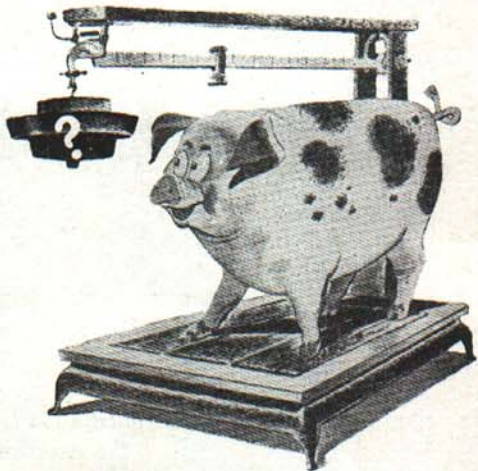# What Is the Most Profitable

Weight to Market Hogs?

By HAROLD RILEY

MICHIGAN STATE COLLEGE

COOPERATIVE EXTENSION

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CONTENTS

*The cover illustration is used through the courtesy of
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What is the Most Profitable Weight to Market Hogs?

By HAROLD M. RILEY[1]

If you're a hog producer, you've probably asked yourself this question more than once: "Should I sell my hogs *now*?—Or could I make more money by feeding them a few more weeks?" An answer always requires consideration on these basic factors:

1. The estimated change in value of the hogs if held.

2. The additional cost of feeding to heavier weights.

So long as the increase in value of the hogs *is greater than* the additional costs of feed and care, it will pay to feed to heavier weights.

ESTIMATING CHANGE IN VALUE

For example, assume you have a fairly uniform lot of 200-pound hogs, which would be worth about $18 "a hundred" on the current market. The present value of the hogs is therefore about $36 each. How much more will the hogs be worth if kept another month, so as to put another 50 pounds of weight on each one?

In order to answer this question, you will have to (1) estimate the probable seasonal trend of hog prices for the next month, and (2) make an allowance for a price discount for heavier hogs.

Let us suppose in this particular case that the date is June 15, and that available market outlook information indicates a little less-than-normal seasonal price increase for hogs in the next 30 days—with top prices on Choice No. 1, 200-220 pound barrows and gilts advancing about one dollar a hundredweight. The discount on 250-pound hogs is expected to increase and will be about 75 cents a hundred as compared to the lighter weights.

Under these conditions one would estimate that the 250-pound-hogs would sell for about $18.25 a hundred a month from now ($18.00 + $1.00 — $.75). On this basis a 250-pound-hog would bring $45.62. This is a change in value of $9.62 compared with the value of a 200-pound-hog on June 15 ($45.62 — $36.00 = $9.62).

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[1] Extension Specialist in Agricultural Economics.

ADDITIONAL COSTS OF FEEDING
TO HEAVIER WEIGHTS

As a hog becomes heavier, it requires more and more feed to put on an additional pound of gain. To determine just how much feed, feeding tests—in dry lot, where hogs were fed a balanced ration of corn and protein supplement—have been made at several of the Corn Belt Agricultural Experiment Stations. Table 1 shows some of the results. Total feed consumption is expressed in "feed units" or "corn equivalent". (1 feed unit = 1 pound shelled corn = ½ pound protein supplement.)

TABLE 1—*Feed required to produce 25 pounds of pork starting with hogs of different weights.**

Weight range	Number of feed units	Equivalent bushels of corn
200–225 lbs.	122.1	2.18
225–250 lbs.	126.5	2.26
250–275 lbs.	132.0	2.36
275–300 lbs.	138.0	2.46

*Source: U.S.D.A. Bulletin 894.

These feed requirements represent a reasonably high degree of feeding efficiency, but good farmers using legume pasture and antibiotics probably can do even better. Probably there are also a sizeable number of farmers who use more feed than the table indicates.

In order to put 50 pounds gain on these 200-pound-hogs which you have on June 15, it will require the equivalent of about 4.44 (roughly 4½) bushels of corn. (Table 1 is set up by 25-pound weight intervals, so for 50 pounds "2.18" and "2.26" in column 3 are added to give "4.44.") With the current price of corn at $1.40 per bushel, feed costs would be approximately $6.30.

OTHER COSTS

But allowance has to be made for costs other than feed. Some studies have shown that feed costs make up about 80 percent of the cost of producing hogs. However, since we wish to include only the additional costs for holding these 200-pound-hogs another month, it seems reasonable that we can assume that labor costs and other expense will be a smaller proportion of the total costs than the overall average for raising hogs.

