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Abstract

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AGRICULTURAL EXPERIMENT STATION
IOWA STATE COLLEGE OF AGRICULTURE AND
MECHANIC ARTS

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ANIMAL HUSBANDRY SECTION



Ames, Iowa

SUPPLEMENTAL SPECIALTY FEEDS FOR MAKING 225 POUND PIGS ON PASTURE

By John M. Evvard and C. C. Culbertson

The results of pig feeding tests, conducted in 1920-21 with specialty or commercial feeds by the Animal Husbandry Section of the Iowa Agricultural Experiment Station, have been so grossly and persistently misrepresented by one company in particular that this circular is issued to present the complete figures. The misrepresentation consisted in using only a part of the experimental figures, thus giving an incorrect interpretation of the data secured in the test.

In general there are two main classes of specialty, mixed or commercial swine feeds: First, the basal feeds, or those that provide the major portion of the ration; second, the supplemental feeds, or those which are used in a minor degree to furnish the nutritional deficiencies of the major feeds, or feeds such as tankage, fish meal and buttermilk powder, these being good examples of standard or straight supplemental feeds.

To gain more knowledge covering the feeding values of different supplemental feeds and one basal feed (Sucrene), we began this test with the P. M. feed, July 22, 1920. We used 16 lots of 5 similar pigs each, these averaging close to 50 pounds per head initial weight. Lots I to XIV, inclusive, were run on rape pasture, and Lots XV and XVI on bluegrass pasture.

ALLOTMENT AND RATIONS FED.

The lots were fed as follows:

Lot I. Shelled corn self-fed, plus Swift's Digester Tankage self-fed, plus block salt self-fed. Rape pasture.

Lot II. Shelled corn self-fed, plus a mixture (Swift's Digester Tankage 40 parts and Clinton Corn Oil Cake Meal 60 parts by weight) self-fed, plus block salt self-fed. Rape pasture.

Lot III. Shelled corn self-fed, plus block salt self-fed. Rape pasture.

Lot IV. Shelled corn self-fed, plus mixture (Swift's Digester Tankage 75 parts, Wiedemer's Humus 25 parts) self-fed, plus block salt self-fed. Rape pasture.

Lot V. Lictonic (Lambert Chemical Co., St. Louis, Mo.) (used to replace salt) self-fed, plus shelled corn self-fed, plus Swift's Digester Tankage self-fed. Rape pasture.

Lot VI. Amco Hog Balancer (special) (American Milling Co., Peoria, Ill.) self-fed, plus shelled corn self-fed, plus block salt self-fed. Rape pasture.

Lot VII. Sucrene Hog Meal (American Milling Co., Peoria, Ill.) self-fed, plus block salt self-fed. Rape pasture.

Lot VIII. C. P. R. Special Hog Meal "Grain Balancer" (special) (Corn Products Refining Co., New York City) self-fed, plus shelled corn self-fed, plus block salt self-fed. Rape pasture.

Lot IX. Chapin's Korn Saver (special) (Chapin & Co., Chicago, Ill.) self-fed, plus shelled corn self-fed, plus block salt self-fed. Rape pasture.

Lot X. Chapin's Korn Balance (special) (Chapin & Co., Chicago, Ill.) self-fed, plus shelled corn self-fed, plus block salt self-fed. Rape pasture.

Lot XI. Semi-Solid Buttermilk (Consolidated Products Co., Lincoln, Nebr.) hand-fed 2 times daily, 1 pound per pig daily mixed with about 3 quarts (6 pounds) of water per pound of Semi-Solid Buttermilk. (The original instructions called for 1 gallon (8 pounds) of water to the pound of "Semi-Solid", but the pigs did not take kindly to the mixture thus diluted, not consuming the prescribed amount, hence the reason for change). Plus shelled corn self-fed, plus Swift's Digester Tankage self-fed, plus block salt self-fed. Rape pasture.

Lot XII. Semi-Solid Buttermilk (Consolidated Products Co., Lincoln, Nebr.) hand-fed 2 times daily 2 pounds per pig daily (or what the pigs will take up to this amount) mixed with 3 quarts (6 pounds) of water for 1 gallon (8 pounds) of water to the pound of "Semi-Solid", but the pigs did not take kindly to the mixture thus diluted, not consuming the prescribed amount, hence the reason for the change). Plus shelled corn self-fed, plus Swift's Digester Tankage self-fed, plus block salt self-fed. Rape pasture.

Lot XIII. Shelled corn self-fed, plus 60 percent Protein Master Brand Meat Meal Digester Hog Tankage (Proto-Feed and Guano Co., Chicago, Ill.) self-fed, plus block salt self-fed. Rape pasture.

