



Nutrition and health risks in small ruminant value chains in Ethiopia – results of a rapid assessment

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The Safe Food Fair Food project in brief

Since 2008, the International Livestock Research Institute and partners have carried out research on food safety in informal markets in sub-Saharan Africa. Our vision is to improve the livelihoods of the poor by reducing health risks associated with animal-source food and improving nutrition and market access for smallholders.

Conventional food safety approaches focus on banning any product with germs or other hazards in it; this is bad news for small-scale farmers. New risk-based approaches seek to find out if there really is a danger to human health and, if so, how significant it is and what can be done about it. Risk analysis is the gold standard for food safety management in developed countries and can be a useful tool for decision-makers in sub-Saharan Africa where resources for addressing all potential hazards are scarce.

The Safe Food, Fair Food project is carried out with the financial support of the Federal Ministry for Economic Cooperation and Development, Germany and the CGIAR Research Program on Agriculture for Nutrition and Health, led by the International Food Policy Research Institute.

Small ruminant (sheep and goat) meat and milk have an important but underutilized role in the diet of Ethiopians. While small ruminant products boast a high nutritional value, they are also among the most important causes of food-borne disease.

The International Livestock Research Institute (ILRI) and partners conduct research on food safety in informal markets in sub-Saharan Africa. The SFFF project investigated patterns and habits of consumption of small ruminant products in Ethiopia. The goal of the project is to identify appropriate interventions to reduce the health risks and improve the nutritional benefits associated with the consumption of these products.

This research brief presents a summary of the results of the rapid assessment study carried out by the SFFF project in 2012/13 in Ethiopia, as part of value chains assessment led by our partner institute, the International Center for Agricultural Research in the Dry Areas (ICARDA).

The study identified the main issues that jeopardize the safe consumption of small ruminant meat and milk products in Ethiopia. Based on these constraints, researchable knowledge gaps and opportunities for improving food safety along the small ruminant value chain have been identified.

Methodology

Five of the study areas were based on highland smallholder mixed livestock/crop production systems and two sites were located in the lowland pastoralist areas. A rapid assessment of the food safety risks and nutritional benefits was conducted using participatory techniques. Participatory rural appraisals (PRAs) and focus group discussions (FGDs) were carried out with producer groups and with mothers of young children.

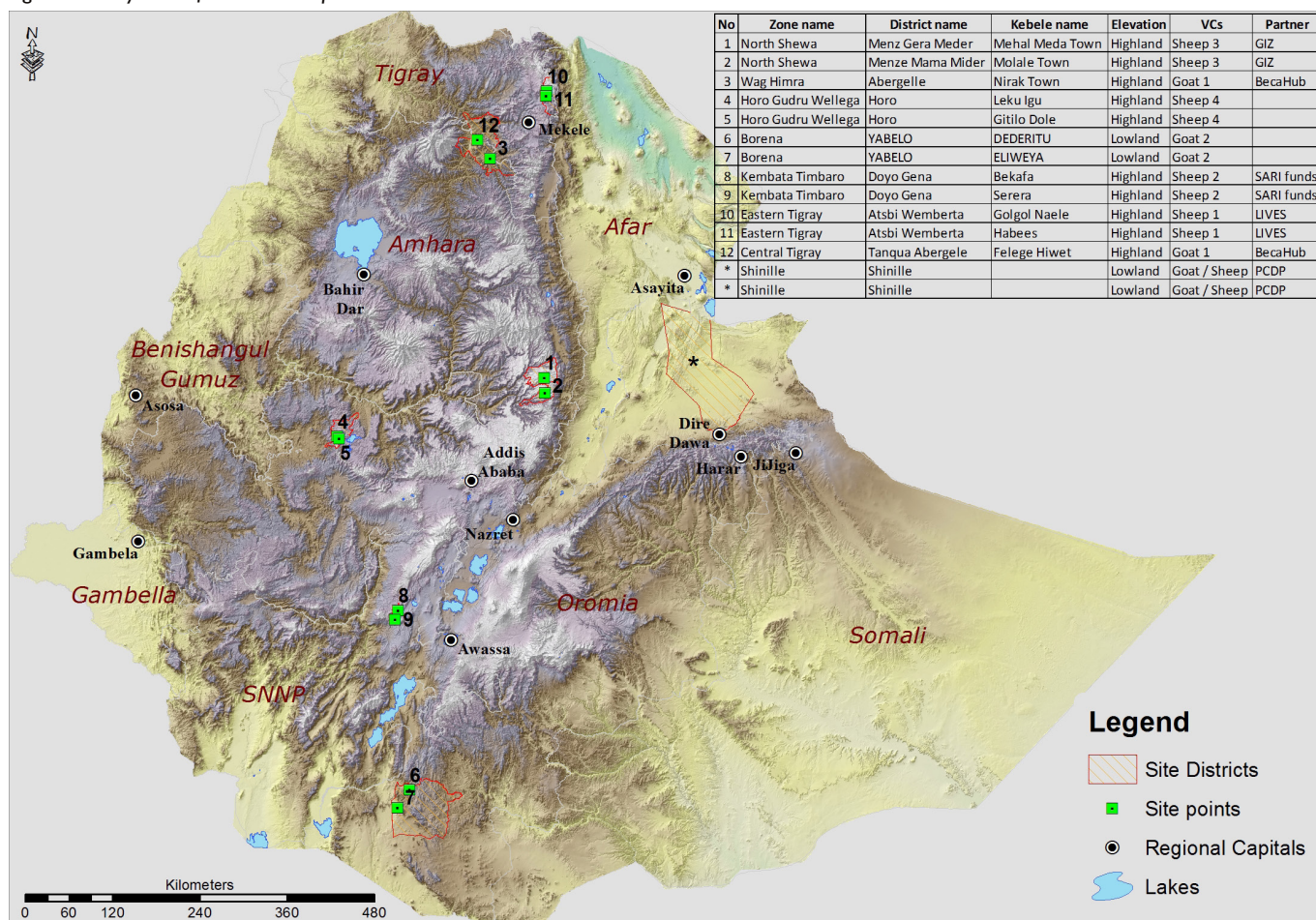
The research questions centered around food and nutrition security and safety as well as social and gender aspects of nutrition and health.

