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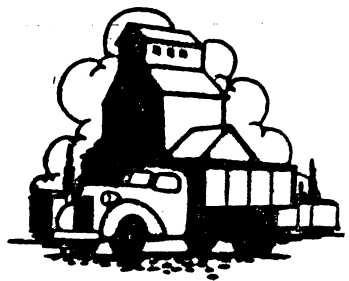
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MINNESOTA farm business NOTES



Producer Specialization, Location, and Hog Marketing Patterns

M. Miller, K. Egertson, and D. Fienup

Hog production is a major farm enterprise in Minnesota. However, changes in the size, organization, and location of the hog enterprise are occurring which affect hog producers and marketing agencies.¹

There is considerable speculation about a possible split between the farrowing and finishing phases of hog production. A substantial feeder pig industry has developed in Minnesota and many producers have become more specialized. To provide a benchmark, the extent of this trend was measured in this study.

As hog production becomes more specialized, important implications emerge for the market outlets now serving farmers. Marketing requirements are not necessarily the same when the type and location of hog enterprises change.

This article's major objective is to examine the type of organization and location of hog production and associated marketing patterns existing in Minnesota.

Importance of Producer Types

To measure the extent of the specialization trend, producers in the survey were classified by type. Every commercial Minnesota hog producer falls in one of the five major types found:

Type I: Complete slaughter hog producer: Farrows all feeding stock; markets them as slaughter barrows and gilts.

Type II: Partially specialized slaughter hog producer: Buys some

feeder pigs to supplement those he farrows and markets both groups as slaughter barrows and gilts.

Type III: Specialized slaughter hog producer: Buys feeder pigs and markets them as slaughter barrows and gilts; farrows none.

Type IV: Specialized feeder pig producer: Farrows pigs and markets them as feeder pigs.

Type V: Diversified hog producer: Farrows pigs and markets some as feeder pigs but the remainder as slaughter barrows and gilts.

Type I producers are most important in Minnesota. This group represented 63 percent of all hog producers and sold 68 percent of all slaughter hogs (see table 1). These producers sold an average of 96 barrows and gilts in 1961; this is slightly above the average.

Reasons for the predominance of type I producers are believed to be:

1. Historically hog production consisted of only complete producers. In many cases this remains the most profitable type of operation.
2. Farmers are accustomed to raising and feeding their own pigs. So they are reluctant to deal with problems associated with buying feeder pigs such as disease, marketing, and credit.
3. Many farmers have facilities for farrowing and finishing but not for specializing in merely one phase of production.

Type II producers marketed an average of 133 barrows and gilts. This represents the highest average for any of the types marketing barrows and gilts. In total marketings they account for 15 percent, whereas they make up only 10 percent of the producers.

Type II producers buy the majority of the pigs they finish to slaughter weight. So the farrowing function is relatively unimportant to them. The average number of purchased pigs reported by this group was 81.

Specialized type III slaughter hog producers marketed only 9 percent of the barrows and gilts. The relatively low average of 90 pigs per producer may be due to the large proportion of type III producers who buy only a few feeder pigs for the purpose of running behind feeder cattle. If these producers are not included, the average number sold by type III producers would be considerably higher.

The time lapse between purchase and sale may account for some of the discrepancy between the 104 average number of feeder pigs purchased and the average number of 90 barrows and gilts marketed by this group. Some death loss may also contribute to this difference.

The specialized feeder pig producer, represented by the type IV group, marketed over 50 percent of the feeder pigs produced in Minnesota. Slightly less than 8 percent of the hog producers in Minnesota are in this group. Average sales per producer of this group is 86 feeder pigs.

The feeder pig enterprise is relatively small from the standpoint of resources used and gross receipts. This

Table 1. Relative importance of type of producers, Minnesota 1961

Type producer	Percent of producers by type	Barrows and gilts		Feeder pigs			
		Percent sold	Average no.	Percent sold	Average no.	Percent purchased	Average no.
I	63	68	96	.....	.....	.....	.....
II	10	15	133	.....	.....	46	81
III	9	9	90	.....	.....	54	104
IV	8	.....	.....	54	86	.....	.....
V	10	8	71	46	56	.....	.....
	100	100		100		100	

¹Data for this article were obtained from a survey conducted by Minnesota Crop and Livestock Reporting Service. The sample consisted of 1,750 hog farmers randomly selected on the basis of the number of hog farmers per county. This survey included slightly more than 2 percent of the farms reporting hog sales. A report prepared in 1962 by the Service entitled "Minnesota's Hog Industry" gives the initial findings of this survey.

