

Policy brief:

Re-assessing the economic value of local cattle breeds, examples from Ethiopia.

Introduction.

The importance of conservation and sustainable use of animal genetic resources (AnGR) is widely recognized by biodiversity specialists. AnGR are under threat and loss of breeds is an ongoing process.

Most of the livestock development policies however, tend to overestimate the benefits of breed substitutions and underestimate the value of local breeds.

So far, the analysis of the benefits of local breeds, has mainly been focusing on indirect economic benefits, such as livestock keepers rights, customary law, traditional property rights, cultural values, biodiversity, in general: non-income functions, hard to quantify in economic terms.

This policy brief explores the actual economic advantages of local breeds in the rural areas of Ethiopia.

Ethiopian livestock development policies.

The overriding goal of the Ethiopian national economic policies is the transformation of smallholder agriculture from subsistence to market orientation. In the belief of many, market oriented dairy development can only be achieved by replacing local breeds by crossbreeding and upgrading with improved breeds. Genetic improvement, however is only successful if conditions like availability of water and good quality feeds, health care, and if applicable, housing improve. Breed improvement under poor management circumstances will always lead to disappointing results.

Livestock production systems in Ethiopia can be classified as follows:

- 1) Pastoralists and agro-pastoralist, in the lower drylands.
- 2) Rural small scale mixed crop-livestock producers, non market oriented.
- 3) (Semi)commercial dairy production, small to medium scale farms with (some form of) specialization in dairy production: mainly the (peri)urban farmers.
- 4) Large commercial farms, fully specialized in dairy production. This type of dairy keeping requires high level of inputs and managerial skills. Only a handful of such farms are operational in Ethiopia.

Improved dairy breeds can be found on the large commercial farms and on a number of the (peri)urban farms. Various government and NGO dairy development programmes have been emphasizing the need to use modern breeds and dairy technologies, also with the rural small scale mixed crop-livestock producers, the vast majority of livestock owners in the country. Invariably, all these programmes have proved to be unsuccessful.

Evaluating direct economic benefits of local breeds.

In 2008, a study was undertaken¹ to identify constraints faced by dairy farmers in Ethiopia, preventing them from further investing in and increasing their milk production, despite the fact that the ecological circumstances are favorable for dairying. The study concluded that farmers have decided not to get engaged in risky dairy production, because farm sizes are small, (0,5 to 1,5 ha on average) and the priority of the farming household is food production for self sufficiency in which animals are kept for draught purposes,. Also because markets for fluid milk are distant, and infrastructure such as good roads allowing for adequate milk collection are lacking.

¹ Bekamp, Herjan 2008: *Research into the reasons for underinvestment in the dairy sector of Ethiopia: The case of smallholder dairy farmers in the regions of Debre Zeit, Sululta en Ziway*. Van Hall Larenstein Institute, Wageningen UR.

Whenever necessary, farm income is supplemented from trade and employment, rather than investing in risky dairy production. The milk that is being produced by the draught animals though, is not sold for fluid milk consumption but turned into traditional butter and cheese products.



Woman home processing milk



Gorfa, a traditional container for churning, transporting and short-term storage of milk

During the period of the study (April-June 2008) the price paid for fluid milk delivered by farmers to milk collection centers was on average just over 3 Birr/liter. Milk from local cows is high in fat content, which varies from 4 to 8 % per liter, depending on breeds and keeping (feeding) circumstances². The following overview shows the income differences from one liter of milk of fluid milk versus the income of one liter of processed milk from local cows.

Product	Price june 2008 (Eth Birr)	
Prices raw milk at milk collection centers	3,2	22 liter raw milk can be processed into 1 kg butter and appr. 1 kg of cheese.
Informal market		
Raw milk	3	Formal sector fresh milk:
Butter, home processed (kg)	80	22X3,20= 70 Birr
Cheese, home processed (kg)	20	Informal sector local products: 80+20= 100 Birr

The price per liter of processed milk of local cows on the local market is 40 % higher than the price of the same liter of milk sold as fluid milk in the formal market. Home processing of milk is time consuming, but on average, the time spent on processing will most likely not exceed the time needed to deliver milk to collection points. Another study carried out in 2008³ showed that distance to collection points are much larger for the rural areas than in the peri-urban areas. Moreover, risks of spoiling are averted in this way and processed dairy products can be marketed at feasible moments, such as after fasting periods when prices far exceed the averages mentioned in the table above. If farmers in rural areas are to benefit from commercial dairy production, a reliable market access is necessary to invest in e.g. improved breeds and management practices, enabling them to get full and consistent benefits from dairying.