Therefore, we will let feed costs equal 85 percent of total costs. If feed costs were $6.30, total costs in this case would be $7.41. ($6.30 ÷ 85 × 100 = $7.41.)

DID IT PAY?

In this particular case the change in value by feeding for another month was $9.62. The additional costs of putting on 50 pounds weight per hog was found to be $7.41. Therefore, it would have paid $2.21 per head to have fed to the heavier weight. (Fig. 1.)
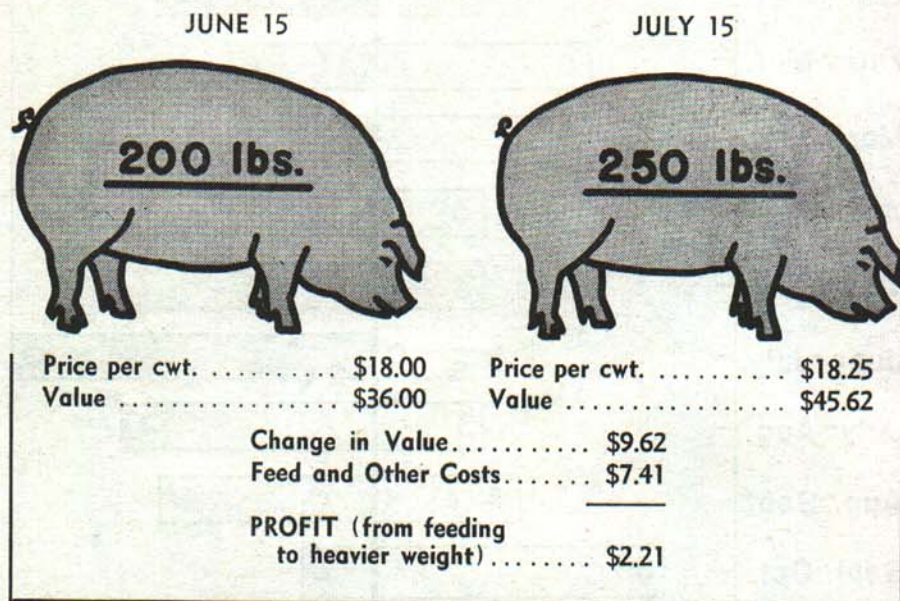

JUNE 15   JULY 15

200 lbs.   **250 lbs.**

Price per cwt. . . . . $18.00   Price per cwt. $18.25
Value . . . . $36.00   Value $45.62

Change in Value. $9.62
Feed and Other Costs. $7.41

PROFIT (from feeding
  to heavier weight). $2.21

Fig. 1. Did feeding an additional month pay?

WHEN HAS IT PAID TO FEED TO HEAVIER WEIGHTS DURING RECENT YEARS?

To determine when it has paid to feed a 200-pound hog up to 250 pounds before selling, a series of calculations were made in 1953 by the Department of Agricultural Economics at Michigan State College. The calculations followed the same principle outlined in the preceding pages, using the Chicago monthly averages on prices for hogs of different weights and for No. 3 yellow corn. Data for five pre-war years, 1937-41, and five post-war years, 1947-51, were used. The war years were not used because of the influence of price controls.

