

Feeder Pig Placement Strategies

Feeder pig operations are often operated on a year-round basis, feeder pigs are purchased and market hogs are sold every month. While this approach diversifies their marketing over time, it ignores market signals. A common strategy for investors in the stock market is dollar cost averaging (DCA). Instead of buying the same number of stocks every month, the investor buys the same dollar amount of stock every month. By default he/she buys more at a lower price and less at a higher price. Could a similar strategy work for feeder pigs? Would it improve their return or reduce their risk? The purpose of this study was to determine if there was an advantage or disadvantage in making feeder pig placement decisions under a DCA method verses placing a constant number of feeder pigs each month.

This study used the Estimated Returns (<http://www.econ.iastate.edu/faculty/lawrence/EstRet/Index.html>) for finishing feeder pigs from the past 10 years, 1995-2004, to determine profitability of feeding feeder pigs under the Dollar Cost Averaging and Constant Size methods. The Estimated Returns were used to determine average values for purchasing and selling prices, feed costs, and profitability.

The assumption was made that housing would be based off of 500 head groups; cost adjustments were made accordingly for up to 600 head or 20% over capacity. A building with less than 500 head paid the cost for 500 head. The values for veterinarian/medical and trucking costs were based off of Estimated Returns assumed per head values. The feed costs were averages derived from the Estimated Returns and interest was adjusted with the actual during the time period. All values are based per pen and calculations are reported based on date of sale.

The average investment in feeding 500 head of feeder pigs during 1995-2004 was \$52,695; this was derived using the average US #1-2 50lbs feeder pig cost of \$42.86, feed cost of \$45.53, and miscellaneous expenses (interest, vet/med, and trucking, ect.) of \$17.00. These values were added together and then multiplied by 500 since the groups were based on 500 head. The Constant Size method placed 500 head every month and the investment cost varied with prices. The Dollar Cost Averaging strategy invested \$52,695 per month and varied the number of feeder pigs placed to hold the investment constant.

Results

	Dollar Cost Averaging			Constant Size		
	Return/Group	ROI	ROE	Return/Group	ROI	ROE
Average	\$703	1.3%	9.4%	\$1,280	2.1%	17.1%
Standard Deviation	\$8,015	15.3%	106.9%	\$7,975	15.6%	106.3%
Minimum	-\$26,505	-52.5%	-353.4%	-\$20,477	-53.1%	-273%
Maximum	\$22,377	42.5%	298.4%	\$22,159	42.3%	295.5%
% < 0	46.7%	46.7%	46.7%	45%	45%	45%

The preceding table gives a data summary from the study. All the values are based on a 4 month market period and are expressed on a per group per month basis. The assumption was made that \$15 per head was used by the investor at time of purchase with the remainder provided through a loan when determining Return on Equity (ROE).

$$\text{ROE} = \text{Profit (Loss)} / \text{Total Equity}$$

$$\text{ROI} = \text{Profit (Loss)} / \text{Total Investment}$$

This table shows that there is very little difference, between the DCA and Constant Size ROI. The average Constant Size ROE was 55% higher and the minimum was \$6,000 more positive than under the DCA strategy. The Constant Size strategy averaged returns of \$577, about \$1.14 per head per space higher than the DCA strategy. There was a large difference between the minimum returns for DCA and Constant Size with the returns for Constant Size being \$6,028 less negative for DCA. The frequency of months that profits were negative showed that losses occurred nearly the same number of times for DCA and Constant Size; these losses were more severe under the DCA strategy, at \$6,028 greater. This table shows that under the Constant Size strategy, minimum profits were less and the average returns were higher than those under the DCA strategy. This indicates under bad conditions the Constant Size may have some profit benefit.

The average number of feeder pigs placed under the DCA strategy was 500 head with the minimum 369 head and the maximum 600 head. Figure 1 shows the monthly placement over the 10 year period, 1995-2004. Net Returns per pen of the two methods were consistent with each other over the 10 year period, 1995-2004, shown in Figure 2. Average Monthly Net Returns Per Pen, (Figure 3) shows that market hogs sold under the constant size method had a higher average net return or less of a negative net return in each month. Figure 3 also shows that selling during the months of May-July had a significantly higher positive net return per pen. September and November had negative net returns under both methods with November being more severe under the DCA strategy. Figure 4, Average Annual Net Returns Per Pen, shows slight advantages 6 out of 10 years under the Constant Size strategy, 3 years with both strategies positive and 3 years negative. 3 out of 10 years had equally positive or negative returns and 1 out of 10 years DCA had a higher net return with both strategies positive. The Net Returns from the Dollar Cost Averaging and Constant Size methods are relatively equal, showing that there is not a distinct benefit to either method.

