Why livestock keepers give up their breeds

A recent global survey (FAO 2009c) indicated that economic and market-driven threats, inadequate livestock-sector policies, poor conservation strategies, inadequate institutional capacities to manage breeds and loss of labour, are the five major threats eroding livestock genetic diversity. A detailed study of threats to breed survival in Europe concluded that important threats included decreases in public funding, lack of political will to support rural communities, inappropriate policies and legislation including environmental schemes, disease, predators, urbanization, poor return on product, competition from other livestock, ageing of the farming population, lack of marketing support, inbreeding in animal populations and loss of skills (Carson *et al.*, 2008). Livestock keepers, particularly those who depend on natural resources and common property to raise their animals, have to cope with many challenges, which are making it more and more difficult for them to continue production.

ONE-SIDED INFORMATION AND SUBSIDIES FAVOURING THE ADOPTION OF IMPROVED BREEDS AND STANDARDIZED PRODUCTION AND BREEDING SYSTEMS

Government programmes, extension personnel with formal training in animal science and private companies who want to increase their sales often promote the adoption of high-performance breeds and the management of animals according to principles drawn from experience in high external input production systems (FAO, 2007a; Köhler-Rollefson, 2003; Du Toit, 2007). The adoption of exotic breeds is often heavily subsidized, giving them a competitive advantage over local breeds (Drucker *et al.*, 2006). Livestock development projects and programmes frequently introduce or promote exotic breeds or their crosses. Few projects focus on supporting and improving local breeds. In many cases, promoters of exotic breeds fail to inform livestock keepers sufficiently of the special needs and drawbacks of these breeds.

Such efforts are not new, or confined to the developing world: in the southwestern United States of America, for example, the size of the Navajo-Churro sheep population decreased as a result of government programmes. At the end of the nineteenth and beginning of the twentieth century, the Bureau of Indian Affairs promoted improved British rams. In the 1930s, thousands of sheep were annihilated by livestock-reduction programmes (Bixby, 2007).

CHANGING MARKET DEMANDS

With globalization, international and domestic markets become connected. Although these markets are not uniform, there are some common features in their requirements and their impacts. Increased domestic and long-distance trade requires standards and regulation to

ensure safety and reduce transaction costs. Food control and certification systems must be of a high standard. In addition to the health and safety standards and regulations agreed by international bodies such as the World Organisation for Animal Health (OIE) and Codex Alimentarius, technical requirements may be imposed by retailers. These may include demands for uniform batches and particular meat cuts, carcass sizes and weights, leanness of meat, fat levels in milk, egg colours, or labelling with particular information or in specified languages. Taken together, they tend to marginalize small-scale livestock keepers and the local breeds they keep.

As markets and consumer preferences change, the demand for certain products may decrease. The international demand for wool, for example, has dramatically slackened over the past decades, making sheep rearing less profitable. Sheep rearers may react to the change by switching to other species such as buffalo and cattle – as reported for Jalauni sheep keepers in India (Sahana *et al*., 2004) – or by shifting from wool to hair sheep.

Another option to cope with falling demand is cross-breeding the traditional breed with other production types and switching to other products. In Rajasthan, Raika sheep breeders adapted to the changing market conditions favouring meat rather than wool production by crossing their Marwari breed with faster-growing and higher milk-yielding breeds from neighbouring areas (Geerlings 2004; LPPS, 2003). For similar reasons, sheep breeders on the Deccan Plateau have been cross-breeding the Deccani wool sheep with Red Nellore rams – a hair breed (ANTHRA, 2007).

Experience from former Soviet countries indicates that reduced demand for a specific product threatens breeds specialized in the product, while a general deterioration of conditions can stimulate the use of local multipurpose breeds. Loss of inputs and markets caused by the break-up of the Soviet Union led people to return to more traditional breeds, such as local fat-tailed sheep (which can graze better under the snow) and Downy goats, and to keeping meat horses instead of cattle (Kerven and Lunch, 1998). Karakul sheep breeders in Uzbekistan, on the other hand, have not been able to cope with decollectivization and the collapse of the marketing system for pelts; they are rapidly abandoning the breed (Ibragimov *et al*., 2007).

Rising demand for a mass product can have two differing effects: namely livestock keepers may increase their stock of animals from local breeds or switch to high-yielding breeds from elsewhere. Operation Flood (a national dairy development programme initiated in India during the 1970s) illustrates the first possibility – the increased supply of milk achieved over the last three decades has largely been due to an increase in the number of buffaloes (Mathias and Mundy, 2005). Smallholders in Kenya, on the other hand, largely switched to high-yielding breeds to participate in the booming market for dairy products (Bebe *et al*., 2003).

Paradoxically, rising demand for products from a specific local breed can motivate livestock keepers to change their traditional breeds and management practices. The Iberian pig was traditionally kept under free-range conditions, but rising demand for its products has encouraged farmers to cross-breed their animals with Duroc pigs to improve daily weight gain, feed conversion and carcass quality, and to keep the animals in confinement rather than allowing them to forage (Daza *et al*., 2008).

PHOTO CREDIT: PHIL SPONENBERG

The Tennessee Fainting goat (United States of America) has a high meat to bone ratio and can be handled easily

CONTROL OF LAND, WATER AND LIVESTOCK

A shift of livestock breeding from traditional societies into the hands of landowners with capital leads to the homogenization of once-distinct breeds. In Kenya's Central Highlands, the privatization and fencing of land in the 1950s and 1960s promoted the replacement of traditional livestock breeds with exotic dairy cattle (Rege, 2001). In Sudan, investors profited from a series of droughts that enabled them to accumulate large livestock holdings from various tribal groups. As a result, formerly distinct camel breeds merged into one generic type (Köhler-Rollefson, 1993b).

