COST OF PRODUCTION ON ONTARIO SWINE FARMS

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ABSTRACT

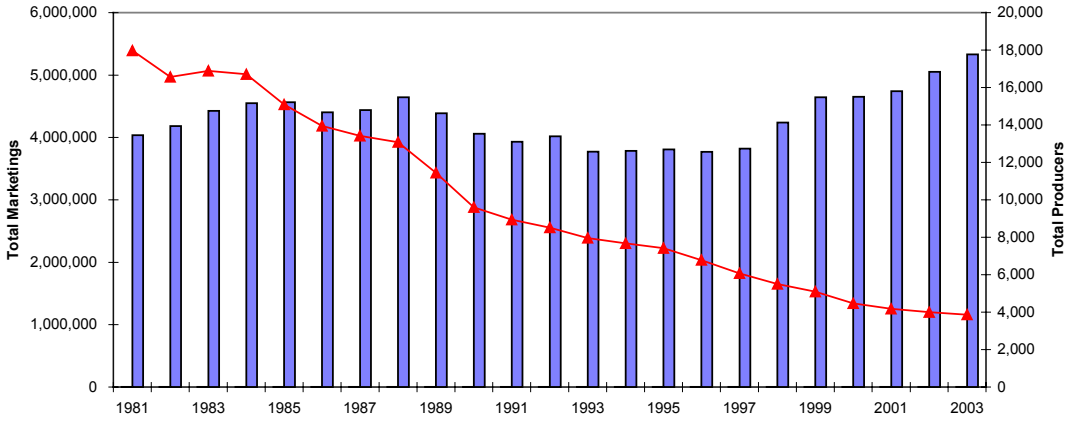
The Ontario Data Analysis Project is used to investigate historical cost of production on farrow-to-finish farms. Unsurprisingly, profitability on a per pig basis shows considerable variability between farms and tends to follow market prices. It is not simply one factor but rather a combination of many factors that contribute to the level of profitability on these farms. The ability to control costs and keep productivity high are two key variables. Other factors include the health, genetics, feed, and management of each herd.

BACKGROUND

Cost of production is often touted as the most important factor in a region's competitiveness within the global pork market. However, it must be recognized that many other factors can influence a jurisdiction's competitiveness and some of these include: exchange rate; government policy; business climate (eg. labour supply); domestic demand; product differentiation and quality; and social factors (eg. receptiveness to corporate hog farming and pork processing). Perhaps one of the better ways to look at a region's competitiveness is to simply look at pig numbers over time. Has the area been growing, stable or shrinking? Ontario has been exceptionally resilient in pork production despite the yearly fluctuations in pig prices and input costs. This is depicted in Figure 1 that shows yearly hog marketings from 1981 to 2003. Notice that 1988 and 1999 hog marketings are similar despite the plummeting producer numbers over the same period.

To investigate Ontario's cost of production for raising market hogs the Ontario Data Analysis Project (ODAP) can be used. This data set contains farm level financial and production information from a group of Ontario farrow-to-finish farms. These farmers consider themselves to be full-time farmers and they report little, if any, off-farm income. Most of the farms rely on family labour to fill additional labour needs. For the 2002 tax year, the most recently available information, there were 15 participants. The average age of the main decision maker was 48 years. Slightly over one-half (i.e. 53%) of the farms were operated as family corporations and 27% were spousal partnerships leaving 13% as sole proprietors. It should be noted that farrow-to-finish farms account for about 60% of the market hogs raised in the province (source: producer survey Ridgetown College, 1999).

Figure 1. Ontario hog marketings and producer numbers over time.



Source: Ontario Pork

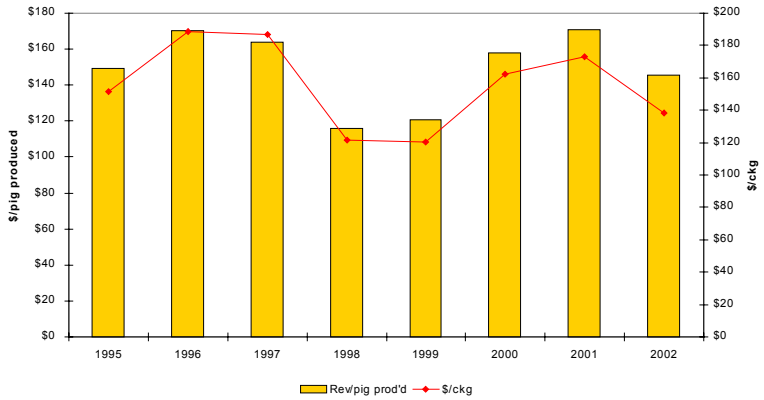
THE SWINE ENTERPRISE

The following discussion will focus on the swine enterprise and will not take into account other activities on the farm (i.e. cash cropping). Family labour has not been included in the calculation of expenses. The ODAP program provides analysis on a per pig produced basis. This is a calculated number that converts all pigs produced and sold to market hog equivalents taking into account all production and inventory changes. It is important to note that some of these farms had SEW or weaner pig sales in addition to market hog sales. Weaner pigs are converted to market hog equivalents using a factor of forty percent and SEW pigs are given a factor of twenty-five percent. The average number of pigs produced per farm by this group in 2002 was 4,260. The average number of sows on these farms was 275.

