

Kansas Agricultural Experiment Station Research Reports

Volume 0

Issue 10 *Swine Day (1968-2014)*

Article 699

1997

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Recommended Citation

Langemeier, Michael R.; Goodband, Robert D.; Tokach, Michael D.; and Nelssen, Jim L. (1997) "Summary of Kansas State University swine enterprise record 1997," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 10. <https://doi.org/10.4148/2378-5977.6539>

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Abstract

The Kansas Swine Enterprise Record Program evaluates biological and economic performance and is part of a cooperative record-keeping project with Extension personnel and swine producers in Kansas, Nebraska, and South Dakota. From January 1 to December 31, 1996, profit per cwt of pork produced by these producers (13 semiannual and 18 annual data) averaged \$10.62 for the last 6 months of 1996 and \$8.08 for the entire year. Producers in the top one-third in terms of profitability had average profits of \$15.11 per cwt, whereas producers in the bottom one-third had average profits of \$.73 per cwt for the year. Critical factors separating low- and high-profit producers included feed costs, unpaid labor, fixed costs, and death loss.; Swine Day, Manhattan, KS, November 20, 1997

Keywords

Swine day, 1997; Kansas Agricultural Experiment Station contribution; no. 98-142-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 795; Swine; Enterprise; Records; Analysis; Profitability

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**SUMMARY OF KANSAS STATE UNIVERSITY
SWINE ENTERPRISE RECORD¹**

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Summary

The Kansas Swine Enterprise Record Program evaluates biological and economic performance and is part of a cooperative record-keeping project with Extension personnel and swine producers in Kansas, Nebraska, and South Dakota. From January 1 to December 31, 1996, profit per cwt of pork produced by these producers (13 semi-annual and 18 annual data) averaged \$10.62 for the last 6 months of 1996 and \$8.08 for the entire year. Producers in the top one-third in terms of profitability had average profits of \$15.11 per cwt, whereas producers in the bottom one-third had average profits of \$.73 per cwt for the year. Critical factors separating low- and high-profit producers included feed costs, unpaid labor, fixed costs, and death loss.

(Key Words: Enterprise, Records, Analysis, Profitability.)

Introduction

Production and financial records have become essential management tools of many swine producers. Production records measure the productivity of an operation. Financial records measure economic performance. An accurate set of records allows producers to compare their efficiency levels with those of other producers and to track performance over time. Records are particularly useful when making capital purchases of buildings

and equipment and in evaluating a change in an operation (e.g., whether buying higher quality breeding stock will pay for itself).

Kansas State University joined the University of Nebraska and South Dakota State University in a cooperative record-keeping program in January 1991. This program compiles individual producer records of production and financial factors into state and regional summaries. Enterprise summaries are provided for farrow-to-finish, feeder pig producing, feeder pig finishing, combination (less than 70% of pigs sold as either market hogs or feeder pigs), and seedstock operations. Many of the items are recorded on the basis of per cwt of pork produced. Recording costs on this basis facilitates comparisons among producers of various sizes.

Regional Group Summary

Individual producers collect data on hog inventories, hog sales, hog purchases, feed inventories, feed purchases, operating expenses, labor, fixed expenses, and herd performance. These data from individual producers were used by Extension personnel to compile the 1996 regional (KS, NE, and SD) group summaries for farrow-to-finish operations reported in Table 1. Records of 13 producers are summarized for the last 6 months of 1996, and records of 18 producers are summarized for the 12-month period January to December 1996. Profit per cwt of pork produced on an economic life deprecia-

¹The authors thank Mike Brumm and Al Prosch, University of Nebraska, for their assistance with the program.

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tion basis (Line 20) is used to separate producers into top and bottom one-third profit groups. Thus, all other items represent the means for that particular profit group. The information in Table 1 allows producers to compare the performance of their operation to that of other operations in the program.

