

Developing Nutritional Strategies for the Swine Industry of the Future

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The impact of the Bio-Energy Era on the cost of nutrients for the production of swine was first felt in September, 2006. During the two years that followed, the initiative to produce more ethanol, coupled with a weaker US dollar, a shift to investment in the funds market, and world-wide increases in fuel costs have resulted higher priced feed ingredients for swine. Throughout the spring of 2008, the price of corn, soybean meal, and most other feed ingredients, has been like an out-of-control rocket fueled by planting intentions, delays in planting, and a 100-year flood in Iowa as well as flooding in other mid-west states. The end result has been a substantial increase in the cost of feed ingredients for swine production.

For some, the cost increases were great enough that producers made the difficult decision to liquidate their herds. Others have made the transition to become contract growers, thus utilizing their facilities and maintaining a supply of nutrients for crop production. For those producers who are still “independent”, it is critical that they have a business plan, and strategies that allow them to execute that business plan, to minimize risk and maximize operating capital in the months ahead.

Because feed cost has become an even greater part of the total cost of production, one tool producers should consider using as a part of their strategy is an independent “nutritional audit”. Webster’s Dictionary defines the term audit as: “a formal examination of an organization’s or individual’s accounts or financial situation”; or “a methodical examination and review”. In today’s production environment, a “nutritional audit” may be as critical to survival as a “financial audit”. After all, the financial audit defines your financial situation, but because the cost of feed is one of your greatest expenses, a nutritional audit can help define methods to improve your financial situation. As with financial audits, an internally conducted examination may be helpful or interesting, but an external audit often results in a more critical review. This is human nature, as we often are not good at self-criticism and do not always have the information or experience necessary to do a comprehensive review.

Listed below are some of the areas that should be critically reviewed when conducting a nutritional audit:

1. Input cost of ingredients – use of alternative ingredients
2. Formulation of diets – specifications and technology
3. Feed manufacturing practices and cost
4. Feed budgets and feed budget management
5. Feeder and feed bin management

For the purpose of this paper and the presentation, I will discuss only the first two topics normally covered in an audit.

1 - Controlling input cost

Grains, Fat, and Phosphate

This article will not cover risk management practices related to the hedging of corn and soybean meal as that topic will be covered by another speaker far more qualified than myself. Not surprisingly, leading the way in the rapidly increasing cost of feeds are corn, soybean meal, phosphates and fats. Table 1 provides an example of how some of these prices have increased during the past year.

Table 1. Changes in the cost of some major feed ingredients – (East coast)

Item	\$/Ton – June, 2007	\$/Ton – June, 2008	% Change
Corn	167.80	279.40	+66.50
SBM – 47.5%	261.00	448.80	+72.0
Phosphorus – 18.5%	327.00	901.80	+175.8
Fat	504.00	778.20	+54.4

Alternative Ingredients - Traditional and Non-Traditional

Examples of some of the traditional and non-traditional alternatives are shown below (Table 2). The traditional alternative ingredients are generally always available whereas the non-traditional items may not be available on a regular basis.

Table 2. Traditional and Non-Traditional alternative ingredients trading in the market

Traditional Alternative Ingredients	Non-Traditional Alternative Ingredients
DDGS	Citrus drink mix
Wheat Middlings	Bread mixes – enriched flours
Bakery By-Product	Chocolate chips
Cereal Fines	Granola mix
Corn Gluten Feed	Ice cream sprinkles – Ice cream cones
Hominy	Trail mix
Pet Food Fines	Gummy Bears
Soy Hulls	Chocolate covered peanut butter pieces

The problem with the use of “traditional alternative ingredients” is that “traditionally” most are priced relative to the price of corn and soybean meal. Also, some alternative ingredients have greater value when fed to poultry or ruminants; therefore, the other species may set the price in the market place. With some of the alternative ingredients, such as wheat middlings, the supply and demand cycle often provides an opportunity for producers to lock-in a price for an extended period of time. Table 3 is an example of how prices of these ingredients have changed in the past year.

Table 3. Changes in the cost of some traditional alternative ingredients

Item	\$/Ton – June, 2007	\$/Ton – June, 2008	% Change
Wheat midds	95.00	140.00	+47.4
Bakery By-Product	179.00	271.00	+51.4
Dried Distillers Grains + Soluble (DDGS)	138.00	205.00	+48.6

Generally, non-traditional alternative ingredients are not priced relative to corn, but are bought on a bid basis. Feeding non-traditional alternative ingredients often results in greater saving per ton, but generally on fewer tons. If the manufacturing system can handle the new ingredients, it should not matter if you save \$1.00 per ton on all feeds manufactured, or \$10.00 per ton on 10% of your feed production. Larger cities are often the origin of many of the non-traditional alternative ingredients as these items were originally intended for human consumption.

Vitamins, Minerals, and other Micro Ingredients

Having “buying power” or contracting larger volumes is more critical when purchasing micro ingredients, including the synthetic amino acids. Buying groups have often been formed for this purpose. Table 4 provides an example of how vitamins and trace minerals have increased in cost during the past year. Leading the way was the cost of vitamins, in particular Biotin and vitamin E.

