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NUTRITIONAL VALUE OF CRUDE GLYCERIN FOR NONRUMINANTS

According to a report given by Dr. Brian Kerr (USDA-ARS, Ames, IA) at the 2007 Minnesota Nutrition Conference biodiesel can be produced by a variety of esterification technologies, using new or used vegetable oils and animal fats as the initial feedstock. Biodiesel is the name given to these esters when they are intended for use as fuel. Current prices of soy oil have accelerated the industry's interest in utilization of alternative oils or fat sources for their initial feedstock. The principal co-product of the biodiesel production is crude glycerin. Glycerin has thousands of uses, but as the production of biodiesel expands there is ample supply of crude glycerin available and prices should come down. During digestion fats and oils are hydrolyzed, transported to the liver and ultimately broken down into glycerol and another free fatty acid in the liver.

Following digestion, intestinal absorption of glycerol has been shown to range from 50 to 90% in rats and more than 97% in pigs and laying hens. Once absorbed glycerol can be converted to glucose. In short, **this potentially makes crude glycerin a valuable source of dietary energy for monogastrics.** Pure glycerin is regulated as a substance that is generally recognized as safe for general purpose use in animal feed. Crude glycerin includes Methanol levels that are of concern in crude glycerin and currently should not exceed 150 ppm or a level shown to be safe for use in animal diets.

Crude glycerin can be used as a source of calories in nonruminants. Levels of up to 10% appear to have little impact on pig performance, carcass composition, or meat quality. Levels of

other compounds in crude glycerin, however, must be monitored for potential impacts on metabolizable energy determination and on performance responses to this feedstuff. In addition, impacts on feed handling and manufacturing characteristics need to be considered on the level of crude glycerin that can be supplemented in the diets fed to poultry and swine. It appears that if price is competitive and Methanol levels are low enough, crude glycerin can be a good source of calories for poultry and swine with minimal negative impact on desired quality characteristics.

For the full report on crude glycerin refer to the 2007 Minnesota Nutrition Conference Proceedings, pages 220 -234.

MANAGING SULFUR CONCENTRATIONS IN FEED AND WATER

Corn milling byproducts have great application for beef cattle. However, in feeding these products one must consider not only the reported sulfur content but also the variability associated with this measurement. In addition to accounting for sulfur in feedstuffs, sulfur concentrations in water must also be recognized. Water intakes are not static throughout the year, and increased water intake in the summer will result in greater sulfur intake. For feedlot cattle, total sulfur intakes should not exceed 0.50% of dry matter. Animals vary considerably in their ability to handle excess sulfur intake. For animals that are affected, reduction in average daily gain and feed efficiency may occur, with more severe cases potentially resulting in polioencephalomalacia. Cattle on high-concentrate diets are most susceptible, and susceptibility is also increased when cattle are adapted to a high concentrate diet. During these times, supplementation with oxytetracycline or chlortetracycline may limit the negative effects of excess sulfur. Supplemental copper may be useful to overcome reduced copper bioavailability from binding with sulfur and molybdenum. Rations can be formulated to limit the impact of variation in distillers grains sulfur concentration. In addition to management practices specifically employed

due to variation in sulfur concentration, normal management practices such as proper feed mixing and bunk management may also assist in preventing negative effects due to excess sulfur intakes.

REF: Managing Sulfur Concentrations in Feed and Water; Grant I. Crawford; 2007 Minnesota Nutrition Conference Proceedings; Pages 80 -93.

For More Information

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