

Kentucky Farm Business Management Program

Hog Enterprises 2005 Costs and Returns Summary

Agricultural Economics – Extension No. 2007-11

October 2006

By:

Craig Gibson, Rush Midkiff, Suzy Martin

University of Kentucky
Department of Agricultural Economics
400 Charles E. Barnhart Building
Lexington, Kentucky 40546-0276

Phone: 859-257-5762

Fax: 859-323-1913

<http://www.uky.edu/Ag/AgEcon/>

TABLE OF CONTENTS

Acknowledgments	ii
Introduction	1
Methodology and Definitions	1
Total Returns	
Feed Costs	
Non-Feed Cash Costs	
Non-Feed Non-Cash Costs	
Total Cost of Production	
Unpaid Labor	
Machinery and Building Depreciation	
Non-Cash Interest Charge	
Net Returns or Management Returns	
Returns per \$100 Feed Fed	
Summary of Hog Data	4
Gross Returns	
Feed Costs	
Non-Feed Cash Costs	
Non-Feed Non-Cash Costs	
Net Returns (over all costs)	
Other Production Variables	
Summary	
Description of Tables	
Table 1. Yearly Rates for Labor, Interest, and Feed Corn	3
Table 2. Farrow-to-Finish Enterprise Summary.....	6
Table 3. Farrow-to-Finish Enterprise Summary (Per Litter).....	7
Table 4. Farrow-to-Finish Enterprise Summary (Per Cwt).....	8
Table 5. Central Kentucky Enterprise Summary (Per Cwt).....	9
Table 6. Western Kentucky Enterprise Summary (Per Cwt).....	10

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 2005 and provided summary data are:

R.W. Eldridge	Bluegrass Farm Analysis Group, Inc.	(859) 879-6809 R.W.Eldgridge@uky.edu
Rick R. Costin	Lincoln Trail Farm Analysis Group, Inc.	(270) 737-4799 rcostin@uky.edu
Craig D. Gibson	Ohio Valley Farm Analysis Group, Inc.	(270) 827-1395 cgibson@uky.edu
Suzy L. Martin	Ohio Valley Farm Analysis Group, Inc.	(270) 685-8480 slmartin@uky.edu
Jody T. Welsh	Pennyroyal Farm Analysis Group, Inc.	(270) 886-5281 jody.welsh@uky.edu
Brian D. Lacefield	Pennyroyal Farm Analysis Group, Inc.	(270) 886-5281 blacefie@uky.edu
Rush H. Midkiff	Pennyroyal Farm Analysis Group, Inc.	(270) 842-5823 rmidkiff@uky.edu
Terry W. Moss	Pennyroyal Farm Analysis Group, Inc.	(270) 886-5281 tmoss@uky.edu
Jennifer L. Rogers	Purchase Farm Analysis Group, Inc.	(270) 247-5031 jennifer.rogers@uky.edu
David L. Heisterberg	KFBM State Coordinator	(270) 886-5281 dheister@uky.edu
KFBM Website	http://www.uky.edu/Ag/KFBM/	

A Special Note to Our Readers

The data for this study are drawn from the detailed financial 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.

2005 Farrow-to-Finish Hog Enterprise Summary

Introduction

This report summarizes 2005 hog enterprise data from farms that participate in the Kentucky Farm Business Management Program¹. In 2005 hog producers saw positive returns. Gross returns were well above the five year average at \$509,407. The high returns combined with low corn prices helped producers earn \$116,313 net over all costs. Although not quite as high as it was in 2004, this was certainly higher than the five year average. Number of sows and total pounds of pork produced were similar to the prior year, indicating producers kept their herd size constant.

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 2003 and 2004 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:

¹ The Kentucky Farm Business Management Program is a cooperative effort between the Department of Agricultural Economics at the University of Kentucky, College of Agriculture and incorporated Farm Analysis Groups (made up of and run by farmers). These farmers are located in 75 counties in Central and Western Kentucky. Nine Extension Farm Analysis Specialists work with these farmers on a regularly scheduled basis to ensure accurate and complete record keeping. At year's end, they provide each farmer with a complete summary of the farm business.