Profit per cwt of pork produced averaged well above breakeven (\$10.62 per cwt) over the last 6 months of 1996. However, profits varied substantially among producers. For the last 6 months of 1996, producers in the top one-third in terms of profitability had average profits per cwt of \$18.93. Producers in the bottom one-third had average losses of \$.47 per cwt. Profit differences remained similar between these two groups for the year (\$15.11 vs \$.73), but the average profit margin was lower for the whole year because of low market hog prices and high feed costs during the first 6 months of 1996.

Notice that returns over cash costs (Line 2) were positive for all three profit groups for the last 6 months and the whole year despite the negative profits of the low one-third profit group during the last 6 months. Typically, most producers can cover cash costs, even when prices are relatively low. All producers were able to cover unpaid labor and fixed costs for the entire year; thus, their return to management was positive (line 3) for the year. Although market conditions were excellent this past year, the range in profits among similar sized operations is dramatic. This indicates a need to develop some management options that will improve the profitability of the bottom one-third of producers in the future.

Line 4 presents the annual rate of return on capital invested in the swine operation. This rate should be compared to the rates that can be earned on other investments (e.g., banks, stocks). The return on capital for producers in the high one-third profit group was 49.5%, which was substantially more than the average return on capital for all 18 producers for the entire year. Note that the return on capital for producers in the bottom one-third profitability group was 6.64% for the entire year.

Variable costs per cwt (Line 10) can be broken down into four categories: feed costs (Line 5), other operating expenses (Line 6), interest costs on operating capital (Line 9), and unpaid labor and management (Line 38). Total costs per cwt include these variable costs, plus interest charges on investments in buildings and equipment (Line 12) and economic life depreciation, taxes, and insurance costs (Line 13). Producers in the top one-third profit group had lower costs for each of the variable (\$40.70) and total (\$44.96) cost categories compared to the average producers' variable (\$46.34) and total (\$50.71) costs per cwt of pork produced. A \$12.68 per cwt difference in total costs existed between producers in the top and bottom one-third profit groups for the past year.

Feed costs per cwt accounted for \$4.86 or 38.3% of the difference in total costs for the two profit groups. The top one-third producers were able to purchase their feed for \$.93/cwt less (line 52) for the year. A 5% improvement in feed efficiency occurred between producers in the top vs bottom one-third profit groups for the whole year.

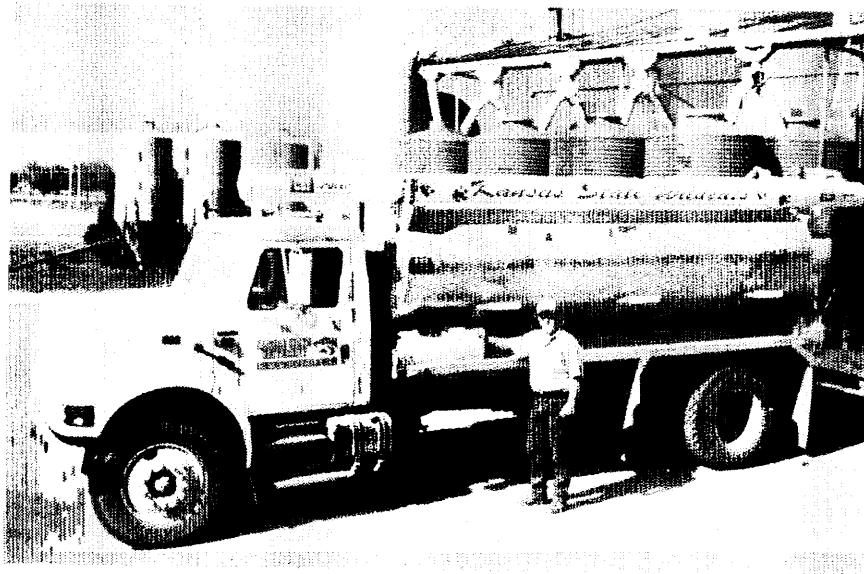
Other operating expenses include utilities, hired labor, supplies, repairs, veterinarian costs, and professional dues. Other operating expenses (Line 6) and interest costs on capital (Line 9) accounted for 54% and 6% of the difference in total costs between producers in the high- and low-profit groups, respectively.

