

Utilization of Natural Feed Resources for Small Holding Livestock Farming

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Conventional livestock rearing in the developing countries is constrained by scarcity of land for production of livestock feeds. Livestock have important roles in contributing to the national economy and produces milk, meat, organic fertilizer and fuel for the household. In the present farming system crop and livestock productions are closely linked with the traditional way of rural life. Majority of marginal farmers rear one to few heads of livestock in small holding system to contribute to their income by converting low quality roughages into useful products for human.

In the predominant cereal-based cropping pattern, smallholding farming system that includes livestock rearing is a viable proposition to the farmers. These farmers appear to possess more livestock per unit of land not due to their numbers but the small area of land they hold. Farmers consider rearing of animal is profitable due to less investment, care and generation of secondary cash income. Benefits that the farmers obtain from livestock rearing, range from reduction of risk of cropping, immediate family needs and insurance against unexpected happening, all of which add up in making it economically viable and biologically sustainable. But the availability and accessibility of the forages determines their sustenance and potential productivity. Many countries have programmes on improving livelihood of the resource-poor farmers through improved livestock rearing. The success of these programs would depend on overcoming chief constrain of feed and methods applied to exploit potential production systems.

Availability and utilization of feeds

With increase in population more arable land is being brought under cultivation to meet increasing demand for agricultural products leaving less land for grazing. Most of the livestock are tethered and extensive system or combination of the two systems are used for grazing on communal land, waysides, bunds and are also offered tree leaves, crop residues, kitchen wastes depending on availability. In this situation, improved livestock production systems will require sufficient supply of feed and their effective utilization. Balanced feeding of livestock would depend on the availability of labour for cultivation of green forages and economic benefit of feeding concentrates. Supply of quantitative and qualitative feeds is insignificant to share among the different ruminants. Grasses grown in communal and fallow lands comprise of basal diet of all ruminants, which are always overgrazed and availability varies with season. This is further aggravated in dry season and in mixed grazing situation with higher number of livestock per unit of land. It is unlikely that small reduction of stocking rate and supplementation will have impact on significant improvement of livestock rearing unless constraint of feed is met. Therefore, strategic supplementation during productive phases of livestock is important in meeting individual's requirements.



Due to high stocking rate effective supplementation of concentrate may be an alternate proposition for achieving higher productivity. There are many varieties of feed that can be utilized for feeding the livestock. To minimize feed shortage in livestock production : 1. Various types of forages including natural grasses, leguminous crops, shrubs and tree forages which can be grown in conserved communal lands and fallow lands, and also cultivated in between cereal crops. 2. The low quality of agro industrial by-products such as straw and bagasse can be improved by processing technologies. 3. Agro-industrial by-products such as rice polish, cereal bran, oil cakes; slaughterhouse and tannery by-products namely, blood meal, meat offal and bone meal are rich in energy, protein and minerals and can be used as concentrate supplements.

Many efforts for improving production systems by strategic supplementation of local feed resources have been made. Research indicates that feeding the scarcely-fed animals with tree leaves, bran and oil cakes as supplements improve the digestibility of nutrients and consequently improves the growth, reproduction and milk production. Supplementation also resulted in adequate ruminal environment for higher intake and apparent digestion of low quality feeds. Some leguminous tree foliages may contain phenolic compounds and depending on their concentration may be either deleterious or beneficial to the ruminants. Native grasses are cheap and major basal feed and emphasis be given for the development of feeding systems for their effective utilization and improving nutritional value. In integrated livestock-crop agriculture systems high production potential of livestock will probably be achieved by adaptation of effective feeding systems and provision of sound husbandry practices. This requires investigation on the feed quality and production responses for formulation of effective feeding systems.

Potential Feed Resources

Greater opportunity exists for utilization of natural feed resources for improvement of livestock rearing in small holding farming system for generation of family labour and farm income without change of present farming systems. Cultivation of natural grasses under better management systems can improve pasture production and their quality. Concentrate supplementation can improve animal productivity and sustenance of livestock per unit of land without changing land use systems. The unconventional forages and concentrates are the cheapest source of protein, energy and minerals to the ruminants. The inclusion of tree forages for ruminants is beneficial in situation of scarce feed resources to meet the annual feed requirements of the animals. The tree foliages can be easily

cultivated in and around the farms, homestead, wayside and provide variety and source of high quality nutrients and also reduce the cost of feeding. In addition, these fodder tree supply wood for fuel and some are good source of biomass to the soil.

Improvement of animal productivity is possible through incentive use of the available feedstuffs



The animals are tethered around a tree in a small holding system

alone or in combination with others. Problem of feed deficit along with increasing systems of livestock production necessitates setting priorities, strategy for efficient use of the feeds to achievable higher production. In this situation unconventional feed resources are the important sources of feeds for reducing the feed deficit. To make improved production impact by use of these feed resources need evaluation of new technologies for improving quality and production systems through on farm testing and demonstrations of the benefits. On farm assessment of innovative systems may justifies wider use and acceptance economically and socially to the farmers. The systems include wide variety of component befitting to farming systems and addressing the constraints of adoption to new feeding systems.

Rearing of few numbers of livestock in smallholding farming systems will provide opportunity for effective utilization of naturally available feeds and increase rearing capacity in farms with employment and farm income opportunities. Development of strategic feeding systems for increasing animal productivity, improving feed quality and cultivation of forage crops without affecting existing cereal cropping pattern is required. The choice of feeds and feeding systems are to be effective in meeting farmers need for improving animal production. A sound system approach is needed to adopt the technologies for improving integrated livestock-crop farming system.