CONSTRAINTS AND STRATEGIES IN RURAL LIVESTOCK FARMING IN ALMORA DISTRICT OF HILLY UTTARANCHAL

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ABSTRACT
A study was conducted in Tarikhet Block of Almora district of Uttaranchal during 2000-2001 for assessing constraint and suitable strategies regarding livestock production practices. Study revealed that the major constraints were shortage of feeds and fodders during dry season, traditional method of feeding, scattered and low land holding, poor animal productivity i.e. low milk production, large number of non-descript type animal, lack of breeding bull, poor extension services and monopoly gender role in livestock activity. The suitable strategies suggested that increase the production of feed resources through planting of fodder tree and grasses in community land area, strategically supplementation of deficient of critical nutrient through mineral mixture, UMMB, common salt and leguminous fodders, supply surplus crop residues available elsewhere the state; promotion of manufactured livestock feeds utilization, educate to farmers for modern livestock rearing practices, equity of gender role, supply the breeding bull in village and appointed skilled veterinary staff at village level.

INTRODUCTION
Livestock farming is not only an indispensable component of agriculture, but is also the most suitable production system that has enormous potential to improve the socioeconomic status of the large percentage of the rural population (Banerjee and Sharma, 1999). While discussing the present status of the dairy farming in India, Thiagarajan (1984) had identified breeding, nutrition, disease control methods, managerial skills, resources, marketing and population exodus that hindered the progress of dairying in our country. Later in the state of Maharashtra, Bhoite and Shinde (1987) described mainly four major constraints i.e. breeding, feeding, management and animal health practices. The Kumaon Himalayan region of Uttaranchal has all the problems associated usually with the mountainous environment i.e. low availability of cultivated land, lack of diversity in economic activities, low productivity of animal and crops, manger infrastructure, inadequate employment opportunities, an alarming rate of migration of skilled personnel, and low level of social and potential articulation. Thus, the sustainable agriculture and livestock development is the real challenge in this fragile mountainous environment. The present study aimed to put forward the farmers problems and constraints and their strategies for future livestock production.

MATERIAL AND METHODS
The study was conducted in Tarikhet Block of Almora district in Uttaranchal during 2000-2001 involving two cluster having 17 villages covering 608 farmers paying fortnightly personals visits, 150 farmers were proportionally selected from each categories i.e. small (<0.5 ha), medium (0.5-1.0 ha) and large farmers (>1.0 ha). Information collected on specially designed performa and orally claimed constraints by farmers at the time of interview conducted at site of farmer’s door. A survey was undertaken regarding livestock rearing especially feeding and management constraints and draw suitable strategies on the basis of results for promotion of livestock production.

RESULTS AND DISCUSSION
Problems and Constraints
Livestock production sub-system in Kumaon region of Uttaranchal faced many...
problems hindering the smooth progress of livestock system. On the basis of present study farmers claim the following problem and constraints.

1. Feeds and fodder shortage

The feeds and fodder shortage was major problems in winter and summer season. Livestock faced deficit of 27.29, 14.64 and 4.38 per cent of DM in summer, rainy and winter season, respectively. The overall deficiency of DM, CP and ME was 15.45, 32.99 and 18.71 per cent against demand (Table 1). There are reports from India and abroad that deficient levels of different nutrients in diet affect not only the growth and milk production but also reproduction. Low levels of protein in the diet badly affected the reproduction system and disturb the estrus cyclicity (Tomar and Arora, 1982). As a result their post-parturient anoestrus period was prolonged, even the numbers of service per conception were more when low level of protein nutrition was practiced (Kaur and Arora, 1982). The fact that ruminants are under fed has resulted in late maturity, high calf and adult mortality, poor lifetime performance and infertility. The primary reasons for the shortage of fodders were shrinking per capita land holding and loss of forest land which have revealed the resources based land per head of livestock.

