The European agricultural revolution has been regarded as a classical model of agricultural development even in the rest of the world. A major concern of the model lies in improvement of livestock-crop linkage through better rotation systems and in this perspective, that is a driving force towards agricultural evolution. With regard to Japanese traditional agriculture, although the linkage has been less important than that in its Western European counterpart, a similarity between the two in terms of methods to maintain soil fertility is certainly observed. This is the reason why the classical model, stemming from Western Europe, has greatly affected the way of understanding and explaining agricultural development in Japan during the past decades, and the comparative viewpoint of farming systems, based on this model, has implicitly or explicitly, provided a firm background for comparing a variety of agricultural systems in physically and culturally different environments.

Unlike the Japanese system, indigenous farming systems observed in Southwest Asia have a tradition of livestock-crop linkage similar to Europe, although the distribution of mixed agriculture in the former area is rather limited. It has been considered, however, that some conditions in Southwest Asia, including the dry climate may hinder the European-type evolution of the farming system from the three-field system to mixed agriculture (or Dreifelderwirtschaft to Fruchtwechselwirtschaft through Feldgrasswirtschaft). It is also widely observed that there must be a close economic relationship between pastoralists and agricultural farmers. This paper seeks to theoretically explore the agro-pastoral linkage in the aforementioned geographical and social dimensions, based on an analysis of livestock types and the breeding system in the case of Ladakh, Northern India (see Figure 4).
The second section, focusing upon the existing literature of farming systems published in Japan, is devoted to reexamining the classical model concerned with the European experience of farming development from a geoecological standpoint. The model has the limitation that, given its underlying assumptions, it is applicable within only identical ecological niches. Thus, the case of Ladakh concerning this issue is reported and investigated in the third through fifth sections.

In Ladakh, many kinds of domestic animals are reared in various ecological niches. Moreover, the altitudinal range, mobility of the grazing herds, and the role of livestock in the local subsistence economy differ widely by livestock type. Nevertheless, it is unlikely that biological characteristics of livestock types and related natural conditions are the sole determinants which decide these varied agro-pastoral linkages. This is because regional and historical variations in the breeding systems and their role in the local economy can be observed, implying economic and cultural influences of livestock breeders. In other words, changes in the livestock’s role must be affected by not only natural conditions of land and availability of feed, but also the local technology level and the economic system, although such changes could also be found in the development process of mixed agriculture in Europe.

Detailed analysis of livestock types and the herd composition leads us to understand a very complicated local technology associated with environmental use: the diverse functional differentiation by livestock type appears under the influence of the coexistence of different ecological niches even within a village area, due to the extreme natural conditions both in terms of dryness, high altitude and so on. In this context, it is quite difficult to apply the stereotype, conventional evolutionary model arising from the Western European experience of the agricultural revolution to the study area under consideration, and to gain clues about possible developments in native technology in the future.
Livestock farming systems broadly encompass four major production systems: (1) grazing, (2) mixed or semi-intensive, (3) intensive, and (4) landless systems. Depending on species, animal type, production system, and management, these systems convert feed protein into animal protein with an efficiency ranging from 5% to 45%. The inefficiency associated with this process results in loss of nitrogen in urine and dung to an extent of 5–55%. Generally, with intensification of production systems N inputs and N-losses increase, the least being in the grazing systems, followed by mixed systems, and hi There are different types of livestock farming systems that are differentiated by the production processes that take place in each of them. 1. Intensive Livestock Farming. Intensive livestock farming is one in which the animals are housed with adequate temperatures, feed and health care necessary for the production of animals to be healthy and faster. In this system, the selection of breeds is made for different types of production. It is both capital and labour intensive. This livestock farming system is very advantageous because it increases the fertility of the soils thanks to the manure of the cattle. The animals feed on various grasses and vegetables and contribute to the dispersal of seeds, among others. At the moment, the transhumant cattle ranch is little practiced. Definitions and types of livestock. The term “livestock” is nebulous and may be defined narrowly or broadly. On a broader view, livestock refers to any breed or population of animal kept by humans for a useful, commercial purpose. This can mean domestic animals, semi-
domestic animals, or captive wild animals. Indoor production systems are generally used only for pigs and poultry, as well as for veal cattle. Indoor animals are generally farmed intensively, as large space requirements would make indoor farming unprofitable and impossible. However, indoor farming systems are controversial due to the waste they produce, odor problems, the potential for groundwater contamination, and animal welfare concerns. Irrigation farming system is a system of supplying water to farming fields that lack sufficient moisture necessary for crop growth. This system increases water content in the root layer of soil in order to increase soil fertility and promote healthy crop growth. Irrigation can be surface or subsurface. Irrigated Farming Systems In Nigeria. USES. Irrigation makes cultivation of cash crops possible ensuring good financial returns to farmers. Cash crops such as sugarcane and potato survive well with this system. Groundwater storage is improved as water lost to seepage increase groundwater storage Integrated farming system – (IFS) In the integrated farming system the defects of mixed farming is overcome by proper planning, monitoring and execution of work according to size of the farm, farm resources, Agro climatic etc. In this type, the type of livestock species or poultry enterprises are selected based on the availability of feed, fodder, water resources of the farm. Quantity – Availability : No. of animals maintained Specialized farm i. Sole income is derived from one species – Cattle, Buffalo, goat, pig or poultry ii.