In addition, the study investigated knowledge, attitudes and practices as related to the consumption of small ruminant meat and milk products.

Key research questions:

- How do small ruminant production and consumption vary during the year?
- What are the constraints to production and consumption?
- How do people perceive food quality and safety?
- Who bears the food safety risks and enjoys the nutritional advantages of animal-sourced foods?

Figure 1. Study sites of SFFF in Ethiopia



Selected VC sites and partner projects

#	Value chain	District	Villages (Kebeles)	Region	Partner projects
Highlands					
1	Sheep 1	Atsbi	Habes Golgol na'ele	Tigray	LIVES
2	Sheep 2	Doyogena	Serara, Bekafa	SNNP	SARI funds
3	Sheep 3	Menz Gera Midr	Molale Mehal Meda	Amhara	
4	Sheep 4	Horro	Gitlo Lakku Iggu	Oromia	
5	Goat 1	Abergelle (Waq) Tanqua Abergelle	1. Sazba 2. Felegehiwot	Amhara Tigray	Sida funded ILRI (Beca Hub) project
Lowlands					
6	Goat 2	Yabello (Borana)	1. Elweye 2. Dharito	Oromia	
7	Goat/Sheep	Shinelle	1. Gad 2. Degah Jebis	Somalia	

Results

Small ruminant products have an important but underutilized role in the diet of Ethiopians

- Consumption of small ruminant products is low due to a combination of economic constraints, low productivity of the animals, and religious fasting.
- Small ruminant products have a great potential to improve food security for the rural poor. Goat milk in particular is likely to be an important pathway to improved nutrition in areas where dairy milk production is limited, and in the diets of children.

Consumption of small ruminant products is risky

- Due to poor veterinary care and insufficient quality control of small ruminant products, there is a risk of ingestion of harmful microbes and toxic chemical substances (such as drug residues) to consumers.
- Inadequate facilities for harvesting, processing, and storing of animal-source foods exist along the small ruminant value chain. Especially in the rural areas, refrigeration for meat storage and running/hot water for proper cleaning of equipment and facilities are often not available.

- Poor slaughtering practices and hygiene contribute to cross-contamination of carcasses with harmful microbes. For example, often the same knife is used to process several carcasses without cleaning the knife in-between. Poor personal hygiene of abattoir workers, butchers, and food handlers are also common.
- Improper food preparation practices and inadequate food preservation techniques also pose a risk to consumers. For instance, fermented goat milk products may be consumed without sufficient processing to kill all harmful bacteria.

How can research help close some of the knowledge gaps?

Studies into the effectiveness of traditional preservation techniques are needed

- Studies on the changes to safety and nutritional quality of small ruminant milk, particularly goat milk undergoing traditional processing are sorely lacking. Thus, research into optimising processing and storage of small ruminant milk products is needed.

Figure 2: Awasi special highland breed from Israel was introduced into the Kabe watershed.



Research focusing on the microbial quality of small ruminant meat and on the presence of drug residues in products is needed

- Previous studies provided evidence on the presence of various harmful microbes in small ruminant meat and meat products. However, the microbial quality of small ruminant meat in abattoirs and butcher shops in Ethiopia, that is, the level of contamination of the meat with these microbes, is unknown. These studies will be important to provide more accurate information on the level of risk posed by these microbes to consumers, and will allow prioritization of interventions.

What are the opportunities for improving food safety along the small ruminant value chain?

Several traditional preservation methods for small ruminant products already exist

- At all study sites, the use of medicinal or preservative plants to smoke or line the containers used for milk collection and processing seemed to be well established, and was considered important to preserve shelf life and safety of the products. Preparation of traditional Ethiopian milk products, particular butter, was reported at all sites. Existence of these practices allow for the identification and scaling up of the most effective preservation method(s) while assuring the affordability, acceptability, and sustainability of the intervention.
- The improper use of veterinary drugs may result in the contamination of the meat and/or milk of treated animals with harmful substances. The presence of drug residues in meat and milk of small ruminants has not been studied in Ethiopia, and is an important area of future research.

The Government of Ethiopia is committed to support and increase the export of small ruminant meat

- The attention of the Government on the small ruminant meat sector may have a positive impact on meat quality and safety.



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This brief is a product of the 'Safe Food, Fair Food' project coordinated by ILRI and financed through BMZ and GIZ. It is a contribution to the CGIAR research program on Agriculture for Nutrition and Health (<http://safefoodfairfood.ilri.org>).

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RESEARCH
PROGRAM ON
Agriculture for
Nutrition
and Health
Led by IFPRI



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May 2014