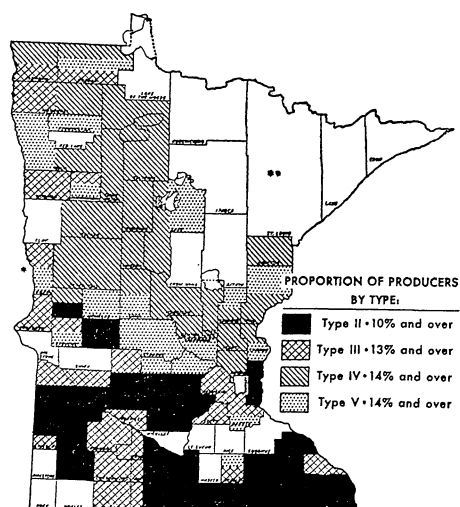
partially reflects the supplementary nature of this enterprise. But this hog system is believed to have potential on many Minnesota farms, particularly in northern counties.

Type V producers represented about 10 percent of all hog producers. They marketed approximately 8 percent of the barrows and gilts and one-half of the feeder pigs. Their 1961 sales averaged 71 head of barrows and gilts and 56 head of feeder pigs. This hog enterprise is relatively large and important. Many type V producers do not have a large or certain enough feed grain supply to feed out all pigs. These producers are flexible, depending on the current feed supply and price situation.

Locational Differences

Like the diversity of crop production in Minnesota, hog production varies both in relative importance of each type and location in the state. The percent of producers in each type was calculated for each county and summarized in the figure. These data by counties show areas where a certain type accounts for a relatively high proportion of the producers. Proportions selected for each type are shown in the figure.

The figure does not indicate the volume of business done by each type. For example, two counties with the same proportion of type I producers—one county in northwestern Minnesota and the other in the south-central area—may market completely different proportions of Minnesota's total supply of barrows and gilts.



*Where the county is above the selected percentage for more than one type, two or more shades are used. Type I concentration is not shown because this type tends to predominate in all areas except northeast Minnesota.

**Unshaded counties did not fall above the minimum proportion for types I through V.

Relative importance of types of hog producers in Minnesota.

Table 2. Percent of barrows and gilts sold through various market channels by types of producers, 1961

Type producer	Terminal market	Auction market	Direct to packers	Other buyers	Total
I	51	1	33	15	100
II	42	2	42	14	100
III	42	1	35	22	100
V	59	1	26	14	100
All types	50	1	34	15	100

Slaughter Hogs

The location of type I producers (the most predominant type) is not confined to any one area. Counties throughout the southern half of the state and in the Red River Valley area include 50 percent or more of their producers in this type. These counties correspond closely to the major feed grain producing counties.

Unlike type I producers, the other types have the highest proportions in smaller, more localized areas. For instance, most counties with the highest proportions of type II producers are located in the southern one-third of Minnesota. The counties with the highest proportion of type III are also located in the southern one-third and in a few counties along the northwestern border. The heaviest concentration of type III producers is found in southwestern Minnesota.

Types II and III are located in these areas mainly because of the type of farming there. The areas are characterized by feed grain production as an important enterprise, along with livestock feeding—mainly beef and hogs. The demand for labor by large cropping units often does not permit use of labor in farrowing. This is the main sales area for feeder pigs.

Feeder Pigs

Types IV and V, basically feeder pig producers, predominate in the northern part of the state. Type IV producers are concentrated farther to the north than type V producers. These types are prevalent in this area due to the supplementary relationship of feeder pig production with the main dairy enterprise.

Type V producers are located on the edge of the Corn Belt, where the shorter frost-free season limits corn production. Often these farmers keep some feeder pigs to feed to slaughter weights if the ear corn crop matures sufficiently. If an early frost occurs, they can use soft corn to finish out at least some feeder pigs.

Market Channels

Hog producers use different market channels, depending largely on their

type and location. Location indirectly includes the number of alternative markets available and the extent of competition between markets. Major differences were found between channels used for slaughter hogs and those used for feeder pigs. A relatively consistent marketing pattern was found for slaughter hogs (barrows and gilts) but important differences did exist.

Slaughter Hog Markets

The slaughter hog producers in types I and V market over 50 percent of their barrows and gilts through terminal markets. This is approximately 10 percentage points more than for types II and III (see table 2).

Type V producers market approximately 8 percentage points more through terminal markets than type I producers. The increased proportion sold to terminal markets by type V producers results in a smaller proportion sold direct to packers. This difference is believed to be due to the higher proportion of type V producers in the northern part of the state where possibilities of selling direct to packers are more limited.

Type II producers market 42 percent of their barrows and gilts through terminals and 42 percent direct to packers. When comparing data in table 2 with the figure, it is evident that the highest proportion of type II producers are located in southeastern counties near the two largest interior packers in the state. This group markets a larger percentage through this outlet.

Compared with type II producers, type III producers sell approximately 7 percentage points less direct to packers and about 8 percentage points more to other buyers. Type III producers appear in counties west of the interior packers. This group of producers is located near more dealers and local markets. Many local buyers may have contracts with interior packers, but farmers do not consider these as sales direct to packers.