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 2005 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 2005 imputed rate charged for unpaid labor is \$30,900 per 12 month equivalent or \$2,575 per month. The 2003 and 2004 imputed rates for unpaid labor are \$29,700 and \$30,000 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 in livestock, machinery, buildings, land and an imputed interest charge on a portion of annual cash operating expenses and feed costs. The 2005 imputed interest rate is 6.25 percent for non-land investment and 3.75 percent for real estate investment. The 2003 and 2004 imputed rates are 6.25 and 5.50 percent, respectively, for non-land investment. For real estate investment, the 2003 and 2004 imputed rates are 4.0 and 3.75 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 then multiplying by 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 Fed Corn.

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Fed Corn Produced on Farm (\$\Bu)	2.75	3.75	2.78	2.39	2.11	2.09	2.08	2.29	2.51	2.58	2.16
Unpaid Labor Rate (\$\Year)	19,200	19,800	21,600	22,800	24,000	25,200	27,000	28,800	29,700	30,000	30,900
Interest Rate: Non Land	9.5%	9%	9%	9%	8.5%	9%	8%	6.75%	6.25%	5.50%	6.25%
Interest Rate: Land	5.0%	5.0%	5.0%	5.0%	5.0%	4.5%	4.5%	4.0%	4.0%	3.75%	3.75%

Summary of Hog Data

Gross Returns

Gross returns for 2005 farrow-to-finish operations were \$46.95 per hundredweight (CWT). This was down from the previous year but still above the five year average of \$43.03 per CWT. On a per litter basis the gross returns were \$1025.

Feed Costs

Feed costs are generally the largest portion of expenses for pork producers and will usually be over half of the total expenses. This was true for 2005. Total costs per CWT were \$36.23 and feed costs were \$20.39, which is 56%. Feed prices for 2005 were quite a bit lower than the previous year's, \$20.39 per CWT in 2005 vs. \$25.35 per CWT in 2004.

Non-Feed Cash Costs

Non-feed cash costs were \$9.37 per CWT for 2005. This was an increase from the previous year and above the five year average. In particular, building and fence repair, utilities and paid labor showed large increases from 2004 at 17%, 8%, and 20% respectively. The non-feed cash costs were higher in Central Kentucky than in Western Kentucky, \$9.77 per CWT versus \$8.73 per CWT. The largest differences were the building and fence repair (\$2.51/CWT vs. \$0.85/CWT) and the paid labor (\$3.46/CWT vs. \$2.79/CWT) in Central Kentucky. However, not all costs were cheaper in Western Kentucky. The cash interest paid in the western part of the state was higher than in the central (\$1.04/CWT vs. \$0.16/CWT)

Non-Feed Non-Cash Costs

The non-feed non-cash costs were actually at a five year low in 2005. Unpaid labor decreased along with machinery and building depreciation. This was particularly evident in Western Kentucky. Machinery and building depreciation decreased substantially from the previous year. Non-feed non-cash costs in Western Kentucky in 2005 were 24% lower than those in Central Kentucky.

Net Returns (over all costs)

The net returns over all costs were down slightly from the previous year but still in very good shape. For 2005, the net returns over all costs were \$234 per litter and \$10.72 per CWT. This is the second year in a row that hog producers experienced positive net returns. Central and Western Kentucky were pretty similar for the year at \$11.09 per CWT and \$10.73 per CWT respectively.

Other Production Variables

The majority of the production variables were similar to the previous year, however they were quite a bit above the five year average. The number of sows was 242.2 while the five year average was 226.8. The total pounds of pork produced were 988,783 in 2005 and the five year

average was 884,597. Total concentrates per CWT of pork was 330 with grain at 250, and protein at 80.

Summary

In summary, the average farrow-to-finish operations in the KFBM programs enjoyed another year of positive net returns in 2005. In general, gross returns were above average and costs were low (particularly for feed), resulting in a net return that was 123% greater than the five year weighted average. Producers in Central Kentucky had net returns that were 58.8% greater than their five year average while producers in Western Kentucky were 188% higher than their five year average.

