

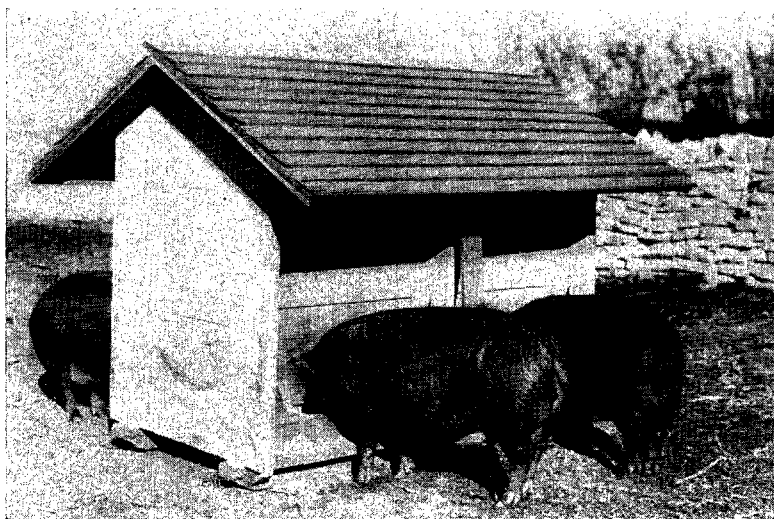
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KANSAS STATE AGRICULTURAL COLLEGE

DEPARTMENT OF ANIMAL HUSBANDRY



SELF-FEEDERS FOR PROFIT

SWINE FEEDING INVESTIGATIONS, 1918-19

C. W. McCAMPBELL, E. F. FERRIN, H. B. WINCHESTER

PART I

SELF-FEEDING VERSUS HANDFEEDING OF SWINE IN DRY LOTS

C. W. McCAMPBELL

This test was planned to demonstrate the value of the self-feeder in fattening 75-pound pigs and, incidentally, to study the amount of tankage really required to balance a corn ration, when fed to pigs of this size.

FEEDING PLAN

Twenty pigs of uniform age, quality, condition, and weight were divided in two groups of ten each and placed in dry lots. The pigs in lot 1 were allowed to eat at will from a self-feeder which had been divided into two compartments. One of these compartments was kept filled with shelled corn and the other with tankage. The pigs in lot 2 were fed twice daily all they would eat of a mixture consisting of 10 parts shelled corn and 1 part tankage. The pigs in both lots were watered twice daily.

The experiment extended over a period of 100 days. The pigs were weighed three days in succession, at the beginning and at the end of the test and the average of these three days' weights used, as the initial and final weights, respectively. They were bought for this particular test, all expenses involved carefully recorded, and at the end of the test they were sold to a local buyer. These conditions make the test complete so far as profit or loss may be concerned.

RESULTS

Results of the test are given in detail in Table I.

TABLE I.—SELF-FEEDING VERSUS HANDFEEDING
 (Feeding period, 100 days)

Lot No.	1	2
Ration	Corn and tankage	Corn and tankage
Method of feeding	In self-feeders	Handfed
	<i>Pounds</i>	<i>Pounds</i>
Initial weight per pig	74.0	79.2
Final weight per pig	256.8	204.3
Gain per pig	182.8	125.1
Daily gain per pig	1.828	1.251
Daily ration per pig:		
Corn	5.954	4.770
Supplement	3227	477
Feed required to make 100 pounds of gain:		
Corn	325.71	381.29
Supplement	17.65	38.13
Cost per 100 pounds gain	\$10.067	\$12.659
Initial cost per pig	15.00	15.00
Feed cost per pig	18.4030	15.8364
Labor cost per pig	1.00	2.00
Interest per pig on investment at 8 percent	3287	3287
Vaccination per pig	.50	.50
Use of equipment per pig	.25	.25
Total cost per pig	35.4826	33.91
Selling price per owt.	16.60	16.50
Selling price per pig	42.63	33.71
Profit or loss per pig	7.15	— 20

Feed prices: Corn, \$1.58 per bushel; tankage, \$100 per ton.

The self-fed pigs in lot 1 ate more corn and less tankage than was fed lot 2. The ration consumed by the self-fed pigs in lot 1 consisted of practically 1 part of tankage to 20 parts corn, indicating that 5 percent tankage is sufficient to balance a corn ration for best results in fattening 75-pound pigs.

It required 6.8 bushels of corn and 38 pounds of tankage to produce 100 pounds of gain in the handfed lot, and only 5.8 bushels of corn and 17.66 pounds of tankage in the self-fed lot. In other words, a bushel of corn with tankage as a protein supplement produced 14.7 pounds of pork when fed by hand and 17 pounds when self-fed.

Self-fed pigs make many trips to the feeder and undoubtedly get more good out of the feed they consume than does the pig that rushes to the trough and "hogs down" all he can hold twice a day. This probably explains why the self-fed pig requires less feed to produce 100 pounds of gain.