Due to the high fat content of the milk of the local breeds, the income per liter is higher in this way,

² Payne, W., Wilson, R., 1999: Introduction to animal husbandry in the tropics, 5th Edition. Wiley

³ Vernooy, A, 2009: Performance of milk collection centers in Ethiopia. Report, Wageningen University.

making this kind of dairy production a very sensible and sound economic decision. This rationale is nevertheless hardly understood, neither by many researchers nor by development planners⁴.

Further economic benefits of local breeds.

Livestock make a substantial contribution to the economy of smallholder farmers in the central Ethiopian highlands. Apart from milk, local cows produce other direct benefits to farmers as well. The local cows in the highlands of Ethiopia are primarily kept for draught power.

Trade in livestock and the sale of livestock products contribute 34% of total farm cash in the medium-altitude zone and 87% in the high-altitude zone. Livestock also provide approximately 50% of the farm gross margin (60% when the value of intermediate products such as draught power is taken into account). Farmers receive attractive rates of return from investment in livestock, and livestock are important as a cash reserve in ensuring survival during bad agricultural years⁵.

A positive correlation exists on smallholder farms between the ownership of draught animals and grain production. One cow or oxen on a farm enables a family to increase the cultivated area by 60 %, two animals leads to an increase of 125 %. Crop yields per ha can be raised by 30-40 % using one cow or oxen, whilst the production improvement by using 2 cows or oxen can reach up to 60-70 %. These figures are not based upon recent research results but are still indicative of the direct economic benefits of using local animals³. The potential benefits however are influenced by the available land: if there is a high pressure on land, these production benefits from local cows can not be obtained and it may become interesting to invest in crossbreds, of which the milk can be sold in the neighboring area.

Furthermore, use of farm animals fully fits in an integrated production cycle on small scale subsistence farms. Animals can make use of byproducts, leftover from the crops. Areas on or near the farm, including communal grazing land or roadside grazing, can be used as a feed resource. Manure is used to improve soil fertility. Animals can also provide transport and thus be put to efficient use also during times when they are not needed for field work.

Biodiversity and/or livestock production.

Due to their disciplinary background few biologists looked at the function of biodiversity in agriculture and food production, which was the domain of agronomists. Vice versa the agronomists interested in raising food production and productivity levels usually showed little interest in the impact of agricultural development on the wider environment.⁶ This certainly also applies to AnGR, whereby the indirect benefits are clearly understood and lobbied for by various international fora⁷, e.g. through the attention for intellectual property rights which may can most



⁴ Wollny, 2003: The need to conserve farm animal genetic resources in Africa: should policy maker be concerned? Ecological Economics 45 (2003) 341-351

⁵ Gryseels, G (undated internet document, approx 1995): *The role of livestock in the generation of smallholder farm income in two Vertisol areas of the central Ethiopian highlands*. Highlands Programme International Livestock Centre for Africa (ILCA)

⁶ Visser, et al, 2005: *Changing perceptions on biodiversity management. Managing biodiversity at the interface between nature and agriculture*. North-South Policy Brief 2005-4. Wageningen University.

⁷ Mundy, Paul., 2007: *Managing animal genetic resources in Africa: Strategies, priorities, livestock keepers' rights and the way forward. Report of a workshop held at the Institute of Biodiversity Conservation in Addis Ababa, Ethiopia on May 24-27, 2007*.

probably be banked upon only in a fairly distant future, if ever. Unless the clear direct economic benefits of local cows can be properly analyzed and used in advocacy, it may be hard to unite biologists (focusing on conservation) with livestock specialists (who tend to overestimate the benefits of breed substitutions and underestimate the value of local breeds). Past and recent research in Ethiopia has shown a clear case confirming the direct economic benefits of local breeds and how these benefits of local breeds can be tapped on a countrywide scale by smallholder farmers to meet their immediate and future needs from agricultural production will be a definite challenge for policymakers.