

# **COTTONFLO™ AND FUZZPELLET™ VALUE ADDED, PARTIALLY DELINTED COTTONSEED FEEDS FOR THE DAIRY INDUSTRY**

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## **Abstract**

The dairy industry is now the major user of cottonseed in the United States. As the supply of cottonseed moves further from the growth of the dairy market, those cottonseed feed products offering superior logistics and product performance (e.g., handling, flowability, nutrition) will become the market leaders. CottonFlo™ and FuzZpellet™ are manufactured partially delinted cottonseed feeds that offer all of these advantages, plus the economic advantage of suppliers being able to leverage two income streams (i.e., the sale of cotton linters and premium cottonseed feeds) from manufacturing plants.

## **Introduction**

For many years, the dairy industry has been looking for an affordable, flowable, easy to handle cottonseed feed. CottonFlo™ and FuzZpellet™ are manufactured partially delinted cottonseed feeds that offer these and other nutritional advantages versus whole cottonseed (WCS). The success of CottonFlo™ and FuzZpellet™ in the dairy market is supported from two income streams (i.e., the sale of cotton linters and the premium for flowable/nutrient dense cottonseed products). With increased cottonseed production moving to the southeastern United States and the expansion of dairy production in the West and Northwest, CottonFlo™ and FuzZpellets™ will become the market leaders due to their superior nutritional and logistical advantages.

## **Product Development**

CottonFlo™ is an all-natural mechanically partially delinted cottonseed feed for the dairy industry. It is produced by taking WCS and removing, through a cleaning process, approximately 60 lbs/ton of sticks, stems, dirt, rocks and other non-nutritional waste. The clean cottonseed is then mechanically partially delinted under controlled manufacturing conditions. CottonFlo™ is distinguished from other partially delinted cottonseed due to a strict quality control system. Care must be taken to ensure that the right amount of lint is removed to make certain that the customer sees the advantages of higher bulk density (Figure 1), higher nutrient density (Figure 2), and improved flowability, while not compromising rumen retention. CottonFlo™ stores, handles and flows as well or better than any other flowable cottonseed product. Due to its superior nutrient density, partially delinted cottonseed has been shown to deliver equivalent or better milk and milk fat production (Kutches, et al., 1987; Moore, 1998). In Kutches' et al., work, dairy cows were fed the same amount of delinted cottonseed as WCS, with the outcome that the more nutrient dense partially delinted cottonseed increased milk production significantly. In Moore's work, at Mississippi State University, the amount of partially delinted cottonseed fed in the study was reduced to obtain the equivalent protein and fat of the whole fuzzy cottonseed control. Under the conditions of feeding less partially delinted cottonseed as the WCS control, the same amount of milk was realized. Personal communications with the author revealed that feces analysis at the conclusion of the study showed no differences in the amount of seed pass-through for partially delinted cottonseed vs. WCS. New research work underway for CottonFlo™ (with the USDA) seeks to understand milk and milk fat production differences for CottonFlo™ fed at higher levels (~7 lbs/d) during the early lactation of high performance dairy cows. The nutrient density, bulk density, cleanliness and flowability advantages of CottonFlo™ merit a premium from the dairy industry, a portion of which can be recovered with its superior freight savings. Suppliers are able to load 78 tons of CottonFlo™ in a standard (4750 ft<sup>3</sup>) hopper car versus 62 tons of WCS in a standard box car.

FuzZpellet™ is a new development in cottonseed marketing. It consists of an all-natural pelletized cottonseed dairy feed. It is produced by a patented, proprietary process from cleaned, partially delinted cottonseed that is gently blended into free flowing pellets. FuzZpellet™ can be customized according to the needs of the dairy industry. It can be made to contain the exact same fiber, protein and fat as WCS; it can be made from CottonFlo™ to have a higher nutrient density than WCS, or micro-nutrients and minerals can be added to enhance its value to the dairy direct market. FuzZpellet™ offers third party manufacturers the logistical advantages of having the highest bulk density of any flowable cottonseed product moving to the dairy industry (Figure 2). Suppliers can load up to 90 tons of FuzZpellet™ in a standard hopper car. Research work by Bernard and Amos (1984) on the effects of pelleting whole cottonseed on milk production, showed that the pelleted cottonseed produced 35.12 kg/d milk as compared to 33.41 kg/d for cows receiving whole cottonseed. Research work planned for FuzZpellet™ includes understanding any advantages the product may have on lowering free gossypol and increasing bypass protein. The ability to customize FuzZpellet™ to the needs of the dairy industry, combined with its unmatched product density, makes it the most cost effective flowable cottonseed offered to the dairy industry. CottonFeed, LLC (a joint venture between Buckeye Technologies Inc. of

Memphis, TN, and Z-Pellet Enterprises, Inc. of Weldon, NC) will provide the marketing, manufacturing and process technology expertise to third party licensees interested in producing FuzZpellet™.

