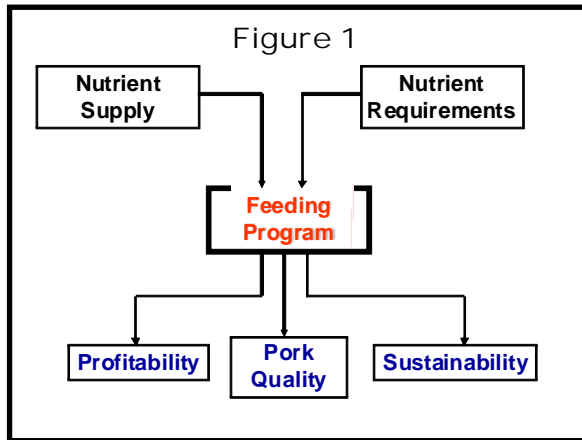


Addressing Change in the Swine Feed Market

John F. Patience
Iowa State University
Ames, IA

Introduction

Irrespective of the nature of the swine feed market, our objectives remain the same – to produce, at a profit, a high quality pork product that is desired by the consumer and to do so in a manner that is accepted by society. Figure 1 summarizes the general approach to the development of a profitable



feeding program. Consideration must be given to determining what the nutrient requirements of the pig are, and then selecting the optimum way to supply those nutrients in the correct quantity at the lowest possible cost, while still maintaining the key objective of profitability.

The magnitude of the problems encountered by the pork industry in mid-2008 is revealed by the following comparisons. For the decade ending in 2006, the feed cost per lb of gain averaged \$0.18. In 2008, it spiraled to \$0.43/lb gain (Boyd, 2008). Between 2006 and 2008, the price of DDGS and wheat middlings doubled, while that of choice white grease tripled; the cost of dicalcium phosphate almost quadrupled! While prices in late 2008 declined to more typical levels, the message was clear. The American pork industry can no longer depend on a long-term, consistent supply of low cost feed. While everyone associated with the industry is relieved by recent price declines, there is a general sense that what happened once will be repeated the future.

Expand Selection of Ingredients

It is not all bad news. The pig evolved over thousands of years to become an omnivore, capable of handling a diversity of ingredients in its diet. The dominance of the corn-soybean meal diet over the past 4-5 decades has caused many in our industry to lose sight of this fact. Like pork producers in many other parts of the world, it is possible to achieve success in feeding pigs diets that contain a number of ingredients, all blended together in a manner that ensures the pig's nutrient requirements are met at the lowest possible cost. The adoption of new ingredients into practical pig diets will be modulated by the perception of risk versus reward. As risk declines, or reward increases, the adoption of so-called

novel ingredients will proceed. Fundamentally, the role of research is to assist producers in identifying the degree of risk associated with using a given feed ingredient and to also help ensure the reward of such usage is maximized. In this way, pork producers can adopt new ingredients with a measurable degree of risk, and make informed decisions on the best way to proceed.

There is no shortage of possible risks associated with novel feed ingredients. Risk may be associated with the availability of accurate and complete information on nutrient content. There will inevitably be questions about the palatability of ingredients and on the impact of their use on herd performance, barn throughput, pork quality or food safety. There needs to be a clear understanding of the presence, if any, of anti-nutritional factors, or the impact of the ingredient on gastrointestinal health in the pig. There are also practical considerations, such as the consistency of supply, and the ease of handling; for example, there is little logic in adopting a new ingredient if it is only available in limited quantities.

Technology exists to mitigate such risk. The ingredient can be given a battery of chemical assays to determine its nutrient composition, as well as the presence or absence of toxins or anti-nutritional factors. Animal studies can be undertaken to determine the biological availability of these nutrients, and to also evaluate palatability. An analysis of the production, handling and transportation of a novel ingredient will provide some sense of the risk of possible contamination. The physical evaluation of samples will help to predict the likelihood of physical handling issues.

However, this “systematic” approach to the evaluation of a new ingredient is slow and expensive. Even under the best of conditions, proper testing can take 2 years to complete; this is obviously not fast enough when feed is suddenly in short supply or the cost of conventional ingredients has risen dramatically. Therefore, in practice, some of the steps necessary for a complete evaluation may be skipped or addressed in a very cursory manner. When this happens, the risk of using such ingredients increases; it is then up to the individual producer to determine if the risk is worth the reward. The answer is never an easy one. However, even in such circumstances, risk can be mitigated to some extent by ensuring the chemical analysis is completed in a thorough manner. Also, one can proceed cautiously with the ingredient, such as by using small quantities until experience shows it can be used with little risk and at higher inclusion rates.