Figure 5, Distribution of Net Returns, 1995-2004, shows that net returns per pen fell between -\$10,000 and \$15,000 approximately 89% of the time. The net return for Constant Size method was in the \$-5,000-\$0 range and \$5,000-\$10,000, approximately 23% of the time. The frequency of net returns falling between \$0-\$5,000 was approximately 20%. The frequency of net returns falling between \$-10,000-\$-5,000 was 18% for DCA and 13% for Constant Size, showing the largest variation among the groups. In extreme times, less than -\$10,000 and greater than \$15,000, the frequency was equal for both methods. Standard deviations were similar with the Dollar Cost Averaging at \$8,015 and the Constant Size at \$7,975.

The following table shows that over a 120 month period, using net returns from the Dollar Cost Averaging method, how many months they had positive or negative returns as well as if there was more that 500 or less than 500 feeder pigs placed. Notice that

when hogs were profitable, the DCA strategy had more than 500 head placed more often and when hogs were not profitable, less than 500 head were placed more often.

Number of Months more than 500 or less than 500 that were positive or negative using Dollar Cost Averaging Method.

	Positive Net Returns	Negative Net Returns
≥500 Placed	25	35
<500 Placed	14	46

Summary

Results show that there is not consistently any advantage or disadvantage to either method. Averaging the 10 years, when purchasing 500 each month there would be 6,000 feeder pigs placed per year with a yearly expenditure of approximately \$632,340. When placing \$52,695 worth of feeder pigs each month, there would be 6,120 pigs placed in a year with a yearly expenditure of \$630,155. The average annual net return when purchasing 500 head each month was \$15,360 and \$8,436 when investing \$52,695 each month. When these figures are compared there is an advantage to the Constant Size strategy with an average net return that is \$6,924 more.

A possible short coming of this project could be the extreme market conditions experience during 1998. Prices reached extremely low levels causing severe profit losses.

Figure 1

Number of Pigs Purchased Using Dollar Cost Method
Investing \$52,695 purchased per month, 1995-2004