2. Poor animal productivity

Low productivity in terms of milk production remained as a major constraint. In this area average milk production from local cow, crossbred cow and buffalo was 1.55, 2.50 and 2.71 l/d, respectively. Poor feeding practices, sub-optimal nutrition, local breeds and low milk prices are the primary reason for low milk production.

3. Poor breeding facilities

The cattle/buffalo development programmes were suffered on account of poor genetic potential of bull. The available facilities for breeding were not utilized properly. In study area, 2 breeding buffalo bulls were available against 367 breedable buffalo in 17 villages. Cattle breeding bulls were nil. Farmers also used to travel long distances for the natural breeding. AI and veterinary facilities were very poor. Farmers apprehended towards semen quality.

4. Poor veterinary services

Difficult terrain, the distance between health care center to delivery system was long. Animal population needs reduction in the gap by suitable modification of veterinary services. The veterinary workers need to provide services like first aid, deworming, vaccination, subsidized UMMA, mineral mixture and cattle feed to the farmers. These facilities were presently not provided by veterinary hospitals.

5. Livestock extension service

The livestock extension services of target area were very poor. The importance of animal feeding and management was totally ignored. Farmers are not aware of recent development in the area of animal nutrition, particularly improved utilization of existing feed resources, strategically supplementation of roughage based diet, use of common salt and mineral mixture for improving the animal health, production, reproduction and feeding of colostrum to newly born calves.

6. Credit and marketing facilities

Poor economic status of farmers, credit of private level at high interest rates and unavailability of credit was therefore other major constraints to livestock sector development for small holders. Farmers also faced uncertainties at the market level. Lack of granted marketing prospect for livestock product and unfair prices added to the uncertainly.

7. Consolidation on land holding

One of the problems of proper management and land holding, scattered in small plots in and around the village. The
Table 1. Scenario of livestock in Almora district of Uttaranchal represents constraints

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficiency of nutrient (%)</td>
<td></td>
</tr>
<tr>
<td>Dry Matter (DM)</td>
<td>15.45</td>
</tr>
<tr>
<td>Crude Protein (CP)</td>
<td>32.99</td>
</tr>
<tr>
<td>Metabolizable Energy (ME)</td>
<td>18.71</td>
</tr>
<tr>
<td>Supply of Concentrate (g/d/household)</td>
<td></td>
</tr>
<tr>
<td>Home Made</td>
<td>627</td>
</tr>
<tr>
<td>Compound feed</td>
<td>58</td>
</tr>
<tr>
<td>Land Availability (Nali/family)</td>
<td></td>
</tr>
<tr>
<td>Cultivable</td>
<td>19.79</td>
</tr>
<tr>
<td>Uncultivable</td>
<td>4.33</td>
</tr>
<tr>
<td>Present bovine status in 17 villages</td>
<td></td>
</tr>
<tr>
<td>Cattle population (%) from livestock</td>
<td>48.37</td>
</tr>
<tr>
<td>Non-descript cattle (%) from cattle</td>
<td>69.27</td>
</tr>
<tr>
<td>Crossbred cattle (%) from cattle</td>
<td>30.73</td>
</tr>
<tr>
<td>Buffalo population (%) from livestock</td>
<td>29.70</td>
</tr>
<tr>
<td>Goat population (%) from livestock</td>
<td>21.93</td>
</tr>
<tr>
<td>Milk production (l/d/animal)</td>
<td></td>
</tr>
<tr>
<td>Cattle (indigenous)</td>
<td>1.55</td>
</tr>
<tr>
<td>Cattle (crossbred)</td>
<td>2.50</td>
</tr>
<tr>
<td>Buffalo</td>
<td>2.44</td>
</tr>
<tr>
<td>Present status of breeding animal</td>
<td></td>
</tr>
<tr>
<td>Total No. of adult female buffaloes</td>
<td>367</td>
</tr>
<tr>
<td>Breeding adult male buffaloes</td>
<td>2</td>
</tr>
<tr>
<td>Total No. of adult female</td>
<td>172</td>
</tr>
<tr>
<td>Breeding cattle bull</td>
<td>Nil</td>
</tr>
<tr>
<td>Health Scenario</td>
<td></td>
</tr>
<tr>
<td>Cattle calf mortality (%)</td>
<td>25.58</td>
</tr>
<tr>
<td>Buffaloes calf mortality (%)</td>
<td>34.64</td>
</tr>
<tr>
<td>Deworming</td>
<td>Nil</td>
</tr>
<tr>
<td>Vaccination</td>
<td>Nil</td>
</tr>
<tr>
<td>Mineral mixture feeding</td>
<td>Nil</td>
</tr>
<tr>
<td>Common salt feeding</td>
<td>3-4 day interval</td>
</tr>
<tr>
<td>Calving interval (month)</td>
<td></td>
</tr>
<tr>
<td>Cow indigenous</td>
<td>23.80</td>
</tr>
<tr>
<td>Cow crossbred</td>
<td>19.15</td>
</tr>
<tr>
<td>Buffalo</td>
<td>19.54</td>
</tr>
<tr>
<td>Age at first calving (month)</td>
<td></td>
</tr>
<tr>
<td>Cow indigenous</td>
<td>53.83</td>
</tr>
<tr>
<td>Cow crossbred</td>
<td>46.07</td>
</tr>
<tr>
<td>Buffalo</td>
<td>49.30</td>
</tr>
<tr>
<td>Gender role in livestock activities (%)</td>
<td></td>
</tr>
<tr>
<td>Adult male</td>
<td>6.45</td>
</tr>
<tr>
<td>Adult female</td>
<td>92.50</td>
</tr>
<tr>
<td>Children</td>
<td>1.75</td>
</tr>
</tbody>
</table>

