

**K**

**S**

**U**

## KANSAS STATE UNIVERSITY SWINE ENTERPRISE RECORD SUMMARY<sup>1</sup>

*B. T. Richert, R. D. Goodband, M. L. Langemeier<sup>2</sup>,  
M. D. Tokach, and J. L. Nelssen*

---

### Summary

Approximately 15 swine operations are enrolled in the 1993 to 1994 Kansas Swine Enterprise Record Program provided by Kansas State University. This 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. Records are summarized every 6 months, and the corresponding data are pooled to form state and regional averages. This summary includes the combined data for the 38 farrow-to-finish operations in the three-state region. The semi-annual data represent the first 6 months of 1994, whereas the annual data are for the 12-month period of July 1, 1993 to June 30, 1994. Profit per cwt of pork produced for these 38 producers averaged a loss of \$0.85 for the first 6 months of 1994 and a loss of \$2.92 for the past year. Profits varied substantially between producers. Producers in the top one-third in terms of profitability had average profits of \$4.47 per cwt, whereas producers in the bottom one-third had average losses of \$10.05 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., will buying higher quality breeding stock pay for itself).

Kansas State University joined the University of Nebraska and South Dakota State University in a cooperative record-keeping program in January of 1991. This program compiles individual producer records on 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 a per cwt basis facilitates comparisons between producers of various sizes.

---

<sup>1</sup>The authors wish to thank Mike Brumm and Dale Kabes, University of Nebraska, for their assistance with the program and the many Kansas County Extension Agricultural Agents for their assistance.

<sup>2</sup>Department of Agricultural Economics.



## 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 individual producer data were used by extension personnel to compile the 1993-94 regional (KS, NE, and SD) group summaries reported in Table 1. Profit per cwt of pork produced on an economic life depreciation 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 producers in the program.

Profit per cwt of pork produced for the 38 farrow-to-finish producers in the program averaged slightly below breakeven (-\$.85 per cwt) over the first 6 months of 1994. However, profits varied substantially between producers. For the first 6 months of 1994, producers in the top one-third in terms of profitability had average profits per cwt of \$7.25. Producers in the bottom one-third had average losses of \$10.57 per cwt. Profit differences remained similar between these two groups for the year (+4.47 vs -10.05).

Notice that returns over cash costs (Line 2) were positive for all three profit groups for the last 6 months and the whole year. Typically, most producers can cover cash costs, even when prices are relatively low. However, producers in the bottom one-third profit group were not able to cover unpaid labor and fixed costs for the last 6 months and the year. The average producer also could not cover these costs in the last 6 months of 1993; thus, their return to management was negative (line 3) for the year. These producers will need to cover unpaid labor and fixed costs to stay in business in the long-run. The need to develop some management options that will improve their profitability in the future is indicated.

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 substantially more than the average return on capital for all 38 producers for the entire year. Note that the return on capital for producers in the bottom one-third profitability group was negative (-15.26) 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 per cwt for each of the variable (33.60) and total (38.17) cost categories compared to the average producers' variable (39.81) and total (44.83) costs per cwt of pork produced. A \$13.75 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 \$4.95 or 36% of the difference in total costs for the two profit groups. Cheaper diets did not correspond directly to lower feed costs. However, the top one-third producers were able to purchase their feed for \$.90/cwt less (line 52) for the year. A 11.1% improvement in feed efficiency occurred between producers in the top vs bottom one-third profit groups for the first 6 months of 1994; however, for the whole year, the improvement in feed efficiency was 6.1%.

Other operating expenses include utilities, hired labor, supplies, repairs, veterinarian costs, and professional dues. Other operating expenses and interest costs on capital accounted for 26.5% and 7.8% 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. Unpaid labor and management were \$2.37 per cwt higher for producers in the low-profit group than for producers in the high-profit group for the past year. This difference in unpaid labor and management accounted for 17.2% of the difference in total costs per cwt between the two groups.