At the end of the test the self-fed pigs—lot 1—were more highly finished and made a profit of \$7.35 per head more than the handfed pigs. They had made a greater daily gain, had required less feed to make 100 pounds of gain, and had required less labor.

PART II

SEMISOLID BUTTERMILK VERSUS TANKAGE, LINSEED MEAL, PEANUT FEED MEAL, AND ALFALFA HAY AS SINGLE PROTEIN SUPPLEMENTS TO CORN FOR FATTENING SWINE

C. W. McCAMPBELL.

Many inquiries have been received by the Kansas Agricultural Experiment Station relative to the value of commercial semisolid buttermilk as a single supplement to corn for hog feeding purposes. Very little information, based upon experimental data, has heretofore been available. This test was planned for the purpose of making a contribution to such information.

FEEDING PLAN

Fifty pigs of uniform size, condition, and quality were purchased and divided into five lots of ten each. The pigs in all lots were handfed. The ration fed in each lot was so planned that the feed cost should be the same in each lot. Other details were observed as in Part I.

RESULTS

The results are given in Table II.

TABLE II.—SEMISOLID BUTTERMILK VERSUS FOUR OTHER SINGLE PROTEIN SUPPLEMENTS TO CORN FOR FATTENING SWINE

(Pigs handfed for 100 days)

Lot No.	1	2	3	4	5
Protein supplement	Tankage	Semisolid buttermilk	Linseed meal	Peanut feed meal	Alfalfa hay
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Initial weight per pig	79.2	79.8	79.5	79.6	81.4
Final weight per pig	204.3	190.6	195.0	197.0	198.3
Gain per pig	125.1	110.8	115.5	117.4	116.9
Daily gain per pig	1.251	1.108	1.155	1.174	1.169
Daily ration per pig:					
Corn	4.770	4.770	4.770	4.770	4.770
Supplement .....	.477	.5962	.795	.795	1.497
Feed required to make 100 pounds of gain:					
Corn	381.29	430.50	412.98	406.30	408.04
Supplement	38.13	71.75	68.83	67.71	127.21
Cost per 100 pounds gain	\$12.659	\$14.292	\$13.711	\$13.489	\$13.106
Initial cost per pig	15.00	15.00	15.00	15.00	15.00
Feed cost per pig	15.8364	15.8364	15.8364	15.8364	15.3226
Labor cost per pig	2.00	2.00	2.00	2.00	2.00
Interest per pig on investment at 8 percent .....	.3287	.3287	.3287	.3287	.3287
Vaccination per pig .....	.50	.50	.50	.50	.50
Use of equipment per pig .....	.25	.25	.25	.25	.25
Total cost per pig	33.91	33.91	33.91	33.91	33.40
Selling price per cwt	16.50	16.50	16.40	16.50	16.20
Selling price per pig	33.71	31.45	31.98	32.50	32.12
Profit or loss per pig	-.20	-2.46	-1.93	-1.41	-1.28

Feed prices: Corn, \$1.58 per bushel; tankage, \$100 per ton; semisolid buttermilk, \$80 per ton; alfalfa hay, \$25 per ton; linseed meal, \$60 per ton; peanut feed meal, \$60 per ton.

The cost of 100 pounds of gain was least where tankage was fed and greatest where semi-solid buttermilk was fed as a single supplement to corn for fattening pigs approximately 80 pounds in weight.

The tankage-fed lot gave the greatest profits and the lot fed semisolid buttermilk the least.

There was but little difference in the finish of the lots receiving tankage, semisolid buttermilk, and peanut feed meal, respectively, as a single protein supplement for corn.

The lot receiving linseed meal did not seem to relish it and showed less finish than any of the other lots except the one receiving alfalfa hay.

The lot receiving alfalfa hay as a single protein supplement made greater growth but showed less finish than any other lot. The cost of gains was less than any except the tankage-fed lot, but their lack of finish resulted in a lower selling price per hundred.

It must be remembered that these results apply only to the feeding of tankage, semisolid buttermilk, linseed meal, peanut

feed meal, and alfalfa hay as a single protein supplement to corn. Other tests will be made to ascertain whether or not any combinations of these supplements may give more economical gains than each alone.

PART III

GROWING FALL PIGS

E. F. FERRIN, H. B. WINCHESTER

Many farmers are asking the question, "Is it possible to grow fall pigs profitably?" This experiment was planned for the purpose of securing information that might help to answer this question.

FEEDING PLAN

Thirty pigs divided into six lots, five pigs in each lot, were used in this experiment. All lots received shelled corn, and in addition lot 1 received tankage and lot 4 linseed meal as a protein supplement; lot 2, tankage and shorts and lot 5 linseed meal and shorts; lot 3, tankage, shorts, and semisolid buttermilk and lot 6 linseed meal, shorts, and semisolid buttermilk.

