

Kentucky Farm Business Management Program

**Farrow-to-Finish Hog Enterprise
2003 Costs and Returns Summary**

Agricultural Economics – Extension No. 2004-10

July 2004

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Acknowledgments

Special credit should be given to the Farm Business Management Specialists who supplied data used in this report. Their attention to details and accuracy of records are what make these results so valuable to farmers and to those working with farmers throughout the state. Specialists who served in 2003 and provided summary data are:

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A Special Note to Our Readers

The data for this study are drawn from the detailed financial and production records of producers cooperating with the Kentucky Farm Business Management Program. The data are not drawn from a random sample of farms in the state. However, these data are the most accurate and detailed farm financial data which are available to researchers and educators. Every attempt has been made to select a set of farms for these research studies which are “typical” operations and have complete financial information available for analysis. These data are carefully cross-checked by our farm management specialists before inclusion in this analysis. It should be noted that farms included in this study are representative of commercial farms producing major commodities and livestock, but not of all farms in Kentucky.

2003 Farrow-to-Finish Hog Enterprise Summary Introduction

Methodology and Definitions

Production and financial data were calculated as a component of the complete farm business records of Kentucky Farm Business Management (KFBM) program members. From these data, “size-type” averages were determined for hog farms. Hog farms were defined as farms on which the value of feed fed was more than 40 percent of the crop returns and the hog enterprise utilized more than one-half of the value of feed fed. Three size-type standards were determined for hog farms based on geographic regions (i.e., Central Kentucky, Western Kentucky, and state- wide). Non-feed and resource costs were then allocated to each respective livestock enterprise based upon 2000 and 2001 cost data. To refine the allocations, each cost was adjusted proportionately across all livestock activities and any cropping activities.

In providing data that are not influenced by source of labor (i.e., hired vs. unpaid) and level of indebtedness (debt interest payments), data were standardized. This was achieved through including imputed charges on unpaid labor and capital investments. Performance was measured through the calculation of residual returns to management or management returns. The standardization of data between farms with varying quantities of unpaid labor and equity contributions provide an effective measure for comparing performance. Thus, the importance of reviewing the data based upon some unit of production (i.e., per hundred weight, per litter, etc.).

Upon determination of per unit non-feed and resource costs, livestock enterprise production averages were used to complete the respective hog analyses. Production efficiency averages for various types of livestock enterprise are determined each year from KFBM member data. The averages include total returns, feed costs, and other production variables (i.e., feed efficiency, death loss, etc.). By merging the data sets together, a complete livestock enterprise summary is achieved. However, due to data limitations, there is no reporting of high return and low return farms based on management returns per acre.

The following definitions used within the farm analysis program are important to the proper interpretation of the material presented:

Total Returns - - This is the total return attributable to the livestock enterprise for the year. It includes the value of all animals sold (including market and capital), the value of livestock slaughtered for family consumption, and an inventory adjustment (positive or negative) for the difference in the value of livestock on the farm at the beginning and ending of the year.

Feed Costs - - This is the value of purchased and homegrown feed fed. The purchased feed cost is determined from a producer’s actual cost and is adjusted for inventory amounts at the beginning and ending of the year. The cost of homegrown feed is determined by charging a twelve-month average “on-farm” per unit market value (what producers would receive if the feed was sold and marketing costs deducted) on the amounts fed.

Non-Feed Cash Costs - - This is the actual cash expenditure, with accrual adjustments, for selected operating expenses of farm operators included in the 2003 sample. It does not include cash expenditures for purchased concentrates or grains fed to livestock.

Non-Feed Non Cash Costs - - Unpaid labor, depreciation and interest on equity capital are considered non-cash costs. Homegrown feed is a non-cash cost, but is included in feed cost in these analyses.

Total Cost of Production - - This is the total charge (cash and non-cash) for all factors of production, except management, use by the livestock enterprise during the year.

Unpaid Labor - - Is the imputed charge for any operator labor contribution toward swine production. The 2003 imputed rate charged for unpaid labor is \$29,700 per 12 month equivalent or \$2,475 per month. The 2001 and 2002 imputed rates for unpaid labor are \$27,000 and \$28,800 per 12 month equivalent, respectively.

