

G. F. Baker - Minor Thesis in Animal Husbandry - Aug. 1924
 A Comparison of Corn and Hog Prices.

The following tables giving monthly prices of corn and hogs during the past five year period were taken from Bulletin No. 1 Virginia Farm Statistics for 1925.

[A comparison of corn and hog prices]

These prices were taken from the Division of Agricultural Statistics, Department of Agriculture. Prices of corn are estimated on the first of each month.

MINOR THESIS IN ANIMAL HUSBANDRY

| Months | Prices of Corn for the following years: | | | | |
|-----------|---|-----------------|-----------------|-----------------|-----------------|
| | 1919 per bu. | 1920 per bu. | 1921 per bu. | 1922 per bu. | 1923 per bu. |
| January | \$1.61 | \$1.57 | \$0.94 | \$0.67 | \$0.85 |
| February | 1.61 | 1.73 | .91 | .72 | .88 |
| March | 1.57 | 1.89 | .88 | .72 | .92 |
| April | 1.55 | 1.91 | .92 | .78 | .96 |
| May | 1.78 | 1.97 | .89 | .84 | 1.01 |
| June | 1.83 | 2.15 | .89 | .85 | 1.04 |
| July | 1.87 | 2.21 | .88 | .89 | 1.08 |
| August | 2.00 | 2.18 | .87 | .90 | 1.07 |
| September | 2.01 | 2.05 | .87 | .84 | 1.03 |
| October | 2.41 | 1.83 | .86 | .85 | 1.05 |
| November | 1.68 | 1.89 | .73 | .77 | 1.00 |
| December | 1.59 | 1.60 | .69 | .79 | .94 |
| Average | 1.77 | 1.82 | .87 | .80 | .98 |

August, 1924

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The average price of corn during the past five year period is \$1.85 per bushel, which is somewhat above the average for a

The following tables giving monthly prices of corn and hogs during the past five year period were taken from Bulletin No. I Virginia Farm Statistics for 1923.

These statistics were secured by the Division of Agricultural Statistics of the Virginia Department of Agriculture.

Prices of corn are estimated on the first of each month.

Table No. I

| Months | Prices of corn for the following years: | | | | |
|-----------|---|---------|---------|---------|---------|
| | 1919 | 1920 | 1921 | 1922 | 1923 |
| | per bu. | per bu. | per bu. | per bu. | per bu. |
| January | \$1.61 | \$1.67 | \$0.94 | \$0.67 | \$0.85 |
| February | 1.61 | 1.75 | .91 | .72 | .88 |
| March | 1.57 | 1.80 | .96 | .72 | .92 |
| April | 1.65 | 1.91 | .92 | .78 | .96 |
| May | 1.78 | 1.97 | .89 | .84 | 1.01 |
| June | 1.83 | 2.15 | .89 | .85 | 1.04 |
| July | 1.87 | 2.21 | .88 | .85 | 1.03 |
| August | 2.00 | 2.18 | .87 | .90 | 1.07 |
| September | 2.01 | 2.05 | .87 | .84 | 1.09 |
| October | 1.85 | 1.82 | .86 | .85 | 1.05 |
| November | 1.69 | 1.29 | .72 | .77 | 1.00 |
| December | 1.69 | 1.00 | .69 | .79 | .94 |
| Average | 1.77 | 1.82 | .87 | .80 | .98 |

The average price of corn for the total five year period is \$1.25 per bushel, which is somewhat above the average for a normal five year period. The average prices for the years 1919 and 1920 was considerably above the prices for the last three years, due to abnormal conditions existing during and following the World War. The following hog prices were estimated on the fifteenth of each month:

Table No. II

| Months | Prices of hogs per 100 pounds for years: | | | | |
|-----------|--|---------|--------|--------|--------|
| | 1919 | 1920 | 1921 | 1922 | 1923 |
| January | \$15.90 | \$14.40 | \$9.80 | \$7.90 | \$8.80 |
| February | 15.80 | 14.40 | 9.50 | 8.40 | 8.70 |
| March | 16.00 | 14.50 | 10.00 | 8.40 | 8.40 |
| April | 16.70 | 14.25 | 9.90 | 9.10 | 8.90 |
| May | 17.60 | 14.20 | 8.50 | 9.20 | 8.70 |
| June | 17.30 | 13.60 | 8.20 | 9.30 | 7.80 |
| July | 18.30 | 14.00 | 8.20 | 9.60 | 7.60 |
| August | 18.40 | 14.00 | 9.60 | 9.50 | 7.80 |
| September | 17.00 | 14.00 | 8.70 | 9.20 | 8.50 |
| October | 15.20 | 14.40 | 7.90 | 9.40 | 8.50 |
| November | 13.60 | 12.70 | 7.80 | 8.90 | 8.20 |
| December | 13.70 | 9.60 | 7.85 | 8.55 | 7.50 |
| Average | 16.29 | 13.67 | 8.83 | 9.04 | 8.22 |

