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Coping with High-Priced Corn

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Feed costs represent 50 to 70% of livestock production expenses and are a critical component of livestock profitability. In the Upper Midwest and Upper Great Plains, corn grain is a primary source of energy in livestock diets. Consequently, as the price of corn escalates, so does the cost of feeding livestock. But cost isn't all: you also must address dietary and management considerations when coping with increased corn prices.

If considering other feedstuffs as alternatives to corn, it is important to compare the replacement feedstuff with corn on a cost per unit of nutrient basis. Additional information can be found on the following websites:

Beef: <http://ars.sdstate.edu/extbeef>

Dairy: <http://dairysci.sdstate.edu/extension/extension.htm>

Sheep: <http://ars.sdstate.edu/sheep>

Swine:

<http://ars.sdstate.edu/swineext/SwineNutritionGuide.pdf>

Beef cattle

Since corn is generally not a major ingredient in cow diets, the primary impact of higher priced corn in the cow-calf sector is in the price cattle feeders are willing to pay for weaned calves.

The best recommendations for cow-calf operations are not different from what they would be under any other circumstances: Keep costs in check and use good management practices.

One of the major costs associated with cow-calf production is feed. Grazing systems, management practices, and diets can all be manipulated to minimize expenses. However, these alternatives are not "one size fits all." You need to do careful calculation and evaluation to

accurately estimate the impact any change might have in your particular production setting.

The key to selecting the most economical alternative, whether grain (barley, grain sorghum, etc.) or a co-product feed, is to evaluate each potential feed on a cost per unit of nutrient (crude protein or total digestible nutrients [TDN]) basis. There will be differences in freight costs; price each feed as delivered.

Many co-product feeds follow relatively seasonal pricing trends. Therefore, monitoring prices throughout the year may assist in consistently purchasing feeds at the lowest possible price. Many suppliers of grains and alternative feeds will provide you with forward contracting options.

Production practices need to be carefully evaluated. Are they economically viable when corn prices are high? Among these practices are: 1) creep feeding, 2) extending the grazing season, 3) changing calving and(or) weaning time, and 4) cattle marketing options.

Use a budgeting process that allows you to evaluate the expected revenues and expenses from each management practice. Any added costs should be offset by equal or greater returns.

In growing and finishing systems for beef cattle, corn is generally the largest component of the diet. When corn prices rise, it is critical that cattle feeders have a strategy ready to go that identifies how they can replace a portion of corn in the diet yet maintain a competitive feed cost of gain.

There are multiple feedstuffs that can replace corn in backgrounding and finishing diets. Among these are var-

ious ensiled feeds, co-products, oilseeds, or other cereal grains. Typically, replacing corn with other feeds will decrease the energy content of the diet, and consequently, reduce feed conversion. For example, if part of the corn in a finishing diet is replaced with silage at a level exceeding 30% of the diet dry matter, feed conversion will likely be decreased by approximately 10%.

With a diet cost of \$120 per ton (dry matter basis) there is approximately a \$0.06 change in feed cost of gain for every 0.1 change in the feed:gain (F:G) ratio. For example, if F:G increases from 6.0 to 6.6 (10% increase), the diet needs to decrease in cost by approximately \$10 per ton (dry matter basis) to have the same feed cost of gain.

Feed management is always important, but becomes more so when the cost of feed ingredients increase. Management factors such as reducing feed spoilage or shrink by improving storage facilities or processing feed to improve utilization can improve profitability. Rolling grain, for example, increases nutrient utilization, but overprocessing can lead to digestive upsets.

Two very simple rules of thumb can be used for corn processing. First, when corn exceeds \$2.75 per bushel and processing costs less than 10¢ per bushel it pays to process the corn. Second, when processing the corn, set the roller mill so that there are some whole kernels of corn remaining.

When feed costs increase, identify feedyard inefficiencies and take corrective action promptly to maintain profitability or minimize loss. For example, examine your consistency of bunk management, proper management of feedstuffs to help decrease shrink, use of labor and fuel when mixing and delivering feed, and how you use your feed mixer and scales to accurately and consistently offer the correct ration.

Lactating dairy cows

In a typical Midwest lactating cow diet, corn grain makes up approximately 30 to 35% of the total ration dry matter, corn in corn silage is 10 to 15%, and corn-based co-products are 5 to 15%, all on a dry matter basis.

Corn silage not only supplies nutrients, but also plays an important role in maintaining a healthy, functional rumen. In spite of high corn prices, it is unlikely that corn silage will be removed completely from dairy rations. In fact, the low protein content of corn allows for the inclusion of other high protein co-products (e.g., distillers grains), without exceeding the total dietary nitrogen requirements. If corn grain and corn silage were to

be replaced by alfalfa hay and(or) silage and distillers grains, there would be a need to dilute the crude protein with low-nitrogen feeds that otherwise might not be included due to either dietary or economic constraints.