Machinery and Building Depreciation - - Taken from depreciation schedules designed to reflect economic depreciation as maintained by the KFBM Program, equipment is generally depreciated over a ten-year period. Most farm buildings, except for single purpose structures, are depreciated over a twenty-five-year period for this economic analysis.

Non-Cash Interest Charge - - Represents the imputed equity interest charge for the average annual capital investment for machinery, buildings, land and an imputed interest charge on cash operating expenses. The 2003 imputed interest rate is 6.25 percent. The 2001 and 2002 imputed rates are 8.0 and 6.75 percent, respectively.

Net Returns or Management Returns - - Is the net return remaining to reward management after charges are made for all other factors of production. It is calculated by deducting the total of all production costs from total revenue.

Returns per \$100 Feed Fed - - A gauge to examine the effectiveness of feed usage. The return from feeding \$100 of feed is calculated by dividing total returns by total feed costs and multiplying 100.

It is important to emphasize that standardized producer data is used in this study. Where labor and capital resources vary among producers, these variations are muted through imputed cost determinations. Table 1 reflects historical rates used in the past and the current study.

Table 1. Yearly Rates for Labor, Interest and Feed Corn.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Fed Corn Produced on Farm (\$\Bu)	2.40	2.51	2.75	3.75	2.78	2.39	2.11	2.09	2.08	2.29	2.51
Unpaid Labor Rate (\$\Year)	17,400	18,000	19,200	19,800	21,600	22,800	24,000	25,200	27,000	28,800	29,700
Interest Rate: Non Land	8.5%	9%	9.5%	9%	9%	9%	8.5%	9%	8%	6.75%	6.25%
Interest Rate: Land	5%	5%	5%	5%	5%	5%	5%	4.5%	4.5%	4%	4%

Summary of Hog Data

Gross Returns

Gross returns from 2003 Kentucky farrow-to-finish operations were larger than 2002 returns, but lower than 2001 and 2000 gross returns. When comparing 2003 and 2002 net returns, it is apparent that the \$5.41 higher gross returns in 2003 helped reduce the loss in net returns. Total cost of production for 2003 was the highest of the most recent five years. Even though the average hog producer lost money in 2003, when measured by management returns, the more efficient producers realized a profit.

Feed Costs

In general, feed costs are the largest portion of expenses for hog producers and will usually measure over one-half of the total expenses. Feed costs in 2003 are no different and are the highest experienced in the last five years. The \$2.41 per cwt cost increase over the 2002 year is a sizeable increase. The increase is due both to higher feed prices and poorer feed efficiency. In 2003, feed was 58 percent of the total cost of production.

Non-Feed Cash Costs

Non-feed cash costs increased \$1.40 per cwt in 2003 over 2002 costs and equates to \$20 per litter. Several categories realized sizeable increases. Fuel, utilities, machinery repair and interest led the way. The increase in these four categories amounted to \$1.24 per cwt of the increase. While a few cost categories were lower in 2003, it was not enough to offset the increases.

Non-Feed Non Cash Costs

Non-feed non-cash costs include unpaid labor, machinery and building depreciation, and non-cash interest. Unpaid labor usually makes up the largest portion of the four categories. In 2003, the \$3.13 per cwt of unpaid labor was the lowest of the last four years, but still amounted to 41 percent of the total non-feed non-cash costs. The total for these four categories in 2003 was \$7.63 per cwt. and was slightly higher than the five-year average of \$7.58 per cwt. On a per litter basis, the total was \$153, but lower than the five-year average of \$158. Large annual increases or decreases are found in returns and non-feed cash costs of production. This usually does not happen in the non-feed non-cash cost categories.

Net Returns (over all costs)

Net returns increased in 2003 by \$1.48 per cwt over 2002, but were still negative. The negative \$1.18 per cwt and negative \$24 per litter returns were somewhat surprising. The large increase in total swine returns looked promising, but the increase in costs pulled the net returns into the negative column for the average hog producer.

Other Production Variables

Litters per sow increased in 2003 from 2002, but production as measured by pigs weaned per litter and pounds of pork per litter decreased in 2003. The pounds of pork produced per sow dropped 96 pounds in 2003 from 2002. Production declined per sow and per litter, in part, as a

result of the increase in death loss. Death loss increased both as a percent of pigs weaned and as a percent of pounds produced.

