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FODDER PROMOTION LINKED REJUVENATION OF RIANJ (*QUERCUS LANUGINOSA*)

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Livestock rearing has been the backbone of India's economy for centuries and also has been the primary source of energy for agricultural operation and major source of animal protein for the masses. The whole system of rural economy of Uttarakhand revolves around livestock production. However, there has been a rapid change in the way. Agricultural operations are carried out : agriculture production i. e. cropping system, water resources, diversification of crops, intensification of agriculture and increasing use of mechanical power v/s bullock power. The available information on resource utilization pattern, particularly fodder extraction in the Indian Himalayan Region (IHR) is insufficient and mainly restricted to inventory (Purohit and Samant, 1995; Mishra, 2009). Though the issue has been addressed consistently but there has been no attempt to access the quantity and equivalent values of biomass in terms of energy of fodder collected by the local inhabitants dwelling in Himalayan region.

The Himmotthan Society, an affiliate of Sir Ratan Tata Trust initiated a pilot project entitled "Integrated Fodder-Livestock Development Project (IFLDP)" with the aim to promote rural livelihood and enhance income through environmentally sustainable, integrated livestock programme in February 2008. The project was started in 83 villages in 15 project areas, spread over six hill districts of Uttarakhand in collaboration with different governmental and non-governmental organizations. The project has taken an integrated approach to sequentially strengthen all components of the livestock value chain in terms of feed, breed institution and enterprise promotion to make livestock an economic viable option. IFLDP has not only promoted feed resources in common and private lands but also formed and strengthened the community institutions with several capacity building programmes such as formation of user groups/LPGs, micro-dairy, community meetings, workshop and training programmes at regular intervals.

Present observation has been taken from Ganora (Pithoragarh), a Kumoan Himalayan village situated at an elevation of 1760 m msl and located on N 29°41.265' latitude and E 80°04.590' longitude. The village has 38 households with 74 animal units. Dairy production is the main source of livelihood sustenance of the village. There was an acute shortage of fodder for their livestock before the active implementation of Integrated Fodder-Livestock Development Project (IFLDP) in the village in 2009. After the participation of Himmotthan society along with partner NGO-Himalaya Gram Vikas Sammitti (HGVS), creative ideas were developed among the villagers to strengthen the dairy sector by using local resources. Villagers bought up a 16 ha degraded area under fodder grasses largely Napier plantation in 2009 under IFLDP intervention. Now the village is a successful model and producing a surplus green fodder along with rejuvenation of promising tree fodder species Rianj (*Quercus lanuginosa*) within the fodder plot and in addition generating various ecological services. Protection of the area also improved soil health.

Surplus Fodder

The village Ganora has its own requirement of green fodder of 810 t/year. A total of 843 t/year green fodder is being produced under present intervention which is about 104 per cent of total fodder requirement of the village. After consumption of the full requirement of green fodder by their own cattle, the remaining surplus fodder is being supplied to nearby villages. Farmers of Ganora also sell root stocks as germplasm to nearby villages and receive good income out of it.

Rejuvenation of Rianj

Quercus is genus which produces most

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promising tree fodder all over the Himalaya. As a result of protection the rejuvenation of Rianj (*Quercus lanuginosa*) occurred in the fodder plantation area of Ganora village which had been abandoned since 30 years. Actually there were several cut stumps of Rianj species present all over the area and their re-growth was challenging as they had cut down when they were stressed by drought and since then they were lacking leaves and supportive microclimatic conditions. After appropriate protection, conservation and proper care under IFLDP, new flush of leaves has been flourished in all individuals. The individuals now look like shrubs and some like small trees. In most cases, two or three branches growing taller and more vigorously than the others, become the new tree trunk. The promotion of these tree species would act as hitting two birds with one stone; it helps meet livestock raisers' needs for fodder, and also protect the area from degradation.

Soil

Due to the protection, soil health has also improved under this activity. An over 5 per cent increase in soil organic carbon (protected area–1.27%, unprotected area–1.20%), a 30 per cent increase in phosphorus (protected area–30.84 ppm, unprotected area–22.99 ppm) and significant rise in potassium (protected area–177.00 ppm, unprotected area–144.00 ppm) was observed.

Being a successful model, the story of Ganora has a wider scope to be replicated in other fodder-deficit villages of Uttarakhand. And the process by which these innovations emerged-through involvement, atmosphere generation, and exchanges by and among Himmotthan people, partner NGO, experts and farmers themselves-is possibly the most vital lesson learned from the Ganora.

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