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Livestock and Livelihoods

Over the years, many different kinds of animals (i.e., horses, pigs, cattle, goat, camels, elephants, llamas, alpaca, vicuña, reindeer, etc.) have been domesticated in different regions of the world for different reasons. It is estimated that the earliest domestication of animals took place over 14,000 years ago. The first animal to be domesticated was the dog, essentially as a companion animal.

Some animal species have traveled from their original centers of domestication to other parts. They have successfully adapted themselves to the conditions and the needs of people there. Examples of these are cattle, horses, sheep, goats, poultry, pig, chicken and ducks. In the case of some species, it is believed that perhaps, domestication happened more than once at separate locations. This is what is believed of the *Bos taurus* (humpless cattle), which is believed to have been domesticated from the Auroch in the region around Turkey and then had another round of domestication in north Africa.

People in the deserts, on the other hand, domesticate camels for transport purposes. Likewise, camels provide milk, meat, hair, leather, and manure. Furthermore, they are symbols of wealth and status, and may be traded in exchange for other goods.

Livestock Breeds

Breeds have developed slowly over a long process taking many thousands of years. This was done through a selection process, which was both natural and driven by human needs. Through the natural process, only those species, which could withstand a particular agroecological zone, survived. On the other hand, humans carefully selected species based on physical and production traits to meet their local needs and requirements. Therefore, the needs of a farmer in the cold grasslands of the Steppes in Russia were quite different from the needs of farmer of the grasslands of India or Pakistan. Today, there are some 6,000 to 7,000 known breeds of domesticated animals spread all over the world. The careful process for selection of different traits is largely responsible for the difference in performance and appearance of the breed from its wild progenitor, as well as from other breeds of the species.

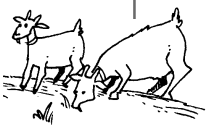
Livestock Livelihood Systems

Certain distinct patterns of livestock farming arose from the region of domestication, the need for domestication, and specific demands of the local communities.

Pastoral Systems

A large number of animals were domesticated in the grasslands of west and central Asia. These were mainly the herbivorous species that ate grass (i.e., sheep , goat, cattle, horse and camel). In these areas, crop farming was risky and fraught with uncertainties while livestock proved a suitable alternative. Early cattle, sheep and goat herders were often migratory. They herded their animals from place to place in search of pastures. When the pressure on grasslands became excessive, they migrated out in search of fresh pasture or moved into new territory.

Breeds selected by these herders were essentially ones which could stand the stress of migration, droughts and periodic food and nutritional shortages.

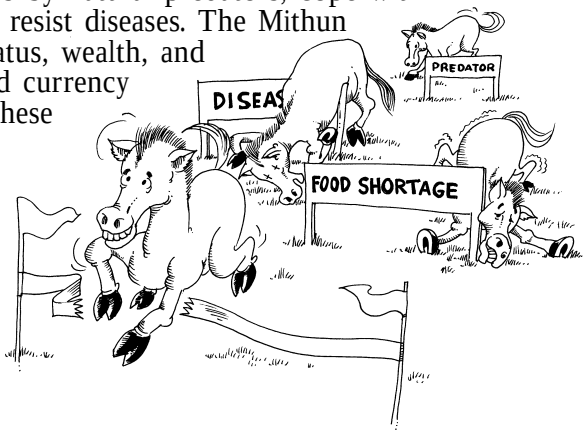


As their lives and livelihoods depended on animals and animal rearing, these herders have kept some of the finest animals and breeds for generations. Even today, it is estimated that 15% of the cattle in the developing world are kept by pastoralists especially in the semi-arid parts of Africa, west Asia, India and Pakistan.

Forest-based Systems

Communities who lived in forested areas first domesticated tree species. In the tropics, animals like the elephant, water buffalo, pigs and chicken were domesticated for food, manure, draught and sport. However, not all wild forest species were suitable for domestication, and many species were in a state of semi-domestication. They reverted back to their undomesticated state when human care was withdrawn.

