

## **Short Note on Dairy Technology Transfer and Community Services: The case of Provision of Improved Dairy Technologies for Low Income Women around Ambo Town**

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### **Abstract**

The overall objectives of dairy technology transfer project were to demonstrate the improved dairy technologies and strengthen gender involvement in dairy production that enhances the income sources of low income women around Ambo town. For demonstration purpose, low income women were selected for the project and training was given by different expertise on the improved dairy technologies and dairy products handling, processing and marketing. Along with pregnant Friesian-Horro crossbred heifers; improved forages and health services were given as full dairy technology package. Credit service was arranged with Eshet Microfinance Institute. Half of the cost was subsidized by Ambo University and only half of the cost of heifer (2000.00 Birr) was covered by participant women. The average milk yield of Friesian-Horro crossbred cow under farmers' management was 9.3 liter/day. Women have benefited from the crossbred dairy cows by generating income from selling of milk and milk products and male calves obtained from crossbred cows. An appreciable awareness about improved forage utilization has created. The improved dairy technology has highly accepted and appreciated by women. Unavailability of improved dairy stock, inadequate AI service, shortage of feeds and inadequate health services were reported as the main constraints hindering dairy productivity in the area which should require immediate intervention. Oestus synchronization and AI should be provided in large scale to fulfill the great demand of crossbred dairy cows.

**Key words:** *Dairy technology, Friesian-Horro crossbred heifer, Income, Livelihood, Women*

### **Introduction**

Ethiopia, with about 52.3 million cattle (CSA, 2010) with conducive and diverse agro-ecologies, has a huge potential for dairy production, but its contribution to the national economy and food security has been minimal. It

is obvious that one of the top problems in west showa zone is lack of adequate milk and milk products. On top of this, the demand for animal products like milk and meat is drastically increasing from time to time in Ambo town in particular as a result of increasing human population

and urbanization of Ambo town. The Milk yield from local animal under optimal management is low because of managerial & genetic causes. Due to this the local cows are not suitable for market oriented milk production. Urban & peri-urban areas are suitable for market oriented milk production. Small holder milk production is one way to achieve sustainable increase in milk production and development toward achieving poverty alleviation & food self sufficiency.

In most cases poverty has more of its burden on women and income generating activities have better influence in achieving the poverty alleviation objective when it is directed to women household members. It is important that appropriate action should be taken to solve the shortage of milk and milk products in the area. As it is true in most of the Ethiopian highlands, the availability of improved crossbred dairy animals is the main limitation for the shortage of milk and milk products in and around Ambo Town. Ulfina *et al.* (2006) also reported the steadily increasing demand of crossbred heifers/cows in peri-urban of west Oromia Towns.

Ambo University has a dairy farm which is meant for the purpose of teaching, conducting research and income generation for the University. The farm at times produces crossbred heifers which are in excess of requirement for replacement. It is believed that distribution of crossbred heifers through community service

program would contribute toward improving the living standards of the surrounding community, particularly the low income women dairy farmers. Different efforts have been made to demonstrate profitable dairy technologies by the Agricultural Research Center for the different agro ecologies of Ethiopia and these efforts have been reported by different researchers among which the dairy technologies were demonstrated around Holeta and Bako town (Beyene, 1987 and Tesfaye, 1991). However, inadequate attention was given to demonstrate improved dairy technologies for low income women around Ambo town. Thus, the objectives of this project were to demonstrate the improved dairy technologies and strengthen the gender involvement in dairy production and thereby enhancing the income sources of women in the area.

## Materials and Methods

### Description of the area

Dairy technology demonstration was conducted around Ambo town, west Shewa zone of Oromia, Ethiopia. The area is located 114 km West of Addis Ababa and found at a longitude of 37° 32' to 38° 3'E and latitude of 8° 47' to 9° 20' N and the altitude range is from 1900 to 2275 meters above sea level. The climatic condition of the area is 23% highland, 60% mid altitude, and 17% lowland. It has an annual rainfall and temperature ranging from 800 – 1000 mm and 20 – 29°C, respectively. The rainfall is bi-modal with the short

rainy season from February to May and long rainy season from June to September. Agriculture is the main occupation of the population of the area. The agricultural activities are mainly mixed type with cattle rearing and crop production under taken side by side. Extensive system of livestock management predominate the area.

### **Methodology**

A total of fourteen low income women were selected for the project. The selection was made by the committee formed for this purpose. After selection of the target women training was given by different expertise on the improved dairy technologies, dairy products and about general improved dairy husbandry practices. Credit service was arranged with Eshet Microfinance Institute. Half of the cost of heifer was subsidized by Ambo University and only half of the cost of heifer (2000.00 Birr) was covered by participant women. Each participant woman received one pregnant Friesian-Horro crossbred heifer along with improved forage varieties and a package of improved dairy husbandry practices. Feedback about the improved dairy technologies was continuously collected using checklists prepared for this purpose. In addition "milk day" was arranged with the technology adopters for purpose of experience sharing and giving more feedback to the University.

