EVALUATION OF CHEMICAL PROPERTIES AND CONSUMER PERCEPTION OF FLUID MILK FROM CONVENTIONAL AND PASTURE-BASED PRODUCTION SYSTEMS

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ABSTRACT

The continued popularity of organic and natural foods has generated interest in organic milk, which is produced from pasture-based dairy cows. This process may increase health benefits of fluid milk via increases in unsaturated fatty acid content including conjugated linoleic acid (CLA). Because pasture-based systems vary in types of forage, it is important to understand the impact of feed on the composition and flavor of fluid milk.

The objectives of this study were to compare chemical and sensory properties of pasture-based (PB) and conventional fluid milk and to determine their influence on consumer acceptance. Fluid milk was collected throughout the 2006 growing season from two herds; one fed on a PB diet and one fed on a total mixed ration (TMR), conventional diet. Sensory analyses, descriptive profiling, difference testing, and consumer testing were conducted on pasteurized product in separate sessions. Instrumental volatile analysis and fatty acid composition were also conducted.

Instrumental and sensory analysis differentiated the PB and TMR milks (p<0.05). PB milks contained higher percentages of unsaturated fatty acids, including CLA. Trained panelists documented higher intensities of sweet aromatic, grassy, and cowy/barny flavors in PB milks compared to TMR milks. Consumers were able to differentiate between PB and TMR milks, although this did not significantly affect overall acceptance. These results indicate distinct flavor and compositional differences between TMR and PB milks, but that these differences do not impact consumer acceptance. These findings are crucial issues to consider and optimize for the growing interest in grazing feed systems.