

7 Schwäbisch Hällisches Landschwein, **GERMANY**

8 Management, use and conservation of local zebu cattle genetic resources in traditional livestock farming systems in **TAJIKISTAN**



CHAPTER 3

LIVESTOCK REARING IN TEMPERATE CONDITIONS

Livestock rearing systems in southwest Germany are conditioned by a continental climate. The Schwäbisch Hällisches Landschwein pig breed is native to China. It was introduced in the Hohenlohe region in Germany in the early nineteenth century and adapted rapidly to local conditions. The breed was the most important source of income for the region's farmers in the 1950s, but nearly disappeared in the 1960s when commercial pig breeds dominated the local markets. Convinced of this pig breed's added value, farmers in the region organized themselves to save the breed. The present case study is a success story showing how a group of motivated farmers managed to revitalize the breed through a structured and communal approach.

Local zebus are the most suitable cattle in Tajikistan's mountains and are vital to the daily lives of households in more remote areas. Recently uncontrolled introduction of exotic breeds and indiscriminate cross-breeding has been the trend. The crossbreeds are less resistant to local diseases, have lower fertility rates and the quality of their products does not match that of zebus. Local zebu breed diversity is diminishing and the breed is risking extinction. The question is how to save this breed from being lost and how to safeguard those whose future depends on it.



Map below:

Location of the Hohenlohe region
in Germany



SCHWÄBISCH HÄLLISCHES LANDSCHWEIN, GERMANY

R. Bühler and B. Hamilton

SUMMARY

Schwäbisch Hällisches Landschwein fell out of favour and almost became extinct. Interested farmers formed a breeders association which has succeeded in reinstating the breed and finding specialist markets for its products.

The case of the Schwäbisch Hällisches Landschwein (SHL) breed in the Hohenlohe region of Germany is an example of the successful revitalization of an almost extinct breed by the perseverance of regional farmers implementing a well-structured plan.

This breed comprised 99 percent of the Hohenlohe regional market until 1959, but later became a “breed at risk” when a combination of government policy and economic trends favoured industrial production methods, replacing the local breed with lean pigs from the Netherlands, thereby leaving small-scale farmers without support and without livelihood. The move to industrialized production had multilevel implications. Meat quality was compromised; animal welfare was ignored; small farms could no longer compete on the market and stopped raising the local pigs; and, as a result, traditional knowledge and the preservation of agrobiodiversity were endangered.

However, some local pigs were still kept on smaller farms and, in 1984, a group of farmers in the Hohenlohe region who still valued local animal genetic resources and the traditional qualities of the SHL breed met and established a community of interest. Thus the



PHOTO 1. Schwäbisch Hällisches Landschwein in their habitat

movement for the revitalization of this breed was born.

Subsequent action entailed precise characterization of the original genotype and extensive gathering of information. These factors were then applied in selecting pigs from the remaining gene pool that were suitable for the establishment of an official breeding line and registration and coding. The Schwäbisch Hällisches Landschwein Breeders Association was



R. Bauer



R. Bauer

PHOTO 2 and 3. Butcheries selling pork products from the SHL breed in the Hohenlohe region

subsequently founded, uniting the small-scale farmers of the region in the cause. The association promoted the SHL breed in particular and initiated activities to raise public awareness of the importance of conservation of local animal genetic resources. New markets for pork products from the SHL breed were created and guidelines controlling quality were implemented. The revitalization of the breed united the local small farmers, provided them with sustainable livelihoods and encouraged preservation of local traditions.

The association gained the support of local farmers who participated actively in lobbying and grew into an organization of more than 500 members. A financially

and politically independent farm bureau was established and eventually, in 1998, European Union legislation for the protection of the breed was passed.

The success of the revitalization of the SHL breed shows that by raising public awareness, pushing for legislation, and organization at the grassroots level, local farmers have the power to revitalize a breed at risk, promote conservation of local animal genetic resources and regain their traditional livelihoods by influencing economic trends and making subsequent relevant changes.