Following the same procedure as illustrated in Fig. 1, the change in the value of a hog was compared to the additional cost of putting 50 pounds gain for each month in the ten-year period. The results are summarized in Fig. 2.
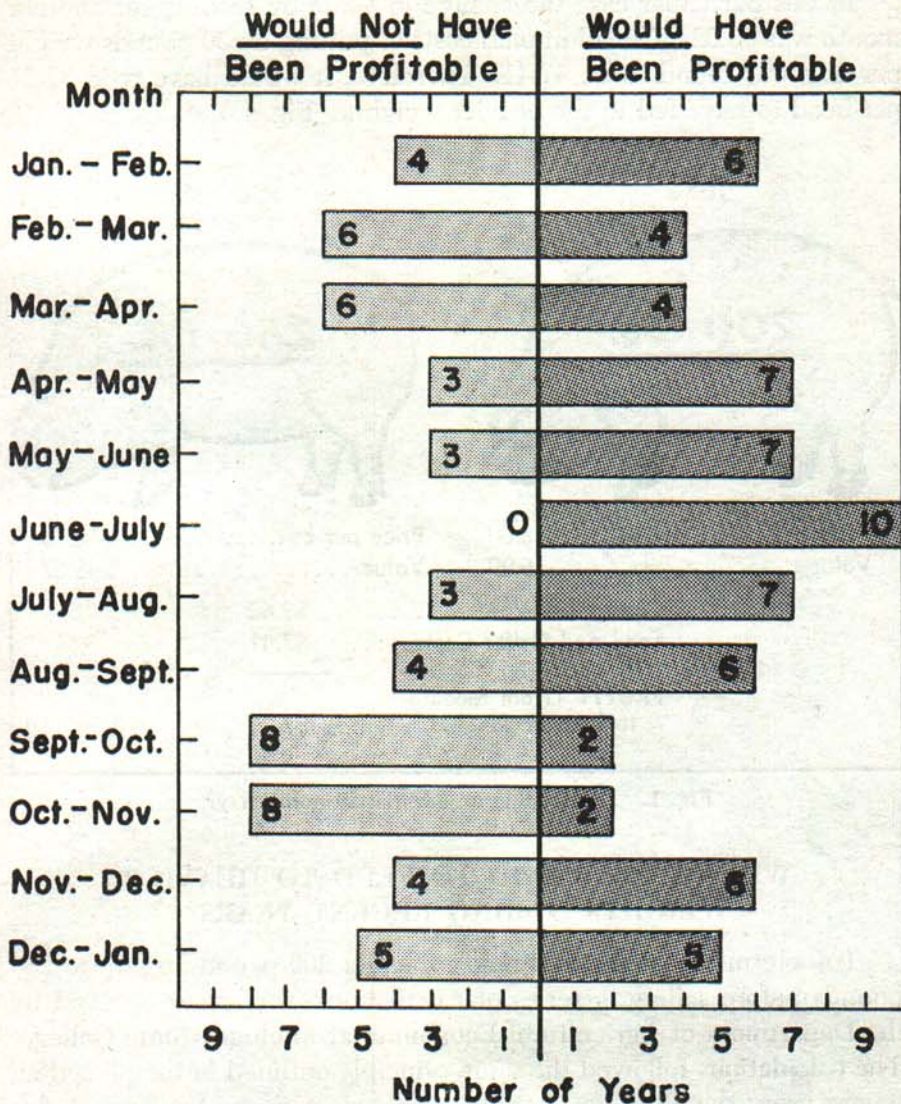

Fig. 2. Number of years during a recent 10-year period in which it would, or would not, have been profitable to feed 200-pound hogs an additional month.

In each of the ten years, it would have paid to put an additional 50 pounds on hogs weighing 200 pounds by June. In general, it was most likely to be profitable to feed to heavier weights from April through July, which is normally a period of seasonally rising prices. It was least likely to be profitable during the fall and late winter.

FACTORS AFFECTING PROFITABILITY OF FEEDING TO HEAVIER WEIGHTS

Seasonal Price Movement

This is probably the most important single factor influencing the profitability of feeding to heavier weights. (Fig. 3.) The months in which holding hogs for additional feeding is most likely to pay are those in which the price trend is upward. The seasonal price pattern shown in Fig. 3 represents an average of monthly prices for a recent five-year period. It should be recognized that in any given year the seasonal pattern will vary somewhat from the average depending on supply and demand conditions.
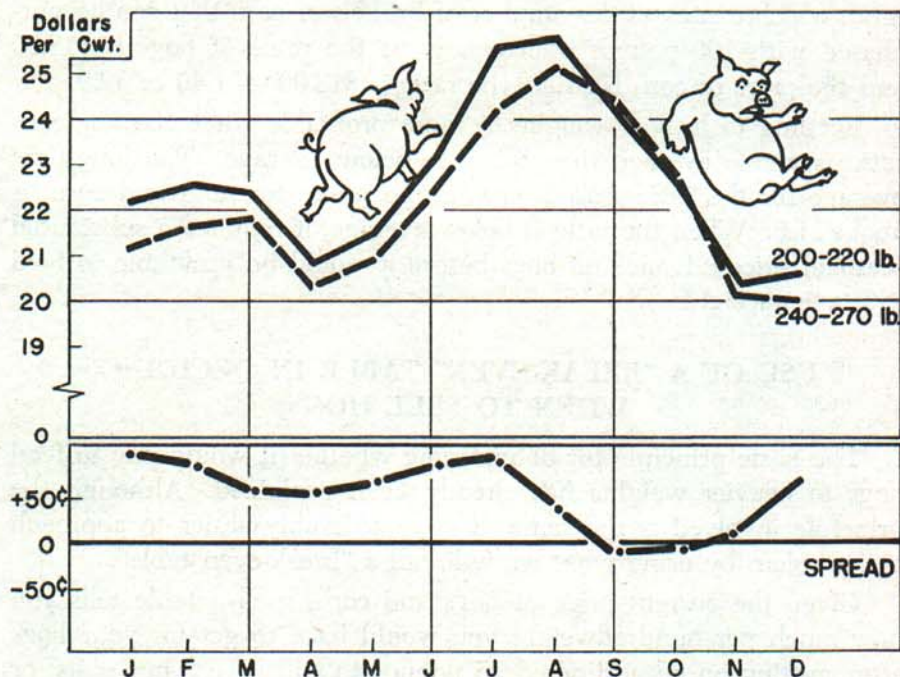

