Success Stories of the Innovations in NW Himalayan Region

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Abstract

The National Agricultural Innovation Project of ICAR aims at generation and integration of innovative approaches and their application to improve the food grain, vegetable and fruit productivity and employment generation in the project area. Implementation of the project will provide valuable opportunity of scaling up of the technology, addressing the issues involved and impart robustness to the livelihood development model. Programme on emerging researchable and development issues will further sharpen the effectiveness of technology. The consortium of well-established, capable and lead organizations was formed for the development of the five disadvantaged districts of N.W. Himalayas. The districts selected are - Kupwara and Doda districts of Jammu & Kashmir, Chamba district of Himachal Pradesh, Tehri Garhwal and Champawat districts of Uttarakhand. The selection of the districts was based on the report of Planning Commission of Govt. of India. This selection was based on agricultural productivity per worker, agricultural wages and SC/ST population of the area. The selection of the operational sites in each district was based on six sub-indices which are infrastructure status, agricultural status, food availability status, nutritional status, economic status and representativeness explicability and adoptability in the region. This paper describes about some of the success stories of interventions in agriculture in Champawat district like adoption of ginger and French bean cultivation practices, power tiller and the scheme of kisan credit cards.

Key words: *Agricultural innovations, employment generation, technological intervention, livelihood development model, disadvantaged areas, power tiller, cultivation practices, kisan credit card*

Conceptual orientation of the project

Attaining livelihood security, sustainalbe food production and environmental protection, a well conceived ICAR-NAIP project "Enhancement of Livelihood Security through Sustainable Farming Systems and Related Farm Enterprises in North-West Himalaya" is undertaken in North west Himalayan region, with these objectives: Enhancement in the agricultural productivity through proven technological interventions, Up-gradation and management of natural resource base, Agro-processing, value addition and improved marketing for enhancing profitability and employment opportunities and Empowerment through capacity building and skill development in core and allied agricultural sectors along with employment generation. Thus for fulfilling these objectives several clusters has been selected. Knowledge based, science led appropriate utilization of resources, efficient management of diversifised farming systems and vibrant agro based and allied enterprises are intervening in all these clusters.

Interventions in the Project

i. Improvement in the area and yield of the major crops like paddy, wheat, millet, maize, soybean, ginger, pea, French bean, potato etc.

ii. Mechanization of the farming with the intervening of power tiller, madua thresher and paddy thresher.

iii. For Post harvest activities Agro Processing Centre has been installed with flour mill, masala chakki, oil expeller, daal chakki and seed processing unit.

iv. Capacity building of women through community based activities and providing training through Self Help Groups.

v. Promote organic farming through forming vermi compost pits.

vi. Intervention of farm allied activities like Mushroom cultivation, Apiary, fisheries, blacksmithy etc.

vii. Plantation of fruit crops like mango, guava, papaya, plum, peach, citrus, apricot, kiwi, pomegranate, malta, apple etc.

viii. Protected cultivation by intervention of polyhouses at different clusters of Champawat. Nursery of tomato, cauliflower, cabbage, brinjal, chilli and capsicum are grown in hi-tech polyhouse. Besides this capsicum, brinjal, tomato and cucumber are grown in polyhouses. The crop of capsicum and cucumber gives bumper production in polyhouse.

ix. Regarding insect pest control, kurmula traps are installed for trapping the adults of white grub while WBPGS powder used for caterpillar of white grub.

x. Polytanks are constructed for water harvesting.

xi. Developing human resource by providing training for employment opportunity and self employment.

Success stories of the innovations in Sustainable Rural Livelihood Security project in

NW Himalayan region

GINGER –SUCCESSFULLY EMERGING SPICE

Ginger (Zingiber officinale) is an herbaceous perennial the rhizomes of which are used as a spice. It is one of the earliest known oriented spices, is being cultivated both as a fresh vegetable and as a dried spice. India is a leading producer of ginger in the world. Ginger is cultivated in most of the states of India, including North West Himalayan region like Kerala, Meghalaya, and Uttarakhand, Assam etc. In Uttarakhand ginger grows well in warm and humid climate and is cultivated from sea level to an altitude of 1500m above mean sea level. It is kharif crop of mid altitude and can grow in valley also. Ginger can be grown under rain fed and irrigated condition. Ginger thrives best in well drained soils like sandy loam and clay loam. However, being an exhausting crop it is not desirable to grow ginger in the same soil year after year.

