India is rich in its bovine wealth and according to FAO statistics, possesses over 18 per cent of the total World's cattle population. Improvement in milk output has, however, been slow. The total milk production in 1971-72 was 22.5 million tonnes, in contrast to 17.5 million tonnes in 1950-51. The per capita consumption of milk has been estimated to be 126 g, as against the recommended intake of 284 g. A Working Group on Demand and Supply Projections of the National Commission on Agriculture has estimated that the demand for milk is likely to be of the following order:

1975 - 32.3 million tonnes
1980 - 45.0 "  "
1985 - 55.0 "  "

This would imply that by 1980 we should try to double the milk production.

Several steps have been taken in recent years by the Government of India to promote improved dairy husbandry. The Intensive Cattle Development Programme and "Operation Flood" are two examples of these efforts. Research at the National Dairy Research Institute, Karnal, the Indian Veterinary Research Institute, Izatnagar and several Agricultural Universities and Research Institutes has clearly established that through an integrated attention to genetic upgrading, health care, nutrition and processing and marketing, it would be possible to increase substantially milk yield as well as the profitability of the Dairy Industry. Realizing the significance of dairying in improving the economic condition of small and marginal farmers, the National Commission on Agriculture has also given an interim report on this problem.
Advances in artificial insemination have rendered the rapid genetic upgrading of local breeds possible through well planned cross-breeding programmes. Facilities for the production of vaccines against important diseases are also getting better. The most important limiting factor for improving cattle productivity will hence be the availability of adequate nutrition. About 94 per cent of our cows produce less than 1 kg of milk per day but they can give more, if they are fed better. Hence we should take urgent steps to improve the production of fodder crops and feed grains.

Fodder crops at present occupy only 3 to 4 per cent of the total cultivated area. Permanent pastures are also heavily over-grazed and over-stocked. It has been estimated that the supplies fall short of the requirements by 65 to 75 per cent in the case of concentrates, 40 to 50 per cent in the case of green fodder or grazing ground and 20 to 25 per cent with regard to dry roughage. Sen and Ray (1941), Kehar (1953) and Whyte and Mathur (1965) have all stressed that under-nutrition due to an acute shortage of both roughages and concentrates is the main cause for the low productivity of livestock in the country.

The present study was hence undertaken with the primary aim of standardising fodder and feed crop systems which can help to:

(a) increase the economic yield per unit of area and of time, without detriment to the long term productivity of the soil.

(b) establish a wide range of cropping sequences from which a dairy farmer can choose the combination which best suits his input mobilizing capacity and the strength of his herd, and
(c) develop cropping sequences which will provide a dairy farmer with both fodder and concentrates so that he can feed his animals without depending upon the outside market. The results are presented and discussed in this thesis.