The average number of litters per sow per year was 2.27 with 10.7 piglets born alive and 9 piglets weaned per sow. The average weaning age was 22 days at a weight of 6.7 kg. The average market hog was shipped after 168 days at a live weight of 112.8 kg.

Figure 2 shows the average revenue per pig produced over time (note: revenue accounts for premiums/discounts, cull pig sales, and changes in accounts receivable and inventory). Also plotted on the graph is the average yearly market price ($/ckg). It is easy to see how revenue/pig has fluctuated with events such as the price crash in late 1998 or when prices have been higher (eg. in 1996, 1997, and 2001). In 1996 and 2001 revenue per pig was slightly over $170 whereas in 1998 it fell to $116 and in 1999 it was $120.97. The average for the 8 year period was $149.32.

Figure 2. Average revenue per pig produced.



Expenses per pig produced have been fairly consistent, averaging $134.68 over the 8 years. A closer look shows that feed makes up approximately 60% of total expenses each year. Feed expenses/pig produced are shown in Figure 3 for the years 1999 to 2002. Notice the $18/pig difference between 1999 and 2000. Depreciation expense is also fairly significant as shown in Figure 4. Note that this expense has grown steadily from $14.37 to $16.88/pig over the 4 years depicted. This will be due to the increase in buildings and equipment that has occurred with expansion and/or renovation of these farms over time.

Figure 3. Feed expenses/pig.

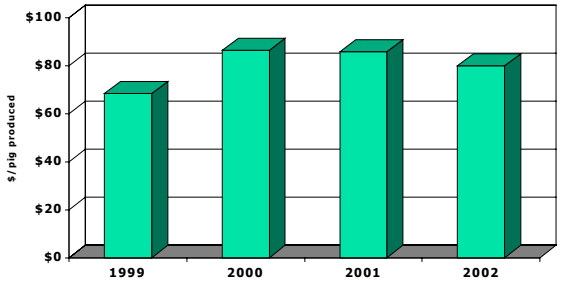
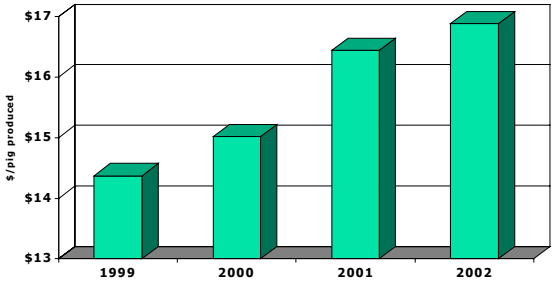


Figure 4. Depreciation expense/pig.



The resulting profit per pig per year is shown in Figure 5 and the average over this time period is $14.64 per pig. Note the -$17.71/pig loss in 1998 attributed to the low market prices. This graph shows a trend of 3 years of increasing profits followed by a year of small to negative profits.

THE BALANCE SHEET

Table 1 shows the balance sheet for the group of participants between 1997 and 2002. The balance sheet does take into account all aspects of the farm operation. It is important to note the increasing asset value over time. Total assets increased by 70%. The average of this group of farms, nearly $2.7 million in 2002, indicates that these farms have invested significantly in their farm businesses. Some of the increase in value is due to increases in

livestock and buildings but it is mostly due to land. Some of the increase in land will be simply due to appreciation in land values but several participants have increased their land base during this time by purchasing additional farms. In 2002, the average total assets per sow per farm were $9,659 and the average amount of debt per sow was $3,635. Overall, total debt increased by approximately 34% (i.e. to nearly $1 million) between 1997 and 2002.

Figure 5. Average profit per pig produced.