Review Nutrient Specifications

The relationship between feed inputs and profit is not a constant. For example, the optimum feeding program when feed costs are low and market prices for hogs are high may not be the optimum feeding program in the reverse situation, eg. when feed costs are high and market prices are low. Consequently, feeding programs must be viewed in a dynamic manner, such that changes can – and should be – made as market conditions change.

While all nutrients should come under scrutiny from time to time, amino acid levels are least likely to be altered – when expressed as a ratio to energy – because modification in levels can affect not only growth performance but also carcass quality. Energy is much more likely to be changed, but even there, a reduction in dietary energy concentration puts barn throughput at risk. For reasons that are not yet clear, some herds will respond to diets with lower energy concentration by increasing their daily feed intake, such that daily energy intake is held constant. Other herds seem incapable of this adjustment, and lowering dietary energy will reduce growth rate; this in turn will result in either more days in the barn or reduced market weights. We now know for certain that herds differ in their response to energy concentration, and decisions regarding change must be done on a herd by herd basis. Failure to make adjustments can cost a great deal of money, but so can errors in such adjustments.

Levels of vitamin and mineral supplementation should also be revisited as market conditions changed. For example, Vitamin E recently increased dramatically in price, such that typical supplementation levels increased in cost from less than \$1 per ton to more than \$3 per ton. This being the case, it is logical to ask if previous levels of supplementation in the diet are still justified at the new, higher cost.

Review Feeding Management Practices

Feeding management practices may also be a fertile area of pursuit, in order to ensure feed costs are kept as low as possible. In other words, “how” the pig is fed is just as important as “what” the pig is fed.

We have noted many instances in the past where reviewing the implementation of the feed budget has generated large savings. Unless the feed budget is monitored, it is possible that drift from the budget can occur. Often this is caused by honest mistakes, for example in calculating feed delivery quantities. Savings as high as \$5 per pig sold are not uncommon. It may also make sense to review the feed budget and determine if it should be adjusted in light of changing economic conditions.

Feeder adjustment is one of those “little things” that barn managers often pay great attention too. Failure to maintain proper adjustment of feeders can result in impaired growth or feed wastage. For example, in one study, feeder adjustment that increased trough coverage with feed from 9% to 37% increased nursery exit weights by 3 lb or more (Smith et al, 2004). Consequently, paying greater attention to “the little things” can provide surprisingly large financial rewards. Besides feeder adjustment, other examples include drinking water supply, temperature controls, rodent control and medical treatments.

Use of Selected Feed Additives

Changing feed costs – or market prices - should also prompt a review of the use of feed additives. When feed costs increase, the financial return on enzymes is likely to increase. For example, if a given enzyme increases feed efficiency by 4%, this is worth a great deal more when the average feed cost is \$300 per ton as compared to \$150 per ton. This of course assumes that the cost of the enzyme does not increase so that the increased benefit is absorbed by the increased cost of the product.

Phytase use increased considerably in the last 2 to 3 years. The dramatic increase in the cost of supplemental phosphorus in 2008 made phytase use even more profitable. However, it is essential when using phytase that the calcium:phosphorus ratio in the feed is kept as close to 1:1 as possible; if this ratio gets too wide, the response to phytase will decline or even be eliminated (Beaulieu et al., 2005).

Paylean use is another additive that needs to be reviewed as economic conditions increase. While use of Paylean requires the use of a more expensive feed, it also provides for a growth boost that can help to offset possible growth decline resulting from lowering energy concentration in the diet, as mentioned above. This is another example of how the nature and details of a feeding program need to be reviewed as market conditions change.

Conclusions

Dramatic changes in the livestock feed market have resulted in rapid escalation of costs and greater market volatility. While feed prices declined in late 2008, the prospect of increased costs in the future is never far away. Producers have some degree of control over feed costs, through the adoption of novel feed ingredients in their feeding program, through the judicious review of nutrient specification in individual diets, through the review of basic feeding management practices and through the use of

specific feed additives that offer the potential of enhancing nutrient utilization or pig performance. While no amount of adjustment or innovation can offset the impact of doubling or tripling feed costs, they can ensure that net income will be optimized under all feed market conditions.

References

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