**References**

Bernard, J.A., and H.E. Amos. 1984. Influence of pelleting whole cottonseed on ration digestibility and milk production and composition. J Dairy Sci 68:3255-3261

Kuchtes, A.J., W. Chalupa, and J. Trei. 1987. Delinted cottonseed improves lactational response. Feedstuffs 8/17/87.

Moore, D.N. 1998. Evaluation of whole cottonseed (fuzzy, mechanically delinted and starch coated) as an ingredient in the diet of high producing dairy cows. MS Thesis, Mississippi State University.

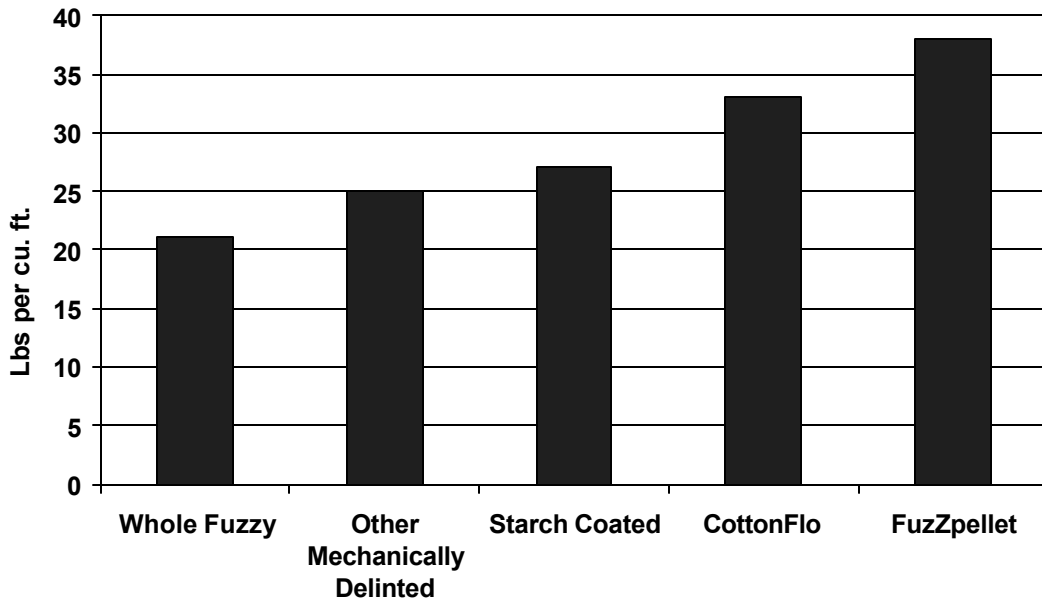


Figure 1. Bulk density differences for cottonseed feeds.

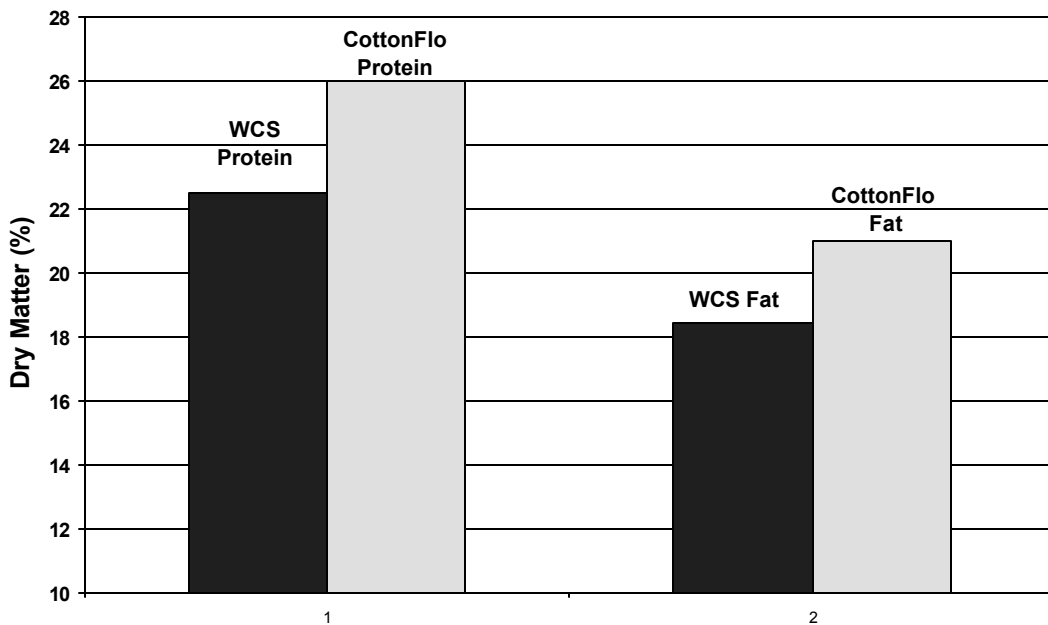


Figure 2. Nominal analytical results for paired samples of whole cottonseed (WCS) vs. CottonFlo.