Based on these considerations, a \$1 increase per bushel of corn will increase the cost of the average dairy cow ration between \$0.27 and \$0.34 per day depending on inclusion rate. With high corn prices, the use of highly digestible forages to replace part of the grain becomes attractive. These forages, and any corn grain used, should be allocated to those cows most efficient in converting feed into milk (i.e., early lactation cows).

Feed efficiency, as measured by the pounds of milk produced per pound of dry matter consumed, should be your guide in deciding whether or not high priced corn should be included in the diet.

Sheep

Corn is the primary energy feed for the flock. Lamb growing and finishing diets are formulated to maximize growth and will commonly incorporate up to 80% corn. In a farm flock system producing a 150% lamb crop and finishing lambs to market weight (approximately 130 lb), the quantity of corn consumed per ewe family can reach approximately 700 lb (12.5 bushels). Over 75% of the corn consumed in a flock goes to the growing and finishing lambs.

In ewe flocks, you can shift the proportion of forage to grain if you need to maintain or minimize feed costs. If they are available, co-products such as soy hulls and DDGS are excellent feed ingredients for sheep and can substitute for forage or energy feeds. These two feeds have also been successfully pelleted in combination to provide a complete diet for ewes and lambs.

Decisions to modify diet formulation are dependent on economics, potential animal health consequences, product availability, and on-farm storage and handling capability. However, controlling total feed production costs for the ewe flock involves more than simply using the most inexpensive energy or protein feed ingredient. Matching the stage of production and ewe productivity and reducing feed wastage also have significant impact on feed expenditures.

Growing and finishing lamb diets are energy dense and are generally formulated to contain up to 80% corn. Pelleted protein supplements fortified with minerals, vitamins, and feed additives are commonly mixed with the corn to make a balanced diet fed free-choice.

Lamb F:G from weaning to finish (60 to 130 lb) should be 5:1 or less. Lambs have greatest feed efficiency at lighter weights and decline in efficiency at heavier weights when an increasing proportion of body weight gain is due to fat deposition.

For most lambs in the Midwest, the ideal finished weight occurs when lambs reach 0.25 inches of back fat. However, the ideal economical finished weight for a lamb is when the cost of the last pound gained is equal to the value for the last pound gained. That means that growth performance, rather than feed cost, is the most important variable in determining the point where the cost of gain and value intersect in lamb finishing economics. Yet when feed costs rise, the profit margin is negatively affected for every pound gained. The key to lamb feeding under higher relative feed costs is to market ideally finished lambs.

The greatest opportunity to reduce feed cost often is with the level of crude protein in the diet. Generally, for every 1% change in dietary crude protein level you can expect the cost per ton to change by \$10.

Swine

Since feed costs represent approximately 70% of the production costs of pigs, high grain prices have a tremendous impact on profitability. However, there are several ways to bring those feed costs down.

Since most grain prices are based on corn prices and the market has a tendency to correct for differences in prices, there's not much long-term opportunity to save on feed costs by switching to a different grain source. However, in some areas of the state, alternative crops like barley, grain sorghum, and oats can provide an economical replacement for corn.

Barley, grain sorghum, and oats have 95%, 96%, and 90% of the relative feeding value of corn on a per-pound basis, respectively. Therefore, barley at \$2.85 per bushel is equal in feeding value to corn at \$3.50 per bushel. Any time barley is less than that, it is more economical to feed than corn.

The same holds true for amino acid sources. They are based on soybean meal prices and tend to mirror changes in those prices. At certain times and in certain markets, inclusion of dry distillers grains plus solubles (DDGS) and synthetic lysine can lower diet costs.

There are other options. Consider, for example, taking your current diet specification sheets to a variety of rep-

utable suppliers to see who'll give you the best deal. It is important to make sure the product quality is the same between sources.

Diets can also be over-formulated. Consult a nutritionist who can tell you whether your diets are over-supplying amino acids and phosphorus, two of the most costly nutrients in swine diets.

Adopt phase feeding and split-sex feeding programs. Both will save money and improve feed efficiency.

Feed processing has a major impact on feed efficiency, and therefore influences the amount of feed dollars spent per pig. Grind for optimal feed particle size of approximately 700 microns or less.

Determine costs vs. benefits of pelleting and including growth-promoting antibiotics. If the improvement in feed efficiency more than offsets the additional costs, consider utilizing them.

Consider marketing at a lighter weight. As a pig gets heavier, its feed efficiency gets worse. When feed is cheap, feeding hogs to heavier weights can be profitable despite poor feed efficiency. But when feed costs increase, added feed and yardage expenses may not result in additional revenue. Check your records; they will help determine the weight your current costs indicate you should market at.

Other management techniques that may improve feed efficiency and reduce cost would include better feeder adjustment, better environmental control, fat additions to the diets, covers on the drop-spouts, and wet/dry feeders.

Summary

High corn prices can have a profound influence on the profitability of livestock operations. While, as a livestock producer, you can do little to change the price of corn, sound management and careful evaluation and implementation of alternative production practices can lessen the impact of high-priced corn. For more specific information regarding various alternatives, visit the websites listed above or contact your local Extension educator.

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