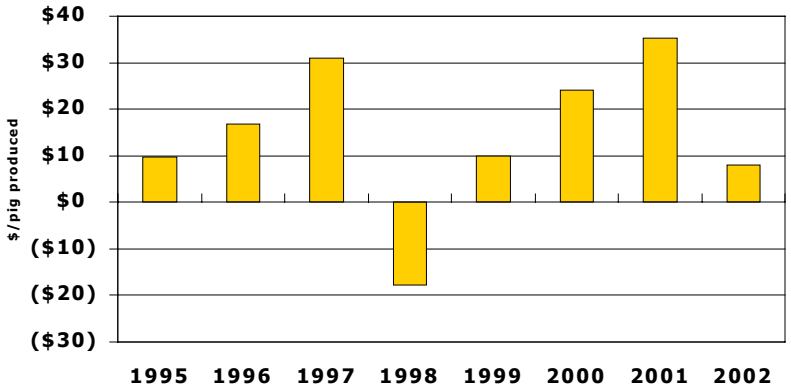


Table 1. Average ending balance sheet.

	1997	1998	1999	2000	2001	2002
Assets						
Mkt Lvstck	$148,338	$98,957	$107,806	$129,868	$150,427	$173,541
Brdg Lvstck	81,062	59,467	60,150	75,550	78,144	89,037
Buildings	382,915	382,819	459,979	514,684	548,102	634,042
Land	478,341	452,978	599,526	695,642	884,906	1,004,094
Total Assets	$1,559,693	$1,387,531	$1,720,675	$1,999,019	$2,327,168	$2,653,109
Liabilities						
Op. Loan	93,913	114,962	93,781	88253	123794	129792
Mortgage	338,423	359,719	349,392	417651	504845	679664
Total Liab.	$746,997	$718,223	$645,263	$661,139	$807,356	$998,337
Equity	$812,697	$669,308	$1,075,411	$1,337,880	$1,519,812	$1,654,772

The return on equity (ROE) averaged 9% during the 1995 to 2002 time period and there were some significant fluctuations (Figure 6). Certainly the low prices in 1998 played a significant role in the ROE for that year (-2.4%) however there was a strong rebound in 1999 and 2000. It is concerning to note the decreasing ROE since 2000.

FINANCIAL HEALTH

A scoring system was developed to analyze the financial health of the participating farms over time. Each farm received a score based on the criteria shown in Table 2. The lowest possible score was 3 and the highest was 12.

Figure 6. Average return on equity.

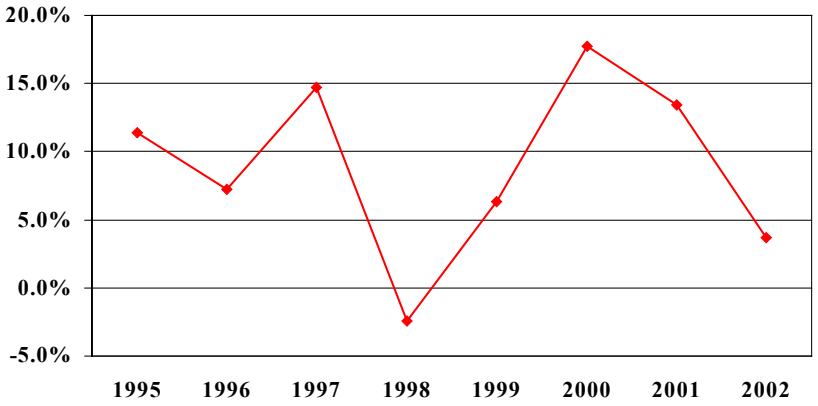
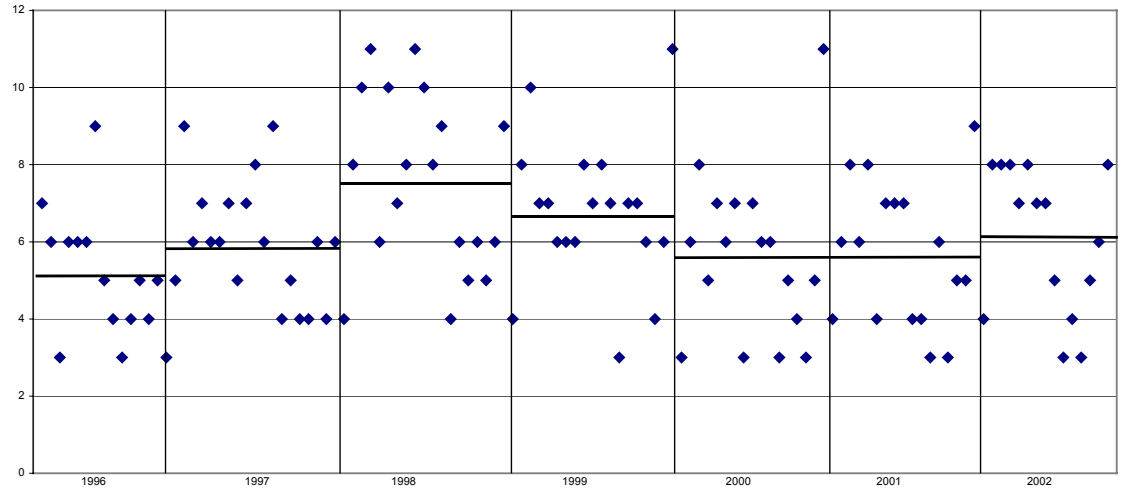


Table 2. Financial health scoring.