**Table 2. Farrow-to-Finish
Enterprise Summary**

	2001 Average	2002 Average	2003 Average	2004 Average	2005 Average	5-Year Average
Number of Enterprises	13	10	13	11	7	
Total Swine Returns	315462	266072	325215	555803	509407	394392
Total Feed Costs	159135	164523	193023	261545	221231	199891
Returns Above Feed Cost	156328	101549	132191	294258	288176	194500
Total Non feed Costs	138777	123195	142341	175927	171863	150421
Net Returns (over all costs)	17551	-21646	-10150	118331	116313	44080
Other Economic Variables						
Returns per \$100 Feed Fed	198.24	161.72	168.48	212.51	230.26	194.24
Feed Costs per cwt Pork	20.41	19.96	22.37	25.35	20.39	21.70
Capital Investment per Sow						
Livestock	598	539	636	854	817	689
Non Livestock	797	514	649	792	871	725
Total	1395	1054	1285	1646	1688	1414
Other Production Variables						
Number of Sows	208.4	212.6	228.7	241.9	242.2	226.8
Number of Litters	378.9	389.1	430.0	462.0	453.0	422.6
Litters per Sow	1.82	1.83	1.88	1.91	1.87	1.86
Pigs weaned per Sow/Year	15.59	16.52	16.96	17.41	17.24	16.74
Pigs weaned per Litter	8.62	9.01	8.80	8.97	9.23	8.93
Pigs farrowed per Litter	10.26	10.11	10.35	10.51	10.84	10.41
Total Pork Produced (LB)	779689	822277	862867	969340	988783	884591
Pounds of Pork per Sow	3741	3868	3772	4007	4082	3894
Pounds of Pork per Litter	2058	2113	2007	2098	2183	2092
Death Loss: % of Pigs Weaned	8.36	7.11	7.47	10.23	9.21	8.48
Death Loss: % of Lbs Produced	3.24	2.81	2.92	3.00	2.95	2.98
Grain per cwt. Pork (lbs)	271	243	257	268	250	258
Protein per cwt. Pork	77	78	83	88	80	81
Total Concentrates	348	321	340	356	330	339
Labor Summary						
Cost per Sow	244	233	219	237	229	232
Cost per Litter	134	127	117	124	122	125

**Table 3. Farrow-to-Finish
Enterprise Summary
Per Litter**

	2001 Average	2002 Average	2003 Average	2004 Average	2005 Average	5-year Weighted Average
Number of Enterprises	13	10	13	11	7	
Number of Litters	378.9	389.1	430.0	462.0	453.0	423.2
Total Swine Returns	833	682	756	1130	1025	876
Purchased Concentrates	213	210	216	273	228	227
Grains	207	211	233	259	217	225
Total Feed Costs	420	421	449	532	445	452
Returns above Feed Costs	413	261	307	598	580	424
Non Feed Costs						
Livestock Supplies	16	14	12	11	12	13
Veterinary	24	23	18	18	18	21
Fuel & Oil	8	5	8	10	9	8
Machinery Repair	14	8	13	14	9	13
Bldg/Fence Repair	30	23	18	33	41	26
Machinery Hire	5	4	4	4	5	4
Utilities	21	16	21	18	20	19
Light Vehicle-Farm Share						
Paid Labor	57	49	54	60	75	54
Insurance	5	5	7	8	4	6
R.E. Tax	1	1	1	1	1	1
Miscellaneous	7	4	5	6	5	6
Cash Interest	11	6	16	8	7	12
Total Non Feed Cash Costs	199	158	178	192	204	183
Non Feed Non Cash Costs						
Unpaid Labor	77	78	63	64	48	70
Machinery Depreciation	15	16	21	23	17	19
Bldg/Fence Depreciation	24	22	28	30	23	26
Non Cash Interest	51	42	42	49	53	46
Total Non Feed Non Cash Costs	167	159	153	165	141	161
Total Cost of Production	786	738	780	890	791	796
Net Returns (over all costs)	47	-56	-24	240	234	260
Cost and Returns Summary: \$/Litter						
Total Returns	833	682	756	1130	1025	876
Feed Costs	420	421	449	532	445	452
Non Feed Costs	366	317	331	358	346	343
Net Returns (over all costs)	47	-56	-24	240	234	80
Enterprise Summary: \$/Litter						
Total Swine Returns	833	682	756	1130	1025	876
Value Feed Fed	420	421	449	532	445	452
Non Feed Cash Costs	199	158	178	192	204	183
Non Feed Non Cash Costs	167	159	153	165	141	161
Total Cost of Production	786	738	780	890	791	796
Net Returns (over all costs)	47	-56	-24	240	234	80