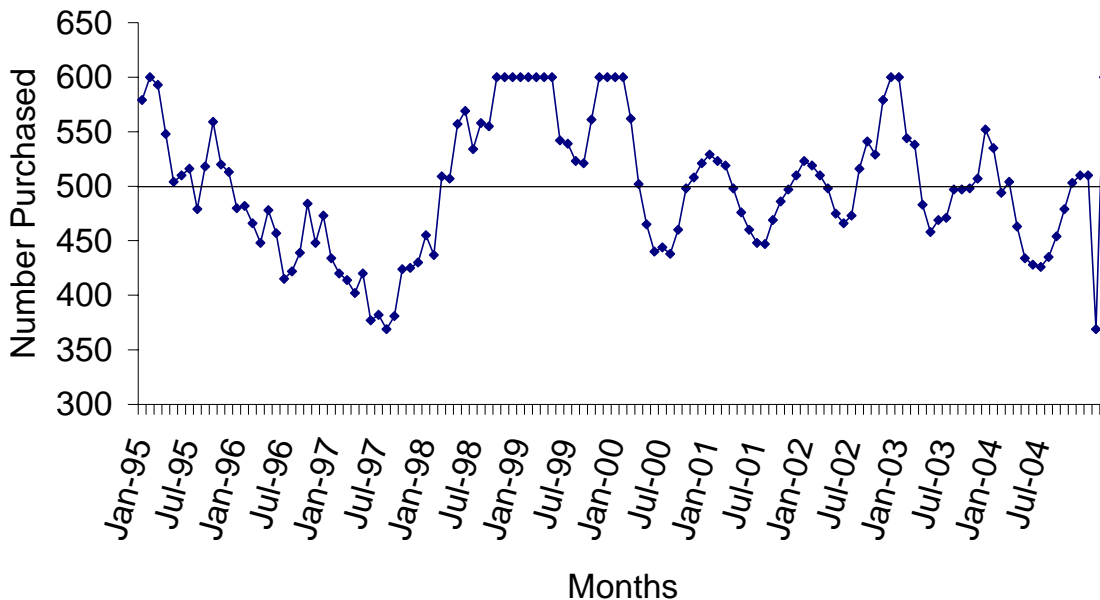


Figure 2

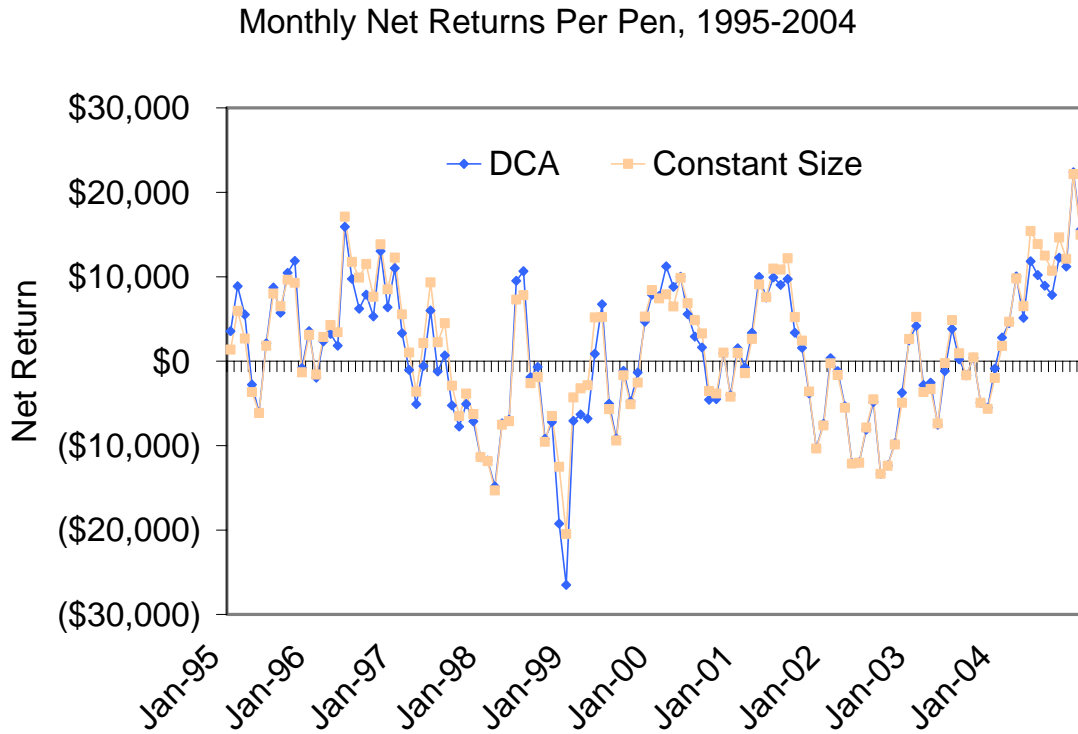


Figure 3

