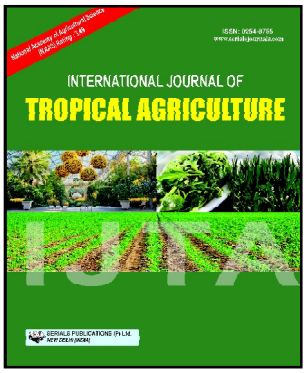

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Increased Productivity and Profitability of Farmers of Nihri Village of Himachal Pradesh by Adopting Improved Barley Variety "BHS400" – A Success Story

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Abstract: Barley an important crop of ancient history has important place in Indian context. The crop was cultivated since dawns of Indian civilization and was used in religious activities. The crop is hardy and most suitable for rainfed conditions of Himachal Pradesh. The farmers of H.P have small holdings and the crop is cultivated in the slopes, shallow soils and with limited input and quality seed. The farmers generally grow the crop with the seed of previous season and don't have access to the new varieties. Adding to this, they even don't have knowledge of the new improved cultivars. Nihri, one of the villages situated in steep slopes having 100 percent rainfed cultivation. Barley variety BHS-400 introduced in the village through Front Line Demonstration led to the increased yield and profitability of the farmers.

Keywords: Himachal Pradesh, Barley, ICAR, IARI, BHS-400, Nihri village

INTRODUCTION

Himachal Pradesh situated in the North-Western part of Himalaya have total geographical area of 55.67 lakh hectares with agriculture and horticulture are major economic activities. About 81 per cent of the total cultivated area in the state is rainfed. As compared to the county's productivity, the state has very low productivity of cereal. In the hilly terrain of Himachal Pradesh the land holdings are small, scattered and thus difficult to manage. Even mechanization becomes difficult with small land holdings. Beside cultivation in slopes, shallow soils, limited irrigation, use of limited inputs and quality seeds, and improper management of production are

also hurdles for increased agricultural output. Also, the dissemination of suitable and practical technologies which are available have not received due emphasis in the state. The number of farm animals per household has also decreased which is linked to the shortage of fodder. This is posing a challenge in the availability of farm yard manures, particularly on vegetable and fruit based systems. The fodder scarcity is further aggravated with the decrease in number and area of grazing lands, infestation of pastures with obnoxious weeds and more thrust on vegetable cultivation. The state is still producing the crops based on the knowledge transmitted to them by their forefather leading to a grossly unscientific cultivation. As a result of this they often fail to achieve the desired potential yield of different crops and new varieties.

One of the villages of Himachal Pradesh is Nihri in district Mandi which is situated in steep slopes having undulating topography, light soil with stones and gravels. Farmers of the village don't have access and knowledge about improved varieties and technologies and are totally dependent on rains for crop. In Rabi season, barley is the most suitable crop, which can be cultivated in such Agro-climatic conditions. It performs well under drought condition since it requires less amount of water and is also capable of giving good gains in poor soil. The farmers of Nihri village are growing barley under total rainfed conditions and are engaged in animal husbandry activity as well. Hence, barley forms an important crop for their livelihood and fodder security. The farmers of the area were using old varieties which were severely infected by yellow rust (disease score of upto 70S) and were harvesting produce with maximum grain yield of 25 Q/Ha and straw yield of 27 Q/Ha. This paper covers the efforts of ICAR-IARI, Regional Station, Shimla by organizing extension programmes for disseminating recent agricultural technology and crop management practices to bridge up the gap between the farmers and the research institutes and thereby boosting up barley productivity and economic conditions of the farmers.

OBJECTIVES AND METHODOLOGY

To improve the yielding ability and profitability of the barely cultivation by the farmers of Nihri village, "Indian Council of Agricultural Research- Indian Agricultural Research Institute, Regional Station Shimla" in collaboration with a self help group "Himalayan Developmental Society" laid five front line demonstrations during the year 2014-15. Two "Kisan Diwas" were organized to train them about the package of practices to be followed for getting good harvest of barley. As per the seed distributed, BHS 400 (Pusa Sheetal) variety released by ICAR-IARI, Regional Station Shimla during the year 2014 was sown in 5 Ha areas by adopting proper package of practice.

RESULTS

Five front line demonstrations were conducted at Nihri village. Six farmers were given the seed of the BHS-400 variety released by ICAR-IARI, Shimla. The detail of the farmers is given in Table 1. During first year of its demonstration farmers were keen to know the results and were little hesitant for adoption of BHS 400. Because of this technology (BHS 400), the grain yield increased to 29.5 Q/hac and straw yield increased to 32.0 Q/Ha, which was almost 4-5Q/Ha increase from their traditional varieties (Table 2). Moreover, the variety was resistant to yellow rust infestation.

Next year visit of the village by Dr Madhu Patial, Scientist of ICAR-IARI, Regional Station Shimla during 2015-16 was ecstatic to see that all the farmers had adopted the new variety BHS 400 and ninety percent of village land was sown under BHS 400. Farmers have rated BHS 400 much superior to local varieties which they were growing earlier. Moreover, cultivation of this variety was under complete rainfed conditions and farmers were

highly satisfied with its result. Also, the grinded barley was used as choker and stored for feeding purpose during fodder scarcity period. Looking into the performance of the variety, farmer's group showed keen interest for adopting more varieties of ICAR-IARI Shimla. Hence the extension theme of "learning by doing and seeing" was found to be an effective technique for wide adoption of the barley variety BHS 400 by farmers of Nihri village.

Table 1
Details of the farmers for conduction of barley FLD

Farmers Name	*Operational land holding of the farmer (ha)*	*Area cultivated under BHS 400*
Narayan Das	1.0	1.0
Jagdish Chand	1.0	1.0
Alok Nath	1.5	1.0
Durga Chand	1.3	1.0
Pyar Lal	0.5	0.5
Karam Singh	0.5	0.5

Table 2
Comparison of barley variety BHS-400 and check

Farmers Name	*Grain yield (Q/ha)*		*Straw Yield (Q/ha)*	
	BHS400	*Check*	*BHS400*	*Check*
Narayan Das	27	25	29	27
Jagdish Chand	27.5		30	
Alok Nath	26		28.5	
Durga Chand	29.5		32	
Pyar Lal	26		28	
Karam Singh	25.5		28	

Table 3
Results of FLD trials conducted in Nihri village and profitability calculation

Farmers Name	*Grain yield (Q/ha)*	*Straw Yield (Q/ha)*	*Cost of cultivation (Rs)*	*Total revenue generated (Rs)*	*Profit (Rs)*
Narayan Das	27	29	23200	60900	37700
Jagdish Chand	27.5	30	23200	62375	39175
Alok Nath	26	28.5	23200	59075	35875
Durga Chand	29.5	32	23200	66775	43575
Pyar Lal	26	28	23200	58700	35500
Karam Singh	25.5	28	23200	57975	34775

CONCLUSIONS

Front Line Demonstration is one of the important programmes to evaluate and demonstrate the production potential of the recently released cultivars in the farmers' fields. Besides, building confidence of the farmers to adopt the latest technologies, it gives valuable feedback to modify the research programme based on experience obtained during the programme, provided it is implemented systematically. The Farmers of Nihri village has rated the Barley variety BHS 400 much superior to their own lines they were growing and resulting in its wider adoption in very less time period.