The Mithun breed of sheep was domesticated by communities who live in the forested regions of northeast India is an example. The forest imposes unique challenges and only animals that can withstand these could be successfully domesticated. The challenges include being able to withstand attacks by natural predators; cope with food shortage; and resist diseases. The Mithun sheep represent status, wealth, and serve as capital and currency for the people of these communities. However, the Mithun are not really kept in the same intensive way as cattle are in the developed parts of the world.



Crop-based Livestock Rearing Systems

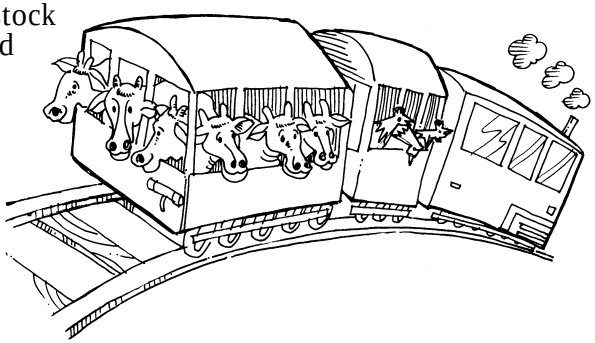
A major revolution in livestock farming happened thousand of years ago when crop farming and livestock rearing were brought together under mixed-crop livestock farming systems. Under these systems, by-products from agriculture (crop residue and straw) were used to feed animals. In exchange, animals had to work. Their waste (dung) was used as fertilizer. It was this great revolution that led to food surpluses and helped societies go beyond the level of mere subsistence.

Many interesting patterns of mixed crop livestock rearing evolved in the different countries of the world. These patterns were in response to development, emerging needs and changing environments. Through this process, many interesting breeds have developed.

Religious preferences and social taboos also determine the selection of species and breeds of animal. In India, cattle breeds are not selected for beef as there is a religious ban on the consumption of beef. On the other hand, these very same breeds (Ongole and the Kankrej or Gujerat) are raised in Australia and the Americas as beef breeders under the ranch lot systems.

Modern Systems of Animal Rearing

Livestock have evolved and migrated around the world. Livestock breeds were taken to the grasslands of the Americas and Australia where livestock production intensified under the ranch lot systems. The development of the railways, cold storage systems and refrigerated ships accelerated the development of this kind of livestock rearing, which led to fairly undesirable social and environmental consequences (i.e., large tracts of virgin forests were brought under pasture).



Modern Farming Systems

Intensification of livestock production has relied upon uniformity in the genetic composition of the livestock. For example, almost all the pigs reared under commercial farming systems in Europe and North America belong to two or three breeds. Ninety percent of all north American dairy cattle and 60% of all European cattle belong to only one breed, the Holstein. Furthermore, it is estimated that by 2015, the

genetic diversity within this breed will come from only 66 individual animals. Organized poultry farming across the world relies on a few multinational companies who have developed a handful of breeds for their supply of stock.

The Need for Agricultural Biodiversity

A narrow genetic base as developed by commercial farming systems poses many inherent dangers. This narrow base carefully selected for a particular trait may be completely unsuitable to the emerging problems of the future. These include diseases and the increased demand for diverse livestock products. On the other hand, a wide genetic base makes it possible to carry out productive livestock farming under diverse conditions.

Most of the world's poor live in marginalized areas where it is not possible to manage livestock farming under intensive conditions. Livestock is reared to cater to a number of personal needs and demands.

Livestock rearing patterns are intricately woven into a delicate balance with other systems in their area. Specific species and breeds are associated and identified with their socio-cultural place in society. Thus, the introduction of a program or new breeds or species of animals tend to upset the balance which has evolved slowly over many years. Wide genetic diversity provides these people to continue to live a life of social, cultural and economic independence and dignity.

References:

Groombridge, B. (ed.). 1992. Global Biodiversity: Status of the Earth's Living Resources. Compiled by World Conservation Monitoring Centre. Chapman and Hall, London.

Sahai R. and R.K. Vijh (eds). 2000. Domestic Animal Diversity Conservation and Sustainable Development, SI Publications, Karnal (Haryana) 132001, India.

Scherf, B. (ed) 2000. World Watchlist for Domestic Animal Diversity, 3rd edition, FAO, Rome, Italy.

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