ANNUAL REPORT

OF THE

OFFICE OF SWINE EXTENSION

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING

Fiscal Year Ending November 30, 1928

W. V. Hays, Field Agent W. W. Shay, In Charge

Believing, as we do, that thoro understanding of a problem and its related conditions is necessary to successful leadership in connection with it, the annual report of this office consists this year, as usual, mainly of figures.

The following excerpt from an editorial is quoted from a periodical with a national circulation of over two million copies: "Science has been going ahead by running leaps. Unfortunately for the casual and easily daunted reader, modern science is written in the language of mathematics---lack of easy familiarity with higher mathematics is a formidable obstacle between our ignorance and any real grasp of the modern conceptions of the universe we live in; and that obstacle will continue to bar our paths until the extraordinary importance of mathematical studies receives full and practical recognition."

While a knowledge of higher mathematics is not necessary for a thoro understanding of the facts set forth in this report, a clear conception of them can be obtained only as a result of careful study; a brief glance at the figures in a chart or graph without comprehension of their significance is not enlightening, and will be of little if any value to the reader, yet the facts given in this and former reports altho vital to the industry upon which they bear apparently receive scant attention when given out. Without a knowledge of these facts as a guide to operations, consistent progress in the production of market hogs under the conditions which exist in North Carolina is impossible, and that line of farming will continue to be spasmodic, unstable, erratic, and unsatisfactory until the economic effect of unintelligent feeding and a disregard of the average seasonal price trend are understood and appreciated--merely keeping hogs is not sufficient.

The constant and almost universal advice to "Feed about a half-ration or concentrates to hogs on good pasture" is undoubtedly based on a superficial study of the results of such feeding.

Occasionally an attempt is made to bolster up such advice by reference to the average seasonal price trend of corn, which is another economic fallacy when considered in connection with a well-balanced, systematic plan by which the number of hogs kept on a given farm is adjusted to the estimated amount of corn to grown on that farm which will be available for them.

Only when income is computed from net receipts divided by the labor employed in their production rather than from gross receipts per acre, can the agriculture of the State progress materially.

In order to make such a computation, records are necessary.

This office is indebted to eleven county agents for such records last year, and the result of such demonstrations is shown in the attached Form 10B. We are also deeply indebted to the commission merchants of Baltimore and Richmond for copies of account sales of hogs shipped from this State--analysis of the sales covered by these accounts appear later. Unfortunately, not all shipments are accounted for, but the number so covered is sufficient to show a dependable cross section of what really happened, and point again to the fact that frequently the spread between high and low prices is greater during the twelve months of a year than it is from one year to another, and thus emphasize the importance of so adjusting operations as to profit by the <u>average</u> seasonal price trend.

The feeding and marketing of hogs in North Carolina has been brought to its present proportions by well-conducted feeding demonstrations. It is, therefore, with deep regret that we note the discontinuance of feeding demonstrations in several counties and its effect on this line of work in such counties, and in the aggregate as brought out by the attached analysis of shipments during the last year.

During 1927 there were 403 feeding demonstrations started in twenty-one counties, 153 of which were completed. During 1928 there were 68 such demonstrations completed in eleven counties. In this connection it is worthy of note that the two counties in which there was the greatest increase in the number of hogs sold were also the two counties with the largest number of demonstrations, while on the other hand the greatest decrease occurred in those counties where feeding demonstration work had been discontinued.

It is, of course, realized that there is some disagreeable physical labor connected with feeding demonstrations, but the importance of the work certainly justifies it, and seldom, if ever, has there been a year when conditions were more favorable for a clear demonstration of the economic value of Swine Extension work than are the conditions with which we are confronted this year.

STATISTICAL REPORT OF TRAVEL, MEETINGS AND PUBLICATIONS.