Differences in fixed costs per cwt accounted for the remaining 14.8% of the difference in total costs between producers in the high- and low-profit groups for the year.

Producers in the top and bottom one-third groups had similar litters per sow per year (line 25), 1.99 vs 1.95, respectively. Producers in the top one-third group weaned fewer pigs per litter (line 28), but weaned more litters per crate and, therefore, produced more pigs per crate (line 30). The number of pigs sold per litter farrowed (line 31) was higher in the top versus bottom one-third profit groups. This reflects the difference in death loss between these groups. Producers in the top one third had lower

preweaning, finishing, and sow death losses (lines 32,33, and 34). Producers in the bottom one-third group had relatively more capital invested in facilities per cwt of pork produced (18.11 vs 28.79). This indicates that lower-profit producers may have newer facilities or may need to improve their throughput with the facilities to spread the fixed costs out over more pigs produced.

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 last 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.



**Don Duncan, Grain Mill Supervisor, and J. R. Eichman, Grain Mill Technician,  
Department of Grain Science and Industry**



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

Item	Farrow to Finish Operations					
	Semi-Annual Data (38 farms)			Annual Data (22 Farms)		
	Average	High 1/3	Low 1/3	Average	High 1/3	Low 1/3
1. Net pork produced, lbs.	218,859	196,272	147,358	604,431	617,162	713,259
2. Income over feed, oper. exp., oper. int., & hired labor	19,153	26,624	6,161	27,162	68,739	251
3. Profit or return to management, ELD	2,319	14,245	(11,098)	(16,186)	27,557	(57,321)
4. Annual rate of return on capital, ELD	7.40	27.41	-21.02	-1.12	19.23	-15.26
<b>Variable expenses:</b>						
5. Total feed expense/cwt pork produced	27.23	24.56	29.08	26.49	23.55	28.50
6. Other oper. expenses (total)/cwt pork produced	6.33	4.30	8.28	7.57	5.82	9.46
a. Utilities; fuel, electricity, phone/cwt pork produced	1.31	0.98	1.63	1.39	1.23	1.45
b. Vet. expenses and medications/cwt pork produced	1.17	0.67	1.51	1.06	0.71	1.59
c. Remainder of other oper. expenses/cwt pork produced	3.85	2.64	5.14	5.11	3.88	6.43
7. Total cost of labor/cwt of pork produce	5.44	4.05	7.46	5.18	3.73	6.71
8. Total oper. capital inv./cwt of pork produced	20.99	17.62	23.70	18.93	15.43	21.39
9. Int. cost on oper. invest./cwt of pork produced	2.52	2.11	2.84	2.27	1.85	2.57
10. Total variable cost/cwt of pork produced	40.57	34.04	46.51	39.81	33.60	45.28
<b>Fixed and total costs:</b>						
11. Total fixed cap. inv. (ELD)/cwt of pork produced	20.30	15.60	31.41	21.09	18.11	28.79
12. Int. chg. on fixed inv. (ELD)/cwt of pork produced	2.03	1.56	3.14	2.11	1.81	2.88
13. E.L. deprec., taxes and ins. cost/cwt of pork produced	2.66	1.92	3.96	2.91	2.76	3.76
14. Tax deprec., taxes and ins. cost/cwt of pork produced	2.17	1.49	3.33	2.45	2.46	3.17
15. Fixed cost (ELD)/female/period	86.22	70.38	121.58	202.62	202.26	269.14
16. Fixed cost (ELD)/crate/period	368.37	296.80	520.62	1004.07	1116.54	1268.28
17. Total cost (ELD)/cwt of pork produced	45.26	37.51	53.62	44.83	38.17	51.92
18. Total cost (ELD)/female/period	859.91	750.42	975.78	1754.67	1584.12	2057.56
19. Total cost (ELD)/crate/period	3654.34	3046.32	4119.86	8446.37	8160.60	9723.02
<b>Income and profit</b>						
20. Profit based on econ. life deprec./cwt of pork produced	-0.85	7.25	-10.57	-2.92	4.47	-10.05
21. Profit based on tax deprec./cwt of pork produced	-0.15	7.40	-9.08	-2.76	3.72	-9.67
22. Profit based on econ. life deprec./female/period	-2.78	145.69	-171.10	-112.03	177.85	-401.45
23. Profit based on econ. life deprec./crate/period	-0.98	585.97	-689.52	-513.89	880.74	-1872.78

Semi-annual date January 1, 1994 - June 30, 1994 & annual date July 1, 1993 - June 30, 1994.