Under the NAIP project it was found that, Champawat is best suited area for ginger cultivation. Exotic cultivar Reo-de-janeiro is introduced to grow in clusters of Champawat and it is found to be suitable. The total number of 190 farmers grows ginger in one cluster of champawat in 5.75 ha. The seed rate varies from region to region and with the method of cultivation adopted. At the higher altitudes the seed rate may vary from 40-50 kg per Nali. Mulching the beds with green leaves/ organic wastes is essential to prevent soil splashing and erosion of soil due to heavy rain and it also adds organic matter to the soil.

Regarding marketing post harvest management is the most significant operation in ginger, since always prefer healthy, tender, disease insect pest attack free ginger of attractive appearance. Ginger is marketed mainly in fresh form. Since it is less perishable. About more than 300 q of ginger production obtained last year from the mentioned areas of Champawat. It is marketed to distant markets. The production of ginger in Champawat mainly confined to Banlekh and Gamod. Village merchant generally collect the produce from farmers and market it either to commission agent or whole seller in the assembling market.

Under the project of NAIP after the market survey, an effort of market was taken by providing vehicle to carry ginger to Haldwani market, where it sold at the rate of Rs.22 per Kg,

while in the local market of Champawat farmers got Rs. 16-18 per Kg also. Moreover, some farmers were trained in storage of ginger which they can sell when the price of ginger goes up in the local market and in order to attain good germination the seed rhizomes are to be stored properly in pits under shade. The decline in marketing of ginger is because of unorganized production due to lack of suitable varieties, post harvest practices and inadequate infrastructure facilities. But due to the initiativeness of project for marketing channel it become more comfortable for farmers the market and because of proper marketing facilities with appropriate prices the farmers grown ginger in more areas then earlier and more attentive towards the given variety Reo-de-Janeiro then other local one.

POWER TILLER: THE BACKBONE FOR HILLAGRICULTURE

The productivity of crops is less in hilly areas as compare to the plains. One of the important reasons is that the land holding is basically small sized fragmented and uneven. In hilly areas especially in Champawat, line sowing and intercultural operations were neglected because of unavailability of light and inconvenient farm machineries. In hills farmers preferred traditionally used small tools for most of the intercultural operations. The farmers of this region have scattered and small field as compared to plains. That's why available resources and geographical conditions of this region are taken into consideration. Power tiller intervened in this region is directly related to alleviate poverty and cost of agriculture for farmers. This is a multipurpose machine.

It is also called as Garden tractor. It is a standing operated machine and now become seated also. Earlier it was air cooled and can operate 2-3 hrs continuously with 8-10 hp, but now the machine is having improved water cooled system and can cultivate 8-10 hrs continuously with 12-15hp. It is more suited for valleys and can work in high altitude also. But in lower hills, there is little bit of difficulty while operating it because of small, scattered and stair fields. The good result of power tiller depends upon the size of field.

Power tiller is of two types. The first one is of 3.5 q weighted have 12-15 hp and work with diesel but less portable in hills. It takes 0.7-1.2 lit diesel in one hour. Trolley can be attached for loading purpose and the capacity is 8-10 q in plains. While the other one is of only 45 kg in weight (maximum), 5.5. hp, work with petrol, portable and takes 0.6 lit petrol and is more suitable for hill purpose. It can plough 5 nali of field if it is of 100 m2 area whereas if size of the field is large than one third time more ploughing is required. Power tiller has multipurpose use.

a. It can be used for water lifting. If height of head pump is 30 m then the amount of water discharged is 8 litre/sec, and if the height is 50 m then the amount of water discharged from the pump is 5 l/s. This operation is successfully performed in Dwarahat.

b. Power tiller has threshing capacity of upto 5 q wheat per hour.

c. In paddy field it can be used as puddler also. For puddling operation, replace rubber tiers with iron tier. This operation had been performed in Almora and Dwarahat. It can puddle 300-400 m2 area per hour.

d. In plains reaper can be attached for harvesting of crops and it is possible in valleys also.