More efficient use of available labor can be a key difference in producer profitability. However, unpaid labor and management were only \$.26 per cwt higher for producers in the low-profit group than for producers in the high-profit group for the past year. This difference accounted for only 2% of the difference in total costs per cwt between the two groups.

Differences in fixed costs per cwt (Line 17 to Line 10) were very similar between producers in the high- and low-profit groups for the year (\$4.26 vs \$4.21, respectively).

As suggested by the similar fixed costs, producers in the top one-third group had the same litters per sow per year (line 25) compared with those in the bottom one-third (1.98). However, producers in the top one-third group weaned slightly more pigs per litter (line 28), and, therefore, produced more pigs per crate (line 30). Producers in the top one third had lower preweaning, finishing, and sow death losses (lines 32, 33, and 34). The high death loss of weaning to finishing pigs by producers in the bottom one-third (11.82 vs 3.71) is a major factor contributing to their low profitability.

Finally, swine enterprise records serve as a useful management tool for individual producers to monitor their individual herd's production and economic performance over the previous 6 months and for the year. As swine production becomes more competitive, the identification of good or problem areas of an operation becomes increasingly essential for producers to maintain profitability. By comparing an individual's records to the group summary, key economic criteria can be identified and management strategies implemented to improve profitability. The KSU Swine Enterprise Record program is an integral part of the swine extension service offered by Kansas State University.



Terry Gugle, Animal Sciences and Industry Feedmill Manager.

Table 1. Regional Group Summary Averages for Farrow-to-Finish Operations (KS, NE, and SD)

Item	Farrow-to-Finish Operations					
	Semi-Annual Data (13 Farms)			Annual Data (18 Farms)		
	Average	High 1/3	Low 1/3	Average	High 1/3	Low 1/3
1. Net pork produced, lb	379,335	456,416	282,515	746,655	648,244	861,561
2. Income over feed, oper. exp., oper. int., & hired labor	71,320	111,363	18,764	112,562	152,350	72,647
3. Profit or return to management, ELD	48,400	88,787	1,399	65,075	112,566	23,856
4. Annual rate of return on capital, ELD	30.85	56.40	2.89	27.30	49.54	6.64
Variable expenses:						
5. Total feed expense/cwt pork produced	32.49	29.38	34.80	33.39	31.04	35.90
6. Other oper. expenses (total)/cwt pork produced	7.57	4.55	11.85	7.76	4.99	11.83
a. Utilities; fuel, electricity, phone/cwt pork produced	1.23	.65	2.29	1.28	1.05	1.86
b. Vet. expenses and medications/cwt pork produced	1.08	.73	1.69	1.07	.81	1.37
c. Remainder of other oper. expenses/cwt pork produced	5.25	3.17	7.87	5.32	2.84	8.60
7. Total cost of labor/cwt of pork produce	4.13	2.29	6.12	4.28	2.98	5.50
8. Total oper. capital inv./cwt of pork produced	25.73	22.41	29.60	22.85	20.07	26.45
9. Int. cost on oper. invest./cwt of pork produced	3.09	2.69	3.55	2.74	2.41	3.17
10. Total variable cost/cwt of pork produced	45.31	38.05	53.20	46.34	40.70	53.43
Fixed and total costs:						
11. Total fixed cap. inv. (ELD)/cwt of pork produced	17.15	14.19	16.57	17.97	16.96	16.48
12. Int. chg. on fixed inv. (ELD)/cwt of pork produced	1.72	1.42	1.66	1.80	1.70	1.65
13. E.L. deprec., taxes and ins. cost/cwt of pork produced	2.36	2.29	2.23	2.57	2.56	2.57
14. Tax deprec., taxes and ins. cost/cwt of pork produced	2.24	1.92	1.90	2.44	2.33	2.42
15. Fixed cost (ELD)/female/period	84.01	83.07	76.30	173.21	163.77	158.45
16. Fixed cost (ELD)/crate/period	405.97	421.13	302.77	825.56	790.07	684.91
17. Total cost (ELD)/cwt of pork produced	49.38	41.76	57.09	50.71	44.96	57.64
18. Total cost (ELD)/female/period	982.78	897.43	1055.31	1951.707	1714.04	2095.87
19. Total cost (ELD)/crate/period	4715.67	4571.40	4755.95	9352.22	8169.61	10223.60
Income and profit						
20. Profit based on econ. life deprec./cwt of pork produced	10.62	18.93	-.47	8.08	15.11	.73
21. Profit based on tax deprec./cwt of pork produced	10.94	19.52	.41	8.37	15.45	1.14
22. Profit based on econ. life deprec./female/period	222.77	411.48	-10.80	316.99	594.69	15.28
23. Profit based on econ. life deprec./crate/period	1109.32	2091.79	-46.33	1551.39	2802.15	227.21