Articles written	Visits to:			Meetings		Letters		Office calls	Graphs and forms	Travel	
	Agents	Dems.	Others	No.	Attendance	Cir.	Personal			Auto	Rail
W.W.Shay 36	25	22		25	1283	8	550	?	12	1966	3317
W.V.Hays 8	117	133	507	53	1033		637	261		4694	10288
Both 44	142	155	507	78	2316	8	1187	261	12	6660	13605

It is a practice of this Office to assemble information regarding the results of one or more methods of handling a certain phase of the business of feeding and marketing hogs, arrange it in the form of a table, chart or graph, sufficiently condensed to go on one sheet, then have it mimeographed for distribution under a form number. Specimens of such forms appear in the following pages.

RESULTS OF 68 HOG FEEDING DEMONSTRATIONS IN NORTH CAROLINA

11 COUNTIES

No. hogs
1897 head

1928

Average period of 87 days.

No. hogs	Initial weight	Final weight	Total gain for period	No. days fed	Gain per pig	Aver. daily gain per pig	Total feed consumed	Total cost of feed consumed	Feed per 100# gain	Feed cost per 100# gain	Profit per pig	Value of gains over feed cost Pork 9.52¢
1897	160131	383947	223816	87	118	1.36	827392	$14619.08	369	$6.53	$3.53	$6689.91

LOCAL PRICES

FEED CONSUMED AND PRICES CHARGED

Feed	Pounds		Price	Cost
C.S. meal	2600		$2.00	$ 52.00
Barley meal	6405	(122.10 Bu.)	.99	120.01
Pig chow	900		3.44	30.95
Milk equiv.	528		.45	23.87
Fish meal	56606		3.41	1930.09
Corn meal	83294	(1735.29 Bu.)	.92	1591.92
Red Dog	50420		2.27	1144.90
Corn	623579	(11135.28 Bu.)	.87	9686.46
Minerals	3060		1.27	38.88
TOTALS	827392			$14619.08

FINANCIAL STATEMENT

	Credit		
By 1897 hogs, 383947 lbs.			$37740.79
	Debit		
To 1897 hogs, 160131 lbs.		$14704.07	
To feed for hogs		14619.08	
To freight & yardage		1183.96	
To commission		466.05	
To soft condition		68.34	
To trucking		9.38	$31050.88
RETURNS ABOVE FEED COST OF GAINS			$ 6689.91

Deducting the actual cost of purchased feeds-wheat mill feed and fish meal or tankage, etc. $3340.70 from the value of gains at 9.5207 cents per pound 223816 @ 9.52 cents, $21308.99, there remains $17968.29 as return for the 12870.57 bushels of corn fed, or $1.396 per bushel.

How much does it cost you to produce a bushel? At 75 cents, the profit would be $8315.36.

The fertilizer, or plant food value of the above feeds, which remains on the farm is $3751.24.

Note: Some of these hogs were delivered by owners to local markets by truck and no charge made for transportation.

