

The University of Minnesota

AGRICULTURAL EXTENSION DIVISION

Special Bulletin No. 62

University Farm, St. Paul

April, 1922

Published by the University of Minnesota, College of Agriculture, Extension Division, F. W. Peck, Director, and distributed in furtherance of the purposes of the cooperative agricultural extension work provided for in the Act of Congress of May 8, 1914.

LESSONS IN ECONOMICAL HOG PRODUCTION

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THE COST OF PRODUCING HOGS

What does it cost to produce 100 pounds of gain on hogs under ordinary farm conditions? For the year 1920, complete figures were secured from twenty farms on the statistical route maintained by the University of Minnesota in the vicinity of Owatonna and there were twenty different answers as to the cost during that year. These answers varied from \$8.61 to \$20.71 per hundred pounds of gain. The average cost was \$12.88. The high cost producers did not have any unusual losses from cholera or other diseases. The average farm price received by these farmers for hogs was \$12.33. Ten farmers had a cost below the average selling price while eight had a cost above the selling price.

PRICE RECEIVED FOR CORN FED TO HOGS

Farmer A who produced hogs at a cost of \$8.61 per cwt. sold his corn and other grains at approximately \$1.78 per bushel of 56 pounds if all the returns above costs for labor, shelter, and other miscellaneous expenses are credited as proceeds from the sale of grain marketed to hogs. In the same way Farmer X, who produced his pork at a cost of \$20.71 per cwt. received 53 cents per bushel for corn, or more exactly 53 cents for 56 pounds of grain. The average farm price of corn in this locality during the year 1920 was \$1.04 per bushel. Farmer A could not only make a good profit feeding his own corn to hogs, but could make a profit by supplementing home-raised corn with purchased corn, while Farmer X would find it more profitable, until he can learn to apply the

methods of Farmer A and other successful hog growers, to keep only sufficient hogs to utilize his skim milk and other by-products to advantage.

Table I. Itemized Statement of Cost of Producing 100 Pounds of Gain on Hogs by Farmers on Owatonna Statistical Route, 1920

Item	Farmer A (Lowest cost)	Average of 20 farms	Farmer X (Highest cost)
Feed	\$ 6.60	\$ 9.83	\$16.91
Labor, man and horse .....	.86	1.72	2.35
Interest on investment in breeding stock and miscellaneous cash items .....	.38	.44	.34
Shelter, equipment and overhead expense....	.77	.89	1.11
*Total cost	\$ 8.61	\$12.88	\$20.71
Selling price	13.10	12.23	13.30
Profit per cwt.	4.49	.65	7.41
Price hogs paid per 56 pounds of grain.....	1.78	1.00	.53
Pounds pork per farm	21,062	11,184	14,271

*In the cost figures, no credit has been given for value of manure because the care with which it is utilized varies so much. On farms where manure is carefully utilized, hogs could be given a manure credit of 50 to 70 cents per cwt. under 1920 conditions, and 20 to 30 cents per cwt. under April, 1922, conditions.

Feed and labor prices were \$1.04 per bushel for corn, 59 cents per hundredweight for skim milk and 32 cents per hour for man labor.

POUNDS OF FEED REQUIRED TO MAKE 100 POUNDS OF GAIN

The foregoing figures are a good illustration of the fact that cost figures, whether kept by a farmer or by a college, are quite apt to be out of date by the time they are completed, owing to the changing prices for feed, labor and hogs. However, if the amounts of feed required of each kind, and the hours of man and horse labor required are known, calculations can be made which show the approximate cost for any given time or price situation. The figures in Table I show the quantities of feed and labor required at Owatonna to make 100 pounds of gain on hogs.

Table II. Feed and Labor Required to Make 100 Pounds of Gain on Hogs.

Grain	Farmer A	Average	Farmer X
Corn, pounds	260	349	629
Oats, barley and succotash, pounds.....	45	92	134
Middlings, pounds	1	13	24
Oilmeal, pounds	2	3	...
Total grain	308	457	787
Skim milk, pounds	203	269	302
Pasture, days	30	40	30
Man labor, hours	2½	5	5
Horse labor, hours	¼	½	¼

If one assumes corn to be worth 40 cents per bushel, ground oats, barley, and succotash \$1 per cwt., middlings \$1.50 per cwt., oilmeal \$3 per cwt., skimmilk 25 cents per cwt., man labor 18 cents per hour, horse labor 10 cents per hour, and the other charges the same as in 1920, the cost per 100 pounds of gain would be as shown in Table III.