e. It can be used for digging of pits for plantation crops by drilling. Besides plough, the other equipments can also be attached with like harrow, rotavator, puddle, cultivator and seed drill. The cost of power tiller / Garden tractor is 1, 40,000 Rs. However, farmers can purchase it at a cost of Rs 45,000 on subsidy basis. But the power tillers, used in the clusters of Champawat like Dharonj, Makot-Gamod, Mudyani and Raikot were given free of cost to the farmers for demonstration purpose. The Garden tractor (big) is from Japanese company, while the small one is from France Company and it is launched in India from Ghaziabad basically for individual farmers of hills, while the big one is for integrated purpose. It was initiated under the project in February 2008 in Mudyani and Dharonj cluster. Thereafter, it was introduced in Raikot in December 2008 and in July 2008 in Gamod, Makot. So in this way, it is a kind of backbone for hill agriculture because, this is cheap, time saving and portable equipment. It can help in reduction of drudgery and above all it provides employment opportunity to the farmers. The person who operates this will get labour charges. It reduces drudgery as with the help of bullock a farmer can only 10 nali of land in 8-10 days whereas with the use of power tiller 10 nali of land can be ploughed per day. From the technology more than 50 farm families were getting benefited till now and still it is continue.

THE JOURNEY OF KISAN CREDIT CARDS IN CHAMPAWAT

Champawat is one of the disadvantaged and backward district of North West Himalayan regions. The reasons of the backwardness are extreme climatic condition, small and fragmented land holdings, unawareness of improved technologies and government schemes for rural development and deprivation of credit facilites. Financing for agriculture has been a gigantic task for banks given the enormity of the credit requirements on the one hand and vagaries of nature on the other. The farming community of Champawat mainly consist of small and marginal farmers and uneducated that's why they were not properly aware about the loaning procedure.

Considering this issue, NAIP has intervened for forming Kisan Credit Card (KCC) to the farmers. Earlier only 30-40 farmers from all the clusters of Champawat selected for the purpose i.e. Dharonj, Moriani-Banlekh, Gamod-Makot-Raikot holds their own KCC. Provision of timely and adequate credit has been one of the major challenges in Champawat in dispensation of agricultural and rural credit to the farmers. Constant innovation and motivation is required in order to achieve the aim. Agricultural credit cards/ Kisan Credit Card is not a new concept and this scheme was introduced in 1998-99 by Government of India to facilitate the access to short term credit for farmers from the financial institutions. This is conceived as a unique credit delivery mechanism which aimed at provision of adequate and timely supply of short term loan to the farmers to meet their crop production requirements.

The objective of KCC of Champawat farmers is to provide an instrument, which would allow farmers to purchase agricultural inputs such as seeds, fertilizers, pesticide and also withdraw cash for meeting their production related requirement in time. Earlier there was provision of agricultural loans through debit vouchers or withdrawal from the saving account, where the cash components were credited. But the drawback was lot of paper work required and payments were effected directly to the input suppliers of the bank's choice, thus leaving a scope for affecting the quality of inputs etc. So, considering these circumstances Kisan Credit Card formation has introduced. For making the process of Kisan Credit Card formation more easier it was started on cluster basis. For the purpose Moriani-Banlekh was selected first and several motivational meetings were conducted with NAIP officials and bankers.

Consequently on 23rd July 2009, a camp for Kisan Credit Card formation was organised with the help of Uttarakhand Grameen Bank, Champawat and Mr. M.C.Martolia the Area Manager was the chief guest of the camp. On the occasion, Mr Martolia distributed sanction for loaning to the farmers of Moriani-Banlekh. A total of about 90 farmers were present in the camp and got the Kisan Credit Card. In this way the process of formation of Kisan Credit Card was started and remains continues. Presently the total number of Kisan Credit Card issued by one of the bank in Chmapawat is more than 170 and out of which more than 100 Kisan Credit Card holders are from Moriani-Banlekh. This is one of the achievement that it fulfills the target of a cluster i.e. formation of 100 KCCs from a single cluster. Even some of the other farmers of Moriani-Banlekh are motivated by seeing the camp and are interested to make Kisan Credit Card. The news covered in Dainik Jagron on 24th July 2009 about the camp on formation of Kisan Credit Card has also increases the credibility of farmers towards the aspect and act as motivational factor. The introduction of Kisan Credit Card has brought in several advantageous over the traditional system of loan disbursement, like the card can be used like an ordinary credit card, thus giving a feeling to the farmers that there is an underlying guarantee of getting loan from the bank las the earlier loan is repaid and this facility is given for 3-5 years instead of one year. Thus reducing the procedural delays and there is flexibility in operation of the facility in terms of number of withdrawls and repayment of loan. Besides, crop loan, it sanction loans under KCC to individuals for undertaking

activities such as irrigation, land development, plantation, horticulture, animal husbandry and other allied activities.