TOTAL CAR-LOT SHIPMENTS OF HOGS FROM NORTH CAROLINA

DEC. 1, 1927 TO DEC. 1, 1928

Form 12 _____ COUNTY

Date sold _____ 192 _____ COUNTY AGENT

County	Cars	No. hogs	Weight	Price	Amount	Freight	Com.	Grade deduction	Check	Net price	Selling cost	Average weight	Agents expense
Beaufort	117	8466	1655127	$ 9.69	$ 160418.76	$ 7974.36	$ 3194.61	667.54	$ 148582.25	$ 8.98	$.67	195	
Bertie	3	118	22210	11.78	2617.39	90.65	58.86	11.40	2456.48	11.06	.67	188	
Brunswick	1	38	7375	12.63	931.07	67.40	18.67	15.60	829.40	11.25	1.17	194	
Carteret	8	495	88860	9.67	8588.79	620.77	165.95	284.91	7517.16	8.46	.89	179	
Chowan	15	1066	200215	10.02	20056.76	1047.19		361.11	18648.46	9.32	.52	188	
Columbus	7	447	79285	9.74	7719.16	434.84	151.36	76.04	7056.92	8.90	.74	177	
Craven	44	2894	552570	9.75	53856.33	2614.44	1040.59	309.37	49891.93	9.03	.66	190	
Cumberland	10	675	119480	10.04	11999.62	631.23	239.06	47.41	11081.92	9.27	.73	177	
Currituck	4	239	40815	9.00	3671.81	208.90	71.70	85.89	3305.32	8.10	.69	170	
Duplin	21	1721	312335	10.41	32513.61	1952.14	649.90	37.77	29761.21	9.53	.87	181	$112.59
Edgecombe	1	61	12650	11.77	1488.92	59.70	29.77		1399.45	11.06	.71	207	
Green	1	72	12270	10.03	1231.02	90.20	24.62		1116.20	9.09	.94	170	
Halifax	1	56	12890	10.01	1290.50	57.30	25.64	8.68	1198.88	9.30	.64	230	
Perquimans	2	148	19015	9.35	1778.38	147.60	35.34	47.44	1548.00	8.14	.96	128	
Hyde	26	1935	373920	10.40	38893.43	1756.06	772.68	257.77	36106.92	9.66	.67	193	
Johnston	1	30	7390	13.25	979.18	60.90	19.58		898.70	12.16	1.09	246	
Jones	18	1488	249880	9.43	23557.11	1280.50	467.80	231.94	21576.87	8.64	.70	167	
Lenoir	15	1057	197735	9.19	18181.04	1087.78	361.31	139.06	16592.89	8.39	.73	187	
Martin	3	253	48135	9.73	4682.69	191.78	92.23	72.40	4326.28	8.99	.59	190	
Northampton	6	371	54815	9.78	5362.07	311.90	106.51	58.46	4885.20	8.91	.76	147	
Onslow	8	624	108891	9.79	10662.26	683.60	212.63	27.30	9738.73	8.94	.82	174	
Pamlico	30	2134	412200	9.96	41041.00	2272.05	816.51	282.75	37669.69	9.14	.75	193	
Pender	16	1192	215245	10.11	21760.58	1403.24	435.11		19716.23	9.16	.95	180	$206.00
Pitt	9	600	109260	9.59	10480.39	509.57	206.44	153.00	9611.38	8.80	.65	182	
Sampson	13	890	167605	9.64	16152.85	968.30	322.19	42.78	14819.58	8.84	.77	188	
Tyrell	2	157	28870	9.17	2647.73	170.00	51.67	64.26	2361.80	8.18	.77	183	
Wake	2	114	23170	12.66	2933.55	127.20	58.58		2747.77	11.86	.80	203	
Washington	13	871	157300	10.28	16165.97	933.80	318.68	128.09	14785.40	9.40	.80	180	
Wayne	7	453	80320	10.08	8098.49	464.21	140.77	26.28	7462.95	9.29	.76	177	$4.28
TOTAL: 29 counties	404	28665	5369833	$9.86	$ 529760.46	$ 28217.61	$ 10088.76	$ 3437.25	$ 487693.97	$ 9.08	$ .72	187	$322.87

Freight per 100 lbs. $0.53. Dockage for soft condition per 100 lbs. $0.06.

Form 48.

AVERAGE RESULTS OF FULL FEEDING A PROPERLY BALANCED RATION TO THRIFTY PIGS AT VARIOUS WEIGHTS.

If the feed is not properly balanced, or the pigs are unthrifty, gain in weight will be slower and the feed consumed per pound of gain will be greater than shown below.