Fig. 3.   Monthly average prices of barrows and gilts, and price-spread between different weights, Chicago, 1947-51.

Price Discount on Heavy Hogs

Figure 3 also shows that the price spread between light and heavy hogs is widest at two different times of the year—during the winter and again during the summer months. Average slaughter-weights of barrows and gilts usually increase from November through January as the last of the spring pig crop comes to market. In the summer there are large marketings of sows which tend to widen the discount for heavy hogs.

Relatively few heavy hogs are sold in the fall months; consequently, the discount may disappear entirely at this time of year. From one year to another the amount of price differential between light and heavy hogs is closely related to the level of lard prices. It should be noted that even though price differentials between weights are wide during the summer, seasonal price increases are usually large enough to offset that factor.

Ratio Between Corn and Hog Prices

The usual way of expressing this relationship is the *hog-corn price ratio*, which expresses the number of bushels of corn that can be purchased with 100 pounds of live hog. If the price of hogs is $18.00 and the price of corn is $1.40, the ratio is $18.00 ÷ 1.40 or 12.9.

Feeding to heavier weights is more profitable when the hog-corn ratio is above average than when it below average. The long-time average for the ratio, based on Chicago prices for hogs and corn, is about 11.6. When the ratio is below average, it requires a substantial seasonal price advance on hogs before it would be profitable to feed to heavier weights.

USE OF A "BREAK-EVEN" TABLE IN DECIDING WHEN TO SELL HOGS

The basic principle for determining whether it would pay to feed hogs to heavier weights has already been explained. Although the principle involved is the same, it is considerably easier to approach the problem by using what we will call a "break-even table".

Given the current price of hogs and corn, such a table tells you how much per hundredweight you would have to get for your hogs after putting on an additional 25 pounds to still cover your costs, or in other words, to "break even." Of course, anything above the break-even figure represents profit.

Realizing that farmers reappraise the market situation rather frequently, our break-even table is set up by 25-pound weight changes. Sub-tables *A, B, C* and *D* are set up for hogs of different initial weights—200, 225, 250, and 275 pounds. On the average, it takes at least 2 weeks to put an additional 25 pounds on a market-weight hog.

How Break-Even Prices Are Calculated

As an example of how the break-even price is calculated, we can use the first of the sub-tables "for hogs weighing 200 pounds now." Assuming the current price of hogs to be $20.00 and corn at $1.50, the calculations are as follows:

Value of hog at current price *($20 × 2 cwt.)* - - - = $40.00
Cost of feed *(2.18 bushels × $1.50 per bu.)* - - - - =   3.27
Other costs *(15% of total cost)* - - - - - - - =   .58
_____

Value of hog 2 weeks hence in order to "break even" $43.85
Break-even price *($43.85 ÷ 2.25 cwt.)* - - - - - = $19.49

(See Break-Even Table A.)

You have no need to follow through these steps of course. The calculations have been made for you in setting up the table.

Using the Break-Even Table

In order to use the table, you must know the following—
    (1) Present weight of your hogs.
    (2) Current price the hogs would sell for.
    (3) Present price of corn.

Whenever you have those three things, the proper sub-table will tell you the price you'll have to get at 25 pounds additional weight in order to break even. (These directions are repeated on the following page to make the table complete in itself.)

Again to illustrate, using the second of the tables (Table "B")— With corn at $1.25 per bushel, a 225-pound-hog worth $17.50 today would have to bring $17.07 a hundred 2 weeks hence in order to repay you for the additional costs of putting on another 25 pounds. If you think the price will be greater than $17.07 in 2 weeks from now, you would probably hold your hogs and continue feeding them.

The break-even price can be estimated rather closely when the current price of hogs and corn fall between the values used in setting up the table.

Directions

(1) Know the present weight of your hogs, current market-price per cwt., and present price of corn per bushel.

(2) Select the proper sub-table—A, B, C or D.