R. Bauer

PHOTO 4. Panoramic view of the Hohenlohe region, home to the SHL



R. Bauer

PHOTO 5. Back to traditional SHL farming



Map below:

Local zebu cattle habitat



MANAGEMENT, USE AND CONSERVATION OF LOCAL ZEBU CATTLE GENETIC RESOURCES IN TRADITIONAL LIVESTOCK FARMING SYSTEMS IN TAJIKISTAN

Dadajon Ergashev, Arunas Svitojus and Lina Baltrenaite

SUMMARY

Tajik zebus, which are small, hardy and resistant to theileriosis, are the only cattle capable of surviving in the country's rocky mountains and are the main food resource of communities there. They mainly graze, often in transhumant systems. After decollectivization, farming systems collapsed and livestock breeding systems were no longer functional. In a short period the number of cattle in the country fell by half. Recently crossing with exotic breeds has reduced the number of pure zebu. Management strategies based on sound breeding programmes with farmer participation are needed. One possibility is to establish an open nucleus which would allow controlled selection and preserve genetic variability.

The dual-purpose zebu is distinguished from other cattle in Tajikistan by its adaptation to the country's climate, the high fat content of its milk, excellent meat and its resistance to tick-borne theileriosis. The breed is small, has a low feed conversion ratio and its meat and milk production are low, but it is prolific with low infertility rates and synchronized calving seasons. They are the only cattle capable of surviving in the country's rocky mountains and are the main food resource of communities there, especially in the more remote areas. All products from zebu production, such as milk, meat, hides and manure are used for home consumption. The zebu also provides draught power.

HISTORY OF LIVESTOCK REARING IN TAJIKISTAN

After the domestication of cattle in Asia the main selection criterion was their ability to produce food under local conditions. In valleys, farmers raise dairy

cattle, keep chickens and rabbits or rear silkworms. Beef cattle, sheep, goats, yaks and chickens are more common in submontane and mountainous areas.

Beef accounts for half the meat produced in the country, mutton and goat 20 percent, chicken 15 percent, pork 10 percent and others the remaining 5 percent. Under the communist regime, collective farms provided meat and milk to processing industries at prices set by the state. Following independence in September 1991, the private sector set the market prices. Largely unprepared for the political transition; during a civil war which erupted in May 1992 and lasted five years, the country plunged into a deep economic and political crisis. Farming systems collapsed and livestock breeding systems were no longer functional, resulting in low productivity. In this short period, the number of cattle in the country fell by half.

Tajikistan, in southwest Central Asia, covers about 143 000 km². Its surface is dominated by rocky mountains, mostly of volcanic origin. It has five

geological regions: the Sogd in northern Tajikistan; the Fergana depression; Gissaro-Alay in central Tajikistan; the Tajik depression; and Pamir. Tajikistan has about 6.5 million inhabitants. Population density is rising because of a rapidly rising birth rate. More than 9 million ha are suitable for agriculture but only 8 percent of this is irrigated. More than half of the land is state owned, with 4.5 million ha allocated to natural reserves and 500 000 ha to forests. Slightly less than 200 000 ha are owned by the private sector and approximately 40 000 ha belong to the population.

PASTURE RESOURCES

The Pamir, notorious for its extremely harsh climate, occupies about 45 percent of the country. Pastures make up the main part of the useable land. Their productivity is low and their natural recovery rate cannot keep up with intense utilization. Changing migration routes and inappropriate grazing management, especially of local zebu cattle, are leading to overexploitation and causing rapid land degradation. Local zebu cattle are decreasing in number, but their current density still exceeds the pastures' capacity to recover naturally.

Because of widespread pesticide use between 1960 and 1990, soils were severely contaminated. On several farms abnormal pesticides levels are still found in local meat.