Weight of pig	30	50	75	100	125	150	175	200	225	Gain 195#	Additional gain to: 250	275	300
Number of days	56	27	25	21	19	17	16	15	14	Totals 154	14	14	14
Total feed consumed, lbs.		61	82	85	88	91	93	96	98	694	101	104	107
Feed per pound gain, lbs.		3.05	3.28	3.40	3.52	3.64	3.72	3.84	3.92	3.56	4.04	4.16	4.28
Average daily gain, lbs.		.741	1.00	1.19	1.316	1.47	1.563	1.667	1.786	1.266	1.786	1.786	1.786
Av. daily feed per 100# live wt.		5.65	5.25	4.63	4.12	3.89	3.58	3.41	3.29	4.01	3.10	2.94	2.81
Average amount fed daily, lbs.		2.26	3.28	4.05	4.63	5.35	5.81	6.40	7.00	4.51	7.35	7.71	8.09
Mixture A or B, 1 lb. daily		A 1.00	A 1.00	A 1.00	B 1.00	B 1.00	B 1.00	B 1.00	B 1.00	154	B 1.00	B 1.00	B 1.00
Av. amount of corn daily, lbs.		1.26	2.28	3.05	3.63	4.35	4.81	5.40	6.00	3.51	6.35	6.71	7.09
Nutritive ratio 1:		4.11	5.23	5.77	5.54	5.97	6.20	6.51	6.65	5.80	6.83	6.90	7.09
Value of daily gain, cents		7.41	10.00	11.90	13.16	14.70	15.63	16.67	17.86	$19.50	17.86	17.86	17.86
Av. daily cost of feed, cents		4.22	5.60	6.62	7.53	8.53	9.13	9.93	10.79	$11.27	11.00	11.29	11.57
Av. daily profit, cents		3.19	4.40	5.28	5.63	6.17	6.50	6.74	7.07	5.34¢	6.86	6.57	5.29
Profit for period		$0.86	$1.10	$1.11	$1.07	$1.05	$1.04	$1.01	$0.99	$8.23	$0.96	$0.92	$0.88
Return per bushel of corn		$2.16	$1.82	$1.73	$1.62	$1.54	$1.50	$1.45	$1.41	$1.60	$1.37	$1.32	$1.28

The above financial results are based on a price of $10.00 per 100 pounds for hogs at the farm. It is an interesting fact as shown above that altho the cost of feed both daily and per pound of gain increases as the weight of the hog increases, the daily profit also increases up to a weight of approximately 225 pounds as an average. There are, however, exceptions to this rule. Such an exception will result from a failure of appetite, in which case the amount of feed eaten daily would remain fairly constant or decrease, while the amount of feed eaten for each pound of gain made would increase very likely to such an extent as to make feeding unprofitable.

BALANCED RATIONS FOR MARKET HOGS

Below is shown a simple, convenient, and economical method of balancing the feed for market hogs when the supplemental feed is given by hand.

Do not in any case allow more than one pound of either A or B mixture daily to each pig, and never that much unless they are getting all the corn they will eat either by hand or through a self-feeder.

Pigs should be grouped according to size; variation in the individual weight of pigs in the same group should not exceed 25 pounds.

FOR PIGS WEIGHING BETWEEN 30 AND 100 POUNDS

Give each pig one pound of the following mixture in the form of a thick slop, daily, and all the corn they will eat at least twice daily.

MIXTURE A.

Variety	Pounds	Price	Cost
Fish meal or 60% tankage	28	$3.50	$0.98
Red Dog	20	2.50	.50
Cottonseed meal (37%)	12	2.25	.27
Corn meal	40	2.00	.80
Total	100		$2.55

FOR PIGS WEIGHING BETWEEN 100 AND 300 POUNDS

Give each pig one pound of the following mixture in the form of a thick slop, daily, and all the corn they will eat at least twice daily.

MIXTURE B.

Variety	Pounds	Price	Cost
Fish meal or 60% tankage	35	$3.50	$1.23
Red Dog	25	2.50	.62
Cottonseed meal (37%)	15	2.25	.34
Corn meal	25	2.00	.50
Total	100		$2.69

Mixture B is the basic mixture. The addition of corn meal equal to 25% by weight of any quantity of Mixture B makes Mixture A. Thus the addition of 25 pounds of corn meal to the 100 pounds of Mixture B shown above will result in 125 pounds of Mixture A.

