DRIED CITRUS PULP OR-BARLEY AS ENERGY CONCENTRATES FOR DAIRY COWS

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The citrus waste which remains after juice extraction can be dried in direct fired driers to give a feedstuff of similar digestible energy content to that of ground maize. However, fermentation of dried citrus pulp in the rumen results in a higher acetic acid to propionic acid ratio than that obtained with ground maize. On an energy basis dried citrus pulp may replace grain in dairy cow rations, but because of the different ratios of rumen fermentation products, cattle fed dried citrus pulp may produce milk of a higher fat to protein ratio than that from grain fed cattle. Taints have been observed in milk and milk products when cows have been fed fresh citrus pulp. Direct fired drying may alter the tainting characteristics of oils in the peel. This paper describes an experiment which measured the milk production from cows fed varying proportions of dried citrus pulp and barley grain.

Thirty six grade Friesian cows were fed 67% of their estimated daily metabolizable energy requirements as an annual ryegrass-clover hay and the remaining 33% from one of four concentrate mixtures consisting of rolled six row barley and dried citrus pulp fed in the quantities indicated in Table 1. Cows were fed twice daily immediately after milking for 7 weeks. Daily milk yield and percentages of fat, protein and solids-not-fat (SNF) were recorded for each cow from week 4 to 7 inclusive. Once weekly, individual cow milk samples were stored at 4°C for 18 hours and the cream layer then scored for 'increasing taint from 1 to 10 by four dairy industry graders. The covariance corrected milk yield and composition data and the rate of liveweight gain for the cows are presented in Table 1.

The lower protein and SNF percentages of the milk from cows fed 1.9kg and 3.4kg of dried citrus pulp daily suggests that dried citrus pulp cannot replace grain when grain is fed to increase milk protein or SNF percentages to specified standards of milk composition. The increase in milk taint indicates that more than 1.9kg of dried citrus pulp should not be fed to lactating cows. It is concluded that where milk composition and grade are important, grain is a preferable energy concentrate for dairy cows.

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