

Chapter Six

Future Directions

The Royal Government of Bhutan is strongly committed to improving the nutrition and increasing the incomes of the rural population, while at the same time maintaining or improving the country's biophysical resources (MOA/ISNAR 1992; MOA 1995; RNR-RC Jakar 1997f). Livestock production systems will have to fulfil the following major functions:

- provide livestock products for the rapidly increasing urban population;
- make a positive contribution towards maintaining the overall biophysical resources;
- provide equitable income opportunities for rural people; and
- complement field crops, horticultural, and forestry production systems by exploiting synergistic effects, optimising labour efficiency, and accelerating nutrient cycling.

It is hoped that in the near future livestock research and development will come to receive at least the same or even a higher share of the resources available to the Ministry of Agriculture. Several signs suggest that the importance given to livestock production is increasing. Such indicators and trends include

- the inherent limitations of Bhutan's topography and climate for sustainable field crop production are becoming more obvious and accepted by policymakers and planners;
- the expectations by the rural population for equitable income opportunities can no longer be satisfied by traditional cropping systems;
- except for horticultural production systems in selected pockets with favourable climates, dairy production offers the most profitable opportunities across a wide range of conditions;
- urbanisation is generating a fast growing demand for dairy products and meat; and
- the slaughtering of animals is becoming increasingly accepted in the urban areas.

Both research and extension must play an important role in the transformation of existing production systems. Key issues that need to be addressed to achieve the goals of equitable income levels and better nutrition without hampering the biophysical resources include policy issues, human resource development, and the identification and generation of new technologies.

Policy issues

Rules and regulations pertaining to permanent grazing lands (tsadrog)

The need for appropriate rules and regulations to govern the use and maintenance of natural grasslands is a major requirement for the optimal use of Bhutan's grassland resources

(Gyamtsho 1996; RGOB 1997; Roder 1981a). The suggestion in RGOB (1997) that a specific project be mandated to generate suitable rules and policies should be reconsidered. Rules and regulations need to address issues related to land ownership and taxation, the management and ownership of trees, and the management of other vegetation cover.

Rules and regulations on other fodder resources

Fodder grown on cropland and tree fodder planted by farmers on registered land of any class are new systems which are not accounted for in the Land Act. Additional rules and regulations are necessary to provide for the optimal development of these resources.

Self-sufficiency in food grains - food security

A high degree of self-sufficiency in food grains and improved food security remain important objectives of Bhutan's Ministry of Agriculture. It will, however, be important to maintain a realistic balance between efforts aimed at achieving food security and efforts aimed at providing equitable incomes for the rural population. When implementing subsidy systems and extension programmes that emphasise food security, caution is needed to avoid long-term negative impacts on the evolution of production systems adapted to local socio-economic and biophysical conditions.

Support for the processing and marketing of dairy production

Except for milk produced near urban centres, dairy products largely need local processing. The processing and marketing of livestock products should be given substantial support by the government.

Human resource development

It is of outmost importance, to recognise that:

- fodder agronomy, grassland ecology and the management of fodder resources involve a range of professions with very wide knowledge and skills;
- models of livestock production suitable for India, which emphasise using crop residues and concentrates as feed, are not suitable for most of Bhutan; and
- fodder agronomy and grassland ecology are more closely related to general agronomy than to animal health.

Persons trained in general agronomy have the necessary basic training for fodder agronomy. Similarly basic training in botany or agronomy provides a good base for a professional career in grassland ecology or grassland management.

Both the curricula of the NRTI and the framework for extension activities need to be revised to reflect the integrated and interdisciplinary nature of livestock and forage development in Bhutan's farming systems. At the same time, while integration is important, the need for specialist training and expertise should not be neglected.

The identification and generation of technologies

The limited resources available for research on Bhutan's very varied environment and farming systems demands rigorous priority setting. Future research programmes need to be flexible, realistic, simple and guided by the following assumptions.

- Basic research is only justified for issues unique to Bhutan.

- Technologies which are not location-specific can be directly tested by or introduced to producers.
- Livestock producers will remain the major clients, but increasingly there is a growing demand for research needed by other clients, especially related to hydropower, conservation, and tourism.
- The present trend away from large migratory cattle herds to stationary smallholder systems with various degree of mixed farming is likely to continue.
- Synergistic and complementary effects of fodder production with field crop, horticultural, and timber systems will become more important.
- Permanent grasslands have limited potential for increased production, yet they will require continuing research in the areas of: ecological characterisation, biodiversity conservation, and management of national parks and water resources.
- Tree fodders will remain important in subsistence livestock systems, but have a limited contribution to make to the systems evolving for milk production from crossbreeds which have increased production potential.
- Socio-cultural taboos against slaughtering animals will continue to limit options for meat production systems - such as mutton - although the culling of unproductive cattle is gradually becoming more accepted.

These assumptions dictate that research activities should be largely limited to: monitoring trends in the resource base and the production technologies; identifying and importing pertinent information and technologies; and adapting technologies.

Extension

Fodder resource development will remain a major component of livestock extension activities. It will also become increasingly important in agroforestry systems, horticulture, and field crop systems. In drawing up future plans and programmes, flexibility and imagination need to be given more importance than experiences from earlier extension programmes.

The success of future extension activities will largely depend on the available human resources and the availability of appropriate technologies generated by the research programmes.