Table III. Cost of Producing 100 Pounds of Pork at Prices Prevailing April, 1922

	Farmer A	Average	Farmer X
Grain feed	\$3.29	\$3.70	\$6.20
Skimmilk .....	.51	.67	.75
Pasture .....	.20	.25	.22
Total feed cost	\$4.00	\$4.62	\$7.17
Man and horse labor .....	.47	.95	.92
Interest on investment in breeding stock and miscellaneous cash items .....	.38	.44	.34
Shelter, equipment and overhead .....	.77	.89	1.11
Total estimated cost	\$5.62	\$6.90	\$9.54

Under the conditions given Farmer A would have as profit anything above a selling price of \$5.62 per hundredweight. The average cost would be \$6.90 and Farmer X would have no profit unless the selling price was above \$9.54. It is evident that a low-cost producer like Farmer A occupies an enviable position as compared to the average farmer, whether prices are high or low.

DO COSTS GIVEN INCLUDE FEED FOR BREEDING STOCK?

In discussing the foregoing figures at farm business schools, the question has been frequently asked, "Do the feed and labor requirements per 100 pounds of gain include feed and labor on the breeding herd?" The following illustration from the figures of Farmer A shows the method of calculating the amount of pork produced and makes it clear that the feed requirements include feed for the breeding herd and also feed for any hogs that are lost by death or accident:

Table IV. Method of Computing Amount of Pork Produced

Closing Inventory:		Pounds
Sows and gilts, 12 head.....		3,330
Boar		250
Fat hogs, 14 head.....		3,150
Pigs, 20 head		800
Total closing inventory		7,530
Hogs sold		19,157
Hogs butchered for family use.....		1,000
Total		27,687
Deductions		
Opening Inventory:		Pounds
Sows and gilts, 10 head.....		2,800
Fat hogs, 4 head.....		1,000
Pigs, 26 head		2,600
Boar bought		225
Total deductions		6,625
Net pork produced		21,062

KEEPING FEED RECORDS

Every farmer who makes hog raising a leading source of income would find it well worth while to keep such records or estimates as will enable him each year to calculate the pounds of pork produced according to the foregoing outline, and also to keep an approximate record of feed so that he may calculate the amount of each kind used per 100 pounds of gain. A suitable booklet for this purpose may be had from the Agricultural Extension Division, University Farm, or through your county agricultural agent.

In keeping such a record, if scales are not available, the weights of hogs on hand at the opening and closing inventory may be carefully estimated, and if it is not convenient to weigh or measure the feed, the amount fed per day may be determined one day every two weeks and the total feed estimated on the basis of these sample days. Such figures are sufficiently accurate to show approximately how the feed requirements per 100 pounds of gain compare with the average of the twenty Owatonna farmers, or with the results secured by neighbors who are keeping similar records.

Reducing Costs

Not every farmer can hope to produce 100 pounds of gain with 308 pounds of grain and 203 pounds of skimmilk plus some pasture, as did Farmer A. However, it should be possible for any farmer who feeds balanced rations and who can raise an average of five or more pigs per sow, to produce pork with less than the average requirement of 457 pounds of grain and 269 of skimmilk. Where skimmilk and tankage are used in limited quantities, approximately 11 pounds of skimmilk may be expected to replace one pound of tankage.

These figures from these twenty farms for only one year are too limited to permit any final conclusions as to the factors that are most important in economical production. Good hog men usually consider the following as among the most important factors:

1. **Rations that include a sufficient amount of muscle- and bone-building material (protein) furnished by such feeds as skimmilk and tankage.** In sections where hogs are a leading source of income and but little skimmilk is available, it is frequently difficult to secure tankage at a reasonable figure owing to the fact that so little is handled that the local dealer has to ship it in by local freight and carry it in stock several months before selling, and then frequently to sell it on credit. Where such conditions have prevailed, some of the township Farm Bureau units

and farmers' clubs have made worth-while savings by pooling orders for a carload and then placing the order with a local dealer with the understanding that he is to receive a certain commission for handling the order, the farmers agreeing to take the tankage from the car and to pay cash.

2. **Liberal feeding as well as the right kind of feed is needed.** This is particularly advantageous when feeds are cheap compared to the price of hogs. Corn may be considered cheap when 100 pounds of gain will purchase from 12 to 14 bushels of corn. A hog that is fed liberally on balanced rations should, when 6 to 8 months old, weigh at least a pound for each day of age. Thus a 7 months old hog should weigh 210 pounds. Many good hog raisers do better than this. Those who are not able to get this result should try to find out where their methods need correcting.