Feeder Pig Markets

Table 3 indicates relative importance of the various feeder pig market out-

lets. Terminal markets receive an insignificant proportion of feeder pigs. A new market outlet for feeder pigs gaining in importance in Minnesota is the special market. At a special market feeder pigs are sold by the producer directly to the buyer. The market is an informal meeting place for buyers and sellers at specified hours on certain days. Over one-fifth of type IV producers' feeder pigs and 10 percent of type V producers' feeder pigs are marketed through this outlet. The reason for this difference is that type IV producers are more concentrated in northern Minnesota, where special markets are located.

Being located near finishing areas, type V producers have more opportunities for direct sales to farmers. As a result, 52 percent are sold in this manner as compared to 25 percent for type IV producers.

Type IV producers, having fewer alternatives, rely more on other buyers (dealers) than type V producers. Auction markets receive a greater proportion of type V producers' sales than type IV producers' sales. This is probably due to the location of the type V producers; they are usually nearer finishing areas, where livestock auctions draw many potential buyers.

The percent of total feeder pigs purchased through various markets by types is indicated in table 4. It is apparent that type III producers purchase a larger percent of their feeder pigs from established markets.

Type II producers purchased 55 percent of their feeder pigs direct from farmers and 26 percent from other sellers. Type III producers purchased only 31 percent direct from farmers and 41 percent from other sellers.

Relating these patterns with the figure, it is apparent why they exist. There are more counties with high proportions of type II producers near the feeder pig supply than counties with high proportions of type III producers. Hennepin, Scott, and Dakota counties do have a high proportion of type III producers but not enough hogs are raised there to affect the pattern for the state. Producers near the feeder pig supply tend to purchase more feeder pigs direct from farmers. Because of fewer alternatives to buy direct from other farmers, farmers in other areas purchase more from other sellers and the established markets.

Conclusions

The many phases of swine production permit a number of specialized

Table 3. Percent of feeder pigs sold through various market channels by types of producers, 1961

Type producer	Terminal market	Special market	Auction market	Direct to farmers	Other buyers	Total
	percent					
IV	*	23	2	25	50	100
V	*	10	11	52	27	100
All types	*	17	6	37	40	100

* Less than 1 percent

Table 4. Percent of feeder pigs purchased from various market channels, 1961

Type producer	Terminal market	Special market	Auction market	Direct from farmers	Other buyers	Total
	percent					
II	4	6	9	55	26	100
III	5	11	12	31	41	100
All types	4	9	11	43	33	100

systems to exist. This is true in Minnesota, where five types of producers engage in hog production. Although type I producers marketed the majority of barrows and gilts for the whole state, other types are important in localized areas. This, as shown, affects marketing channels used by producers and the market pattern in localized areas.

Will a trend develop toward expansion of type III and type IV producers in Minnesota? This study does not provide enough empirical data to answer this. However, at least three developments could contribute to further specialization:

1. **Overall changes** in agriculture have resulted in less diversified farming operations. In other farm enterprises, many producers have tended to specialize in one phase of production. If this situation develops in swine production, it will mean an increase in type III and type IV producers.

2. **Improved markets** are being developed for purchase and sale of feeder pigs. They will facilitate coordination of the production and finishing phase of the swine system.

3. **Improved quality** in feeder pigs should increase the product demand and make feeding more attractive.

Minnesota hog producers continue to use several market outlets, but the pattern is changing. Terminal markets are still the most important outlet for slaughter barrows and gilts (50 percent), but this declined from 57 percent in 1956.² Direct sales to packers showed the greatest gain in the 5-year period—from 28 to 34 percent. Virtually no slaughter barrows and gilts were sold

at auctions in 1956 but slightly over 1 percent were marketed through this outlet in 1961. These trends are consistent with market developments elsewhere in the Midwest.

Changes in definition of market outlets prohibit the same comparison of trends in marketing patterns for feeder pigs. However, sales direct to farmers appear to have increased from 29 to 37 percent. Dealer and auction sales have remained the same at 40 percent and 6 percent, respectively.

Larger numbers of specialized feeder pig producers may have established reputations for their pigs which enable them to deal with the same finisher year after year. This trend has developed in feeder cattle marketing.

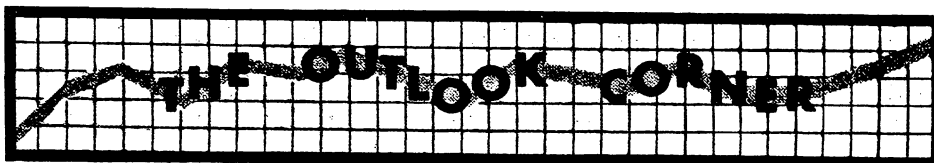
If the hog industry becomes more specialized, the average size of unit will probably increase. This may cause a continuation of marketing trends already established. Separation of the farrowing and finishing functions will require establishment of more markets between feeder pig producers and finishers. Auctions and specialized markets may increase in importance, especially if the distance between farrower and finisher increases.

