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Poultry Farming Intervention through Uttara Fowl for Livelihood and Economic Empowerment of Women Beneficiaries under ICAR-Farmer FIRST Project in Uttarakhand (India)

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ABSTRACT: The present study highlights the impact of poultry farming as a successful intervention in one of the adopted villages in mid hills of Uttarakhand under the Farmer FIRST project sanctioned and funded by Indian Council of Agricultural Research (ICAR). After doing sufficient analysis, participatory rural appraisal and need prioritization, poultry farming was identified and incorporated as a potential enterprise for the women in village Syalikhet of Nainital district of Uttarakhand. The challenge of the study was to convince and motivate rural women to adapt poultry farming as a potential source of income which was very new for them. Since, Syalikhet is inhabited by almost cent percent women under marginal or landless category, all the households of village were selected as beneficiaries. Taking into account the its distinctive characteristics and advantages, the newly registered, first poultry breed of Uttarakhand 'Uttara fowl' was propagated in Syalikhet with comprehensive feeding, health and management practices. The outcome of intervention has resulted into remarkable increase in the monthly income of the women of Syalikhet. After the successful implementation of the backyard poultry farming module of the project each beneficiary family is earning an average of Rs. 2491 per month. The successful adoption of Uttarafowl rearing made hill women of Syalikhet village economically empowered and self-dependent.

Keywords: Hill women, Backyard poultry, Uttara fowl, Farmer FIRST project, Economic impact, Women empowerment, Livelihood opportunities.

INTRODUCTION

Since old times, the rural households in Uttarakhand have been engaged in backyard poultry production for augmenting their income as well as providing food in situations of distress (Singh *et al.,* 2015). The hill women of Uttarakhand comprise the main workforce in agriculture (Kasal *et al*., 2020; Sanghaik, 2014). Despite this, the women in hills are marked by exclusive work load, minimum resources, marginalized land holdings, low literacy, negligible income sources, gender discrimination, and lots of drudgery (Pande, 1996; Aryal & Kattel 2019; Akoijam, 2019; Sanghaik, 2014). Considering these adversities, additional income sources like beekeeping, sericulture, livestock rearing, poultry farming, etc. have been recognized as the potential sources to improve the socio-economic status of the weaker section in rural settings; especially landless labor, small and marginal farmers including hill women (DA&FW, 2021). Poultry farming has gained a momentum during last few decades in India. Poultry is the only sector of animal husbandry which has witnessed a growth of 16.81% in 20th Livestock census. Among this a huge growth of 45.78% has been recorded in backyard poultry in comparison of commercial poultry which is only 4.5% (DAHD, 2021). Uttarafowl is the first breed of Uttarakhand and 19th chicken breed of India registered in 2018 as NBAGR Accession no: INDIA_CHICKEN_2400_ UTTARA_12019(ICAR-NBAGR, 2021). Widely distributed in Kumaon hills of Uttarakhand, Uttara fowl is a distinct breed with predominantly black plumage color with a bunch of feathers on head (crest/crown)and feathery shanks (Fig. 1) (Kaur *et al.,* 2010). This germplasm has a number of distinct features like hardy nature, better cold tolerance, adaptability to wide agro-climatic zones, disease resistance and rich flavor of

meat and egg (Singh *et al.,* 2017; Singh *et al.,* 2010; Ansari *et al.,* 2019, Singh *et al.,* 2019). The Annual egg production of Uttara fowl ranges from 125 to 160 and egg weight from 49.8 to 52.7g and adult weight is about 1.3kg in cocks and 1.1kg in hens (ICAR-NBAGR, 2021; Singh *et al.,* 2018). These birds thrive very well under adverse environmental conditions, poor housing, poor management and poor feeding. In recent research, it has been found that Uttara fowl has lower mortality rate and comparable body weights with that of other indigenous breeds of chicken (Ansari *et al.,* 2018). These advantages of Uttara fowl in comparison to other indigenous breeds, made Uttara fowl suitable for sustainable use in poultry farming in harsh and cold climatic conditions of hilly region of Uttarakhand. The present study highlights the impact of poultry farming intervention in village Syalikhet of Kumaon region of Uttarakhand though ICAR funded Farmers FIRST project on "Enhancing Livelihood Opportunities of Farming Communities in the Mid Hills of Uttarakhand", run by G.B. Pant University of Agriculture & Technology, Pantnagar.

Fig. 1. Uttara fowl breed of poultry (a) Female bird and (b) Male bird.
(Source: ICAR-NBAGR, 2021)

MATERIALS AND METHODS

(i) Location and Sampling: Village Syalikhet was selected for the present intervention which is approximately 50 km from G.B. Pant University of Agriculture & Technology, Pantnagar. This village is situated in Bhimtal block of Nainital District in mid hills of Uttarakhand. The village contain a total of about 100 families and all were selected for the intervention but out of total, a sample of forty women (n=40) was surveyed for the present study which were actively involved in the intervention.