MINERAL MIXTURE

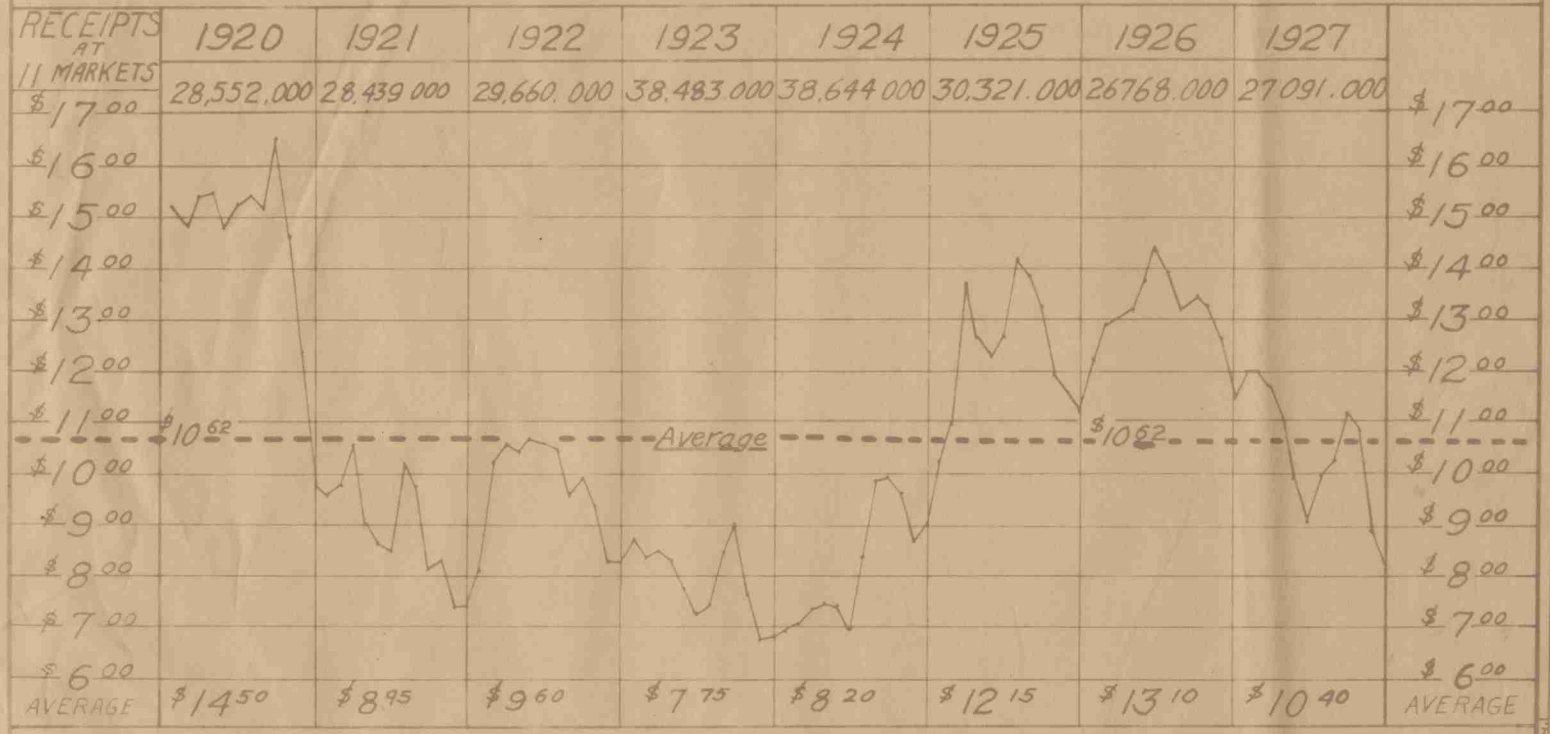
Acid phosphate	10 pounds
Hardwood ashes, or ground limestone	10 pounds
Common salt	2 pounds
To make	22 pounds

Keep the mineral mixture constantly available to the hogs, or thoroughly mix 2 pounds with each 100 pounds of Mixtures A and B.

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING

OFFICE OF SWINE EXTENSION

AVERAGE MONTHLY AND YEARLY PRICES OF HOGS FROM JAN. 1, 1920 TO JAN. 1, 1928
— AND — YEARLY RECEIPTS AT 11 MARKETS.



