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Introduction of Goat Milk Pasteurisation Equipment to the Etawah Crossbred Dairy Goat Farmers in East Java Province, Indonesia

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Introduction

An important characteristic of goat milk is the unique 'goaty' flavour which is attributed to the different fatty acids and the relatively higher proportions of short and medium chain fatty acids in goat milk (Tziboula-Clarke, 2003). Jandall (1996) reported that the composition of goat milk as: 3.80% fat, 8.68% solid-non-fat, 4.08% lactose, 2.90% protein, 2.41% casein, 0.43% whey proteins, 0.79% total ash, 0.194% Ca, and 0.270% P, while recently Pall et al. (2011) showed that goat milk contained 4–4.5% fat, 3.2% lactose, 4.6% protein, 0.129% Ca, and 0.106% P.

In East Java, goat milk has not been fully utilised because of the lack of milk processing equipment at farm level; hence almost all the milk produced is for the consumption of the kids. It is often that the kids are unable to consume all the milk, resulting in incomplete milk let down and retention in the udder. Also goat milk has short shelf life and therefore availability of proper processing and storage equipment at the farm level is needed to preserve its quality to market it for human consumptions (Susilorini and Sawitri, 2002). The objective of this study was to determine the effect of introducing milk pasteurisation, simple cup-sealer equipments and training of the goat farmers on the production of pasteurised goat milk. Capacity building of farmers in Ngambe Ngawi district to produce dairy products from goat milk was also conducted.

Materials and Methods

Training on milk pasteurisation was held for the Etawah crossbred dairy goat farmers in the Ngambe Ngawi district, East Java Province, Indonesia. Twenty-five farmers, having a total of 70 heads of Etawah crossbred goats with an average milk production of 1.05 (0.75 to 1.25) litre/head/day, were selected for the study. Milk pasteurisation equipment, cup-sealer and training in handling the equipment and in dairy goat management were provided to the above farmers.

The milk pasteurisation equipment had a capacity of 30 litres per batch and this equipment was easy to operate because it is regulated using several simple keys. It is also easy to maintain. The main function of this equipment was to pasteurise goat milk to produce a "commercially sterile" product (Winarno, 1994). Goat milk was pasteurised at a temperature of 65–70^{o}C for 30–40 minutes. Participants were trained to operate and maintain the milk pasteurisation equipment. Functions of each component and on how to use them were explained. To increase the income of farmer, the participants were also trained to make different dairy products such as beverages, candy, "dodol" and caramel.

Results and Discussion

All participants were able to use the milk pasteurisation equipment and the cup sealer but only 25% of the participants could make dairy products. In order to increase milk production and farmers' income and to enhance the flavour of milk as demand by the community, it was suggested that goat milk must be pasteurized and dairy products such as "dodol", ice cream and candy milk should be introduced (Winarno and Fernandez, 2007). The study showed that after the training, the participants were capable to use the milk pasteurisation equipment properly and made dairy products from goat milk.

Conclusions

Introduction of milk pasteurisation equipment and training on making goat milk products had shown to be beneficial to the farmers. After taking the training, the farmers were able to create new businesses. In addition to pasteurised milk, farmers could produce fruit syrup, "dodol", ice cream and candy from goat milk.

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