The pigs used were average fall pigs lacking somewhat in thrift and health. Fully 50 percent of them were farrowed late (in October) and did not get a good start before winter weather began. These pigs were treated for worms at two different times, santonin capsules being used. The feeds were given in self-feeders, each feed separate except the semisolid buttermilk which was handfed night and morning. All the buttermilk which the pigs would take was fed to them, mixing it with water but not using any feed with it to form slop. The five pigs in each of lots 3 and 6 consumed, as a rule, four pounds of the buttermilk a day. This was true except during two periods of three and four days, respectively, each when lot 3 would take but two pounds per day. The pigs in lot 6 did not show any decline in their appetites for the milk.

Since it was possible to secure reliable data by feeding these pigs but 90 days after weaning, the experiment was closed April 15, 1919, in order that a few show prospects and breeding gilts might be put on a reduced ration and carried over until fall. All pigs in this experiment were vaccinated with serum and virus December 8, 1918.

RESULTS

Detailed results are given in Table III.

TABLE III.—GROWING FALL PIGS
(Value of different protein supplements to shelled corn as shown by a 90-day experiment)

Lot No.	1	2	3	4	5	6
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Initial weight per pig	53.5	56.06	55.34	56.4	50.3	56.4
Final weight per pig	126.6	152.26	184.34	121.74	139.85	174.66
Daily gain per pig	.81	1.07	1.43	.73	.99	1.31
Feed required to make 100 pounds of gain:						
Shelled corn	364.67	297.87	243.06	407.1	269.76	224.21
Protein supplements:						
Tankage	47.20	25.36	19.38			
Wheat shorts		90.07	94.77		82.4	79.95
Semisolid buttermilk			53.02			59.19
Linseed meal				65.58	52.03	25.83
Total feed required to make 100 pounds of gain	411.87	413.80	410.23	472.68	404.19	339.18
Cost per 100 pounds of gain	\$12.63	\$11.61	\$11.78	\$13.33	\$11.41	\$11.17
Final value per pig	22.78	27.40	33.18	21.91	25.17	31.44
Feed cost per pig	9.25	11.17	15.20	8.71	10.22	13.21
Initial cost per pig	9.59	10.09	9.96	10.15	9.05	10.15
Margin over initial cost plus cost of feed	3.94	6.14	8.02	3.05	5.90	8.08

Valuation of feeds: Shelled corn, \$1.54 per bushel; tankage, \$5.50 per hundred pounds; linseed meal, \$3.25 per hundred pounds; semisolid buttermilk, \$4 per hundred pounds; wheat shorts, \$2.25 per hundred pounds.

Comparing tankage and linseed meal as protein supplements it is found that in every case the tankage gave greater gains. Although tankage is much higher in price per pound its greater protein content resulted in a smaller requirement for 100 pounds gain and gave a greater margin than linseed meal.

The results secured in lots 2 and 5 lead to the belief that there is an advantage in a variety of feeds as gains increased when shorts was added to either the corn and tankage or the corn and linseed meal ration. The addition of buttermilk to the feeds given lots 3 and 6 resulted in these lots making greater gains and higher margins. Rapid gains usually mean cheap gains if too much high-priced feed is not used, and in this case the four-cent buttermilk more than paid for itself. In fact these pigs had a margin greater by \$2 a head than those in lots 2 and 5.

The feed required per 100 pounds gain is very uniform in all the lots except lot 4. In this case much more was needed than in any other group. During the progress of the experiment it was apparent that these pigs were not doing well. Their coats were harsh and they seemed to be wanting something not on their bill of fare. As they had a chance to eat all the linseed meal they cared for the quantity of protein should have been ample. The explanation of the high feed require-

ment probably lies in a poor assortment or quality of proteins in the corn and linseed meal. Corn is lacking in some of the most essential proteins and it is probable that linseed meal can not by itself make up these deficiencies.

CONCLUSIONS

One of the necessary things in growing fall pigs profitably is to have them farrowed in September so they will be weaned and accustomed to shift for themselves before winter begins. Pigs of 35 to 40 pounds weight, December 1st, will not be as apt to become runty as the little fellows just weaned and forced to begin to look out for themselves.

Warm houses with dry floors and beds free from dust and moisture are necessary to prevent pneumonia. Ventilation must be provided so the house will not steam up, but the pigs should not be forced to sleep in a cold draught.

Weather conditions seemed to have a marked influence upon the gains made by fall pigs. During severe weather little increase in weight was made, but with more moderate temperature good gains resulted. As an example, lot 1 gained but four-tenths of a pound daily per pig the first 30 days, improving to 1.12 pounds per day the last 30 days. The shelter provided was a clay block house placed in a protected location. Windows were located on the south side and each lot of pigs had a small yard.

The results obtained should by no means be considered final but are in the nature of a report of progress. It is planned to repeat the experiment another year. A two-year average will give a more accurate basis for comparison of the values of different combinations of feed.