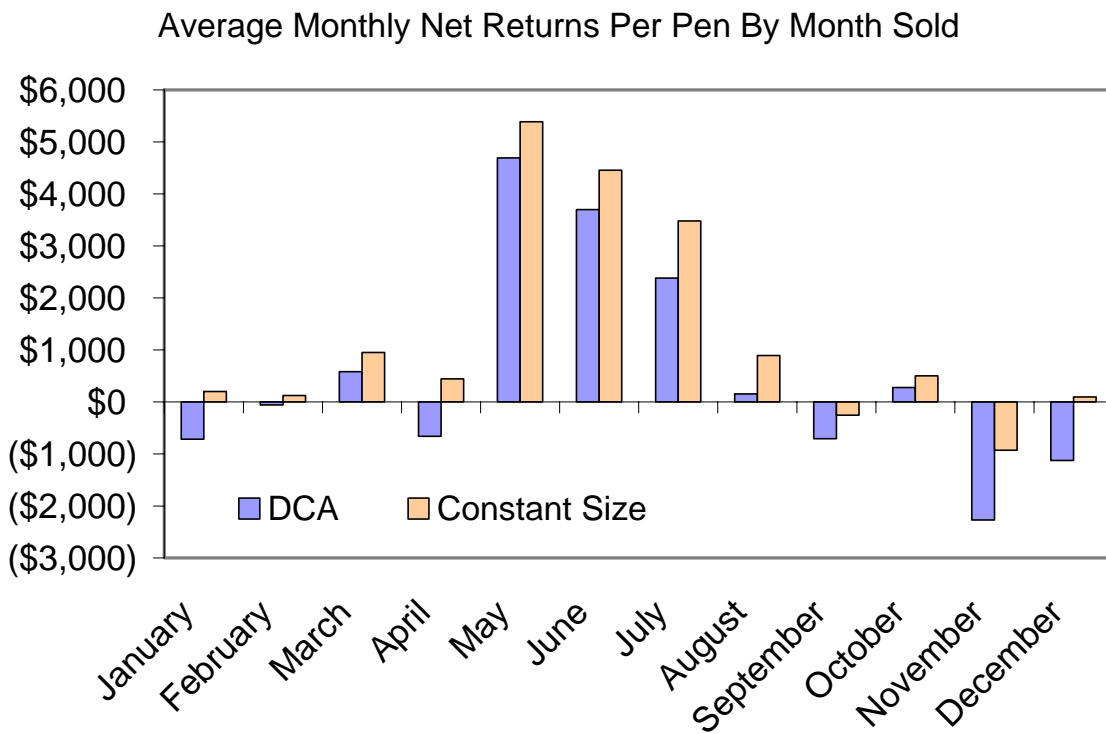


Figure 4

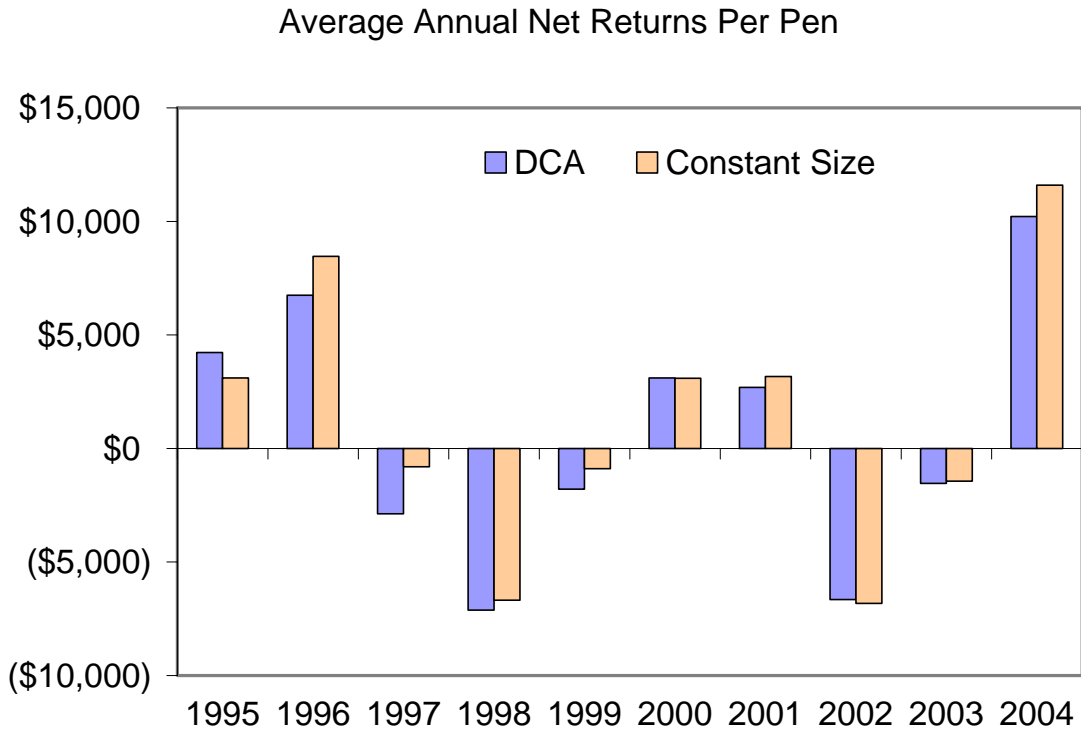


Figure 5