FRENCH BEAN: SUCCESSFUL VEGETABLE CROP IN CHAMPAWAT

In North West Himalayan region Uttarakhand has great potential for vegetable crops in country and contributed about 7.2 tonnes/ha in vegetable production. The main vegetable crops grown in this region are pea, French bean, tomato, potato, capsicum, cabbage, cucumber etc. French bean is one of the off season vegetable crop of hills and the average production in hills is about 39.20 q/ha, while in rest of the country the production of French bean is 28 q/ha production. So, to improve the yield of French bean farmers have to use not only improved variety but also scientific technologies of cultivation.

French bean is now taken as major vegetable crops in all the clusters of Champawat. Chinta Singh is a progressive and innovative farmer living in Dharonj. He is an army retired person and has seven members in his family. He owns 80 nali of land and grows mainly vegetable crops like tomato, cucumber, cabbage, capsicum and earns good income from them. He is always curios to diversify his agriculture that's why he took interest in other enterprises of agriculture like mushroom cultivation, fishing, and protected cultivation of off season vegetables in polyhouse. Earlier, most of the farmers had grown traditional cripper type of French bean for daal purpose. But in 2007 with the intervention of hill suited French bean variety i.e. contender, most of the progressive farmers of the clusters used to grow the given variety only in the initial phase of the project itself. Contender is spreading type, dwarf variety with less fibrous pods. It is 50-55 days short duration crop. In 2008-09 Chinta Singh started growing French bean in 2 nali and got about 2 q of production. He used pods for vegetable purpose and seeds of pods for daal. He sold about 60 kg seeds of French bean at the rate of 40 Rs/Kg in the local market of Devidhura and fetched benefit of Rs. 2400/- whereas pods are being used for his own consumption. Presently, he has grown French bean in 2-2.5 nali land and got about 5 q of pods production that sold at the rate of 12 Rs/Kg in Haldwani mandi and at the rate of 10 Rs/Kg at the local market of Devidhura.

Similarly other progressive farmers of different clusters like Ganesh Singh, Nirmal Vishwakarma, Bhairva Singh, Dunger Singh, Joga Ram, Dinesh Singh, Harish Singh, Mohan Vishwakarma and Surendra Singh were also growing Contender variety of French bean and got good production. Consequently, by seeing the result of the previous year vegetable crop, number of farmers as well as area under French bean has increased in next year. Presently some other farmers come forward like Prahlad Singh, Jaman Singh, Shyam Singh for French bean cultivation. Besides, this most of the farmers switched over to spreading type variety of French bean from their traditionally grown (locally called Bhotia Chhimmi) cripper type variety. The favorableness of French bean can be observed through that the farmers eagerness to grow French bean in polyhouse.

CONCLUSION

The ICAR NAIP project is one of the mega project in order to improve the agricultural situation in North West Himalayan region. Besides all these intervention there is lot of opportunities to find out the local market linkages with the big market in cites, forming farmers federation in order to augment the farmers capability and their entrepreneurial ability for their ventures.

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AUTHOR'S PROFILE

Dr. Neelam Yadava, am presently working as Assistant professor in Tata Institute of Social Sciences, School of Rural Development, Tuljapur campus, Osmanabad. I have completed my Ph. D major in Agriculture Extension and Communication and minor in Social Sciences from GB pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. I have been conducted research as Research Associate in the central government project "Enhancement of livelihood security through sustainable farming systems and related farm enterprises in North West Himalaya" NAIP, VPKAS, ICAR. I have done research on 'An In-Depth Study of Agricultural Technology Information Center (ATIC) Pantnagar, (Uttaranchal), 2005, GBPUA&T, Pantnagar in M.Sc and research on 'Designing Of Training Module On Entrepreneurship Behaviour For Women Engaged In Sericulture: A Study In Uttarakhand', 2008. GBPUA&T, Pantnagar in Doctorate. I have published several research papers and articles in various renowned journals and magazines.