

Dairy cows essential food chain

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Dairy cows are ruminants. Different species of ruminants are found around the world, including deer, elk, giraffes, camels, buffalo, sheep, goats and cows. These animals have a digestive system that is uniquely different from our own. Instead of one stomach like humans, they have the stomach divided in four compartments with specific digestive functions, which allows ruminants to consume big amounts of low quality feeds and byproducts. The rumen is the largest portion and the main fiber digestive center. The rumen is filled with billions of microorganism that are able to break down fiber, coarse vegetation, and many byproducts that animals with one stomach cannot digest (including humans, chickens and pigs). Through the fermentation process in the rumen, the microorganisms produce different nutrients, which cover 70 to 90% of the energy and protein requirements of the mammary gland for milk production. Ruminants have the capacity to ruminate. Rumination is regurgitation of ingesta from the rumen to the mouth, followed by remastication and reswallowing (commonly known as “chewing the cud”). It provides for effective mechanical breakdown of roughage and thereby increases the surface area to fermentative microbes. One of the main results of this complex physiological and biochemical process in the ruminants digestion is the transformation of high fiber low quality feed into high quality food for humans, like milk and meat.

Ruminants are essential in the human food chain, not only because they can produce high quality food, leather, and fiber, they can also utilize many of the plants that grow on the earth as well as agricultural byproducts that cannot be used directly by humans as food. A byproduct feedstuff can be defined as a product that was obtained during the harvesting or processing of food or fiber for humans and has value as feed for animals. Some examples in California are: cottonseeds, almond hulls, sugar beet pulp, wheat mill run, molasses, citrus pulp, rice straw, tomato pomace, pellets from the oil industry, etc. Probably about 30% of the energy and protein used in the Central Valley to feed dairy cows is coming from byproducts.

Cows are very important to maintain the economical and environmental equilibrium between foods production, and byproducts consumption in the California Agriculture system. The complexity of this system is huge, and it is in a permanently changing process. For that reason, any change in the system needs to be study and carryout in an integrated form, including all the industries involved.

The primary dairy productions in the Central Valley of California occur in Tulare, Merced and Stanislaus Counties. Milk is the leading value commodity in Merced County. Directly or indirectly most of the people in Merced County are economically “linked” to the dairy industry. Today, the dairy industry is in a transformation process. Dairy producers are facing new laws and regulations related to the environmental stewardship. The result of this process may be a stronger dairy industry producing high quality dairy products in a friendly and sustainable environment, which is totally possible. (*Note Merced Sun-Star, Section C Agriculture, Monday, December 6, 2004*)