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FARM BUSINESS NOTES

Prepared by the Divisions of Agricultural Economics and Agricultural Extension
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Regional Variations in the Hog Cycle

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Rhythmic rises and falls in live-stock numbers are a familiar pattern to almost everyone acquainted with agricultural production. In the hog industry a cycle of about five years from peak to peak is the usual pattern. Current studies of the hog industry by the Agricultural Economics Division¹ throw some light on regional differences in the behavior of the hog cycle. Differences between regions in amplitude, timing, and direction of the cycle have been examined.

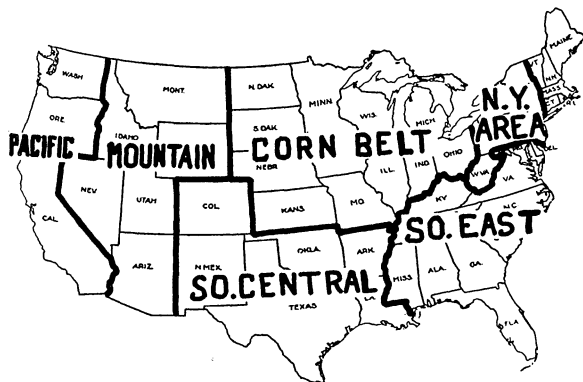
For purposes of analysis, the country was divided into the seven regions indicated by the map. January 1 hog numbers by states from 1867 to 1938 were added annually by regions.² Moving averages were calculated as trends for the individual states and for the regional totals. Ratios of actual January 1 numbers to these trend values were then taken as measures of cycles. In the period covered there have been 13 complete cycles in United States hog numbers ranging in duration from 3

One of the points on which there is variation between regions is the timing of the highest and lowest points in the cycles. In the following table, an entry has been made for each region for the high and low point in each cycle according to whether these points came earlier, later, or coincided with the high and low points in United States cycles.

There appears a tendency for somewhat more dispersion of peaks on the expansion phase than on the contraction phase of the cycle. One of the aspects of this disper-

Table 1. Occurrence of High and Low Points in Regional Hog Cycles

	Corn Belt	South-east	South Central	Pacific	N. Y. area	Moun-tain	New England	Total
Peaks:								
Earlier		2	3	5	4	2	3	19
Same as U. S.	13	7	8	4	4	5	5	46
Later		3	3	4	4	6	5	25
Low Points:								
Earlier		1	5	4	3	5	5	23
Same as U. S.	13	10	9	9	6	6	7	60
Later		1			3	2	1	7



sion is the fact that three of the seven regions had fewer or more than 13 cycles during the period covered. The Southeast and New York regions passed through 12 cycles, and the South Central passed through 14.

When we turn to the ratios to trend for states within regions, we find even more dispersion in cycle timing among states than we found when comparing regions. One might expect that since the hog industry is densest in the Corn Belt and is more a major enterprise than in any other region that there would be a tendency for more uniformity in cyclical movement than in other regions. Such, however, is not the case. Here also nearly one half of the incidents of state high points were earlier or later than for the region as a whole, and considerably more than a third of the incidents of low points were earlier or later. Peaks and low points for certain states occurred as much as 3 years earlier and later than the regional points. Again referring to the number of cycles as was done above with respect to the regions, it is found that many of the states of the Corn Belt had fewer or more than the 13 cycles. Missouri appears to have passed

to 7 years, with an average of 5 years. The five cycles previous to 1904 were all 6 or 7 years long. The eight since 1904 have been 3, 4, or 5 years long.

¹ Assistance in the preparation of this material was furnished by the personnel of the Works Progress Administration, Official Project No. 465-71-3-350.

² Of the Jan. 1, 1938 total of hogs on farms in the U. S., the Corn Belt held 63.1 per cent, Southeast 19.5 per cent, South Central 10.1 per cent, Pacific 2.9 per cent, New York area 2.6 per cent, Mountain 1.2 per cent, and New England .6 per cent.

through only 12 cycles, with Iowa, Ohio, Kansas, Michigan, and North Dakota each showing 13 cycles, while Minnesota, Wisconsin, and Indiana had 14, Nebraska and South Dakota 15, and Illinois 17 cycles.

