

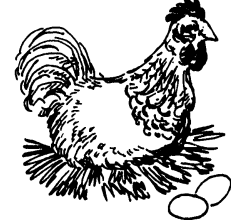


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COMMERCIAL EGG TIP . . .

ALTERNATIVE FEED INGREDIENTS: AN OPTION TO COMBAT HIGH FEED PRICES?

The unprecedented increase in feed prices during the past year are by now an unfortunate matter of record. The cost of virtually all feed ingredients, especially corn, soybean meal, phosphate, fat and even vitamins has gone far beyond any reasonable expectation. A number of causes for the current crisis have been cited, and their respective magnitudes debated, but it is certain that the massive diversion of feed ingredients to biofuels, reduced crop yields, and an increased demand for animal protein in developing countries have all been contributing factors.

In past years, whenever feed costs have cycled upward (even at a more modest scale than at present), questions are raised concerning the feasibility of using *alternative ingredients*. Understandably, interest in such ingredients is especially intense at present. The Poultry Science Department of the University of Georgia has for many years been a primary source of information on feed ingredient composition and quality, and in fact has conducted research on almost all of what are currently considered to be *alternative ingredients*.

Exactly what constitutes an *alternative ingredient* is an open question. To some in the feed industry, any energy or protein source other than corn, soybean meal and fat is taken to be *alternative*. A better working definition of an *alternative ingredient* would be one: (1) that has not previously been used on a regular basis, (2) whose nutrient composition has yet to be fully defined, or (3) for which maximum level of inclusion is unclear. Each of these points is deserving of comment.

#1: New Ingredients

Realistically, there are very few materials of either plant or animal origin that have not been tried as feed ingredients at some place or time. This is not to say that new ingredients do not occasionally arise, although any such ingredients are usually only available in limited supply on a local basis. The author, for example, recently evaluated the metabolizable energy of rice gluten, a material with which he was previously unfamiliar. It is safe to assume, though, that

PUTTING KNOWLEDGE TO WORK

there are few if any industrial quantities of a previously unknown ingredient ready for immediate purchase.

However, what has occurred over the past several decades is that the abundance and generally favorable pricing of corn and soybean meal have led to a situation in which other ingredients, which may have been widely studied, have been largely overlooked. In the southeastern United States, for example, cottonseed meal, peanut meal and local wheat are all deserving of consideration. Other *alternative ingredients* which may not have been fully considered in the past are the by-products of the biofuel industry, catfish meal and pearl millet. Bakery meal and animal protein meals, while sometimes considered *alternative ingredients*, are so widely used that they hardly merit this designation.

#2: Nutrient Content

There are very few *alternative ingredients* that are not already known to the feed industry. Their respective nutrient compositions are reported in standard tables of ingredient composition, and in the scientific literature. However, such ingredients are often produced in relatively small facilities with variations in manufacturing procedures. A frequent result is that the same ingredient may vary markedly in nutrient composition when procured from different sources. A prime example is dried distillers grains plus solubles (DDGS), which is currently produced at more than one hundred and twenty locations. The protein content of meals from these plants varies from less than 26 to over 29 percent. If variation of this magnitude (about 10%) were to exist in soybean meal, the high and low protein samples would not even be sold as the same ingredient.

The nutrient composition of most *alternative ingredients* has been studied and is accessible for those interested in considering their use. However, as an initial step, samples from potential suppliers need to be evaluated to confirm nutrient profile.

#3: Possible Risks

Almost all ingredients have an "Achille's heel", or some aspect of their composition that demands the attention of the nutritionist prior to actual use. In the case of sorghum this might be tannins, for feed fats oxidative stability, MIU (moisture, impurities and unsaponifiables) and possible residues, and for corn mycotoxin contamination. The maximum level of inclusion of *alternative ingredients* is to a large extent based on such considerations, along with actual determined nutrient composition. Cottonseed meal contains gossypol, which can discolor the interior of eggs. This obviously precludes its use in laying hen feeds. Sources of cottonseed meal with low levels of gossypol can be successfully used in broiler diets and pullet feeds, but such inclusion will likely be limited by the low content of both total and available lysine. Peanut meal is also low in lysine, but carries a risk of aflatoxin contamination. However, when purchased from a reputable supplier, peanut meal can be a valuable ingredient as it is high in energy, protein and the essential amino acid arginine.

Conclusion: *Alternative ingredients* should always receive full consideration for use in feed formulas, not only in times of elevated prices. However, new sources of any ingredient should be submitted for laboratory evaluation prior to purchase and use in formulation, and possible limitations considered. It is questionable whether significant savings will be realized from the

use of *alternative ingredients*. Although special relationships can sometimes be developed between supplier and feed manufacturer, prices of ingredients of similar nutrient content almost always rise and fall in tandem.

The unfortunate reality of *alternative ingredients* is quite simple: there are no inexpensive trainloads of either a new grain in Manitoba or an undiscovered oilseed in Mississippi.



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****Consult with your poultry company representative before making management changes.****

“Your local County Extension Agent is a source of more information on this subject”