Score		Debt Servicing Ratio	% Equity (Ending)	Current Ratio
High Risk	4	> .30	< 25%	< 1.0
	3	.02 - .30	25 – 50%	1.0 – 1.5
	2	.10 - .20	50 – 75%	1.5 – 2.0
Low Risk	1	< .10	>75%	> 2.0

Figure 7 shows the ratings over time. The average of the dots for each year is included as a solid line. It makes sense that when the market price was low (i.e. as in 1998) the average financial health rating was higher at approximately 7.5. When market prices were higher (i.e. as in 2000) the rating was lower.

Figure 7. Financial health rating.



COMPARING PROFIT LEVELS

Size Versus Profit

It is a common belief that larger farms are more profitable. The ODAP data, however, shows that this is not necessarily true. Figure 8 below shows the average size and profit/pig/farm between 1999 and 2002 for 13 farms. There is no correlation between the size of farm (in terms of number of sows) and profit per pig produced. Some large farms report lower profit per pig than small farms.

Figure 8. Size vs. profit/pig.

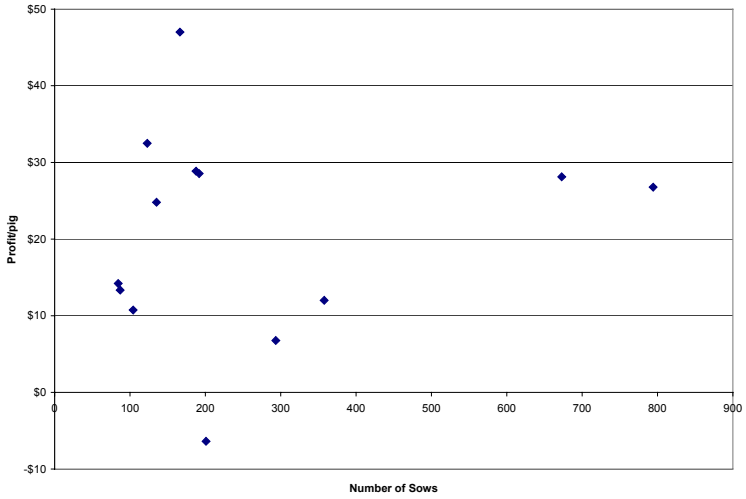


Table 3 shows the distribution of consistency of profit. Each of the 13 farms was analyzed over the 4 years to determine how often their profit/pig was higher than the group average for each year. It is interesting to note that 15% of the farms reported higher profit/pig in all 4 years. This means that these farms were above the group average in each of the 4 years. 31% reported high profit in only 1 year out of 4.

Table 3. Consistency of profit.

High profit/pig in:	% of Respondents
4 years out of 4	15%
3 years out of 4	16%
2 years out of 4	38%
1 year out of 4	31%

Productivity Versus Profit

From the original 13 farms above, a group of 8 farms was assembled for further analysis based on profit/pig produced. The 4 lowest and 4 highest farms were used to assess productivity as determined by kilograms of pork produced per sow. The group of lowest

profit/pig farms averaged 1,536 kg pork/sow over the 4 years. The group of high profit/pig farms averaged 1,639 kg pork/sow. The resulting 103 kg difference represents approximately $42,700 more for the high profit farms (i.e. 103 kg x $1.51/kg = $155.53/sow x 275 sows).

Cost Control Versus Profit

Expenses were also analyzed in a similar way. Again, the 4 lowest and highest profit/pig produced farms were used. The expenses for the low profit/pig group averaged $145.41/pig produced while the high profit/pig group averaged $115.03. This indicates that keeping costs under control really does make a difference. Using these 2 groups of farms shows it can make a difference of $30.38/pig produced.

CONCLUSIONS

In summary, this group of farrow-to-finish farms has been profitable between 1995 and 2002 with the exception of 1998. Profitability has been decreasing since 2001 and is likely to continue into 2003 due to the low prices that were in effect for much of 2003. The average cost of production for the 8 years examined was $134.68 per hog produced. Increased size does not always mean increased profit/pig. There are many variables to take into account including health, genetics, feed, management, etc. It is important to focus on things such as cost control and productivity as well as getting the highest revenue possible.

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