60.6	100.0	39.9	60.1	100.0	38.3	61.7	100.0

In comparing the proportion of all shipments that were intrastate or interstate during the 6-month period from March to August, little change in the proportion was found for the 3-year period. A similar comparison for the 6-month period from September to February shows some significant changes during the 3-year period (Table 23).

TABLE 23.—The Percentages of all Shipments of Eggs by Nine Ohio Shippers that were Intrastate or Interstate by 6-month Periods

1929-1930, 1930-1931, and 1931-1932

Period	Year								
	1929–1930			1930–1931			1931–1932		
	Intra-state	Inter-state	Total	Intra-state	Inter-state	Total	Intra-state	Inter-state	Total
March to August.....	37.95	62.05	100.0	39.48	60.52	100.0	39.72	60.28	100.0
September to February ...	45.89	54.11	100.0	41.82	58.18	100.0	32.74	67.26	100.0

The year 1930-1931 shows an increase in shipments of 7.5 per cent over the preceding year, and the year 1931-1932 has increased the proportion of interstate shipments by 24.3 per cent over 1929-1930. The year 1931-1932 also shows an increase over the year 1930-1931 of 15.5 per cent in interstate shipments. From March to August 1929-1930, 62.5 per cent of the shipments was interstate; in 1930-1931, 60.5 was interstate; and in 1931-1932, about 67.2 per cent of the shipments was interstate. It is quite apparent that Ohio dealers are making a distinct effort to develop new out-of-state outlets for eggs during the season of short production.

SUMMARY

Income from eggs in the United States comprised 60.7 per cent of the income from the poultry industry. The poultry industry has changed from fifth to second position in importance as a source of income from farm production.

The geographical distribution of egg production in the United States does not coincide with the distribution of population. Ohio occupies an advantageous position, as compared to the other corn belt states, in the movement of eggs to eastern markets.

The poultry industry is Ohio's third most important source of income from agricultural production and has increased from 13 per cent of the gross cash income in 1927 to 16 per cent in 1932.

There are densely populated sections of Ohio that have an insufficient production of eggs to meet their consumption needs for the year. Other sections have an insufficient production during certain months of the year. The extent of these two sections is such as to cause a net deficit of production in the entire State for the year. A surplus of production over consumption occurs only during May, June, July, and August.

"Country shippers" or "packers" remain an important agency in the handling and movement of eggs to market from western Ohio.

Several "country shippers" have changed their merchandising practices during the years 1927-1932. Some diversified the operations in their plants by adding sidelines to their major enterprises, while others have developed a jobbing and retail business in many interior eastern markets. Two common characteristics of "country shippers" or "packers" were that they usually operate pick-up routes to producers or local buyers and that these dealers preferred to buy from producers rather than from local buyers.

New York quotations on eggs are widely followed by Ohio dealers as a basis for local buying prices during the flush season of production. Cleveland, Pittsburgh, and Cincinnati are the nearby markets used as a basis for local buying prices when New York quotations are not followed.

April was the month of greatest volume for Ohio shippers and November the lightest.

Freight was the most important method of shipment. Truck and express were the other methods.

Changes in methods used to ship eggs by Ohio dealers due to varied factors have occurred during the 5 years 1927-1928 to 1931-1932.

The methods of making shipments used by dealers in Ohio depended largely on the type of outlets used, the volume of eggs handled, and their location in the State.

Carlot shipments comprised a large proportion of the eggs shipped from Ohio during the spring months. Relatively more eggs moved from Ohio in carlots during the years 1931-1932 and 1930-1931 than during 1929-1930.

Ohio eggs moved to many points in the eastern part of the United States. The markets receiving the largest proportion of Ohio eggs were Cleveland, Boston, Pittsburgh, and New York.

Approximately 60 per cent of the eggs shipped by Ohio dealers was to destinations outside the State.

The proportion of interstate shipments from September to February increased in the year 1931-1932 over 1930-1931 and in the year 1930-1931 over 1929-1930.

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