Farmer trials on feed management

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Farmers are trying out different options to improve the feed management in dairy animals. They are looking at options which reduce costs and at the same time do not affect the milk yields. The participatory technology development process provided a farmer centered extension mechanism, enabling knowledge enrichment, for farmers as well as for researchers.

Sikkim is one of the northeastern states situated in the eastern Himalayan range. Around 77 percent of the rural households draw their principal income from livestock. The geographic location with extensive terrains makes Sikkim less conducive for extensive agriculture. On the other hand, it renders enormous scope to improve livestock production to support rural livelihood.

Indo Swiss Project Sikkim, a bilateral collaboration between Government of India and Government of Switzerland initiated a project in the region. The main goal of the project was to improve livelihood of small and marginal farmer house holds in rural Sikkim through efficient and sustainable use of natural resources and promoting concepts of self-governance and empowerment. The project focused on building on farmers knowledge while integrating new knowledge from the research and mainstream institutions. Participatory Technology Development (PTD), a process which enables this was adopted.

PTD is a process that combines farmers knowledge and those of extension functionaries and scientists together to try out things that work at farmers level and which can be replicable. The PTD platform is a miniature learning organization generating and promoting innovative technologies. In the entire approach farmers work in groups, share experiences and evolve new practices.

PTD Process

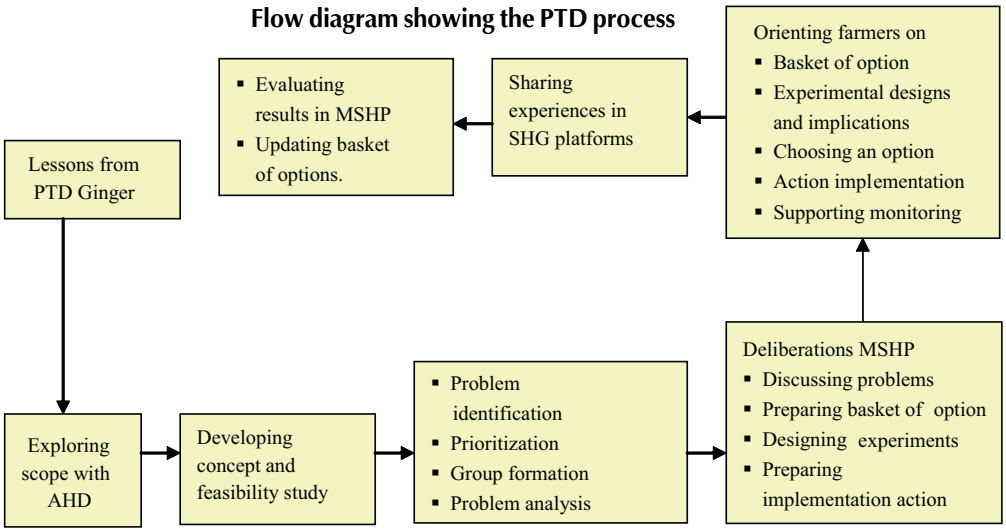
A series of discussions were held with Animal Husbandry Department resulting in developing a PTD concept and related facilitations. Consequently, a PTD facilitation group was carved out at the interface with the farmers, at the same time district level and state level management committees were formed to support implementation of PTD concepts. Simultaneously, a technical support group was also carved out involving subject matter experts from department and ICAR. For further value addition to and bringing new dimensions in the PTD process, a Multi Stake Holders' Platform (MSHP) was also formulated involving subject matter experts from IVRI, experienced livestock experts and livestock extensionists from the field and the Civil Societies.

A series of exploratory PRAs were conducted in 10 villages of which five were selected as implementation sites. Acute fodder shortage especially in winter season when most of the lactating cows are in the middle lactation was recorded as the most pertinent issue. The other issues ranged from knowledge & skill gaps in feeding management, high cost of concentrate feeds and of course low quality of animals. The predominant practice of feeding livestock is based on a cut and carry system of green fodder and concentrates. In these five villages, farmers having common interest in addressing the problems formed into self-help groups (SHG). The department and project facilitated these SHGs.

The problems were discussed in Multi Stakeholder Platforms (MSHP) to identify the basket of options to address the issues. The MSHP comprised of members of SHGs, technical support group, PTD facilitation group and invited scientists and Subject matter experts. The MSHP developed suitable experimental designs and implementation action plan. The PTD facilitation group counseled the SHGs to choose appropriate options for implementation.