Table 4. Changes in prices for some micro ingredients – Vitamins and Trace Minerals

Item	\$/complete ton – June, 2007	\$/complete ton – June, 2008	% Change
Trace Minerals, includes Selenium	0.66	0.72	+16.4
Vitamin Pmx – G/F	1.12	1.85	+72.0
Vitamin Pmx – S/P	2.11	4.66	+121.0

Synthetic amino acids prices are provided in Table 5. The synthetic amino acid, DL-Methionine, has had the greatest increases in price. As a result of the higher price and supply problems, many producers have switched from DL-Methionine to the alternative products - Methionine Hydroxy Analog (MHA) and Alimet. On the other hand, the supply of lysine and threonine has been adequate and maximizing the use of these amino acids in swine diets has saved swine producers a great deal of money in the past year.

Table 5. Ranges in prices for synthetic amino acids

Item	\$/lb – June, 2007	\$/lb – June, 2008
L-Lysine, HCL	0.81 - 0.88	0.99 – 1.05
L-Threonine	0.90 – 1.10	1.26 – 1.50
DL-Methionine	1.25 – 1.35	2.25 – 2.75

Input Cost - Summary

Controlling input cost is a never ending process. The search for lower cost diets may require some producers to totally change how they approach purchasing and manufacturing. The following (Table 6) provides some of the action plans to follow in order to manage risk or reduce input cost.

Table 6. Strategies to manage input costs

Item	Action	Comment
Grains – SBM	Take ownership or Hedge Positions	Work with the professionals
Traditional Alternative ingredients	Book 3-6 months at a time – especially when trucking can be a problem	Evaluate on a regular basis – buy when supply is putting pressure on the price – move out of the formulas when priced too high
Non-Trad. Alternative ingredients	Bid conservatively – generally 50% or less of potential value	Get to know the trader – buy “something” – “anything” and they will always call you back. Keep in mind these ingredients carry more risk
Fats	Shop around – buy truck load quantities – be aware of Iodine Value of the fat	Have a strategy – fat should be worth 3.5 times the price of corn. Fat sometimes acts as a “growth promoter” and, therefore, should be valued as such
Limestone, salt, phosphates	Buy bulk if possible	Always use the highest possible level of phytase and lowest level of phosphate
Amino acids	Buy truckload quantities for best price Contract for delivery for 1 year if possible	Work with other producers or companies – add your buying power to theirs to get the best price – shop it around. Add amino acids individually to capture full value
Vitamins, Trace Minerals and Phytase and/or VTM with phytase	Buy 1 to 3 ton lots – bid the vitamins quarterly	Work with other producers using the same premixes in order to take a greater volume to the bidders. Bids may also include Phytase source as it can be blended with vitamin mix or VTM

2 - Diet Formulation

Diet formulation should always incorporate the latest technology and provide the correct levels of nutrients to “optimize performance” while “minimizing cost”. That statement is quite different from the well known phrase “least cost formulation”. “Least cost formulation” is often synonymous with “how cheaply can we make this ration and still meet the tag guarantees”. In other words, “least cost formulation” in no way means “least cost of production” and can lead to the opposite.

Table 7 illustrates an example of how taking advantage of alternative ingredients and the latest feed technology can lower your cost. The prices previously provided in this paper were used for this exercise. The diet contains 0.85% total lysine, 1595 kcal ME, 0.25% available phosphorus, plus the vitamins, minerals, and trace minerals required for a typical finishing diet.

Table 7. Cost analysis of ingredients

Formula	Cost \$/Ton	Difference
Corn-SBM-Fat	349.48	
Corn-SBM-Fat-Ly	344.51	-4.97
Corn-SBM-Fat-Ly +AA (threonine and Alimet)	339.30	-5.21
Corn-SBM-Fat-AA-DDGS10%	327.03	-12.26
Corn-SBM-Fat-AA-DDGS10%-Mids10%	316.33	-10.71
C-S-Fat-AA-DDGS10%-Mds10% - Bakery 10%	312.23	-4.09
C-S-F-AA-DDG10%-Mds10%-BB10% - Cereal 10%	305.65	-6.58
C-S-F-AA-DDG10%-Mds10%-BB10% - CBP10%-Phy1x	300.28	-5.37
Total saving per ton of complete feed		-49.20

I work with swine producers who run the above analysis on a weekly basis in order to make purchasing or booking decisions. While you will not be able to capture the savings per ton shown in Table 7 every week, you will know which commodities or ingredients on which you should focus to capture as much value as you can in your system. While this example may not be applicable to all Iowa swine producers, it is real and is based upon prices that are received weekly. Keep in mind, when you have savings opportunities, you have to be prepared to act, for they will soon disappear.

Conclusions

While a nutritional audit will not eliminate the pains of higher prices, it will help you identify your strengths and weaknesses. Knowing your weaknesses helps you develop the strategies to overcome those weaknesses and be a long term player in this industry. The use of alternative ingredients, improving your buying power for micro ingredients, and applying the latest technologies in formulation are several of the tools that can be used to soften the blow of higher feed prices. Many producers, purchasing agents, and nutritionists have stated that the industry is now operating in uncharted waters. It may be the time for producers to ask the question: “What do I need to do different?” ... to remain viable in this industry.