**Table 4. Farrow-to-Finish
Enterprise Summary
Per Cwt**

	2001 Average	2002 Average	2003 Average	2004 Average	2005 Average	5-year Weighted Average
Number of Enterprises	13	10	13	11	7	
Pounds Produced	779689	822277	862867	1031940	1084999	916354.4
Total Swine Returns	40.46	32.28	37.69	53.86	46.95	43.03
Purchased Concentrates	10.34	9.97	10.74	12.99	10.44	10.97
Grains	10.08	9.99	11.63	12.36	9.95	10.84
Total Feed Costs	20.42	19.96	22.37	25.35	20.39	21.81
Returns above Feed Costs	20.04	12.32	15.32	28.52	26.56	21.22
Non Feed Costs						
Livestock Supplies	0.76	0.68	0.58	0.55	0.53	0.61
Veterinary	1.19	1.07	0.91	0.85	0.83	0.96
Fuel & Oil	0.38	0.23	0.42	0.48	0.40	0.39
Machinery Repair	0.70	0.37	0.63	0.69	0.39	0.55
Bldg/Fence Repair	1.46	1.09	0.91	1.58	1.86	1.41
Machinery Hire	0.22	0.20	0.21	0.17	0.25	0.21
Utilities	1.03	0.78	1.04	0.87	0.94	0.93
Light Vehicle-Farm Share						
Paid Labor	2.78	2.33	2.68	2.87	3.42	2.85
Insurance	0.23	0.24	0.36	0.38	0.18	0.28
R.E. Tax	0.06	0.05	0.05	0.05	0.03	0.05
Miscellaneous	0.32	0.17	0.26	0.26	0.23	0.25
Cash Interest	0.53	0.28	0.81	0.40	0.31	0.46
Total Non Feed Cash Costs	9.66	7.47	8.87	9.17	9.37	8.94
Non Feed Non Cash Costs						
Unpaid Labor	3.74	3.69	3.13	3.03	2.18	3.09
Machinery Depreciation	0.75	0.78	1.02	1.11	0.79	0.90
Bldg/Fence Depreciation	1.18	1.04	1.40	1.41	1.06	1.22
Non Cash Interest	2.47	2.00	2.08	2.33	2.44	2.27
Total Non Feed Non Cash Costs	8.14	7.51	7.63	7.88	6.47	7.48
Total Cost of Production	38.22	34.94	38.87	42.39	36.23	38.22
Net Returns (over all costs)	2.24	-2.66	-1.18	11.47	10.72	4.80
Cost and Returns Summary: \$/Cwt						
Total Returns	40.46	32.28	37.69	53.86	46.95	43.03
Feed Costs	20.42	19.96	22.37	25.35	20.39	21.81
Non Feed Costs	17.80	14.98	16.50	17.05	15.84	16.42
Net Returns (over all costs)	2.24	-2.66	-1.18	11.47	10.72	4.80
Enterprise Summary: \$/Cwt						
Total Swine Returns	40.46	32.28	37.69	53.86	46.95	43.03
Value Feed Fed	20.42	19.96	22.37	25.345	20.39	21.81
Non Feed Cash Costs	9.66	7.47	8.87	9.17	9.37	8.94
Non Feed Non Cash Costs	8.14	7.51	7.63	7.88	6.47	7.48
Total Cost of Production	38.22	34.94	38.87	42.39	36.23	38.22
Net Returns (over all costs)	2.24	-2.66	-1.18	11.47	10.72	4.80