It will be noticed that corn prices and hog prices tend to vary directly with each other ⁱⁿ about 75% of the months of the year at least. Both are low during the latter part of the year. More hogs come on the market then and new corn is just coming in. The average prices of hogs during the past five years is \$11.21 per hundred pounds. It is shown in Henry and Morrison's book on Feeds and Feeding that the estimated costs of producing pork correspond quite closely with the actual ratio between the average price of corn and hogs on the Chicago market. It will be noticed that the average price of hogs per 100 pounds during this period is nine times the price of corn per bushel. If this rule is accurate then the cost of producing 100 pounds of pork during this period would average the cost of nine bushels of corn. However, we must not expect this relationship to exist during such unusual times at any rate. Details of this experiment are given later.

The amount of corn required to produce 100 pounds gain in hogs will vary with manner of feeding or feeds used. It will also vary as age and weight vary as shown in the following table taken from Henry and Morrison's Feeds and Feeding. Table III shows the average results secured during six years with pigs self fed corn and tankage on good pasture in trials by Morrison and others at the Wisconsin Station: In these trials a total of 320 pigs were fed from weights of fifty or

sixty pound to market weights of 200 pounds or more: Pasture crops included alfalfa, red clover, sweet clover, rape and such mixtures as oats, peas and rape.

Table No. III

Gains of pigs of various ages on good pasture

| Weight of pigs : | Actual average Weight lbs. | Concentrates per head Daily lbs. | Daily gain lbs. | Concentrates for 100 lbs. gain corn lbs. | Concentrates for 100 lbs. gain tankage lbs. |
|------------------|----------------------------|----------------------------------|-----------------|--|---|
| 50 - 75 lbs. | 64.5 | 3.2 | 0.90 | 333 | 26 |
| 75 - 100 lbs. | 88.5 | 4.2 | 1.15 | 340 | 29 |
| 100- 150 lbs. | 127.1 | 5.7 | 1.50 | 363 | 26 |
| 150 -200 lbs. | 175.8 | 6.9 | 1.55 | 443 | 20 |

It will be noted that the amount of corn required for 100 pounds gain increases with the weight and age of the pigs, but there was no very rapid increase until the weight of 150 pounds was reached. Other experiments made at the Ohio Station on pigs without pasture illustrate the same general facts. To secure most economical gains pigs are generally marketed when they reach a weight of about 200 pounds.

Corn is low in mineral matter and protein compared to its wealth of carbohydrates and fats. Consequently, much larger and more economical gains are made when corn is supplemented by feeds rich in protein and mineral matter. Table IV illustrates this fact more forcibly. This table taken from Henry and Morrison's Feeds and Feeding summarizes the results of seven trials in which corn alone, without pasture, has been fed to young pigs,

averaging 69 pounds in weight in comparison with a balanced ration of corn and tankage. Results are also given for 15 similar comparisons for older pigs averaging 148 pounds in weight when the experiments began.

Table IV

Corn alone vs. corn and tankage for growing fattening pigs

| Average ration, of trials | Average | Daily gain lbs. | Feed for 100 lbs. gain | |
|---|-----------------------|-----------------|------------------------|--------------|
| | Length of trials Days | | Corn lbs. | Tankage lbs. |
| Trials with young pigs. Lot I corn alone. Corn 3.5 lbs. | | | | |
| | 122 | 0.59 | 642 | |
| Lot II corn and tankage. Corn 4.4 lbs. | | | | |
| | 122 | 1.18 | 387 | 42 |
| Trials with older pigs. Lot I corn alone. Corn 5.7 lbs. | | | | |
| | 69 | 1.03 | 617 | |
| Lot II. corn and tankage. Corn 6.1 lbs. | | | | |
| | 66 | 1.59 | 400 | 43 |

The advantage in using supplements is shown by the fact that in these trials 100 pounds of tankage saved 607 pounds of corn with the younger pigs, and 505 pounds of corn with the older pigs. The younger pigs gained only 0.59 pounds a head daily and required 642 pounds of corn for each 100 pounds gain. When corn was balanced with tankage the gains were doubled and only 387 pounds of corn and 42 pounds of tankage were consumed for each 100 pounds gain. The pigs fed corn alone were stunted at the end of these trials and did not

weigh near as much as those fed the supplement. The older pigs were about grown to begin with and could stand the ration of corn alone somewhat better, but the corn ration was extremely unsatisfactory for them also. Corn is fairly satisfactory for old sows since they need less protein, but even then a supplement produces cheaper gains.