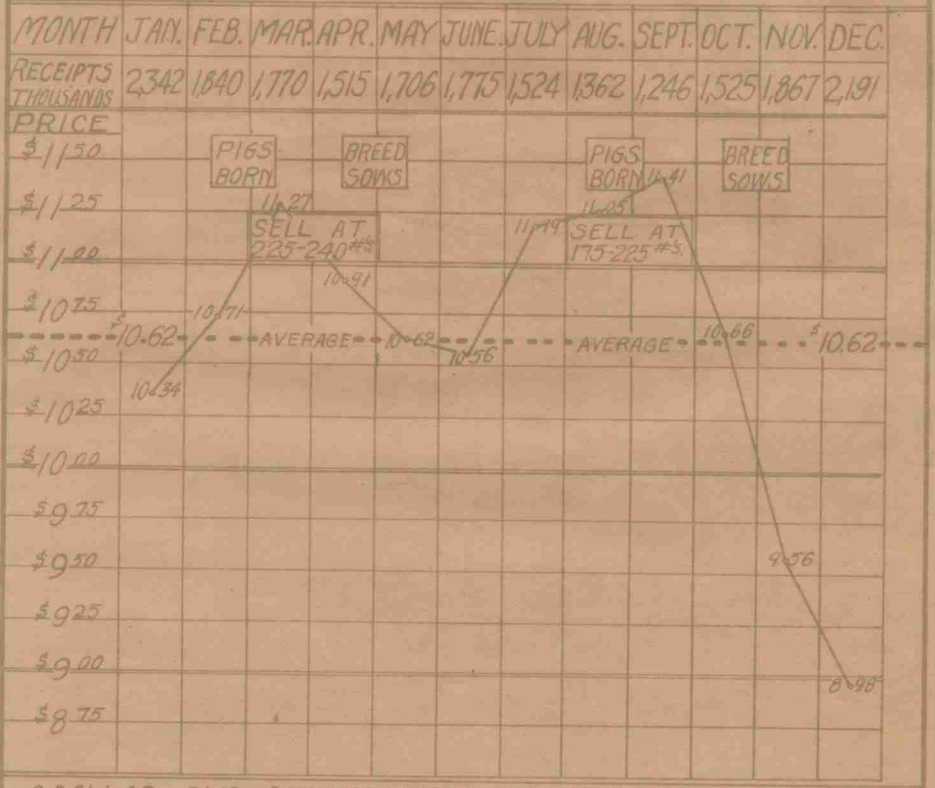
OFFICE OF SWINE EXTENSION, N. C. STATE COLLEGE OF AGRICULTURE AND ENGINEERING.

SEASONAL TREND of HOG PRICES

AVERAGE OF EIGHT YEARS' PRICES OF HOGS BY MONTHS AT CHICAGO
AND
AVERAGE OF MONTHLY RECEIPTS AT 11 MARKETS, 1920-1927.

SOFT HOGS $1.00 and OILY HOGS $2.00 PER 100#s LESS THAN PRICES SHOWN

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE.	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
RECEIPTS THOUSANDS	2,342	1,840	1,770	1,515	1,706	1,775	1,524	1,362	1,246	1,525	1,867	2,191



A DOLLAR-AND-SENSE VIEW OF THE ABOVE CHART.