The expansion of cropping into former rangelands – often furthered by subsidies for mechanized power, fertilizer and high-yielding crops – means that livestock keepers have fewer areas to graze their animals. In drylands, cropping usually expands in the slightly wetter areas, which pastoralists traditionally use for dry-season or emergency grazing. Cropping and fencing such areas deprive the pastoralists of important grazing resources, forcing them into drier, riskier areas. The result is lower production and major problems during drought, as well as conflicts with the farmers and other pastoralist groups. However, the newly farmed areas are often unsuitable for cropping in low-rainfall years or when the groundwater level sinks because of overuse, leading to poverty and food insecurity among the farmers as well as the pastoralists they have displaced.

POLICIES AND ANIMAL HEALTH REGULATIONS

National politics and policies have a major effect on the livelihood of livestock keepers and the conservation of breeds. Due to a lack of recognition of the multiple contributions of smallholder farmers and pastoralists, policies commonly further large-scale production, to the disadvantage of smallholders and pastoralists. Settlement policies force pastoralists to give up nomadic lifestyles, with negative consequence for their breeds and their environments.

Projects and policies aiming to support smallholder farmers and pastoralists and conserve the environment can also have unintended adverse effects on livestock keepers. An example of this is the promotion of water holes in pastoral areas, which has induced pastoralists to reduce their movements, leading to overgrazing around the water holes (e.g. Homann, 2005). Yak breeders in Bhutan used to burn pastures to control scrub and promote palatable fodder plants. A prohibition of burning under the Bhutan Forest Act of 1969 forced many herders in central Bhutan to give up yak keeping (Gyamtsho, 2007). In East Africa, a ban on burning, and afforestation programmes with *Prosopis juliflora*, an unpalatable species, have encouraged the growth of bush and restricted the grazing areas available to pastoralists (IIRR, 2004).

Regulations intended to protect consumers and prevent the spread of diseases sometimes put insuperable burdens on smallholder farmers and pastoralists, making it difficult for them to continue using and maintaining their breeds (FAO, 2005). Examples include measures to control epidemics through stamping out and zoning (Carson *et al*., 2008). Breeds threatened by rigorous disease control measures have included Herdwick sheep and the British Lop pig, threatened by foot-and-mouth disease in the United Kingdom (Roper, 2005) and Co ducks threatened by highly pathogenic avian influenza in Viet Nam (Nguyen and Duc Trong, 2007).

Control measures for highly pathogenic avian influenza have both direct and indirect impacts on poultry genetic resources. Direct impacts occur when local poultry breeds or even valuable institutional stocks (e.g. birds kept by the Faculty of Agriculture of the Cairo University) are culled because of disease outbreaks (FAO, 2006b). Indirect impacts are caused by biosecurity measures and poultry-sector restructuring introduced the wake of disease outbreaks, which have tended to marginalize smallholders and the local poultry breeds they keep. Examples include relocation of large scale-production and market units from areas with dense poultry populations into more remote areas (e.g. in Malaysia and Viet Nam); and the closure or relocation of live-poultry ("wet") markets, collection points and small slaughter points, with subsequent exclusion of smallholders from the market chain (FAO, 2006c).

Other regulations that push up production costs per animal and are likely to drive many smallholder farmers and pastoralists out of "business" include the stringent record-keeping requirements that the European Union is planning to introduce for traceability.

Clearly, it is not feasible or advisable that breed conservation objectives should take precedence over the need to control serious epidemic and zoonotic diseases. Livelihood implications (positive and negative) particularly for the poor should, however, be given serious consideration. With better planning, much could be done to ensure that impacts on livelihoods and genetic diversity are minimized. Smallholder farmers and pastoralists should be given a voice in designing disease management plans and campaigns.

PHOTO CREDIT: ELLEN GEERLINGS

Local black pigs are important for ritual purposes in Cameroon

CHANGING LIFESTYLES

Changes that are otherwise to be applauded may reduce the ability of livestock keepers to maintain their lifestyles and their breeds. Sending children to school can conflict with the need for labour to herd animals. School attendance not only competes for the children's time, but also tends to alienate children from their own culture. The temptations of modern life, broadcast by the media to the remotest corners of the globe, decrease the interest of young people in continuing their parents' lifestyles. Those who would like to do so cannot see how they can make a living from livestock keeping, given all the adverse forces. The rural exodus in developing and developed countries reflects widespread neglect of integrated rural development.

Commercialization affects breeds more directly. From being an integral part of a culture –preserved simply because they are part of that culture – livestock breeds are coming to be regarded more as a source of income. The Raika pastoralists of Rajasthan used to refuse to sell their female camels, but declining grazing resources and high prices have induced them to send their female camels for slaughter. In Togo, West Africa, Tamberma agropastoralists traditionally keep the Somba breed mainly for ritual purposes and in small herds (up to ten) that can be protected inside their compounds. Animals of this breed are necessary for dowries and sacrifices to the ancestors. Traditionally, the Somba cattle also played a role in maintaining the spiritual balance of a family. Now the need for money to pay for education and medical care has changed attitudes towards cattle keeping and reduced interest in the breed (Bèdibètè *et al.,* 2007).