3. **Feeding and handling brood sows so as to raise fairly large litters.** Where hogs are kept in large numbers, an average of 6 or more pigs raised per sow is very good. Farmer A produced 85 pigs from 13 litters, an average of $6\frac{1}{2}$ pigs raised per sow.

4. **Providing an abundance of suitable pasture.** Among the best are rape, alfalfa, and clover. Any of these pastures will replace about half of the necessary tankage or skim milk and contribute materially to the health and vitality of the herd.

5. **Providing an abundant supply of clean water available at all times.**

6. **Selling hogs at moderate weights.** Compilations made by Henry and Morrison indicate that about 20 per cent more feed per 100 pounds of grain is required for hogs from 200 to 350 pounds in weight as compared to pigs weighing from 50 to 200 pounds. When feed is very cheap compared to hogs, it may be desirable to carry hogs to the 250 or 300 pound weight, but in making calculations as to the desirability of so doing one should reckon on the extra cost of gains.

7. **Guarding the health of the herd so as to have the least possible losses from diseases and parasites.**

8. **Having an abundance of cheap feed.** This item is so important that it is entitled to the most careful consideration on the part of every hog raiser and will receive special attention in the following paragraph.

Cheap Feed for Hogs

At first thought many farmers may smile when we state the self-evident truth that cheap feed favors economical pork produc-

tion. Those who do the smiling, however, will be those who do not realize the wide differences in the price of corn and other grains in different sections of the United States or even within the same state. As illustrating the differences in price of feed that may prevail within the state, one of the writers recalls that during early February, 1922, he saw a farmer in Koochiching county pay \$1.30 for a 75 pound sack of cracked corn at his local store, or at the rate of 97 cents per bushel, at a time when it was selling at approximately 35 cents in the surplus corn sections of southwest Minnesota. Hogs in each locality were selling at about \$8 per hundredweight so it is clear that the farmer with the high-priced feed could make money on hogs only when they were principally raised on by-products such as skimmilk, while the farmer in southwestern Minnesota would find hogs the best available market for his corn. The foregoing is an extreme case, but there are numerous areas in Minnesota where there is more likely to be a scarcity of corn than a surplus. In such cases the local price of corn is frequently about the same as the Minneapolis price, or at times equal to the Minneapolis price plus freight, while the price of hogs is about the same as in the surplus corn sections where corn is from 10 to 20 cents a bushel cheaper. Farmers in localities that are likely to have a scarcity of corn or barley will make some money on hogs especially where liberal quantities of skimmilk or buttermilk are available, but such farmers should be especially careful to so plan their hog business that they will have an abundance of feed even in unfavorable crop years.

The surplus corn sections of Minnesota have corn that is almost as cheap as anywhere in the United States and are therefore in a much more favorable position for selling hogs than corn. One year with another, the cheapest corn in the United States is found in southeastern South Dakota and in northeastern Nebraska, but the price is almost as low in southwestern Minnesota and northwestern Iowa. The low price in these localities is due to the fact that the surplus corn is used in the east and south and the northwestern part of the corn belt has the longest freight haul to these sections. Their hogs are also slightly cheaper than those of sections farther east and south, but much less proportionately so than corn, because the freight is so much more on corn than on the pork it produces. The difference in the price of corn between different regions is greater than when freight rates were lower.

HOG AND CORN PRICES IN DIFFERENT STATES

The following figures show the comparative prices of corn in Nebraska, South Dakota, Minnesota, Iowa, Wisconsin, Illinois,

Ohio, Georgia and New York as taken from the March 18, 1922, issue of Weather, Crops, and Markets, published by the United States Department of Agriculture:

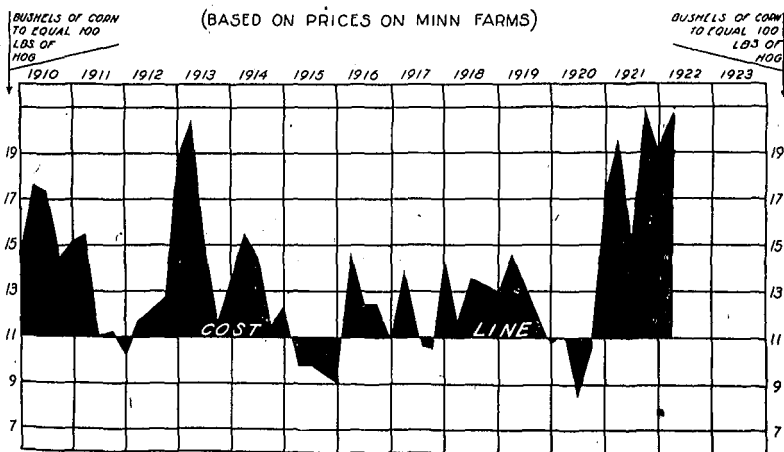
State	Average farm price of corn per bu. March 1, 1922	Average farm price of hogs per cwt. Feb. 15, 1922
Nebraska	\$0.42	\$8.40
MINNESOTA	.43	8.60
South Dakota	.44	8.10
Iowa	.47	8.80
Illinois	.50	8.70
Ohio	.55	9.10
Wisconsin	.56	8.20
Georgia	.64	6.10
New York	.74	8.30