50 Nali = One hectare

Farmers found difficulties to make long term investment in creating/building facilities and other land improvement. About 74% farmers had less than 0.5 ha (25 Nali) land per household (Table 1).

8. Compound livestock feed

Maintaining a productive herd of livestock requires more and more inputs of livestock feed from outside. Higher price of manufactured feed in the face of stagnating
milk prices rendered non-availability in the market. The small farmers without enough land of their own to supply land-based feed, bore the full brunt of the high cost of feed. Dependence on land based fodder resources was becoming increasingly difficult for small dairy farmers.

9. Monopoly gender role in livestock activities

Women contributed about 92-93 percent works in raising livestock and more knowledgeable than men about treatment of sick animals. Tulachan, 1994 observed in Nepal that women contributed 70% of the work in raising livestock. Internship with women farmer indicated that they were unknown about appropriate technique as well as merits and demerits of livestock rearing practices. In spite of this, women were excluded from extension, marketing, credit, and other activities that were critical to increasing livestock productivity and income. Lack of time in attending livestock programme and training for women was found a major constraint.

Future livestock production strategies

Strategies and potential options/approaches for livestock feeding and production are discussed. The subject of feed resources and their utilization was recognized as the most important factor in sustaining high milk production in the study area. The planners, professionals and animal scientists were very much concerned about it (Pradhan, 1995).

1. Improved use of feed resources

Strategies:

- Increase the production of fodder tree and grasses in community controlled area.
- Improved utilization of existing feed resources by reducing wastage of fodder.
- Strategically supplementation of deficient nutrient.
- Use of surplus crop residues available elsewhere in the state.

Locally available feeds and fodder and its ways of improvements:

Feeds used included grasses, residues of major crops (rice, wheat and minor millets), residues of minor crops (soybean, bhutt) and grains like wheat and minor millets (jhungara) as a concentrate feeds to livestock. Grass is collected from crop fields, field boundaries (bunds), roadside, forest and wastelands. During the wet season (monsoon season) most of the grasses were collected from forest and bunds of farmer and weeds of fields crops. Available crop residues (wheat, paddy and minor millets) were mostly used in dry season as well as some minute amounts during rainy season especially to calving animals. At the end of monsoon season, excess green grasses which grown on farm boundaries and waste land the farmers cut grasses and dry in sun and stored as hay form for the feeding in dry seasons and about 8-9 months farmers fed dry grasses and straw to their animals. Feeding of concentrate was depends on the availability of concentrate grains like wheat, rice, minor millets (jhungara) soybean and bhatt and supply to the animal in the form of att (fine mesh) to only lactating and productive animals.

