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Improvement of grazing lands for better livestock production - A case study from Chitradurga district in India

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Introduction

Chitradurga is a highly drought prone district in the central dry zone of Karnataka, India, with a normal rainfall of 530 mm per annum. Over 85 per cent of cultivable area is rainfed and the livestock plays a vital role in rural income generation in this district. Improper management and overgrazing have resulted in most of the grazing resources declining to a poor, degraded condition. Regeneration of pasture land was vital in the villages due to three reasons - a) people's livelihood dependency on livestock was considerable b) small ruminants played a vital role for landless farmers and c) lack of adequate fodder was a prime factor for low livestock productivity. To improve the livelihood of livestock farmers, a few interventions were made under World Bank funded National Agricultural Innovation Project through consortium approach in 10 project villages. Frequent interactions were held with the local livestock farmers to discuss about the importance of increasing the fodder resources in the villages to improve the income and to sustain their livelihood. They realized the importance of fodder and came forward to take up cultivation of perennial fodders and also, for the revitalization of grazing lands, locally known as kavals. The primary survey in the villages indicated that about 90 to 96 per cent of the small ruminant holders are dependent on these common property grazing resources for the fodder needs. The High Level Panel of Experts on food security and nutrition, constituted by FAO, has emphasized the importance of extending appropriate technologies and inputs, providing the needed credit and ensuring assured and remunerative marketing opportunities to the smallholders (HLPE, 2013). Such measures are also essential for revitalizing the degraded grasslands in this region.

Materials and Methods

The seeds of *Stylosanthes hamata* were distributed for sowing in the degraded grazing lands at the beginning of monsoon season as this forage legume is a well established name for improving soil fertility through biological nitrogen fixation and in providing a better feed base for livestock production. Live-hedge fencing was done with trees like *Sesbania grandiflora*, *Melia dubia* and *Gliricidia sepium*. Field bunds were created to reduce erosion and to improve water retention. Rotational grazing was promoted. For reducing the pressure on grazing lands, the land owning dairy farmers were encouraged to grow perennial fodders like hybrid napier bajra, guinea grass and multicut jowar by distributing the root slips and seeds of Co FS-29 variety of jowar. Low cost manual chaff cutters were provided on cost sharing basis to ensure better utilization of limited green fodder resources. To tackle feed scarcity that was acute during the lean periods, silage making in plastic drums and bags was popularized among dairy farmers. A few sheep farmers having limited land holdings were provided with the seeds and technical knowledge to take up the block plantation of *Sesbania grandiflora* for increased supply of top feeds.

Results and Discussion

Proper implementation of all these measures helped in reducing the grazing pressure on grasslands. The biomass production from protected grazing lands ranged between 1.9 to 2.3 tons per hectare as compared to less than one ton in case of unprotected lands. Enhanced fodder supply from the grazing lands as well as fodder trees, and better animal husbandry practices improved meat production by over 2 kg per sheep per year. The overall impact of interventions on sheep farming was assessed by collecting the data from 146 households from the project villages. With a mean flock size of 30 sheep per family, the additional economic benefit was Rs.18,000 per household. Improved returns from livestock coupled with the active community participation shall ensure the grazing lands are maintained in a better condition and help the landless sheep farmers. This case study has shown that the rejuvenation of degraded grasslands will require the best strategies for transferring technologies developed in institutes to the field situation, using participative methods as suggested by Roy and Singh (2013).

Conclusion

The results from present study clearly demonstrate that grassland rehabilitation and sustainable livelihood of livestock farmers are possible by field application of simple technologies through consortium approach and active participation of the community.

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