(continued)

Table 1. Regional Group Summary Averages for Farrow-to-Finish Operations (KS, NE, and SD) (cont'd)

Item	Semi-Annual Data (13 Farms)			Annual Data (18 Farms)		
	Average	High 1/3	Low 1/3	Average	High 1/3	Low 1/3
Production summary:						
24. Average female inventory	189	207	163	194	166	246
25. Number of litters weaned/female/period	1.02	1.10	.96	1.99	1.98	1.98
26. Number of litters weaned/crate/period	4.93	5.65	4.31	9.60	9.37	9.75
27. Number of live pigs born/litter farrowed	10.15	10.30	10.21	10.10	10.23	10.03
28. Number of pigs weaned/litter farrowed	8.74	8.76	8.62	8.80	9.15	8.77
29. Number of pigs weaned/female/period	8.71	8.85	8.33	17.44	18.24	17.10
30. Number of pigs weaned/crate/period	41.71	44.57	37.62	83.76	86.36	84.11
31. Number of pigs sold/litter/period	8.30	8.40	7.99	7.71	7.69	7.38
Death loss:						
32. Birth to weaning (% of no. born)	13.70	14.96	12.30	13.52	10.47	15.71
33. Weaning to market (% of no. weaned)	6.23	4.54	10.13	6.60	3.71	11.82
34. Breeding stock (% of breeding herd maintained)	2.34	2.51	2.70	6.23	6.02	7.98
Labor:						
35. Labor hours/cwt of pork produced	.58	.43	.85	.61	.45	.80
36. Labor hours/female/period	11.48	9.47	15.83	23.41	17.48	29.59
37. Labor hours/litter weaned/period	11.33	8.51	16.37	11.78	8.83	14.82
38. Cost of unpaid labor & mgmt./cwt of pork produced	2.39	2.20	2.99	2.44	2.27	2.53
39. Total cost of labor (paid + unpaid)/cwt of pork produced	4.36	3.05	6.12	4.28	2.98	5.50
40. Total cost of labor (paid + unpaid)/female/period	86.45	66.86	113.20	166.42	115.39	202.24
41. Return/hour for all hours of labor and management	34.74	52.44	6.56	26.06	45.12	8.54
Marketing and purchases:						
42. Number of market hogs sold	1472	1730	1075	2825	2486	3359
43. Average weight/head for market hogs sold	246	255	240	244	247	239
44. Average price received for market hogs/cwt	57.40	57.46	55.44	55.91	56.04	55.78
45. Number of feeder pigs sold	68	42	39	97	192	49
46. Average weight/head of feeder pigs sold	65.60	53.70	60.30	55.80	51.80	86.30
47. Average price received/head for feeder pigs sold	46.05	25.74	38.00	41.43	37.43	53.83
48. Average price received/cwt for feeder pigs sold	61.62	47.94	67.41	71.92	72.35	69.37
Feed cost and consumption:						
49. Total lb of feed fed/cwt of pork produced	362	365	361	363	357	374
50. Total lb of grain fed/cwt of pork produced	282	287	282	284	280	291
51. Total lb of supplement fed/cwt of pork produced	80	78	79	79	76	83
52. Average costs of diets/cwt	9.03	8.05	9.72	9.20	8.69	9.62

Semi-annual data July 1 - December 31, 1996 and annual data January 1, 1996 - December 31, 1996.