Regional Differences

There are marked differences between regions and between states within regions in the size or amplitude of the maximum cyclical swings. As a measure of these amplitudes, the ratios to trend for the maximum and minimum cycle values were averaged for all the cycles shown by each region and state. The Corn Belt and South Central regions showed the greater amplitudes while the outlying regions showed lesser amplitudes. The New England region had average amplitudes of 4.5 per cent above and below trend. The New York area and Southeast region amplitudes averaged 5.5 per cent above and below trend. The Pacific and Mountain regions showed amplitudes of 5.5 per cent above trend but somewhat larger amplitudes below trend, 6.1 per cent and 6.7 per cent, respectively. For the South Central region the average amplitude above trend was 6.9 per cent, below trend 7.7 per cent, and the Corn Belt averaged 7.6 per cent above trend and 7.9 per cent below. The states of the Corn Belt show considerable differences between them in the amplitudes of their ratios to trend as indicated by table 2.

Table 2. Average Amplitudes of Corn Belt Hog Cycles, 1870-1936

	Above Trend	Below Trend		Above Trend	Below Trend
	per cent	per cent		per cent	per cent
Kansas	16.5	15.5	Minnesota	8.0	8.5
Nebraska	13.8	12.3	Indiana	7.6	7.5
Iowa	9.4	8.7	Wisconsin	7.5	8.9
Missouri	9.3	9.3	Michigan	7.0	9.1
South Dakota.....	9.2	9.7	Ohio	6.7	6.7
North Dakota.....	9.0	14.0	Illinois	6.5	7.9

It has already been indicated that regions and states frequently move through phases of cycles which are the reverse of the phase for the United States cycle. As a measure of the extent to which this occurs, the state deviations from trend by years were added by regions and a ratio of directional to total deviations calculated. For example, in 1929 four Corn Belt states were below trend by a total of 533,000 hogs, and the other eight states were above trend by a total of 1,164,000 hogs, or a total deviation of 1,697,000 hogs. Since the United States cycle was above trend, 69 per cent of the Corn Belt states' deviations from trend were in harmony with the nation's cycle. Measured in this fashion, all regions except the Corn Belt had some years in which the ratio fell to zero, that is, when all the deviations in the region were in the direction opposite to that of the United States cycle. Even the Corn Belt showed 3 years, widely separated, when the ratio fell to below 50 per cent, that is, when more than half its deviations were out of harmony with the nation's cycle. Averaging these annual ratios for the 67 years shows the Corn Belt, with an average of 84 per cent, as the region moving most harmoniously with the United States cycles. The Southeast region came next

with 79 per cent, the South Central and Mountain regions with 73 per cent, the New York area with 70 per cent, and the Pacific and New England regions with 67 per cent and 66 per cent, respectively. More than one fifth of these regional ratios were 50 per cent or less, that is, the majority of the states' deviations were in opposition to the main direction of the national cycle. When the study was divided into two periods, 1870-1908 and 1909-1936, it was found that the ratios changed as follows: Corn Belt from 82 per cent to 86 per cent for the latter period, Southeast 76 per cent to 84 per cent, South Central 67 per cent to 81 per cent, Mountain 65 per cent to 83 per cent, Pacific 58 per cent to 80 per cent, New England 67 per cent to 66 per cent, and the New York area 71 per cent to 69 per cent. This suggests that in the latter period, with the exception of two minor areas, cyclical movements have become more closely integrated. This may be due to improvements in market and price information and in knowledge on the part of producers.

It has been the purpose of this article to indicate the wide disparity and variation that underlies what is often referred to as "the hog cycle." Only state and regional numbers entered into these calculations. But just as great variations quite probably underlie state cycles. If individual producers' records could be analyzed as were states', evidence not shown here seems to indicate that the net increases and declines in numbers giving rise to cycles would be found to be very small relative to the total amount of change going on in the hog industry. Further studies directed to an examination of factors accounting for some of the differences indicated here should enable the producer to make a better adaptation of his enterprise to current situations in the industry.

War and the Farmer

O. B. JESNESS

An immediate reaction to the recent declaration of war in Europe was a stiffening of prices in various lines. Consumers remembered so vividly the high prices and rationing of sugar during the latter part of the last World War that they rushed to lay in a supply even though no shortage is in sight. The impressions of war prices which stand out most clearly are that they were high. Apparently, it has been forgotten rather generally that the rise in prices for most products did not take place suddenly at the outbreak of the war. In fact, some commodities found their markets so disrupted by war that prices fell. Prices for most farm products did not advance very much until war had been under way for two years or more and the greatest rise did not occur until after the entry of this country in 1917. For example, the average farm price of corn on January 15, 1914 was 69 cents while on January 15, 1916 it was about 64 cents. Butterfat averaged 28.6 cents on the former date and 29 cents on the latter. Farm prices for cattle on these dates were \$6.04 and \$5.85 and those for hogs \$7.45 and \$6.32. Past experience and the plenti-

ful supplies of farm products now available seem to indicate that a rapid rise in the prices of farm products is not probable in the immediate future.