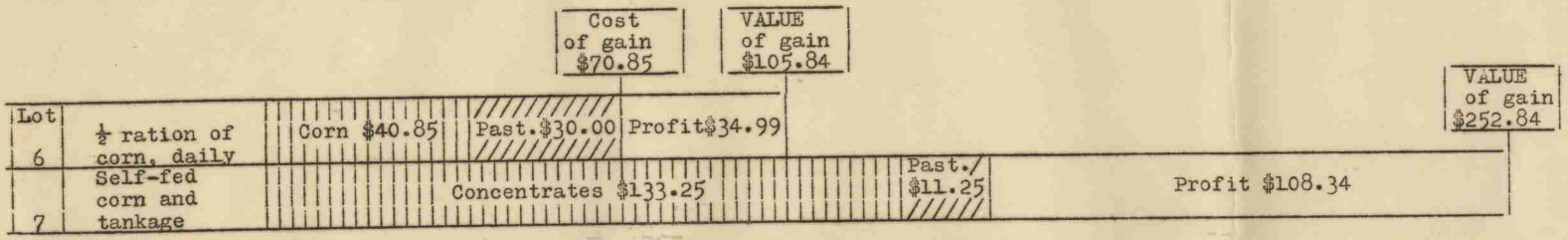
At the average of eight years prices, a 200 pound hard hog sold during September for $22.82. An oily hog weighing 300 pounds sold during December for $20.94.

The 200 pound hog if full fed a properly balanced ration, returned approximately $8.00 profit; the 300 pound oily hog was produced at a LOSS. Why add the oily 100 pounds?

Office of Swine Extension, N.C. State College of Agriculture & Engineering.

SHOWING THE EFFECT OF RATE OF GAIN ON PROFIT

The delusion of "cheap gains" is costing the farmers of North Carolina thousands of dollars annually. Lot 6 below, shows the result of feeding 15 pigs 2 pounds of corn daily per 100 pounds of live weight. Lot 7 shows the result of self-feeding corn and tankage to a similar lot. The pigs in both lots averaged 77.6 pounds at the beginning of the 98 day feeding period. Both lots were on good alfalfa pasture, which is charged at $15.00 per acre; corn is charged at $0.75 per bushel, and tankage at $70.00 per ton. Gains are credited at $10.00 per 100 pounds.



THE "CHEAP GAINS" MYTH EXPLODED.

As will be seen by a study of this page, limited-fed pigs require about three times as much pasture and make less than half the gains as do pigs self-fed a balanced ration; and when the pasture is charged against them, the gains made by the pigs in Lot 6 cost $3.86 for concentrates and $2.83 for pasture, a total cost of $6.69 per 100 pounds as compared with $5.27 for concentrates and $0.44 for pasture, or $5.71 per 100 pounds gain in Lot 7.

WITH CHARGE FOR PASTURE OMITTED

	Cost of concentrates per 100 lbs. gain	Value per 100 pounds	Profit per 100 pounds	Gain per pig	Profit per pig	Profit per lot	PROFIT INCREASED BY FULL FEEDING		
							Per pig	Per lot	
Lot 6	$3.86	$10.00	$6.14	71 lbs.	$4.33	$64.99	$3.66	$54.60	8 WELL FED PIGS WERE ALMOST AS PROFITABLE AS 15 LIMITED FED PIGS.
Lot 7	$5.27	$10.00	$4.73	169 lbs.	$7.99	$119.59			

THE ABOVE SHOWS CLEARLY THAT THE CHEAPEST GAINS ARE NOT NECESSARILY THE MOST PROFITABLE. AS LONG AS TIME REMAINS THE MEASURE OF PROFIT, RATE OF GAIN WILL BE IMPORTANT.

Adapted from Table 7, Nebraska Bulletin 214 by W. P. Snyder. A similar experiment conducted at Purdue University Experiment Station by C. M. Vestal, gave almost identical results.

N. C. STATE COLLEGE OF AGRICULTURE AND ENGINEERING, OFFICE OF SWINE EXTENSION

Form 36.

HOGGING DOWN CORN AND SOYBEANS

Below is shown the average of five years' results of experiments conducted by the Missouri Agricultural Experiment Station with hogging down corn supplemented with tankage; corn and soybeans supplemented with tankage; corn and soybeans without supplement; and corn alone.

Thirteen shoats averaging 114 pounds, harvested each acre in about 22 days. The crop is charged at $19.00 per acre and the tankage at $70.00 per ton. Gains are credited at 10¢ per pound. The acid test of Profit is used for comparison.