## **Results and Discussion**

### **On farm performances of the crossbred cows**

The on farm average milk yield of Friesian-Horro crossbred cow was  $9.3 \pm 2.5$  liter/day which was greater than the average milk yield of local cow ( $2.6 \pm 1.5$  liter/day) around Ambo town. In agreement to this result Beyene (1987), Sendros *et al.* (1987) and Tesfaye (1991) indicated that Friesian and Jersey crossbreds were superior in dairy production and reproductive traits at Holeta and Bako areas. Friesian and Jersey F<sub>1</sub> crossbred cows at Bako were able to produce only 81% and 55%, respectively, of the milk yield they produced on-station. Survey results of Holeta (Zinashi and Seyoum, 1991) and Bako (Tefaye, 1995) revealed that indigenous cattle breeds at these sites did not yield on average more than one kg of milk per cow/day. Authors also indicated that with reasonable management practices, Jersey and Friesian F<sub>1</sub> cows could on average yield four to five times the milk obtainable from indigenous breeds on-farm. However, at the higher altitudes and more favorable climate of sub-Saharan Africa, crossbred cattle can out-yield indigenous stock fourfold, provided that modest improvements are made in their management and nutrition.

### **Socio-economic benefits of the technology adopters**

The women were benefited from the crossbred dairy cows by generating income from selling of milk ( $7.75 \pm 0.65$  Birr/litter) and milk products like butter ( $87.50 \pm 6.55$  Birr/kg) and selling of male calves ( $3700.00 \pm 1060.66$  Birr) in excess of replacement stock. They returned their loan within two to three months after milk sale started. They expended the income generated from these improved dairy technologies mainly for school payment, purchase of grains for home consumption and different house furniture like Sofa, Biffe; construction of house for their family, purchase of oxen for traction. They also reported to use milk and milk products (butter, cheese) at home consumption and for other social ceremonies. The use of manure for fertilizers and fuel purpose was also among the added advantages that the technology adopters reported. The participation on dairy production creates job opportunities for the family. In addition to the above, an appreciable awareness about

improved forage utilization has created. They established an improved pasture of a recommended forage variety like Rhodes grass, elephant grass and *Leucaena*. They constructed a simple separate barn for project animals to enable supplementary feeding. Generally, the livelihoods (income and nutrition) of women have improved. The participants reported that it was not easy to quantify and explain the benefits and satisfaction obtained from adopting these dairy technologies. Similar socio-economic benefits from dairy technology demonstrations were reported by different authors (Tesfaye, 2012; Sendros *et al.*, 1987 and Beyene, 1987) in different areas. Azage (2009) also reported that the socio-economic benefits of the dairy cooperative are difficult to quantify in economic terms. The author also reported that a household with two improved milking cows generates an average gross income of about 200 USD per month and ensuring continued cash flow.



Figure 1. On-farm demonstration of dairy technology to low income women around Ambo town

### Major Constraints of dairy development in the area

Unavailability of improved dairy stock, inadequate AI service, shortage of feeds in quality and quantity and inadequate health services were reported as the the main constraints hindering dairy productivity in the area. Similarly, Sendros *et al.* (1987); Tesfaye (1991); Ulfina *et al.* (2006) working in different agro-ecology of the country reported that several constraints are hindering the

development of dairy sector and the on farm productivity of crossbred dairy cows. Where the crossbred cows are available, disease and parasite control remains a major concern, especially for dairy cattle and upgraded cows as they are usually much more susceptible to health problems than indigenous animals. Sendros *et al.* (1987) and Tesfaye (1991) also indicated that oil crop cakes are the common source of protein supplement and the demand for oil

cakes is generally high resulting in exorbitant prices making it difficult for the farmers to obtain these concentrates. The key technical options to improve dairy production are therefore, improving feeds both in quality and quantity, provision of improved dairy heifers and AI services, provision of adequate health services and strengthening extension services to enhance the improved dairy husbandry practices.

## Conclusions

The overall objectives of dairy development project were to demonstrate the improved dairy technologies and strengthen the gender involvement in dairy production that enhances the income sources of low income women around Ambo town. Improved dairy technology has paramount contribution in empowering low income women in the area. The technology has highly accepted and appreciated by adopted women and also found highly profitable. The livelihoods (income and nutrition) of low income women have improved. Unavailability of improved dairy stock, inadequate AI service, shortage of feeds and inadequate health services were reported as the main constraints hindering the productivity potential of improved crossbred dairy cows which should require immediate intervention. Oestus synchronization and AI should be provided in large scale to fulfill the great demand of low

income farmers for crossbred dairy cows. Dairy technologies should be scaled out to improve milk production, increase and diversify income earnings and improve the livelihood of poor women.

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