Cattle Development Problems and Programs in India:
A Regional Analysis

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Abstract: India has the largest cattle production in the world. Generally, Indian cattle are considered to be of poor quality, and it is suggested that most of these animals are useful only for beef but for their religious significance to the Hindu majority. Such generalization at the national level ignores the regional qualities of several superior indigenous breeds. Further, India together with some international agencies has launched the most comprehensive cattle development programs in the world. Known as the Key Village Scheme and Intensive Cattle Development Projects, their main objective is the spatial diffusion of superior quality breeds throughout the country. This study is the first attempt towards mapping and evaluating the problems and success of these programs at the district level in India.

Introduction

The cattle play a significant role in the life and economy of the people in India where 70% of the total population is dependent on agriculture. From subsistence to commercial farming, cattle form an integral part of farming providing draught power for various phases of agricultural operations from ploughing, irrigation, harvesting and transportation to supplying manure, fuel and milk. Although there is little demand for beef in a predominantly Hindu society, the main source of animal protein in India remains mostly the milk and milk products; and in the fuel deficit thickly populated plains dry dung contributes up to 15% of non-commercial energy requirements. It is estimated that cattle yield more than 50% of the total agricultural income in India.

Objectives

India possesses the largest bovine population in the world totalling about 236 million which includes 178.3 million or 76% cattle (Zebu) and 57.4 million or 24% buffaloes. Generally, the Indian bovine stock is considered a very poor quality and mostly uneconomical; it is suggested that a large number of cattle may be useful only for beef but for their religious significance to the Hindu majority. Developed nations involved in foreign aid to India claim that “... it's (cow's) status as a sacred animal precludes any further development”. Such generalization at the national level, however, is common because little is known about the Indian cattle as an important economic resource. Particularly, there are few studies dealing with the regional assessment of the extent and the quality of cattle and their development problems and potentials. Most western researchers have studied cattle problems because they are intrigued by the “holy cow” in India, while Indians have done little perhaps because it is a “holy cow”.

The main objectives of this study, therefore, are to (a) examine the regional qualities and potentials of indigenous bovine breeds of India, (b) evaluate the problems and success of various cattle development programs including the cross-breeding with European cattle launched in different regions.
of the country, and (c) delineate the level of cattle development regions in India.

Data sources
There is an excellent record of livestock census of India covering several decades and including data on the number of milch cows, draught and breeding stocks, age groups and some selected items on bovine population for about 360 districts within 22 states and 9 union territories 8). Other relevant data such as types of bovine breeds and various development officers in selected breeding tracts and back-national and state level sources in India. Furthermore, field interviews were conducted with farmers, herdsmen and development officers in selecting breeding tracts and backward areas to supplement the published/unpublished reports and to assess development problems and conditions.

Nature of Indigenous Bovine and Development Problems
The indigenous humped cattle in India belong mainly to the species *Bos indicus* and are also known as Zebu 9). Since humped bulls and cows are frequently seen in the ancient seals of Mohenjo-Daro and Harappa, it is contended that Indus people had domesticated the Zebu as far back as 3250 BC 10). Over the centuries, these cattle have evolved qualities best suited to the physical environment and the economic condition of the areas. Under the hot, dry, or humid monsoon climates of India, for example, the Zebu cows have remarkable endurance to maintain the milk flow with little reduction in yields, the bullocks can work long hours and retain health and weight, they possess a high degree of immunity to major cattle plagues and tickborn diseases, and the Indian cattle have developed a very high digestive efficiency recycling the coarse residue of most food crops not fit for human consumption. Furthermore, the Indian cattle can survive on small quantity and poor quality of feed for a long period of time, becoming almost skeletons during droughts, floods, or famines, and yet can recover rapidly when better conditions return — a quality possessed by few other cattle breeds in the world 11).

The same qualities which have helped these cattle to survive the harsh conditions and yet remain useful to farming, have caused their deterioration in terms of their economic returns. Judged by the western standard, the Indian cattle are generally of poor quality. For the Zebu cow, it takes a longer time to mature from four to five years for calving as compared to only two to three years for western breeds. The dry period between calving is longer, the lactation period is shorter, and the average annual milk production is about 173 kg per lactation as compared to 3,000 to 4,500 kg from that in the western countries 12). Thus, the average productivity of a cow in India is about 1/17 to 1/23 of that of the cow in the developed countries. Despite the low productivity, however, the fat content of the Zebu cow milk is remarkably high, 4 to 6 %; and a few purebreds have recorded more than 5,900 kg of milk production in one lactation.

Qualities of the Indian Cattle Breeds
The generalization of qualities of indigenous cattle ignores some very useful and productive Zebu breeds found in different parts of the country. Because of different climatic and edaphic conditions, the cattle population in India is highly varied in structure and body conformation. An effective development of Indian cattle is possible only if their qualities and potentials for various uses are recognized. The Indian Council of Agriculture, therefore, has made systematic studies and recognizes 25 important cattle breeds and 6 buffalo breeds. Based on these reports and other related studies, a map has been prepared showing the types and qualities of important breeds of cattle and buffalo in India (Fig 1) 13).

The best cattle breeds are generally found in the drier parts of India, such as in Punjab, Haryana, Rajasthan, Gujarat, and parts of Maharashtra and Karnataka. A noteworthy feature is that in most of the warmer and humid parts, such as in Assam, West Bengal, Orissa, Bihar, Tamil Nadu and Kerala, the animals are non-descript, of inferior quality, and poor milk producers (Fig 1).

There are two principal uses of developing superior bovine breeds in India viz., (a) for draft power for farming and transportation, and (b) for adequate milk production for the huge and rapidly rising population. The use for raising beef cattle is negligible in a predominantly Hindu society, where only old cattle and buffaloes are slaughtered for this purpose. Therefore, a three-fold functional classification of cattle breeds in India recognizes (a) milch breeds, (b) draft breeds, and (c) dual purpose (a + b) general utility breeds.

(a) Milch Breeds. In this group, the cows are valued for higher milk yield but the bullocks are of poor to moderate quality as draft animals. Among the five most popular indigenous milk breeds, viz., Gir, Sahiwal, Deoni, Tharparkar and Red Sindhi found in drier parts of India and Pakistan, only Gir and Deoni breeding tracts are in India (Fig 1). Red Sindhi and Tharparkar breeds common in Pakistan, are mostly raised in various government and military dairy farms in India. For these breeds, the average milk yield per cow in one lactation period of 300 days ranges from 1,675 kg to 5,440 kg with milk fat content of 4.5 to 4.9 %.

(b) Draft Breeds. In this group, the cows are poor milkers but the bullocks are powerful and fast and make efficient draft animals. Among all the categories of indigenous breeds, the draft breeds are predominant, con-