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# Marketing all-in—all-out grow/finish groups

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In our decisions to market pigs out of an all-in—all-out grow/finish barn we are challenged by a complex and interrelated set of issues. These include the variability of weights of pigs within a barn, the complex pricing grid given by the packer, and the cost of both maintaining the pigs and the barn. There are a wide range of possible marketing strategies, but some basic rules of marketing bear repeating:

**Rule #1: Marketing is an end decision, not an overall strategy**
In other words, we must focus on the economic pressures experienced during a relatively short period. Thus, the following sub-rules are also important:

- Averages are not applicable in most cases.

- Decisions are made on marginal economic performance, usually marginal profit.

**Rule # 2: Building costs and other fixed costs are only important in capacity decisions**
Therefore, the sub-rules follow from that basic premise:

- Most marketing decisions should ignore fixed costs.

- Marketing decisions must focus on opportunity cost (those potential profits or losses to be made if an alternative course is taken).

- In marketing decisions, this involves the opportunity cost of not marketing a pig or conversely marketing a pig earlier.

- In AIAO barns this involves the opportunity costs of closing out a group.

## The economics of the pig

In most cases, the first step that we should take is to define profitability at the level of the pig. This has been shown in the past and involves identifying the value of the pig over time and the feed cost of maintaining a pig over time. The feed costs are relatively straightforward to identify if we know the feed conversion curve. The value of the pig involves knowing the value of the average pig at differ-
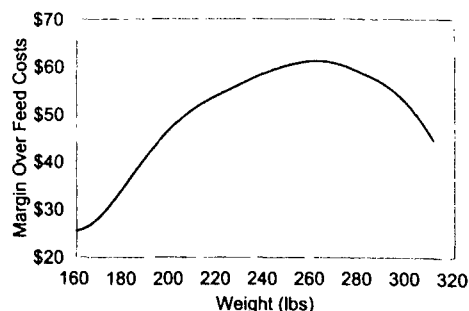
ent weights for a particular pricing grid. **Figure 1** shows one such relationship—the margin over feed cost that the pig experiences if marketed at differing weights. This margin increases quickly as the pig enters the target weights as defined by the pricing grid. It then quickly decreases as the pig exceeds that target weight and increases in feed cost due to a worsening feed conversion. The optimal weight is when there are no further profits to be gained by retaining that pig. In Figure 1 this occurs when the pig reaches a weight of 261 pounds.

The opportunity cost can be of two types. First, there are pigs sold before that optimal weight. These pigs lose the opportunity to have added margin over feed costs and thus the producer loses potential profits. If pigs are too heavy, we see real losses due to the added cost of retaining the pig and the decreased value of that pig. These are simply estimated as the differences between the margin over feed costs at the optimal weight and the actual weight.

## The economics of the group

Of course, not all costs are included in determining the optimal weight. For AIAO groups it is not an optimal weight we are targeting but an optimal closing time where the cost of maintaining the population does not justify the retention of the pigs. This always involves a proportion of the herd that is below the optimal marketing weight



Figure 1. Margin over feed costs (MOFC) for an individual pig

on an individual base. Therefore, we not only have to create a daily margin over feed cost for individual pigs, we must also create it for a population of pigs. The populations of pigs that exist are not homogeneous—they are at different weights at the same period time, have different marginal average daily gains, feed conversions, and carcass characteristics. In our model—which we use in PigGain® (PigWin® at http://www.pigwin.com)—we take a distribution of weights of pigs and model average daily gain and feed conversion as a function of those individual weights. This is then simulated over the population in the barn to give, at any point in time, a total margin over feed cost curve of the pigs in the inventory.