Summary

In summary, the average farrow-to-finish hog operation in the KFBM Program showed negative net returns for both 2002 and 2003 years after realizing positive net returns in the two previous years.

The swine enterprise involves a complex production process with a number of factors affecting costs and returns. Some are for the most part, beyond the individual producer's control. Others are influenced directly by the operator's decisions and actions (or inactions.)

KFBM records and analysis help producers identify problems in their operations that adversely affect profitability. Once the problem areas have been analyzed, producers have the opportunity to make changes and improve the profitability.

**Kentucky Farrow-to-Finish
Enterprise Summary
2000-2003**

	<u>2000 Average</u>	<u>2001 Average</u>	<u>2002 Average</u>	<u>2003 Average</u>
Number of Enterprises	17	13	10	13
Total Swine Returns	409,712	315,462	266,072	325,215
Total Feed Costs	<u>188,162</u>	<u>159,135</u>	<u>164,523</u>	<u>193,023</u>
Returns Above Feed Cost	221,550	156,328	101,549	132,191
Total Non feed Costs	<u>147,664</u>	<u>138,777</u>	<u>123,195</u>	<u>142,341</u>
Net Returns (over all costs)	73,886	17,551	-21,646	-10,150
Other Economic Variables				
Returns per \$100 Feed Fed	216.75	198.24	161.72	168.48
Feed Costs per cwt Pork	20.56	20.41	19.96	22.37
Capital Investment per Sow				
Livestock	553	598	539	636
Non Livestock	<u>906</u>	<u>797</u>	<u>514</u>	716
Total	1459	1395	1054	1352
Other Production Variables				
Number of Sows	230.4	208.4	212.6	228.7
Number of Litters	456.1	378.9	389.1	430.0
Litters per Sow	1.98	1.82	1.83	1.88
Pigs weaned per Sow/Year	17.73	15.59	16.52	16.96
Pigs weaned per Litter	8.86	8.62	9.01	8.80
Pigs farrowed per Litter	10.46	10.26	10.11	10.35
Total Pork Produced (LB)	949,732	779,689	822,277	862,867
Pounds of Pork per Sow	4,160	3,741	3,868	3,772
Pounds of Pork per Litter	2,086	2,058	2,113	2,007
Death Loss: % of Pigs Weaned	7.07	8.36	7.11	7.47
Death Loss: % of Lbs Produced	2.78	3.24	2.81	2.92
Grain per cwt. Pork (lbs)	276	271	243	257
Protein per cwt. Pork	76	77	78	83
Total Concentrates	352	348	321	340
Labor Summary				
Cost per Sow	228	244	233	219
Cost per Litter	116	134	127	117

**Kentucky Farrow-to-Finish
Enterprise Summary
2000-2003**

	2000 Average	2001 Average	2002 Average	2003 Average
Per Litter				
Number of Enterprises	17	13	10	13
Number of Litters	456.1	378.9	389.1	430.0
Total Swine Returns	912	833	682	756
Purchased Concentrates	213	213	210	216
Grains	<u>210</u>	<u>207</u>	<u>211</u>	<u>233</u>
Total Feed Costs	423	420	421	449
Returns above Feed Costs	489	413	261	307
Non Feed Costs				
Livestock Supplies	14	16	14	12
Veterinary	22	24	23	18
Fuel & Oil	9	8	5	8
Machinery Repair	14	14	8	13
Bldg/Fence Repair	25	30	23	18
Machinery Hire	4	5	4	4
Utilities	19	21	16	21
Light Vehicle-Farm Share	0	0	0	0
Paid Labor	47	57	49	54
Insurance	6	5	5	7
R.E. Tax	1	1	1	1
Miscellaneous	7	7	4	5
Cash Interest	<u>18</u>	<u>11</u>	<u>6</u>	<u>16</u>
Total Non Feed Cash Costs	187	199	158	178
Non Feed Non Cash Costs				
Unpaid Labor	69	77	78	63
Machinery Depreciation	16	15	16	21
Bldg/Fence Depreciation	26	24	22	28
Non Cash Interest	<u>47</u>	<u>51</u>	<u>42</u>	<u>42</u>
Total Non Feed Non Cash Costs	158	167	159	153
Total Cost of Production	769	786	738	780
Net Returns (over all costs)	143	47	-56	-24
Cost and Returns Summary: \$/Litter				
Total Returns	912	833	682	756
Feed Costs	423	420	421	449
Non Feed Costs	<u>346</u>	<u>366</u>	<u>317</u>	<u>331</u>
Net Returns (over all costs)	143	47	-56	-24
Enterprise Summary: \$/Litter				
Total Swine Returns	912	833	682	756
Value Feed Fed	423	420	421	449
Non Feed Cash Costs	187	199	158	178
Non Feed Non Cash Costs	158	167	159	153
Total Cost of Production	<u>769</u>	<u>786</u>	<u>738</u>	<u>780</u>

