

Cottonseed found desirable for dairy cows

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 NEWARK, Del. — Whole cottonseed recently became available in the Northeast. Should you buy it as part of your dairy feeding program, and if so, under which circumstances?

Only sunflower seed equals whole cottonseed in its triple high values of energy-fat, protein and fiber. This makes either seed very attractive as a feed for early lactation dairy cows. Recent analyses show whole cottonseed has an average 21 percent crude protein in the dry matter, 18 percent fat, 29 percent crude fiber

(40 percent acid detergent fiber), 0.15 percent calcium, 0.62 percent phosphorous, 96 percent TDN, 1.01 megacalories net energy and a protein solubility of 41 percent.

Based on its combined energy and protein content, the dollar value of whole cottonseed would be \$166 per ton, if corn is \$3 per bushel and soybean oil meal (SBOM) \$240 per ton. At the same SBOM price but a cheaper corn price of \$2.50, whole cottonseed shouldn't cost more than \$149 to be comparable. Additional "opportunity" prices over a wide range of corn and SBOM prices are available from my office.

Recent research in several herds with large numbers of high-milking dairy cows has shown that feeding whole cottonseed stimulates and supports even high milk production. Substituting usual dairy grain mixes with up to 20 percent whole cottonseed resulted in increased milk per cow even when the energy contents were equal. Milk fat percentages were slightly increased, too.

Digestive use of whole dairy rations was shown to improve in protein, fat and total energy, when increasing amounts of whole cottonseed were added.

In a comprehensive study, involving 55 California dairy herds to determine any possible side effects, when the recommended upper level of as much as 6½ pounds whole cottonseed per cow was fed daily, no negative effects were observed in frequency of displaced abomasum, ketosis, milk fever, retained placenta or contents of milk fat, protein and solids-not-fat. Even 14 pounds per cow daily had only positive effects in milk and milk fat production (an increase from 68 to 72 pounds of

milk, on the average).

Calves also showed improved growth rates when fed whole cottonseed at 25 percent of the concentrate ration.

Cottonseed is toxic to swine and poultry, but not normally to ruminants, because a yellow pigment called "gossypol" in cottonseed (about 1 percent) can cause depressed blood hemoglobin and increased red blood cell fragility. Gossypol has been identified in blood plasma and liver, but not in milk in experiments feeding as much as 22 pounds of cottonseed per day to cows.

However, aflatoxin has been

detected in some cottonseed samples, which could endanger the health of cows and humans, since it is excreted in milk. In such cases, ammoniation of cottonseed (1.5 percent for 21 days) has successfully reduced aflatoxin contents to negligible levels. Normally, aflatoxin occurs no more often in cottonseed than it does in corn or soybeans.

Feeding cottonseed, in my opinion, is indicated—even desirable—when:

*The price is right, *high milking cows need extra feed energy support, and *cows testing low milkfat percentages and improvement.

Speaker chosen for convention

EPHRATA — **Brenda L. Dawson**, Director of Member Services for The Fertilizer Institute in Washington, D.C. will be one of the three guest speakers to be featured at Pennag Industries' Annual Convention at the Philadelphia Adam's Mark Hotel, October 6-8. Ms. Dawson will address the convention on the topic of: "Environmental Issues and the Fertilizer Industry."

Ms. Dawson joined The Fertilizer Institute in August 1983. At TFI she works to formulate responses to federal regulatory

proposals which might impact the fertilizer industry in the areas of resource management and product quality. Also within these areas, she is responsible for representing and informing the industry of issues such as fertilizer use, water quality, fertilizer laws, and methods of fertilizer analyses.

Dawson received her bachelor's degree in biology, and her master's degree in environmental science and engineering from Virginia Polytechnic Institute and State University.



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