Profit, fixed and total costs are based on econ. life deprec. (ELD) unless stated otherwise.

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

Item	Semi-Annual Data (38 farms)			Annual Data (22 Farms)		
	Average	High 1/3	Low 1/3	Average	High 1/3	Low 1/3
<b>Production summary:</b>						
24. Average female inventory	117	100	85	157	145	187
25. Number of litters weaned/female/period	1.00	1.04	0.97	1.94	1.99	1.95
26. Number of litters weaned/crate/period	4.29	4.20	4.15	9.32	9.99	9.28
27. Number of live pigs born/litter farrowed	10.41	10.26	10.46	10.19	9.96	10.42
28. Number of pigs weaned/litter farrowed	8.94	9.04	8.75	8.73	8.58	8.87
29. Number of pigs weaned/female/period	8.88	9.21	8.41	16.88	16.81	17.48
30. Number of pigs weaned/crate/period	38.09	37.20	36.21	81.32	85.59	83.03
31. Number of pigs sold/litter/period	7.48	7.66	7.35	7.82	8.09	7.58
<b>Death loss:</b>						
32. Birth to weaning (% of no. born)	15.27	12.06	18.94	12.75	10.91	13.56
33. Weaning to market (% of no. weaned)	4.85	2.96	6.39	5.23	3.24	5.52
34. Breeding stock (% of breeding herd maintained)	2.37	2.75	1.53	3.67	3.03	3.45
<b>Labor:</b>						
35. Labor hours/cwt of pork produced	0.74	0.55	1.02	0.72	0.60	0.90
36. Labor hours/female/period	13.91	10.92	18.51	28.53	26.20	35.46
37. Labor hours/litter weaned/period	14.05	10.48	19.27	14.83	13.07	18.64
38. Cost of unpaid labor & mgmt./cwt of pork produced	4.49	3.07	6.32	3.49	2.38	4.75
39. Total cost of labor (paid + unpaid)/cwt of pork produced	5.44	4.05	7.46	5.18	3.73	6.71
40. Total cost of labor (paid + unpaid)/female/period	102.35	79.76	136.26	201.34	154.88	262.34
41. Return/hour for all hours of labor and management	9.65	21.56	-1.72	4.91	16.23	-3.87
<b>Marketing and purchases:</b>						
42. Number of market hogs sold	797	688	541	2212	2231	2638
43. Average weight/head for market hogs sold	245	246	245	245	247	246
44. Average price received for market hogs/cwt	45.29	45.06	45.61	45.96	46.22	46.19
45. Number of feeder pigs sold	36	66	4	101	25	74
46. Average weight/head of feeder pigs sold	44.1	46.1	81.2	46.4	54.2	33.5
47. Average price received/head for feeder pigs sold	47.40	48.03	58.74	44.70	44.00	46.07
48. Average price received/cwt for feeder pigs sold	92.11	101.28	67.15	75.90	86.31	79.78
<b>Feed cost and consumption:</b>						
49. Total lbs of feed fed/cwt of pork produced	362	337	379	376	356	379
50. Total lbs of grain fed/cwt of pork produced	284	266	299	298	290	295
51. Total lbs of supplement fed/cwt of pork produced	78	72	80	78	67	84
52. Average costs of diets/cwt	7.54	7.34	7.69	7.05	6.62	7.52

Semi-annual date January 1, - June 30, 1994 &amp; annual date July 1, 1993 - June 30, 1994.