**Table 5. Central Kentucky
Enterprise Summary
Per Cwt**

	2001 Average	2002 Average	2003 Average	2004 Average	2005 Average	Five-year Average
Number of Enterprises	6	5	6	5	4	
Pounds Produced	722566.8	576536.0	776717.3	963252.6	1034450.8	814705
Returns above Feed Costs	29.02	11.83	18.53	30.71	28.03	23.62
Non Feed Costs						
Livestock Supplies	0.29	0.80	0.60	0.57	0.54	0.56
Veterinary	0.45	1.25	0.94	0.90	0.85	0.88
Fuel & Oil	0.40	0.26	0.42	0.46	0.47	0.40
Machinery Repair	0.87	0.36	0.42	0.36	0.32	0.47
Bldg/Fence Repair	1.25	1.27	1.06	1.53	2.51	1.52
Machinery Hire	0.22	0.15	0.19	0.08	0.22	0.17
Utilities	0.88	0.69	0.88	0.71	0.87	0.81
Light Vehicle-Farm Share						
Paid Labor	3.04	2.67	3.10	4.11	3.46	3.28
Insurance	0.29	0.29	0.28	0.23	0.19	0.26
R.E. Tax	0.06	0.06	0.04	0.04	0.03	0.05
Miscellaneous	0.29	0.12	0.15	0.12	0.14	0.16
Cash Interest	0.44	0.42	0.49	0.16	0.16	0.33
Total Non Feed Cash Costs	8.47	8.34	8.60	9.27	9.77	8.89
Non Feed Non Cash Costs						
Unpaid Labor	3.10	4.73	3.47	3.48	3.28	3.61
Machinery Depreciation	0.86	0.79	0.87	0.90	0.79	0.84
Bldg/Fence Depreciation	1.32	1.43	1.22	1.21	1.23	1.28
Non Cash Interest	2.77	2.30	1.58	1.53	1.87	2.01
Total Non Feed Non Cash Costs	8.06	9.25	7.14	7.12	7.17	7.75
Total Non Feed Costs	16.53	17.59	15.74	16.40	16.94	16.64
Net Returns (over all costs)	12.49	-5.77	2.79	14.31	11.09	6.98

**Table 6. Western Kentucky
Enterprise Summary
Per Cwt**

	2001 Average	2002 Average	2003 Average	2004 Average	2005 Average	Five-year Average
Number of Enterprises	5	4	7	6	3	
Pounds Produced	943036.8	1129453.0	936710.3	1089180.0	1152395.7	1050155.2
Returns above Feed Costs	19.67	11.51	12.73	26.92	24.92	19.15
Non Feed Costs						
Livestock Supplies	0.26	0.61	0.57	0.53	0.51	0.50
Veterinary	0.41	0.95	0.89	0.82	0.80	0.78
Fuel & Oil	0.31	0.21	0.50	0.56	0.41	0.40
Machinery Repair	0.44	0.37	0.78	0.91	0.47	0.59
Bldg/Fence Repair	1.66	0.97	0.80	1.60	0.85	1.18
Machinery Hire	0.20	0.23	0.22	0.27	0.26	0.24
Utilities	1.17	0.84	1.16	0.99	1.01	1.03
Light Vehicle-Farm Share						
Paid Labor	1.96	2.22	2.22	2.11	2.79	2.26
Insurance	0.17	0.17	0.42	0.47	0.18	0.28
R.E. Tax	0.07	0.06	0.07	0.06	0.06	0.06
Miscellaneous	0.35	0.20	0.34	0.38	0.35	0.32
Cash Interest	0.61	0.19	1.04	1.22	1.04	0.82
Total Non Feed Cash Costs	7.61	7.04	9.00	9.91	8.73	8.46
Non Feed Non Cash Costs						
Unpaid Labor	3.79	2.93	3.06	2.74	1.54	2.81
Machinery Depreciation	0.58	0.77	1.13	1.25	0.73	0.89
Bldg/Fence Depreciation	0.77	0.79	1.53	1.38	0.63	1.02
Non Cash Interest	2.14	1.80	2.43	2.32	2.55	2.25
Total Non Feed Non Cash Costs	7.28	6.29	8.15	7.69	5.45	6.97
Total Non feed Costs	14.89	13.33	17.15	17.59	14.19	15.43
Net Returns (over all costs)	4.78	-1.82	-4.41	9.33	10.73	3.72