FAO Prevention of Food Losses Programme

Milk and Dairy Products, Post-harvest Losses and Food Safety in Sub-Saharan Africa and the Near East.

A Review Of The Small Scale Dairy Sector – Ethiopia

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June 2003

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ABRIVIATIONS USED

AFRDA	Animal and Fisheries Resources Development Authority
AFRTRD	Animal and Fisheries Resources Technology and Regulatory Department
ARDU	Arsi Rural Development Unit
CADU	Chilalo Rural Development Unit
CSA	Central Statistics Authority
DDA	Dairy Development Agency
DDE	Dairy Development Enterprise
DRDP	Dairy Rehabilitation and Development Project
EARO	Ethiopian Agricultural Research Organization
EPID	Extension and Project Implementation Department
F_1LDP	First Livestock Development Project
F_4LDP	Fourth Livestock Development Project
FAO	Food Agricultural Organization
GDP	Gross Domestic Product
ILRI	International Livestock Research Institute
LMA	Livestock Marketing Authority
LPS	Lactoperoxidase System
MOA	Ministry of Agriculture
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NAHR	National Animal Health Research Centre
NLDP	National Livestock development Project
NVI	National Veterinary Institute
PARC	Pan African Rinderpest Campaign
SDDP	Smallholder Dairy Development Project
SIDA	Swedish International Development Agency
SPDDPP	Selale Peasants Dairy Development Pilot Project
SSA	Sub-Saharan Africa
TLU	Tropical Livestock Unit
USD	United States Dollar
WADU	Welaita Rural Development Unit
WFP	World Food Programme

Executive summary

Despite the high livestock resource, estimated at 35 million TLU, and prevailing favorable climatic conditions and resources, current production is low which is indicated in the low per capita level of milk production (19.2kg) and increasing trend in import of milk and dairy products.

Dairy production is an important part of the livestock production systems in Ethiopia. Cattle, camel and goats are the main livestock species that supply milk, with cows contributing 81.2% of the total milk output. In the highlands where the subsistence smallholder farmers are predominant, crop and livestock production are an integral part of their livelihood. In the lowlands the nomadic pastorals subsist almost entirely on milk and livestock for food supply and trade of livestock and livestock products to purchase food grains and other necessities.

Initial efforts in dairy development were based on the introduction of high yielding cattle in the potential highlands. Research efforts were also geared towards substantiating the importance of this system. This type of dairy development including the establishment of the Dairy Development Agency and other projects was progressing until the rural land proclamation of 1974. Then, use of cross bred and improved stock on smallholder dairy development using a "package approach" by the comprehensive and minimum package programmes (CADU, ARDU, WADU and EPID) and other projects (DRDP and FINNIDA assisted projects) followed in the pre and during the socialist mode of production had contributed for improvement in the system. However, the prevailing state and cooperative structures dominating the progress did not warrant sustainable development of the sub-sector. The introduction of a mixed economy and liberalization had a positive impact on smallholders and led to the emergence of private dairying in peri-urban and some commercial farms. Market-oriented strategies were introduced for the first time. Most projects included activities for milk collection and processing - ARDU had initiated milk collection and processing but it was not sustainable. DRDP and the Small Scale Milk Processing Project (MOA/FAO/WFP) organized small scale milk processing in few locations and were strengthened by SDDP to establish 35 units. The emergence of user groups such as the Addis Abeba Dairy producers Cooperative, Adaa Liben Milk Marketing Cooperative and Selale Milk Marketing Union and a number of small scale milk processing groups paved the way to rationalize milk marketing where proper marketing in terms of milk collection, transportation, processing and distribution are the means to enhance production.

The traditional smallholder dairy system makes up the largest part of the dairy production system and can be characterized by its low input, feeding and management requirement and use of indigenous genotypes. The improved dairy production system could be classified into small scale production systems, and commercial private urban and peri-urban production. The characteristics of the improved dairy production systems vary substantially in terms of intensification, management systems, genotypes used, type and methods of marketing and processing of milk and dairy products. At present this sector is expanding rapidly through intensification and expansion of smallholder milk production.