The improvements of available feed resources were important points in the hilly area. In rainy season, farmers used mostly green roughage and dry season in dry roughage. In this points of view need to maintain better proportion of green and dry roughage in the animals diet in all months of year for better performance of animals. For the achieve the above target need to grown the fodder tree and perennial grasses in the waste lands and bunds for the regular supply of green fodder in dry season and stored the dry fodder and supply of crops residues from plain area for the feeding in rainy season.

I. Description of strategies

1. Increase production of feed resources of the region by:
• Use of bund arises for planting erect growing grasses.
• Planting of fodder trees and grasses in wasteland.
• Proper management of grassland including suitable grass and legume.

2. Improved utilization of existing feed resources by:
   (a) Reducing the wastage of fodder through (Verma, 2001):
      • Use of chaff-cutter for chaffing of long forage.
      • Stall feeding of animals
   (b) Strategically supplementation of deficient nutrients viz., nitrogen, mineral, salt and easily fermentable carbohydrates as energy sources by:
      • Including available green leguminous fodders and tree leaves (Ranjhan, 1997).
      • Use of Urea-Molasses-Mineral Block (UMMB) (Kunju, 1986)
      • Ammonia (urea) treatment of crop residues, dry forest grasses and fallen tree leaves (Jaiswal et al., 1988)
      • Regular supply of common salt and mineral mixture (Gwoda et al., 2001).

3. Use of surplus crop residues available elsewhere in the state.

II. Promotion of compound livestock feed

Strategies
• Monitor price and quality of livestock feeds in the market.
• Set milk prices realistically

Potential approaches
1. Increase availability of feed concentrate.
2. Train local enterprises.
3. Promote competition and monitor quality

Advantages
• Increase the use of manufactured quality feeds.
• Increase milk production.
• Better performance of animals.
• Promote animal husbandry practices.

III. Improvement of livestock extension services

Strategies
• Improved human resources in livestock support service sector.
• Promote private sector participation in livestock health services.

Potential approaches
1. NGO should be encouraged.
2. Training and building local people capacity.
3. Appointment of skilled person in veterinary services for better nutritional knowledge.
4. Educate the farmers for better livestock feeding and management practices.

Advantage
• Better health service
• Better knowledge of appropriate technology.
• Better management of livestock

IV. Improvement in animal productivity

Strategies
• Promote appropriate, manageable productive animals.
• Improve the productivity of the animals that are adopted.
• Promote the trade in improved buffaloes.

Potential approaches
1. Reassess policy regarding crossbred cattle promotion
2. Improved market infrastructure and market scope.
3. Encourage farmers groups.
4. Increase the AI facilities.
5. Provide breeding bull at village level.

V. Integration of gender concern

Strategies
• Increase role of men to livestock activities, enhance gender equity.
• Develop and promote drudgery-reducing technologies for women and children.
• Internalize gender concern in livestock planning.

VI. Other strategies
• Promotion of small ruminant and poultry for marginal and small farmers for quick generation of income.
• Improve the soil fertility through better management of livestock and forage.
• Reassess the price policy for milk.
• Promotion of appropriate technologies for inaccessible area.

CONCLUSION

It can be concluded that feed shortage; imbalance, inadequate and unscientific feeding; poor breeding facility, poor management, poor infrastructure of farmers and poor knowledge of scientific techniques in the field of livestock were the basic constraints of this area. Strategies have been drawn to develop feed resources through plantation of fodder trees and grasses, supply of compound feeds and urea treated straw from plains, good extension workers who teach about appropriate technology to farmers in livestock feeding and management.

REFERENCES