As an example, **Figure 2** shows the margin over feed cost (MOFC) curve for all 400 pigs in a barn; it shows a similar relationship to that portrayed in the individual pig MOFC curve. In this graph we also show the curve for a barn where the pigs marketed rather than being retained past their optimal weight. Weekly marketing or marketing by load closely approximates this curve. Of course, the effects of pulling the heaviest pigs out of a pen are not modeled. Over the whole herd the effects are usually relatively small as many pens are not affected and other pens have a large proportion of pigs removed with the remaining pigs responding more markedly to the added space available.

Figure 2 is not used to identify optimal market weights, but instead optimal close out times. The decision to close out can be driven simply by the design of the system where the close out period is preordained; it can also be driven by the pressure by pigs to be placed in that facility. However, in both cases design consideration should also be involved. If unlimited contracts are available, these barns should be retained until the point at which the daily margin over feed cost goes below the fixed cost of maintaining that site—often this is simply the contract price. With a fixed capacity of pigs, the group should be closed out to maximize the average daily margin over feed costs. **Figures 3** and **4** show this for barns sold as a group and marketed by weight, respectively.

In this example if the fixed cost per day is $40 then the barns should be closed at 124 days (including a seven
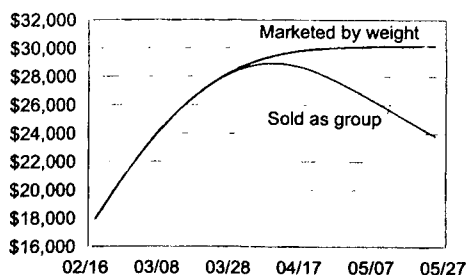
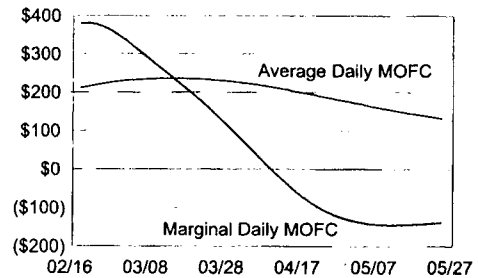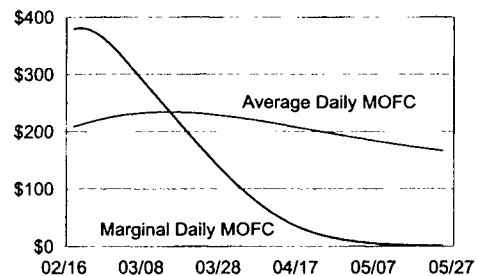Figure 3. Daily margin over feed costs (MOFC) for a one-pull system

Figure 4. Daily margin over feed costs (MOFC) for a multiple-pull system

day clean and disinfect period) for the one-pull system and 135 days for the multiple-pull system. This would give a total margin over feed cost of $27,311 for the single pull group and $28,276 for the multiple-pull group.

If the capacity is static and there is an adequate supply of pigs to put these facilities then a different rule should be followed. Here the barn should be closed where the daily margin over feed cost drops below the average margin over feed cost. In other words there is more profit to be made by emptying the barn and replacing those pigs with new pigs. This of course assumes that prices stay static and so do input prices. The one-pull method should close out 109 days to give an average daily margin over feed costs of $236 and the multiple-pull system closes similarly, 111 days and $234 of average daily margin over feed costs.

## Discussion

Of course, we may have the alternative to choose more than one place to market pigs. In other words we may have the opportunity to market lightweight pigs in an alternative market. This strategy simply changes the value of the pigs at light weights and then also changes the daily margin over feed cost curve. This often improves profitability for single pull barns. Note that it does not change the optimal weight of pigs to be marketed, but

Figure 2. Margin over feed costs (MOFC) for a group

instead has an effect upon the performance of the group as a whole.

Such analyses result in three major observations:

- There is value in sorting pigs to meet optimal market weight if capacity is not limiting.

- Reducing variation of weights is very important in improving profitability of all-in—all-out barns.

- There are real profit potentials in correctly identifying market strategies. These strategies will change over time due to changes in price, pricing structures, and input prices.