ICARDA
Science for Better Livelihoods in Dry Areas

TRAINING REPORT

Community Training on Improving Traditional Milk Processing in Sugd Province, Tajikistan

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Introduction

In Sugd Province, Tajikistan, most sheep and goats are kept in small flocks on household farms. Sheep and goats generally go to summer pastures for the summer, returning to village pastures for the winter period. In some cases where the owners cannot afford the costs of shepherding, animals are kept on overgrazed village pastures all year round. There are no decentralized milk collection and cooling facilities.

The targeted villages are 1) Taboshar community that encompasses 190 households/farmers in Taboshar. The main activities are animal breeding, dairy processing and handcraft from goat hair, 2) Zartepa community that encompasses 70 households/farmers in the Chashmasor jamoat/municipality, the main activities are animal breeding, dairy processing and small gardening and 3) Gafur farm near Dulona community that encompasses 450 households/farmers, in the Mehrobod jamoat/municipality. The system is characterized as pastoralists and the main activities are goat breeding for angora hair and milk production, processing is an additional activity.

The main dairy product produced in the province is curd; a dried fermented milk that is in the shape and size of marbles, butter and cheese. Curd is the main product produced and is easy to carry and transport in a pastoral community and could be considered as a reach protein food. However, the hygienic procedure and hygiene quality of dairy products was low.

The adoption of dairy technologies and hygiene procedures at small scale is essential to improve the production, marketing, and income of the pastoralists. Building on local knowledge is essential to improve local product and to inject suitable simple technologies.

Local knowledge in traditional milk production and processing

Participatory workshops were designed to collect information on production systems and problems faced particularly focusing on milk collection and transformation. Three workshops were conducted in 2015 by ICARDA and Tajik Livestock Research Institute to gather the key information in three sites, under ICARDA leadership.

The workshops featured two consecutive sessions, the first to capture methods used in milk production and processing, and the problematic with participation of most community farmers, the second devoted to visit two selected farms to validate the collected information.

Lack of facilities for milking where observed. This condition imposes a stressful capture of animals that reflects in less milk produced per head and herd, high chance for milk contamination with dust and manure and eventually the exposure of milking persons to dust resulting in allergic problems. Also, animals have to be milked in the place they are captured through procedures that in the long-term have implications in the health of people who developed back pain, hand pain and knee pain. These traumatic problems were addressed as the most important problem related to milk collection (89% of the votes). Recommendations in this regard are given, involving minimum cost measures and community-action whenever possible. Milk yield reduction was observed due to milking procedures, recommendation in this regards are a simple animal capturing system that were explained in a training conducted in May 2016.

The most relevant problem associated with milk processing was related to the milk fermentation process that is affecting product marketability. In addition, distances and transportation is another limitation to market products. The suitability and management of dairy culture will help in producing products that will maintain the desired taste under long transportation and hot conditions.

Training on dairy processing

The training was designed to produce traditional dairy product with high quality and to provide solution to constraints faced. The focus was on hygiene dairy processing, introduce dairy culture to overcome problems associated with milk fermentation and product transportation, and the use of milk fat separator to reduce labor and improve the churning efficiency in butter production that has a high marketability price.

The training was also aiming to enrich the value chain with new dairy products. in this regard different white cheese types such as feta, ricotta and white fresh cheese were presented in practice also using skimmed milk in case of fresh white cheese.

Taboshar village community

The first day of the training was carried out at a farmer house where 9 women and 6 men participated. The first day focus was on milking and milking management. We explained what are the common negative practices and problems that were reported by them in 2015 and how to overcome these problems. For example, high acidity of home-made yoghurt, avoiding animal stress during milking and simple techniques for increasing milk collection, better storage of curd cheese through fat separation etc. The second focus was on milk health and hygiene, where we explained in details reasons for milk acidity in relation to milk microbiology. The third focus was on yogurt processing where we deliver a practical session testing 5 dairy culture (YC ch1, X11, XPL2, XPL30 and YC 350, Chr Hansen, Denmark) against their traditional one.

On the first day, almost 10 Liter of goat milk was processed into the different types of yogurt. After the thermal treatment of milk, the hot milk was distributed on 2 liter glass jars where the inoculation and incubation of yogurt took place.



For the second day, twenty liters of cow milk were bought from private milk collector on the way to Taboshar as milk was not available in the morning in the village. The second training day was focusing on cheese processing which took place in the village school as number of participants increased by total number of 23 women and 4 men. The milk was pasteurized and the correct temperature was measured using a simple alcoholic thermometer. The pasteurized milk was processed into different types of cheese (White cheese, Feta, Ricotta)

Also participants were exposed to milk fat separation technique. In this regard, processing of the traditional curd from skimmed milk was discussed and practiced. One part of the skimmed milk was processed into white fat free cheese. An old manual Soviet-made mechanical fat separator was used to demonstrate the participants how to use the device and how milk fat separates from milk. The main purpose was to reduce workload of village women in milk fat separation as traditionally this step is essential in curd processing and is labor-intensive methods.