Non Feed Cash Costs	9.07	9.66	7.47	8.87
Non Feed Non Cash Costs	<u>7.48</u>	<u>8.14</u>	<u>7.51</u>	<u>7.63</u>
Total Cost of Production	37.22	38.22	34.94	38.87
Net Returns (over all costs)	6.47	2.24	-2.66	-1.18

Western Kentucky
Enterprise Summary

	2001 Average	2002 Average	2003 Average	Three- Year Average
Number of Enterprises	5	4	7	
Returns above Feed Costs	185,482	129,947	119,245	144,891
Non Feed Costs				
Livestock Supplies	2,494	6,869	5,342	4,902
Veterinary	3,901	10,744	8,356	7,667
Fuel & Oil	2,902	2,368	4,647	3,306
Machinery Repair	4,111	4,220	7,294	5,208
Bldg/Fence Repair	15,618	11,007	7,497	11,374
Machinery Hire	1,931	2,621	2,081	2,211
Utilities	11,008	9,490	10,847	10,449
Light Vehicle-Farm Share	0	0	0	0
Paid Labor	18,471	25,126	20,810	21,469
Insurance Total	1,591	1,945	3,901	2,479
R.E. Tax	648	648	648	648
Miscellaneous	3,302	2,286	3,142	2,910
Cash Interest	<u>5,746</u>	<u>2,161</u>	<u>9,699</u>	<u>5,869</u>
Total Non Feed Cash Costs	71,724	79,485	84,265	78,491
Non Feed Non Cash Costs				
Unpaid Labor	35,773	33,046	28,683	32,501
Machinery Depreciation	5,427	8,708	10,563	8,233
Bldg/Fence Depreciation	7,283	8,963	14,301	10,182
Non Cash Interest	<u>20,198</u>	<u>20,315</u>	<u>22,796</u>	<u>21,103</u>
Total Non Feed Non Cash Costs	68,680	71,032	76,343	72,018
Total Non feed Costs	140,404	150,517	160,608	150,509
Net Returns (over all costs)	45,079	-20,570	-41,362	-5,618

Western Kentucky Enterprise Summary Per Cwt.	2001 Average	2002 Average	2003 Average	Three- Year Average
Number of Enterprises	5	4	7	
Pounds Produced	943,037	1,129,453	936,710	1,003,067
Returns above Feed Costs	19.67	11.51	12.73	14.44
Non Feed Costs				
Livestock Supplies	0.26	0.61	0.57	0.49
Veterinary	0.41	0.95	0.89	0.76
Fuel & Oil	0.31	0.21	0.50	0.33
Machinery Repair	0.44	0.37	0.78	0.52
Bldg/Fence Repair	1.66	0.97	0.80	1.13
Machinery Hire	0.20	0.23	0.22	0.22
Utilities	1.17	0.84	1.16	1.04
Light Vehicle-Farm Share	0.00	0.00	0.00	0.00
Paid Labor	1.96	2.22	2.22	2.14
Insurance	0.17	0.17	0.42	0.25
R.E. Tax	0.07	0.06	0.07	0.06
Miscellaneous	0.35	0.20	0.34	0.29
Cash Interest	<u>0.61</u>	<u>0.19</u>	<u>1.04</u>	<u>0.59</u>
Total Non Feed Cash Costs	7.61	7.04	9.00	7.83
Non Feed Non Cash Costs				
Unpaid Labor	3.79	2.93	3.06	3.24
Machinery Depreciation	0.58	0.77	1.13	0.82
Bldg/Fence Depreciation	0.77	0.79	1.53	1.02
Non Cash Interest	<u>2.14</u>	<u>1.80</u>	<u>2.43</u>	<u>2.10</u>
Total Non Feed Non Cash Costs	7.28	6.29	8.15	7.18
Total Non feed Costs	14.89	13.33	17.15	15.00
Net Returns (over all costs)	4.78	-1.82	-4.41	-0.56