How prices will be affected ultimately by the present war, of course, depends upon a variety of factors such as supplies now available, production conditions, how widespread the war will be, how long it will last, the ability of other nations to buy our products, interferences with shipping, and policies adopted with respect to trade and price control. If the war continues, there may be some stimulation of exports in the case of certain products, particularly if shipping restrictions make it difficult for nations at war to draw upon more distant sources. For most products, the effects will be those arising in the domestic market. Dairy products and livestock belong mainly in the latter class. The effects on them will depend upon how rapidly consumer purchasing power here at home expands. This in turn depends upon how rapidly employment expands and payrolls increase.

Following the World War, prices to farmers fell more than those to consumers. As a result, the margins now are wider than they were in 1914. This means that prices to consumers are above the prewar level. The point where consumption will be materially curtailed if prices rise, therefore, is likely to be reached earlier.

The high prices which came during the latter part of the World War and the immediate post war period led to rapidly increasing land prices. This in turn brought a decided increase in farm mortgage debt. Prices for farm products dropped rapidly, but debt and debt charges remained. The difficulties arising from this situation have not been fully remedied in spite of many adjustments during the past two decades. It is to be hoped that the lesson of this will be remembered. If high prices should come, both farmers and lenders should resist the temptation to bid up land values and increase loans on the basis of a temporary situation. Another land boom is certain to be followed by debt distress. If higher incomes should result from war conditions, farmers would do well to use them for reducing existing debt and building up reserves for the inevitable days following the war.

The present farm plant appears capable of satisfying any war demands which may arise. The mistake made during the World War of extending farming to areas not suited to crop production should not be repeated.

Some Aspects of Creamery Operations in Minnesota in 1938

E. FRED KOLLER¹

Reports of 856 creameries operated in Minnesota during 1938 show that total butter output reached an all-time high of 301,771,668 pounds. Owing to the increase in the total volume of butter manufactured and a gradual decrease in the number of plants operated, the average output of 352,537 pounds of butter per plant represents

a considerable increase over previous years. The average output in 1930 was 328,966 pounds and in 1920 only 167,747 pounds.

The butter output of individual creameries in the state in 1938 ranged from about 35 thousand pounds in the smallest full-time plant to more than 5 million pounds in the largest. One hundred thirty Minnesota creameries, or approximately 15 per cent of the total, averaged less than 125 thousand pounds of butter during the year, a volume of output which has repeatedly been shown to be too small for the most efficient operation. Each of 30 plants in the state produced over a million pounds of butter in 1938; of these 15 were cooperatives, 13 were centralizers, and 2 were independents.

The larger butter output per plant in 1938 was an important factor in further improving the efficiency of creamery operations. Comparisons of the average operating costs of an identical group of 172 creameries over the past 5 years show the 1938 cost of 2.551 cents per pound of butter manufactured to be the lowest for the period.

Further aspects of the relationship between volume of output of creameries and their efficiency are shown in table 1. It will be observed that in this group of 172 creameries selected from all parts of the state the total cost for the eight smallest-volume plants was 3.296 cents per pound of butter manufactured, or about 1.2 cents a pound higher than the total cost for the 12 largest plants, each producing more than 750 thousand pounds of butter.

Table 1. Creamery Costs and Prices Paid for Butterfat by 172 Minnesota Creameries Classified According to Pounds of Butter Made, 1938

Pounds of butter made	Number of creameries	Total cost per pound of butter		Available returns per pound butterfat	
		cents	cents	cents	cents
Less than 125,000	8	3.296	28.399		
125,000-249,999	41	3.214	28.757		
250,000-374,999	44	2.782	29.625		
375,000-499,999	40	2.610	30.131		
500,000-624,999	17	2.318	30.908		
625,000-749,999	10	2.279	30.624		
750,000 and over	12	2.100	30.938		
All creameries	172	2.551	30.164		

Small-volume plants tend to be at a disadvantage in the price they can pay for butterfat. According to table 1, the eight smallest plants had average net returns available for the payment for butterfat amounting to 28.399 cents a pound. The largest plants had 30.938 cents available or over 2.5 cents more per pound than the smallest plants. This difference is due in part to the lower costs of the larger plants and also because they received somewhat higher prices for butter sold.

The relationships described above explain some of the present difficulties of smaller creameries. Lacking the volume of business necessary for the most efficient operations, these plants often tend to lose patrons to larger and more efficient competitors. The result is that some of the larger and more efficient plants are expanding while the business of many smaller plants is declining and some have discontinued operations.

¹ Assistance in the preparation of this material was furnished by the Personnel on Works Progress Administration O.P. No. 665-71-3-69.