BREED CHARACTERISTICS

The local zebu resulted from natural crossing between pure zebus and Central Asian cattle during the human migrations in Central Asia. Zebu cattle are found in southern Kyrgyzstan, Turkmenistan and Uzbekistan;

those in Tajikistan are smaller. Local zebus are characterized by a hump on their backs, pendant ears, large wrinkles under the dewlap, a long narrow skull and a short, swollen forehead. The breed is genetically adapted to hot, dry climates and is resistant to theileriosis. Their coat is usually brown or black. Females weigh 200 kg and males about 315 kg. Milk yields vary between 400 and 800 litres per year with a fat content up to 6 percent. No research is being carried out on the breed. Zebu cattle are spread throughout the regions of Sogd, Khatlon, Gbao, the Hissar valley and Rasht.

RURAL COMMUNITIES AND ZEBU CATTLE

Local zebu cattle are a main food and income resource for rural households in mountainous areas.

Women make cheese and use whey for shampoo. Dung is used for heating and cooking; in spring it is used as manure. Draught zebus allow farmers to cultivate their land. Hides are mainly used for making lampshades. Zebus are farmers' savings; they are sold for cash and serve as dowry or as gifts during ceremonial events. Zebu cattle are easy to keep and do not require herding; they usually wander to pastures by themselves and return home on their own.

BIODIVERSITY LOSS AND CONSERVATION OF LOCAL ZEBU CATTLE

Tajikistan has indigenous asses, cattle, goats, horses, sheep and yaks. In recent years there has been a wide circulation of exotic cattle such as Holstein-Friesians and Brown Swiss which has led to cross-breeding and a reduction in the number of pure-bred local cattle. Genetic material is being lost at an alarming rate.



PHOTO 1. Zebu cattle are used for work in the field

D. Ergashev



PHOTO 2. Local zebu cattle

D. Ergashev

Susceptibility to diseases is increasing and fertility rates and product quality are falling. Considering the unique characteristics of zebu cattle and their contribution to local food security, their conservation should be prioritized.

Farmers need to organize to establish management strategies based on sound breeding programmes. One possibility is to establish an open nucleus which would allow controlled selection and preserve genetic variability. In the long term, a gene bank of semen, oocytes and DNA samples is needed. However, the success of biotechnology depends upon the availability of adequate human resources and funding, neither of which is currently available.

In-depth research is needed to improve the knowledge of the local zebu cattle's genome and might clarify how genes are inherited and identify those that ensure environmental resilience.

RECOMMENDATIONS



PHOTO 3. Zebu cattle migrating to mountain pastures

Tajikistan needs an updated database to describe the status and characteristics of its zebu cattle. Lack of overall coordination is obstructing activities to support their further development, use and conservation.

Policy-makers could provide support to zebu raisers at various levels.

- > Promote zebu cattle and products, among the general public.
- > At national and regional levels, networks among the various stakeholders involved in raising livestock, and specifically local zebu cattle, should be established to:
 - facilitate the development of conservation strategies based on cooperation;
 - discuss conservation options including the establishing of an open nucleus;
 - establish sustainable monitoring systems to record the status of livestock populations.
- > Invest in capacity building and training, in breeding strategies.
- > Enhance coordination among the various organizations in Central Asia that currently develop and implement subregional projects and programmes related to animal genetic resources.

REFERENCES AND INFORMATION RESOURCES

Akmalxanov, S. 2002. *Genetic resources of meat and milk in Tajikistan*. Tashkent.

Biological diversity of Tajikistan. www.biodiv.org/doc/world/tj/tj-nbsap-01-p04-en.pdf

Jergsev, D. 2004. *Species and breeds of Tajikistan domestic animals*. Dushanbe.

Jergsev, D. 2005. *Zebu cattle population of Tajikistan*. Dushanbe.

Kaxapov, K., Dustkulov, D. & Golubkin, I.I. 2002. *The usage of Tajik zebu genetic resources in selection*. Tashkent.

Kovalcuk, I.S. *Breeding of zebu in tropical climates*. Animal husbandry manual for foreign students.

Management and feeding of zebu cattle. www.itcp.ru/db/37000-37099.html

State of the environment in Tajikistan. <http://enrin.grida.no/htmls/tadzhik/soe2/eng/index.htm>
www.zrz.ru/archives/2002/03/article5/article5.html