

Dairy Goats

Commodity Sheet

FVSU-005

Worldwide, more people drink the milk of goats than the milk of any other single species. The contribution of dairy goats to the nutritional and economic well being of mankind, especially in developing countries, is invaluable. Goats were among the first animals domesticated by man.

Goat milk differs from cow or human milk in its higher digestibility, distinct alkalinity, higher buffering capacity, and certain therapeutic values (hypo-allergenicity) in medicine and human nutrition.

Of 524 million tons of the world's annual milk production (FAO, 1988), goats and sheep are the third largest source of milk (8.2 and 9.0 million tons each), comprising about 1.6 percent each of the total milk supply in the world.

There are six popular breeds of dairy goats producing milk in the United States: Saanen, Nubian, Alpine, Toggenburg, LaMancha and Oberhasli. Saanens produce a large volume of milk with low fat content resembling Holstein cows. The Nubian is similar to the Jersey cow, producing lower volume and high fat milk. While high producing dairy goats produce 15 to 20 pounds per day,

the world production records for Saanen, Alpine, Toggenburg and Nubian breeds are 7,714, 5,729, 5,750 and 4,420 pounds per year, respectively.



Due to the adaptability of dairy goats to a relatively small farm setting and marginal grazing needs, dairy goat herds are becoming more significant in Georgia and the United States as a whole. However, the dairy goat industry in the U.S. and other western countries faces a variety of limitations and

barriers to growth and prosperity.

Challenges

The greatest species-specific limitation of dairy goats is the seasonality of milk production, due mainly to their seasonal reproductive cycles. This results in the unavailability of a year-round, uniform supply of goat milk products, which, in turn, causes consumers as well as distributors and retail outlets to lose interest. Various scientific approaches have been proposed to overcome the limitations of goat reproductive systems, including manipulation of lighting and synchronization of reproductive cycles. Food

technology approaches are also underway to resolve the seasonal milk supply problem, including ultra filtration of milk, spray drying and production of mixed cheeses, etc.

Another challenge for the dairy goat industry is consumers' perception of goat milk products in the U.S. and many other western countries. The primary misconception of goat milk and its products is that they have a peculiar "goaty" odor or taste to them. Under normal, controlled milk processing conditions, goaty odor will not be generated in goat milk products through efficient pasteurization and inactivation of the lipase enzymes. Prevention of short chain fatty acids due to lipolysis before, during and after processing is the key factor for removing goaty flavor in goat milk products. However, the unique goaty taste in certain cheeses is considered a positive attribute.

Marketing dairy goat products has other challenges, such as consumer perceptions of safety and nutrition of the product, and proper promotion and distribution of the products.

Current Research

In order to overcome the seasonality of the goat milk supply, the goat reproduction research group at the Fort Valley State University Agricultural Research Station (Drs. Eugene Amoah, Seydou Samake, Oladele Gazal and A. Mahmoud) has initiated a project centered on hormones and manipulation of photoperiods to enable year-round kidding of goats. Another research approach by the same group using biotechnological techniques is also

in progress seeking improved methods of *in vitro* embryo production, preservation and transfer in order to achieve off-season kidding and a year-round milk supply.

The nutrition research group at the station (Drs. Seyoum Gelaye, Brou Kouakou and Thomas Terrill) is currently conducting research on the performance and product quality of dairy goats treated with somatotrophic hormone. This current study will evaluate the impact of bovine somatotrophic hormone on milk yield, composition, mammary gland health and milk product quality.

Under the food technology approach to resolving the problems of a seasonal goat milk supply, the station's dairy technology research group (Dr. Young Park and other associates) has initiated a goat cheese manufacturing project involving freezing curd and storage of the frozen curd for manufacturing goat cheeses at a later time. In the future, ultra filtration of milk, spray drying and production of mixed cheeses and their effects on goat milk products qualities will also be investigated.

The dairy technology group will also investigate other parameters, including consumer perception of safety and nutrition, availability of specialty-type products, attractiveness of packaging, and establishment of proper distribution and marketing channels for dairy goat products.

For further information contact:

Dr . Young W. Park
Agricultural Research Station
Fort Valley State University
Fort Valley, Georgia 31030-3298

Telephone: (912) 825-6804

Fax: (912) 825-6376