(ii) Assessment of challenges and needs of beneficiaries: All the households of Syalikhet are marginal with scanty land holdings scattered on hills.To assess the challenges and needs, a survey was conducted for generating the baseline data regarding the socioeconomic characteristics of the beneficiaries like age, family size, educational status, caste, land holding and monthly income. Due to challenges of minimum livelihood opportunities near the village, the males have mostly migrated to cities and the village is presently inhabited by women folks and elderly people. For encouraging poultry farming in the selected village, all the households were identified as beneficiaries. Only those forty beneficiaries were selected for the study who were actively engaged in poultry rearing.

(iii) Intervention by Uttara fowl: A month-old Uttara fowl chicks, cages, feed, nutritional supplements and nets for construction of low-cost housing system were provided to the beneficiaries. Informal meetings focused on imparting skills and supply of critical inputs were held on regular basis. These meetings were also used as a forum to discuss the problems being faced by the women in implementing the interventions and possible solution. Based on the discussions, farmers were extended technical advice related to feeding, brooding, breeding and disease management in poultry. Initially, women were provided with total 500 birds (@ 20 birds each beneficiary) of 4-6 weeks age along with feed, feed supplements and veterinary assistance. During subsequent interactions, villagers disclosed that although they were interested to adopt backyard poultry farming on a regular basis but lack of sufficient space, poor resources and fear of being attacked by predators are the biggest challenges. In order to resolve these issues, cages were distributed to beneficiary women. However, few among them, even constructed bigger chicken coop (hen houses) for keeping the hen separated for egg laying. These innovative women were identified for further assistance during the next cycle of the intervention and were again given chicks (about 500 @20 birds each beneficiary), feed and feed supplements, thus making poultry as a sustainable enterprise for their livelihood.

(iv) Impact assessment: The impact was demonstrated in the form of increase in monthly income of the women beneficiaries. The economics of intervention

was also calculated in terms of gross cost, gross return, net return and Benefit cost ratio (B:C).

RESULT AND DISCUSSION

Socio-economic characteristics of women beneficiaries:

Table 1 shows the socio-economic characteristics for a sample of forty women beneficiaries. It is evident from the data that about fifty per cent (50.0%) of the women belonged to young age category (22 to 39 years) while maximum (35.0%) had education up to primary level. Majority (60.0%) of the women beneficiaries belonged to medium sized family with four to six members and were below poverty line. With respect to caste, majority (80.0%) of them belong to scheduled caste or scheduled tribe and have small land holdings (12.33 to 24.66 in nali, 20 nali =1 acre). The monthly income of beneficiaries was found to be between Rs. 11666.67 to Rs. 15138.89 for the majority (87.55%) of women beneficiaries.

Table 1: Distribution of beneficiaries according to their socio-economic characteristics.

Sr. No.	Category	Frequency	Percentage
Age (in years)			
1.	Young (22 to 39)	20	50.0
2.	Middle (39 to 56)	14	35.0
3.	Old (56 to 73)	6	15.0
Educational status			
1.	Illiterate	6	15.0
2.	Primary	14	35.0
3.	Secondary	9	22.5
4.	SSC	5	12.5
5.	HSC	5	12.5
6.	Graduation	1	2.5
Family size (in number)			
1.	Small (2 to 4)	6	15.0
2.	Medium (4 to 6)	24	60.0
3.	Large (6 to 8)	10	25.0
Caste			
1.	General	5	12.5
2.	SC/ST	32	80.0
3.	OBC	3	7.5
Poverty Line			
1.	Below Poverty Line	24	60.0
2.	Above Poverty Line	16	40.0
Monthly income (in rupees)			
1.	Low (4722.23 to 8194.45)	3	7.5
2.	Medium (8194.45 to 11666.67)	2	5.0
3.	High (11666.67 to 15138.89)	35	87.5
Land holding (in nali*)(*1 acre= 20 nali)			
1.	Small (12.33 to 24.66)	39	97.5
2.	Medium (24.66 to 36.99)	1	2.5
3.	Large (36.99 to 49.33)	0	0.0

Economic impact of Farmers FIRST intervention:

The women of the village had merely subsistence livelihood with hand to mouth condition before implementation of the project. The average monthly income was Rs. 6127.91 which they earned mostly through vegetable cultivation or labour work. The primary challenge of the study was to motivate and convince the women beneficiaries of Syalikhet village to adapt the poultry farming as a new source of income. It was done with the help of trainings and talks by various experts from university and sharing the success stories of farmers engaged and earning through poultry farming. It is evident from the work done by various groups that backward poultry farming is a profitable enterprise for income generation especially in hilly regions (Hussain *et al.*, 2017; Singh *et al.*, 2015). The poultry farming intervention made women of Syalikhet able to earn through production of coloured eggs, locally known as '*Desi'* eggs. The village got popular in the locale as *Poultry village* due to black fowls and indigenous *'desi'* eggs. Some of the women were seen utilizing the benefits to the fullest and generating regular income by establishing proper poultry units. It was found that 10% of the total beneficiaries performed exceptionally well and took the poultry farming to higher level through local innovation and proper management. Their additional earning is sufficed with sale of poultry for meat purpose at hotels and restaurants as well as for domestic consumption. Other adopted families also worked well with monthly

production of about 15-25 eggs which were being sold in local markets and road side restaurants at the rate of Rs. 8-10 per egg. Some families have also sold black fowls during festival season at the rate of Rs. 800 to 1000 per fowl, due to high preference of black fowls as offerings at temples in local tradition. The average monthly income from poultry intervention was Rs. 2491 per woman, raising their income from Rupees 11600.00 to 14091.00 per month plus substantial increase in the number of fowls which has grown up to 30 to 40 percent per family. The overall benefit cost ratio was also calculated for the intervention. The gross cost of intervention was approximately Rupees 76,000.00 including cost of chicks, feed, cage and veterinary assistance and the gross return and net return was approximately Rupees 99,640.00 and 23,640.00 respectively. Hence the benefit cost ratio was found to be 1.3. There are several studies where the backyard poultry farming system has been analysed as a good source of income but the studies in hilly areas using the local breeds of poultry are still not sufficient (Kumaresan *et al.*, 2008; Kamboj and Kashyap, 2021).

The provision of protein supplement in routine diet, generation of additional income and religious/cultural considerations were amongst the major reasons for the involvement of women beneficiaries of Syalikhet village in poultry farming. The study also documented that most eggs were sold off to nearby local markets and road side restaurants and few were used for production of new chicks by natural brooding. Among the total returns, major share of return came either from selling live birds for consumption or as offerings during religious ceremonies. In social context, birds were also gifted to guests and friends as token of gratitude and to build relationships and social support. While more than 75%of the households reported to sale live birds for meat consumption, about 60% reported to sale eggs. A majority of the households i.e. more than 60% reported that they themselves consumed only 25% of eggs and rest sold in the local market. The increase in income was also contributed by reduced mortality of birds due to low-cost cages constructed by beneficiaries using net provided under the intervention (Fig. 2). One more important aspect which is significantly important is that, amidst the COVID-19 pandemic which has affected each and every sector of the economy, this intervention of backyard poultry farming became the boon for hill women (Yadav and Agarwal 2021; Ivanov, 2020). A part of the profit earned by the beneficiaries was deposited into bank as savings to be used for paying school fees of their children and buying basic amenities for daily use at home. The impact of current intervention was also analysed in terms of satisfaction level of women beneficiaries. They are happy, satisfied and looking towards more such ventures which could bring back their male counterparts back to village. Through this initiative they are able to generate choices to improve their life, which somehow empowering them and this is a small, yet significant step toward doubling farmer's income.

Fig. 2. Low-cost poultry house using net constructed by beneficiaries.

CONCLUSIONS

As the paper has outlined, the main purpose of the current intervention of poultry farming was generating livelihood options, economic empowerment and poverty alleviation by supporting women beneficiaries and their families. The initiative under the project has significant outcomes in terms of improvement in monthly income of the women. Though increase in income and livelihood through egg and meat production is significant, but this may not the real measure of success of intervention. The real impact lies in the enhanced capabilities of the women and their families in the village to cope with the difficulties that they typically face (diseases, hunger, pressure on their assets, etc.). The poultry farming intervention has received overwhelming response from the women who received inputs related to poultry farming. The women of Syalikhet keenly learnt the techniques and made utmost efforts to work with this new venture. Considering the benefits in poultry, women have decided to take their first step into the development mainstream and continue with this enterprise as a subsidiary activity to supplement household income and nutrition. The success of these women has motivated others and many women and unemployed youths have

come forward to start this enterprise. Overall, the poultry production intervention under Farmer FIRST programme of ICAR in Syalikhet village has created social, economic, psychological, and technological impact among the women facilitating their empowerment.

FUTURE SCOPE

Future research should look at the providing more improved veterinary and animal husbandry practices to the farmers and the impact should be assessed through the improvement in overall health and productivity of the poultry. The integrated farming approach may also be used with poultry like goat farming and mushroom cultivation to support the income.

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Conflict of Interest. None.

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