(3) Match the present price of corn to the present price of hogs.

(4) Read off the selling price necessary to break even if you hold your hogs to feed them to an additional 25 pounds of weight.

BREAK-EVEN TABLE A

For Hogs weighing 200 pounds at present time

Present price of corn (per bushel)	Present price of hogs ("dollars per hundred")							
	$10.00	$12.50	$15.00	$17.50	$20.00	$22.50	$25.00	$27.50
	Break-even price at 25 pounds additional weight							
$ .75.............	9.75	11.97	14.06	16.41	18.64	20.86	23.08	25.30
1.00.............	10.03	12.25	14.47	16.69	18.92	21.14	23.36	25.58
1.25.............	10.32	12.54	14.76	16.98	19.20	21.43	23.65	25.87
1.50.............	10.60	12.82	15.04	17.27	19.49	21.71	23.93	26.16
1.75.............	10.88	13.11	15.33	17.55	19.77	22.00	24.22	26.44
2.00.............	11.17	13.39	15.61	17.84	20.06	22.28	24.50	26.72
2.25.............	11.45	13.68	15.90	18.12	20.34	22.56	24.79	27.01
2.50.............	11.74	13.96	16.18	18.40	20.63	22.85	25.07	27.29

BREAK-EVEN TABLE B

For Hogs weighing 225 pounds at present time

Present price of corn (per bushel)	Present price of hogs ("dollars per hundred")							
	$10.00	$12.50	$15.00	$17.50	$20.00	$22.50	$25.00	$27.50
	Break-even price at 25 pounds additional weight							
$ .75.............	9.80	12.05	14.30	16.55	18.80	20.97	23.30	25.55
1.00.............	10.06	12.32	14.56	16.82	19.06	21.32	23.56	25.82
1.25.............	10.32	12.57	14.82	17.07	19.32	21.57	23.83	26.07
1.50.............	10.59	12.84	15.09	17.34	19.59	21.84	24.10	26.35
1.75.............	10.85	13.10	15.35	17.60	19.85	22.10	24.36	26.60
2.00.............	11.12	13.37	15.62	17.87	20.12	22.37	24.63	26.87
2.25.............	11.38	13.63	15.88	18.13	20.38	22.63	24.89	27.13
2.50.............	11.65	13.90	16.15	18.40	20.65	22.90	25.16	27.40

BREAK-EVEN TABLE C

For Hogs weighing 250 pounds at present time

Present price of corn (per bushel)	Present price of hogs ("dollars per hundred")							
	$10.00	$12.50	$15.00	$17.50	$20.00	$22.50	$25.00	$27.50
	Break-even price at 25 pounds additional weight							
$ .75..............	9.85	12.12	14.39	16.67	18.94	21.21	23.48	25.76
1.00..............	10.10	12.37	14.64	16.92	19.19	21.47	23.74	26.01
1.25..............	10.35	12.63	14.90	17.17	19.44	21.72	23.99	26.26
1.50..............	10.60	12.88	15.15	17.42	19.69	21.97	24.24	26.51
1.75..............	10.86	13.13	15.40	17.68	19.95	22.22	24.49	26.77
2.00..............	11.11	13.38	15.65	17.93	20.20	22.47	24.75	27.02
2.25..............	11.36	13.63	15.91	18.18	20.45	22.72	25.01	27.27
2.50..............	11.61	13.89	16.16	18.43	20.71	22.98	25.25	27.52

BREAK-EVEN TABLE D

For Hogs weighing 275 pounds at present time

Present price of corn (per bushel)	Present price of hogs ("dollars per hundred")							
	$10.00	$12.50	$15.00	$17.50	$20.00	$22.50	$25.00	$27.50
	Break-even price at 25 pounds additional weight							
$ .75..............	9.89	12.19	14.48	16.77	19.06	21.35	23.64	25.94
1.00..............	10.13	12.42	14.71	17.01	19.30	21.59	23.88	26.17
1.25..............	10.37	12.67	14.96	17.25	19.54	21.83	24.12	26.42
1.50..............	10.61	12.91	15.20	17.49	19.78	22.07	24.36	26.66
1.75..............	10.85	13.15	15.44	17.73	20.02	22.31	24.61	26.90
2.00..............	11.10	13.39	15.68	17.97	20.26	22.56	24.85	27.14
2.25..............	11.34	13.63	15.92	18.22	20.51	22.80	25.08	27.38
2.50..............	11.58	13.87	16.16	18.45	20.74	23.04	25.33	27.62