Lot XIV. Shelled corn self-fed, plus 50 percent Protein Master Brand Meat and Bone Digester Hog Tankage (Proto-Feed and Guano Co., Chicago, Ill.) self-fed, plus block salt self-fed. Rape pasture.

Lot XV. Shelled corn self-fed, plus block salt self-fed. Bluegrass pasture.

Lot XVI. Shelled corn self-fed, plus Swift's Digester Tankage self-fed, plus block salt self-fed. Bluegrass pasture.

In this test only one specialty basal feed was fed and that in Lot VII, namely, "Sucrene," so as to get a check on "Amco Hog Balancer," put out by the same company. The ration used in the first two lots was used as a check ration.

All of the commercial feeds were fed in accordance with the instructions given us by the manufacturers, the procedure being reproduced in the above grouping.

The Check Lot Rations

The rations fed to Check Lots I and II have proven to be very successful rations here at the Iowa Station, hence the main reason for using them as checks. The feeds fed to these two check lots contain standard feeds, recognized as standard products in the trade, or else

TABLE 1.—DESCRIPTION OF COMMERCIAL, OR SPECIALTY, AND OTHER FEEDS USED.

Guaranteed Analyses and Ingredients Declared.

The Feed and Manufacturer	Used in Which Lots	Ingredients Declared	Analyses Guaranteed		
			Protein (Not Less Than)	Fat (Not Less Than)	Fiber Crude (Not More Than)
Swift's Digester Tankage (Swift & Co., Chicago, Ill.)	I, II, IV, V, XI, XII, XVI	A packing house product.	60	5	3
Corn Oil Cake Meal, (Clinton Corn Syrup Refining Co., Clinton, Iowa.)	II	Corn germs, oil largely extracted.	20	7	12
Wiedemer's Humus, (Wiedemer Chemical Co., St. Louis, Mo.)	IV	Peat.	No guaranteed analysis given.		
Lictonic (Lambert Lictonic Co., St. Louis, Mo.)	V	"Combination of ingredients for conditioning stock."	No guaranteed analysis given.		
Amco Hog Balancer (Special), (American Milling Co., Peoria, Ill.)	VI	Blood meal, linseed meal, bone meal, peanut meal, cocoanut meal, distiller's dried grains from kaffir corn, salt.	"No standard set as yet by the manufacturer." (As used in this test runs about 40 per cent protein, 8 to 10 per cent fiber.)		
Sucrene Hog Meal, (American Milling Co., Peoria, Ill.)	VII	Corn feed meal, alfalfa meal, linseed meal, blood flour, prime peanut meal, cocoanut meal, ground oats, ground and bolted wild buck-wheat and wheat, distiller's dried grains, molasses, salt and calcium carbonate	18	4	10
Corn Products Special Hog Meal, (Special) (Corn Products Refining Co., New York City).	VIII	Corn oil cake meal, corn gluten meal, corn gluten feed, old process linseed oil meal, 60% protein tankage, bone-black, salt.	27 (Approximate figures.)	7	7
Chapin's Korn Saver (Special) (Chapin & Co., Chicago, Ill.)	IX	Tankage, gluten meal, corn oilmeal, linseed meal, cottonseed meal, bone meal, salt	40	7	6
Chapin's Korn Balance, (Special) (Chapin & Co., Chicago, Ill.)	X	Tankage, gluten meal, corn oilmeal, linseed meal, cottonseed meal, bone meal, salt.	40	7	6
Semi-solid Buttermilk, (Consolidated Products Co., Lincoln Nebr.)	XI XII	Condensed Buttermilk.	No guaranteed analysis given. (This product analyzed about 13% protein, 2% fat, with no fiber as used in this test.)		
Master Brand Meat Meal Digester Hog Tankage, (Proto-Feed & Guano Co., Chicago, Ill.)	XIII	Base and stick tankage; concentrated tankage.	60	6	3
Master Brand Meat and Bone Digester Hog Tankage, (Proto-Feed & Guano Co., Chicago, Ill.)	XIV	Base and stick tankage; concentrated tankage; small amount of soft bone.	50	8	5

are defined by the feed control officials of the United States in their official "Definitions of Feeding Stuff." These straight or standard feeds are not commercially mixed or specialty mixed feeds, considered in the ordinary sense.

In order to gain a clear idea as to the make-up of the different feeds the description of the feeds used is given herewith:

The shelled corn fed may be classed as mixed, all of it being reduced to a 14 percent moisture basis in the figures. In quality it would grade about No. 2. The block salt is a high-class white salt, such as is sold and used for table purposes, but which has been pressed by hydraulic means into 50-pound blocks.