Other protein rich supplements might have been used such as skim milk, butter milk, fish meal and combinations of other feeds with fully as good results.

Feeding a supplement with corn on pasture Table V taken from Henry & Morrison shows clearly the results of seven trials in each of which one lot of spring pigs averaging 49 pounds in weight was fed only corn on rape pasture, while another was fed corn plus a small amount of tankage:

Table V

| Average ration | Length of time Days | Daily gain lbs. | Concentrates 100 lbs. gain corn lbs. | tankage lbs. |
|--|------------------------|--------------------|---|-----------------|
| Lot I corn, 3.7 lbs. Rape | 142 | 0.88 | 427 | |
| Lot II corn, 4.3 lbs. Tankage 0.24 lbs. Rape | 120 | 1.25 | 344 | 20 |

The pigs in Lot II were more thrifty, ate more feed, and made much more rapid and economical gains. In these trials each 100 pounds of tankage saved 415 pounds of corn. Other trials show a similar advantage in supplying a supplement to pigs fed corn on alfalfa or clover pasture.

I have already referred to the fact that it is shown in Morrison's Feeds and Feeding the cost of pork production in terms of corn.

This data was secured from Smith's Pork Production.

Table VI represents the cost of producing a 225 pound finished pig in the corn belt under various systems of management. The last column of the table shows the estimated total cost of producing 100 pounds of live pig, expressed in the terms of a bushel of corn.

Table VI

Cost of producing 225 pound pig in terms of bushels of corn.

| System of Management : | Feed cost bu. | Labor cost bu. | Other cost bu. | Total cost bu. | Cost of Producing 100 lbs. pork live wt. in bu. corn. |
|---|------------------|-------------------|-------------------|-------------------|---|
| A - Pigs from gilts, 5 pigs raised per litter. | 18.24 | 2.03 | 5.64 | 25.91 | 11.51 |
| B - Pigs from mature sows 1 litter of 7 pigs per year. | 18.05 | 1.62 | 5.62 | 25.29 | 11.24 |
| C - Pigs from mature sows 3 litters of 7 pigs each every two years, after maturity. | 17.73 | 1.47 | 5.38 | 24.58 | 10.93 |
| D - Pigs from mature sows 2 litters of 7 pigs per year after maturity. | 17.56 | 1.37 | 5.23 | 24.16 | 10.74 |

According to these figures the cost of producing pork per 100 pounds live weight of pigs under system A (producing

spring pigs from gilts raising five pigs on the average, and are fattened and sold for pork as soon as weaned) is equivalent to the price of 11.51 bushels of corn.

With the relative prices of corn and pork as shown in Table I and II it would not have been economical to raise pigs for the market during a large part of the past five year period under this system of management. In other words it would have been better to sell the corn rather than feed it and sell the hogs. However, these figures can only be approximate, as any system of estimating costs in terms of feed must be, because the price of feed may rise or fall more proportionally than the other costs.

The ratio between the average price of hogs and corn, therefore, is one of the big factors in deciding whether it is more economical to market corn or to feed hogs and market the hogs.

Distance from market would also be a factor. The above tables demonstrate that it would require about four bushels of corn to produce one pound of pork. Hence, if one is located far from market it would be more economical to feed the corn to the hogs and thus ship one pound of pork instead of four pounds of corn, while if you are close to market you would find it more economical to market more of the corn directly.

The system of management would be a factor in regard to this, also according to Table six where results from four different methods were shown. Here we note the advantage in building up a good herd and raising more and better pigs to the litter.

From this discussion we may conclude:

- 1 - There is an important relation existing between the prices of corn and hogs which is of immense value to the hog raiser.
- 2 - The amount of corn necessary to produce 100 pounds gain in hogs is a variable factor influenced by manner of feeding and system of management.
- 3 - The value and influence of supplemental feeds has an important bearing on the cost per 100 pounds gain.
- 4 - The controlling factors relating to marketing corn or feeding hogs and marketing hogs are :
 - (1) Ratio between price of corn and hogs,
 - (2) Location or distance to market,
 - (3) System of management of hogs.

Respectfully submitted.

G. P. Baker.

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