The Ethiopian milk marketing system is not well developed. This is reflected where only 5% of milk produced in rural areas is marketed as liquid milk. This has resulted in difficulties of marketing of fresh milk where infrastructure in transport etc, are extremely limited and market channels have not been developed. In the absence of an organised rural fresh milk market, marketing in any volume is restricted to the peri-urban areas. Both formal (which caters for collection and processing of milk that is safe for human consumption) and informal (direct sale of whole and fresh milk to consumers) milk marketing systems exist. The formal is operational only in Addis Abeba Milk shed area

contributing little to the development of the sector. At present the formal market consists of Shola Dairy of Dairy Development Enterprise and Mama dairy of Sebeta Agro Industries The informal marketing dominates the system where all rural and part of peri-urban and majority of the urban dairy producers use to sell liquid milk and dairy products on a house-to-house basis. The smallholder provides the bulk of milk both to the formal (37% of DDE supply) and informal (100%) marketing system.

Given that milk is a highly perishable product and the high demand in urban areas, efficient collection and transportation of this bulky product from widely scattered rural sources requires a well-defined method of milk preservation and distribution. Due to the limited road infrastructure network, collection and processing the flow of milk from surplus milk shed areas to urban centers where there is high demand could not be achieved. This impacts on the amount of milk that would be available for consumption through losses in quality.

Post harvest losses are associated with poor handling , contamination, the low level of technology applied in the conservation of milk to extend its shelf life and lack of market. Traditional milk technologies have evolved produce butter, whey and cottage cheese. However, traditional processing technologies are generally considered to be time consuming and inefficient in terms of milk fat recovery, product quality, a comparatively short shelf life and provide little return for the milk producer.

Due to the highly perishable nature of milk care should be taken from production through to consumption including collection, transportation, chilling, processing and distribution to reduce post harvest loses that can be accrued due to contamination which is the main source of product loss through rejection for consumption and leading to low efficiency in processing.

Where potential sources of contamination are at farm level, care in milk handling during milking and subsequent storage is the first and most important step in clean milk production. Milk producers should follow hygienic practices during milking and handling before delivery to consumers or processors or for collection. Possible sources of post harvest losses are scale of contamination affected by temperature and storage time, adulteration, lack of proper handling, transportation and distribution, low level of technology used to process milk to an acceptable standard and the lack of fresh milk outlets

The informal milk marketing system dominates the supply of milk and dairy products to consumers in Ethiopia . A strategy for inclusion of the informal sector in dairy sub-sector development is vital for its sustainable development. The strategy to be employed includes organization of the stakeholders in production and marketing by stratification of the country into the different dairy production system and introduction of appropriate technologies to increase the efficiency of the dairy sector through reduction of post harvest losses and improvement of quality.

The potential role of small scale dairy farmers and organizations in meeting current and future consumer needs is recognized as vital to the development of dairying in Ethiopia. Organization of farmers thus as producers and marketing agents of their own products would then be encouraged. This would contribute to increasing income of producers by providing a steady product outlet. Furthermore, organizations involved in milk processing and marketing could assist at national level in increasing the quantity and quality of milk and dairy products being offered to consumers, thereby decreasing reliance on imported products, safeguarding the well being of consumers. It would also ensure the supply of fresh, hygienic and quality milk and dairy products and play a role in promoting

strict quality control at primary production level involving large but separate entities from production to distribution.

The implementation of milk and dairy products quality control measures and quality verifying standard parameters are some of the most needed elements for clean milk production. This could be effected through adhering to National and International standards of hygienic code of practices, such as HACCP, introducing testing through an established institution and laboratory entity. All strategies to be employed for improvement of milk and dairy products quality, reduction of post harvest losses and elimination of health hazard risks should be implemented through awareness creation and training, administrative measures and the introduction of technological interventions. Development of milk technology through the use of training as a media (formal dairy technology training and use of media in awareness creation) and implementation of appropriate processing in strategic areas associated with legal framework and applicable quality verification means, should be in place for the production of safe milk and dairy products for consumption in adequate amounts, types and quantities for the ever increasing population.