LOT	1	2	3	4
FEED	CORN AND TANKAGE	CORN, SOYBEANS AND TANKAGE	CORN AND SOYBEANS	CORN ALONE
Bushels of grain per acre	Corn 34.82	Corn 30.42 Soybeans 4.12	Corn 30.26 Soybeans 4.14	Corn 38.18
Total	34.82	34.54	34.40	38.18
Average daily gain per pig	1.81	1.74	1.07	.95
Feed per 100 lbs. gain	Corn 375.8 Tankage 37.2	Corn 356.2 Tankage 35.6 Soybeans 51.7	Corn 559.1 Soybeans 81.9	Corn 741
Total	413	443.5	641	741
Cost per 100 lbs. gain	$3.92	$4.23	$6.27	$6.88
Value of gains @ 10¢	51.88	47.82	30.31	27.62
Cost of gains	$25.75	24.97	19.00	19.00
Profit per acre	26.13	22.85	11.31	8.62

Assuming that two and a half days of man labor were sufficient to produce the crop, and that one day would be sufficient to care for the hogs during the 22 days they were in the field, THE PROFIT PER DAY OF MAN LABOR DEVOTED TO RAISING THE CROP AND FEEDING IT would be about as follows:

	LOT 1	LOT 2	LOT 3	LOT 4
	7.47	$6.53.	$3.23.	$2.46.
If made "soft" by the soybeans, profit per day would be:	$7.47	3.80	2.37	2.46
If made "oily" by the soybeans, profit per day would be:	7.47	2.43	1.50	2.46

OFFICE OF SWINE EXTENSION, N. C.
STATE COLLEGE OF AGRICULTURE AND ENGINEERING

Form 37

THREE REASONS WHY NORTH CAROLINA HOGS DO NOT PAY

High Cost of Production; Slow Rate of Gain; Low Quality of Product

The above three reasons for the unattractive returns from hogs in North Carolina may, in many instances, be expressed by one compound word--SOYBEANS.

As shown by Form 36, the return in profit per day of human labor devoted to raising and hogging a crop was reduced $4.24 by dependence on soybeans as a supplement to corn, not considering the effect of the beans on the quality of the carcass. That alone is sufficient to discourage the raising of soybeans for hog feed.

Hogs, made "soft" or "oily" by eating soybeans are docked $1.00 to $3.00 per 100 pounds, accordingly. This dockage added to the high cost of producing them, makes the production of such hogs unprofitable, except during a period of high prices, and always at a heavy loss of potential profit.

RETURNS FROM A CAR OF HOGS SHIPPED TO RICHMOND, VA., MAY 5, 1927

GRADE	No. hogs	Total weight	Average weight	Price subject	Amount	Freight	Com.	Deduction for grade	Check	Net price	Cost of selling	Profit# per cwt	Profit# per pig	Total# profit
Hard	32	5625	176	$10.73	$603.61	$36.52	$12.06	Hard	$555.03	$9.87	$0.86	$2.87	$5.04	$161.28
S & Oily	53	7575	143	9.88	748.52	49.18	12.25	$134.62	552.47	7.29	0.81	0.29	0.41	22.22
Both	85	13200	155	$10.24	$1352.13	$85.70	$24.31	$134.62	$1107.50	$8.39	$0.83	$1.39	$2.16	$183.50

#Assuming that, including all charges, it cost $7.00 per 100 pounds to produce the hogs.

On the basis of $7.00 per 100 pounds cost of production, 32 hogs intelligently handled paid $139.06 more profit than 53 hogs sold from the same car, which had been produced in the customary way. Dockage $1.78 per 100 pounds.

OFFICE OF SWINE EXTENSION, N. C. STATE COLLEGE OF AGRICULTURE AND ENGINEERING.

AVERAGE CORN AND HOG RATIO BY MONTHS FROM JAN. 1, 1920 TO JAN. 1, 1928-8 YRS.

NUMBER OF BUSHELS OF CORN REQUIRIRED TO BUY 100 POUNDS OF LIVE HOGS.

(Form 44.)

OFFICE OF SWINE EXTENSION, N. C. STATE COLLEGE OF AGRICULTURE AND ENGINEERING.