A glance at the foregoing table indicates that the Minnesota farmer is at a disadvantage in selling corn, but with his hogs selling for nearly as much as eastern and southern hogs, he is in a very favorable position for realizing a profit on his hogs. The low price of hogs in Georgia compared to other regions is probably due to a discount for soft pork, a result of the use of peanuts and other feeds that make soft fat.

Minnesota Hog Prices in Terms of Corn

The following chart shows the relation between prices of hogs and corn in Minnesota farms for the years 1910-1922 inclusive:

BUSHELS OF CORN TO EQUAL IN VALUE 100 LBS. OF LIVE HOG



AREAS ABOVE LINE INDICATE PERIODS OF PROFIT FOR THOSE HOG RAISERS WITH WHOM THE PRICE OF 11 BUSHELS OF CORN WILL COVER THE FEED, LABOR AND OTHER EXPENSE OF 100 LBS OF LIVE HOG. OVER A PERIOD OF YEARS THE PRICE OF 11 BUSHELS OF CORN WILL COVER ALL EXPENSES FOR THE HOG RAISER WHO USES BALANCED RATIONS AND PASTURE

This shows that for farmers who can produce 100 pounds of pork for less than the price of 11 bushels of corn, there has been on the average a good profit in hogs. Of the twenty farmers on the Owatonna statistical route, ten produced pork at less than

\$11.44 per hundredweight, which would be the price of 11 bushels of corn at \$1.04, the average 1920 price.

During the twelve-year period covered by the chart, there was a total of approximately nine years when hogs were a better market for corn than the elevator. It is also worthy of note that the chart indicates that periods of losses are followed by periods of profit and vice versa. Therefore, farmers who curtail production when feed is high compared to hogs, usually have a light crop when the prices are the best. A similar chart for states having higher priced corn would make a much less favorable showing for the hog business.

HITTING THE HIGH MARKET

There is no certain way to tell in advance when hogs are going to sell at a high or low figure, but a knowledge of the usual seasonal tendencies of the market may be helpful in planning the hog business so that one has hogs to sell at seasons when the price is usually the best.

AVERAGE CHICAGO PRICE OF HOGS, ALL GRADES, BY MONTHS 1903-20

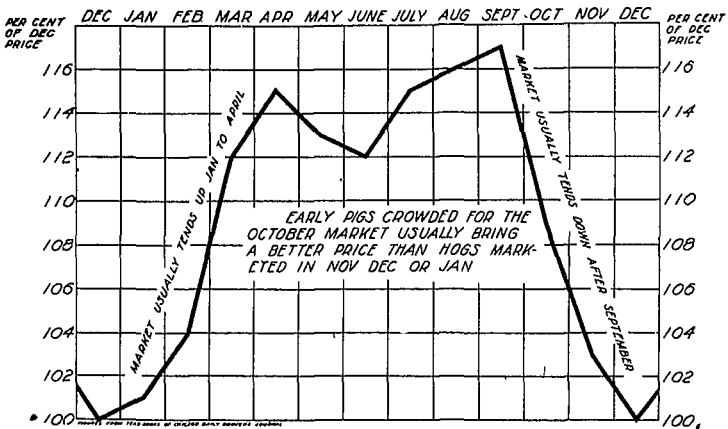


Chart II shows that the high market of the year usually comes in September with a gradual decline from September to about January 1.* Upon the basis of \$7 hogs in December, the corresponding average price for September would be \$8.20, for October \$7.64, and for November \$7.22. This indicates that those who have facilities for handling early pigs will usually get a better price if they can have pigs farrowed in March and then fed to capacity so that they can be marketed at about 200 pounds weight in late September or early October. Of course, if this plan were generally followed, the tendency would be changed, but the condition is likely to be more or less permanent as it takes good facilities and skillful feeding to get spring pigs ready for the early market. The best market for fall pigs usually comes in April.