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² Marketing channels used by farmers in 1956 are found in "Livestock Marketing in the North Central Region." R. R. Newburg (North Central Regional Publication 104, Dec. 1959).



Hog Price Fluctuations

K. E. Egerton and H. Hwang

When a farmer markets his hogs he often says: "Prices never seem to be what they were 9 to 12 months ago when I first planned to produce these hogs." This situation results from a recurring characteristic of the hog industry. Frequent and often large price changes make planning difficult.

Using 1956-62 data, a comparison of the percentage change in quarterly live hog prices from a year earlier demonstrates quarterly price fluctuations. Over these 28 quarters, quarterly hog prices changed in the following way: a change of up to 10 percent from the year earlier quarter occurred 12 times; from 11 to 20 percent, 9 times; from 21 to 30 percent, 4 times; and from 31 to 40 percent, 3 times.

The unfavorable consequence of this extreme price variability on production and income plans has caused many hog producers to seek reasons for these price fluctuations. Some point to change in competition from other meats—both domestic and foreign—as a determining factor. Others say they are a result of changing consumer purchasing power and taste. Still others feel demand adjustments and lags by retailers and packers contribute most to these fluctuations.

These demand factors undoubtedly have some effect. However, the major reason known by producers is found closer to home. Supply adjustments by producers actually determine most of the variation in quarterly live hog prices.

The Supply-Price Relationship

In an effort to measure the degree of this supply and price relationship, we related quarterly percentage changes in live hog prices to percentage changes in quarterly per capita supplies of pork on a live weight basis. We assumed that live hog prices are dependent on live pork supplies.

We found that 90 percent of the variation in quarterly hog prices was associated with the variation in the per capita supply of live pork put on the market footnote 2 of the graph).

A graphical illustration of the relationship between supply changes and

price changes is shown in the graph. Each dot shows the percentage change in the quarterly price and supply levels for each quarter. The graph indicates that a change in supply generally causes a price change in the opposite direction.

All dots falling in the upper left section indicate quarters in which supply decreased and price increased. Dots in the lower right section show increases in supply and decreases in price. Only twice in the 28-quarter period did this directional relationship fail to develop: third quarter of 1958 and second quarter of 1960. Both supply change and price change were then in the same direction, as indicated in the upper right section.

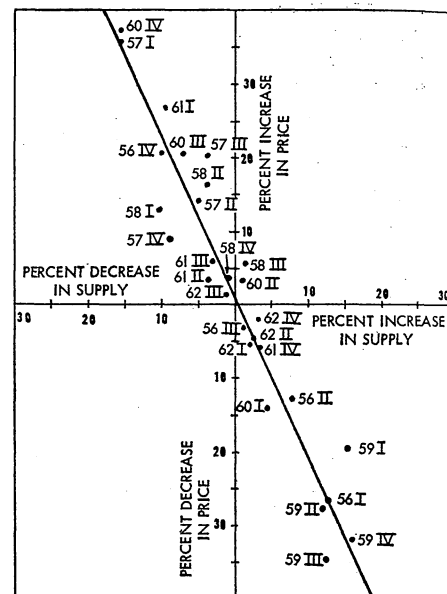
This tells us something about the direction of the relationship but not the magnitude—how much of a change in price was associated with a given change in supply? A statistical expression of the relationship, as shown by the line running through the coordinates in the graph, indicates that on the average a 1 percent change in per capita supplies during this period caused a 2.1 percent change in live hog prices in the opposite direction. So quarterly live hog prices are very sensitive to changes in the amount of live pork put on the market.

Conclusion

What does this mean to hog producers making production and income plans? Because of frequency and extent of price changes between produc-

tion and planning and sale time 9 to 12 months later, present prices are of little direct use in planning production. Instead, the future price situation must be estimated.

Because of the strong relationship between live slaughter and prices, an estimate of expected slaughter helps sharpen the price estimate. Hog producers should follow quarterly farrowing reports and slaughter trends. These will predict the probable supply situation.



Per capita live hog supply and price relationship, by quarters, 1956-1962.^{1,2}

¹ Data used:

Supply=quarterly total commercial live weight slaughter divided by quarterly population.
Price=monthly weighted slaughter hog prices adjusted by wholesale price index.

² Supply-price equation:

$$X = 0.52 - 2.10Y \quad (\text{where } X = \text{price} \\ (0.60) \text{ and } Y = \text{quantity})$$

$R^2 = 90.1$ percent

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