The project supported SHGs with certain grants so that the SHGs could lend this money to individual farmers, for arranging inputs. In the whole process, a mutually agreed role and responsibilities of different actors involved in the process were well drafted. The

Flow diagram showing the PTD process



SHGs carried out the experiments with the support of PTD facilitation group and shared their experience at different intervals. The SHGs developed data sheets and recorded the data as per the experimental design. Members of the SHG shared their experiences periodically. Farmers from SHG presented their experience in MSHP for open discussions during February 2006.

PTD on feed management

Dairy livestock was chosen for the PTD trials. The PRA results have revealed that during winter season when most of the milk producing cattle were supposed to be in middle stage of lactation (a sustainable milk production zone), there is an acute shortage of fodder, which forced the farmers to feed more concentrates to sustain milk production and continue income generation. Since nutrition management influences the cost of milk production, the issue of fodder management was chosen by the community on a priority basis.

Two options were tried out. Optimizing utilization of available green fodder by minimizing wastage of available green fodder was chosen as an option. Feeding chaffed green fodder was promoted as an intervention. Simple hand made chaff cutters were designed and kept at the disposal of each farmer.

For improving the concentrate feed efficiency, Effective Micro Organism (EM) treatment was taken up as a second intervention. To minimize the quantity of concentrates feed to milch cows, a simple fermentation technology using EM was tried out. Trials on treating concentrates with EM liquid and feeding to animals are still going on. This paper deals with the first trial only.

Conducting trials

Lactating cross bred jersey cows belonging to the SHGs were categorized as early lactating group (group 1), mid lactating group (group 2) and late lactating group (group 3). Each group comprised of ten cows. Base line information was collected with respect to quantities of green fodder and concentrates fed to the animals. The concurrent quantities in milk production, their fat and SNF yields were also recorded.

Trials were spread over 6 weeks (45 days) from the 16th day following the initial base line recording date. From the sixteenth day, all the crossbred cows in each of the groups under this experiment were fed with chaffed fodder replacing the earlier practice of feeding green fodder as it is. Chaffed fodder was placed in small indigenous baskets/containers, which improved hygiene of the cowsheds while preventing wastages.

The fodder wastage was estimated. Milk yield was recorded (litres) on daily basis while fat and SNF percentages were estimated once every weekend.

Gains from PTD

The gains from the PTD process were several. Farmers could save time from collecting green fodder as she/he is in a position now to rationalize green fodder feeding. Moreover, there was a substantial financial gain owing to cut and carry method. The grass cut and carried, which was earlier sufficient for two animals is now considered adequate for three animals. Chaffing reduced the wastage thereby improving per animal intake. The same quantity of fodder, which was earlier used for two cows, is able to cater to the needs of three cows. Using EM liquid has enhanced daily milk output by nearly 0.13 kilos and fat yield by 0.41%.

Feeding Chaffed fodder has considerably reduced green fodder wastage while the base line animals received 37 kilo green grass during experimental period similar quantity of chaffed fodder helped farmers on cutting down the costs of nearly one kilo concentrates. The reduction in milk yield from 3.61 to 2.75 liters is incidental to the fact that these animals were approaching dry periods. Feeding chaff to animals indirectly helped farmers to improve the hygiene of the sheds, which has further reduced the incidence of mastitis and tick & fly infestations in the cattle sheds.

Though specific calculations are not available, saving one-man day a week on fetching fodder is a major outcome observed through farmers' presentations in the multi stakeholders workshops.

The experimental protocol prompted farmers to think analytically and farmers' decision-making has improved.

Farmers have developed informal village level platforms for sharing experience. Village level platforms are potential grounds for Farmer-to-Farmer Interactive Extension (FARINEX). Farmers developed access to financial institutions and technical personnel for relevant support. Village level stakeholders workshops have formed as a prelude to citizens' charters. Now, farmers are aware of different livestock services available to augment their economy. Though not substantial, farmers had quick access to credit through SHG platforms. The process of micro credit and savings were well appreciated by the SHG members. Farmers have developed sense of self-esteem.

Way forward

It is the beginning of a beginning. The direct and indirect financial gains appear to be marginal. Although meagre, it is substantial in the context of poor livestock holders. Maintaining status of existing milk production while cutting down costs on concentrates and economizing on time and quantities of green fodder used for feeding animals is well appreciated by the farmers. More importantly, village level farmers centered extension mechanisms has enhanced the scope for technology based functional literacy; both at farming and at the research level.

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