The results for the entire feeding test are given herewith in table II entitled "Some Practical Results Applicable to the Farm".

The block salt required for 100 pounds gain varied in the different lots, ranging from 1/50 lb. to 2.7 lbs. Only two lots exceeded ½ lb. salt requirement per 100 lbs. gain. These were the "corn alone" lots, on bluegrass and rape. The forage required for 100 pounds of gain varied in the different lots, ranging from .0218 acre to .0522 acre on rape and .0381 to .0998 acre on bluegrass.

SOME LESSONS DERIVED FROM THIS EXPERIMENT

I—The check lot I made a very good showing in that they required the least amount of feed for 100 pounds gain with the exception of two lots. These two lots were fed the check ration of corn, meat meal tankage and salt, to which had been added corn oil cake meal in one case and semi-solid buttermilk in the other.

II—The addition of 1 pound of semi-solid buttermilk to the check or basal ration of corn, tankage, and salt was instrumental in increasing the gains on the pigs and decreasing the feed requirement for a 100 pounds gain. All this shows that the corn, tankage, salt ration is physiologically improved by the addition of semi-solid buttermilk in that it made for a more complete balanced and efficient ration. The economy of the semi-solid buttermilk addition, however, is another matter and depends upon the cost.

The addition of 2 pounds of semi-solid buttermilk did not affect any saving over the check lot as far as feed for 100 pounds gain was concerned. In fact, it required some 36 pounds more of feed for each 100 pounds of gain than did the check lot.

III—The addition of corn oil cake meal to the corn, tankage, salt ration as fed in Lot II replaced part of the corn and a small part of the tankage. In this test 34 pounds of corn oil cake meal replaced 6 pounds of meatmeal tankage plus 29 pounds of shelled corn.

IV—The lot receiving Lictonic, a prepared brick put out by the Lambert Lictonic Company of St. Louis, Missouri, which they call

TABLE IX—HOW THE COMMERCIAL AND OTHER FEED LOTS SHOWED UP WITH PIGS ON RAPE PASTURE, JULY 20, 1920.

Until pigs reached 225 lbs., average weight in each lot, 5 pigs in a lot—averaging about 50 pounds at start.

Lot No.	Particular feed designation	No. days required to reach 225 lbs.	Av. daily gain per pig, lbs	Av daily feed eaten per pig Total lbs.	Feed required for 100 pounds gain	
					Basal and other feeds	Total
			On Rape P	asture		
	Corn supplemented	125	1.42	5.5	355 corn 29 tankage	384
II	Corn supplemented	129	1.37	5.2	326 corn 23 tankage 34 corn oil cake meal	383
III	Corn alone	277	.64	4.0	623 corn	623
IV	Wiedemer's Humus	127	1.40	5.8	367 corn 34 tankage 11 Wiedemer's Humus	412
V	Lictonic	121	1.46	5.7	354 corn 34 tankage 2/3 lb. Lictonic	388
VI	Amco	142	1.24	5.0	336 corn 68 Amco	404
VII	Sucrene	170	1.04	5.4	518 Sucrene	518
VIII	"Grain Balancer"	147	1.20	5.2	342 corn 93 Grain Balancer	435
IX	Korn Saver	145	1.23	5.4	373 corn 67 Korn Saver	440
X	Korn Balance	133	1.33	5.1	313 corn 72 Korn Balance	385
XI	Semi-Solid Buttermilk	109	1.62	5.9	279 corn 22 tankage 61 Semi-Solid Buttermilk	362
XII	Semi-Solid Buttermilk	109	1.63	6.8	284 corn 15 tankage 121 Semi-Solid Buttermilk	420
XIII	"Master Brand 60"	170	1.04	4.8	394 corn 65 "Master Brand 60"	459
XIV	"Master Brand 50"	125	1.41	5.5	353 corn 35 "Master Brand 50"	388
			On Bluegrass Past	ure		
XV	Corn alone	243	.73	4.2	572 corn	572
XVI	Corn supplemented	126	1.41	5.4	349 corn 31 tankage	380

"The 100% Pure, Salinator, Feed Saver and Automatic Profit-Maker for Cattle, Horses, Sheep and Hogs," ate about 6 times as much of the special brick as the pigs in the check group ate of the salt block, but the Lictonic group required more feed for each hundred pounds of gain made than did the check lot.

V—The pigs receiving corn alone on pasture made a poor showing. Corn alone, even when fed in conjunction with good pastures, should be supplemented.

VI—All groups receiving a supplemental specialty feed made less gain than the Check Lot 1 and required more feed for 100 pounds of gain made.