Minnesota Farm Prices for Sept. 1939

Prepared by W. C. WAITE and W. B. GARVER

The index number of Minnesota farm prices for the month of September 1939 was 68. When the average of farm prices of the three Septembers, 1924-25-26, is represented by 100, the indexes for September of each year from 1924 to date are as follows:

1924— 94	1928—101	1932— 41	1936— 97
1925—103	1929—110	1933— 58	1937— 88
1926—103	1930— 84	1934— 78	1938— 62*
1927—100	1931— 55	1935— 73	1939— 68*

* Preliminary.

The price index of 68 for the past month is the net result of increases and decreases in the prices of farm products in September 1939 over the average of September, 1924-25-26, weighted according to their relative importance.

Average Farm Prices Used in Computing the Minnesota Farm Price Index, September 15, 1939 with Comparisons*

	Sept. 15, 1939	Aug. 15, 1939	Sept. 15, 1938		Sept. 15, 1939	Aug. 15, 1939	Sept. 15, 1938
Wheat	\$0.75	\$0.57	\$0.57	Cattle	\$7.40	\$6.50	\$6.90
Corn .....	.45	.34	.40	Calves	9.30	8.10	8.40
Oats .....	.26	.20	.18	Lambs-sheep	7.59	7.14	6.79
Barley .....	.40	.32	.35	Chickens .....	.11	.10	.12
Rye .....	.38	.29	.29	Eggs .....	.16	.13	.21
Flax	1.53	1.35	1.60	Butterfat .....	.26	.24	.26
Potatoes .....	.55	.55	.40	Hay	4.28	3.90	4.30
Hogs	7.00	5.30	8.10	Milk	1.40	1.35	1.45

* These are the average prices for Minnesota as reported by the United States Department of Agriculture.

The 13-point rise in the index from August 15 to September 15 is, of course, due largely to the war outbreak in Europe and the speculative rise which that situation engendered. A similar rise followed the outbreak in 1914 although it was not so great, for it amounted to only 7 points at that time. It should be noted also that that rise was of short duration, the index having returned to earlier 1914 levels in October of that year. Developments since September 15 indicate a similar decline for October 1939. The sharpest September rises this year were for the grains and for hogs, all of which rose 25-30 per cent over August 15 levels. Cattle, calves, and lambs and sheep advanced more moderately while the dairy and poultry items showed the least rises.

Indexes and Ratios of Minnesota Agriculture*

	Sept. 1939	Aug. 1939	Sept. 1938	Average Sept. 1924-26
U. S. farm price index	71.5	62.4	69.3	100
Minnesota farm price index	68.0	55.2	62.5	100
U. S. purchasing power of farm products	89.1	79.7	86.3	100
Minn. purchasing power of farm products	84.6	70.4	77.8	100
Minn. farmer's share of consumer's food dollar		40.4	45.0	53.8
U. S. hog-corn ratio	12.6	12.0	16.8	11.7
Minnesota hog-corn ratio	15.6	15.6	20.5	12.9
Minnesota egg-grain ratio	15.7	17.5	26.8	17.5
Minnesota butterfat-farm-grain ratio	31.9	38.0	40.5	35.4

* Explanation of the computation of these data may be had upon request.

Turkey Prices

In spite of some increase over last year in consumer incomes, Minnesota turkey producers probably will receive lower prices for the 1939 crop than they did for last year's crop. They received about 18¼ cents for the 1938 crop, and indications are that this year's crop will bring them about 17¼ cents per pound. The marketing season for last year's crop opened with a price of 16 cents for September. This year the September price was 15 cents.

One reason for expected lower prices is this year's record crop of approximately 32 million birds for the United States. This is the largest production on record and is more than one-fifth larger than last year's crop of 26 million birds. The 5-year average crop for 1931-35 was 21 million turkeys. The increase over last year for the West North Central states was larger than for other regions of the country and amounts to about 27 per cent.

Present indications are that a relatively smaller proportion of the crop than last year will be marketed before Thanksgiving, and relatively more of the crop will come on for Christmas trade and later. This does not mean, however, that fewer birds than last year will be marketed for Thanksgiving, for even with a smaller proportion of birds coming on the market there will be more turkeys marketed by December 1 than last year.

Feed prices have advanced somewhat over those of last year although up to the present not greatly, and prices earlier in the year were lower. With lower prices and higher feed costs, the turkey enterprise will be less profitable on a pound basis than last year, but probably more profitable from the standpoint of the size of crop for those who have large numbers to sell.

Market receipts of chickens are coming on the market in larger quantity than last year, and, with greater numbers of hens and young chickens on hand, will probably continue to come on in larger quantity through this marketing season.

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