**Central Kentucky
Enterprise Summary**

	2001 Average	2002 Average	2003 Average	Three- Year Average
Number of Enterprises	6	4	7	
Returns above Feed Costs	167,315	68,190	143,875	126,460
Non Feed Costs				
Livestock Supplies	2,096	4,620	4,687	3,801
Veterinary	3,278	7,227	7,332	5,945
Fuel & Oil	2,917	1,509	2,436	2,287
Machinery Repair	6,281	2,100	3,268	3,883
Bldg/Fence Repair Total	9,001	7,318	8,266	8,195
Machinery Hire	1,583	863	1,498	1,315
Utilities	6,355	3,950	6,819	5,708
Light Vehicle-Farm Share	0	0	0	0
Paid Labor	21,933	15,392	24,092	20,472
Insurance	2,092	1,663	2,179	1,978
R.E. Tax	419	349	349	373
Miscellaneous	2,064	688	1,195	1,316
Cash Interest	<u>3,185</u>	<u>2,416</u>	<u>3,823</u>	<u>3,141</u>
Total Non Feed Cash Costs	61,204	48,096	65,944	58,415
Non Feed Non Cash Costs				
Unpaid Labor	22,384	27,280	26,958	25,541
Machinery Depreciation	6,222	4,578	6,733	5,844
Bldg/Fence Depreciation	9,572	8,222	9,489	9,094
Non Cash Interest	<u>20,035</u>	<u>13,262</u>	<u>12,292</u>	<u>15,196</u>
Total Non Feed Non Cash Costs	58,214	53,342	55,471	55,676
Total Non feed Costs	119,418	101,438	121,416	114,091
Net Returns (over all costs)	47,897	-33,247	22,460	12,370

Central Kentucky Enterprise Summary Per Cwt.	2001 Average	2002 Average	2003 Average	Three- Year Average
Number of Enterprises	6	4	7	
Pounds Produced	722,567	1,129,453	936,710	929,577
Returns above Feed Costs	29.02	11.83	18.53	13.60
Non Feed Costs				
Livestock Supplies	0.29	0.80	0.60	0.41
Veterinary	0.45	1.25	0.94	0.64
Fuel & Oil	0.40	0.26	0.31	0.25
Machinery Repair	0.87	0.36	0.42	0.42
Bldg/Fence Repair	1.25	1.27	1.06	0.88
Machinery Hire	0.22	0.15	0.19	0.14
Utilities	0.88	0.69	0.88	0.61
Light Vehicle-Farm Share	0.00	0.00	0.00	0.00
Paid Labor	3.04	2.67	3.10	2.20
Insurance	0.29	0.29	0.28	0.21
R.E. Tax	0.06	0.06	0.04	0.04
Miscellaneous	0.29	0.12	0.15	0.14
Cash Interest	<u>0.44</u>	<u>0.42</u>	<u>0.49</u>	<u>0.34</u>
Total Non Feed Cash Costs	8.47	8.34	8.49	6.28
Non Feed Non Cash Costs				
Unpaid Labor	3.10	4.73	3.47	2.75
Machinery Depreciation	0.86	0.79	0.87	0.63
Bldg/Fence Depreciation	1.32	1.43	1.22	0.98
Non Cash Interest	<u>2.77</u>	<u>2.30</u>	<u>1.58</u>	<u>1.63</u>
Total Non Feed Non Cash Costs	8.06	9.25	7.14	5.99
Total Non feed Costs	16.53	17.59	15.63	12.27
Net Returns (over all costs)	12.49	-5.77	2.90	1.33

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