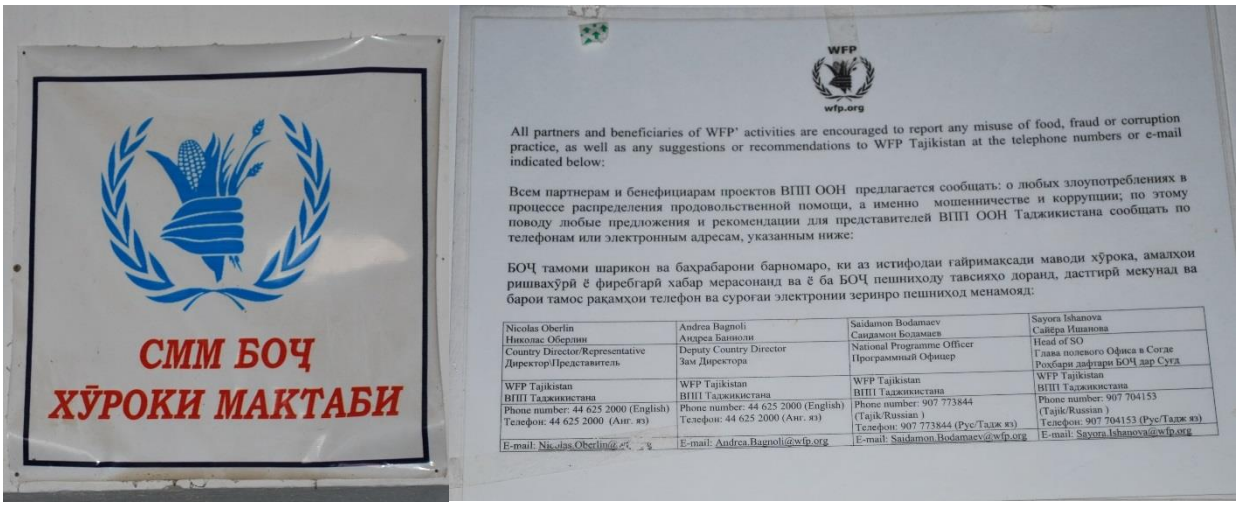


On the third day of the training, the processed products were evaluated by participants and by the school pupils. Six types of yogurts, including the control traditional yogurt, that was prepared on the first training day, was tasted by the participants. Most of the participants liked middle-acid types of yoghurt (YC 350 and XPL30) children also like very much the mild flavor yogurt (X11).

Participants liked all prepared cheese particularly the fresh cheese because of its mild flavor compared to the traditional one that become easily acidic.

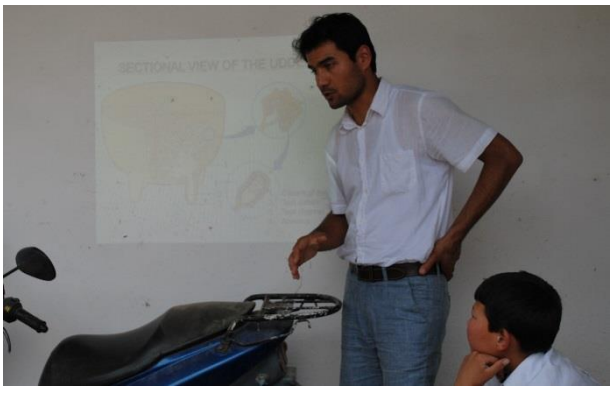
Hygienic aspects in milking and processing, health related risk from milk products, temperature regimes in processing, storage and cooling topics were again discussed during the tasting session to raise participants awareness for future marketing of their dairy products. Most of the women participants expressed their willingness to prepare those demonstrated dairy products for their family consumption and for the future marketing of cheese products. Active participants of the training received thermometers and rennet, the dry culture to prepare yoghurt and cheese products.

The school applies a children food support program through the World Food Program. The school supervisor of the food program was very interested in yogurt processing for the pupils. The children were offered flavored yogurt that was processed during the training and strawberry jam was used to flavor the yogurt. Also, fresh cheese was offered to the pupils. As a result the pupils gave us a big thanks for the products that they tasted.



Zartepa village community

One day condense training was conducted in Zartepa village. The training took place in the house of the school director where 25 women and 9 men gathered to receive the information. Also, the school girls were very interested and took a lot of notes. The training program was implemented as planned in Taboshar, with the exception of practical session of yogurt processing that was not done due to milk quality. The milk that we used was the evening milk obtained in Taboshar and cooled overnight improperly. Due to slight acidification the milk was not suitable for thermal treatment but only to be pasteurized. Therefore, the 15 liters of milk were processed into the different types of white cheese (Feta, ricotta and white cheese).



Generally, about 63 participants were attending the practical training. ICARDA provided the most active participants with 20 alcoholic thermometers, yogurt dairy culture that was ranked 'good' by the participants. Also, cheese rennet was provided to farmers in both locations.

Follow-up

As a next step for these training sessions, we agreed with our Tajik project partner, Dr. Matazim Kasimov that his team visits the both communities who receive the training regularly and observes which households continue processing milk to prepare new products. Those active households will be approached in the future to develop yoghurt and cheese value chains by producing market-oriented quality products. It was also suggested that project team provides additional dry culture for yoghurt and rennet for fresh cheese production for feeding the local school children.

Training Program

Milking and milking management
Milk Health and hygiene
Milk fat separation
Processing of curd using skim milk
Yogurt processing theory and practical
White cheese processing
Feta cheese
Ricotta cheese