



ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2020; SP-9(12): 101-104
© 2020 TPI
www.thepharmajournal.com
Received: 21-09-2020
Accepted: 29-10-2020

Uma MS
Professor and Head, AICRP
Sunflower University of
Agricultural Sciences, GKVK,
Bangalore, Karnataka, India

Usha Ravindra
Associate Professor, Department
of Food Science and Nutrition,
College of Agriculture, UAS,
GKVK, Bangalore, Karnataka,
India

Economic impact of cultivation of nutritive crop varieties by Soliga farmers at MM Hills of Karnataka

Uma MS and Usha Ravindra

Abstract

The study was conducted in different Soliga villages of MM Hills of Karnataka for the economic impact of transfer of technology of improved varieties of nutritive crops. A scientific understanding on the nutritional importance of nutritive crops with Soliga tribal people to promote its cultivation as pure/mixed crop and to prepare nutritive value added products. There was a great opportunity to increase the area under nutritional crops in addition to replacing existing local varieties with improved varieties. The seeds of new varieties of nutritional crops Ragi, Cowpea, Amaranthus, Little millet, Fintail millet (Navane), Sunflower and Paustic rice developed by UAS, Bangalore were distributed to tribal farmers. Farmers were trained in the cultivation and selection of the varieties through participatory approach and value addition of nutritive crops. Soliga farmers selected best varieties for their use through participatory approach and reduced their cost of production by utilizing the waste/by-product of one component as input to the other component judiciously. As a result, generated the sufficient employment, enhanced the production, productivity, income and improved the livelihood security.

Keywords: Nutritive crops, varieties, economic impact

Introduction

The Soliga Tribes, the inhabitants of M.M. Hills are people who live in close association with nature. Soliga, a scheduled tribe, they have a population of around 30,000 individuals. Many are also concentrated in and around the Male mahadeshwara hills and Kollegala Taluks of Chamarajanagar District, Karnataka. They cover about 35 % of the total population. They grow prominently Ragi, Navane, Same Huruli, Cowpea, Avare and Maize in rainfed situation. As per the recent survey conducted by the NGO, the tribes of MM hills are having nutritional deficiency disorders. However, there is a high prevalence of iron deficiency anemia among women and children. Vennila, M.A. and Annmalai, R. (2005)^[4] mentioned generally, at household level, cultural norms and practices and socio-economic factors determine the extent of nutritional status among women. In this context, the need of the hour is to improve the nutritional status of tribal women and children. When the tribal people were interviewed it was understood that they are aware of the nutritional importance of the crops and they do prepare traditional recipes. A scientific understanding on the nutritional importance of nutritional crops needs to be motivated with these tribal people to promote its cultivation as pure/mixed crop and to prepare nutritive value added products. There is a great opportunity to increase the area under nutritional crops in addition to replacing existing local varieties with improved varieties. In this prospective, the present project was undertaken to popularization of nutritional crops with rural and tribal people to improve their nutritional status and to grow nutritional crops as profitable crop through value addition. The current project also emphasises on pursuing the farmers to adopt the cultivation of these nutritive crop varieties in their own fields so that these varieties can be made locally available at economical prices both for seed production as well as commercial cultivation. The impact of such efforts of UAS, Bangalore was assessed by using participatory, monitoring and the change in the economic status of the farmers.

Material and Methods

The present study was conducted in clusters of Soliga villages of MM Hills, Chamaraja nagara District, Karnataka with latest technologies during *Kharif* and *Rabi* seasons of 2017 to 2019. The selection of farmers was done through participatory rural appraisal (PRA) technique. A group of farmers were identified based on their participation and feedback received during preliminary survey with interactive group discussion. The selected five farmers in each clusters, each year 10 clusters were selected. From all the villages 150 initial soil samples were

Corresponding Author:
Uma MS
Professor and Head, AICRP
Sunflower University of
Agricultural Sciences, GKVK,
Bangalore, Karnataka, India

collected from 150 farmers fields and analyzed for physical and biological parameters and various nutrients. The 150 trials were conducted during 2017-18 to 2019-2020 of both *Rabi* and *Kharif* seasons with the objective to demonstrate improved production technologies over farmers practice and introduce cultivation of nutritive crop varieties in Soliga farmers field. The improved production technologies were grown in an area of 1.0 acre in each farmer field and adjacent 0.4 acre was considered as control for farmers practice. For selected farmers pre seasonal training programmes were conducted and explained detailed improved package of practices for successful cultivation along with their nutritional importance and preparation of value added products.

The improved technology comprised of nutritive crop varieties Ragi, Cowpea, Little millet (same), Foxtail millet (navane), Amaranthus, Pausitic rice and Sunflower. The detailed improved package practice with technological interventions was presented Table 1. The need based critical inputs like seeds, fertilizers, pesticide/fungicides, labour cost/small field equipment's/storage bins/tarpaulins etc. were distributed to each farmer. On farm evaluation based on yield observation and farmers participatory selection of varieties was done. Nutrifarms /kitchen gardens and vermicompost pits were established by the farmers in their field and home gardens. This was in accordance with the findings of Uma, M.S. and Usha Ravindra. (2020) [2].

Table 1: Details of inputs provided to the selected farmers

Sl. No.	Seeds							
Input details	Ragi	cowpea	Amaranths	Foxtail millet	Little millet	Sunflower*	Paustic rice *	Nutrifarm kits
Varieties	5	4	2	2	2	2	1	Vegetable seeds
Quantity/Family	1 kg	1 kg	200 gm	100 gm	100 gm	500 gm		1

* Some selected farmers took up the sunflower crop

Result and Discussion

Field demonstrations (FDs) were undertaken in Soliga villages of MM Hills, Chamaraja nagara District to popularize the improved production technologies of small millets and nutri rich crops showed better result not only in increasing the

yield levels of the crop for home consumption but also improvement in economic status.

This study to assess the economic impact of the Field demonstrations of nutritive crops in Soliga villages and their economic status revealed worth noticing impacts.

Table 2: Distribution of respondents according to their livelihood security in different villages of MM hills, Chamaraja nagara district (N = 150)

Place	Category	Before		After	
		Number	Percent	Number	Percent
Different villages of MM Hills Chamaraja nagara	Less satisfied	71	47	56	37
	Satisfied	40	27	42	28
	Highly satisfied	39	26	52	35
		150	100	150	100

Table 3: Dimension-wise analysis of livelihood security pattern among respondents in different villages of MM hills, Chamarajanagara district (N = 150)

Sl. No.	Dimension	Mean value		Percentage in increase
		Before	After	
1	Assets	464	698	50.43
2	Living Amenities	448	659	47.09
3	Economic efficiency	258	353	36.82
4	Ecological security	307	422	37.45
5	Social equitability	311	433	39.22
6	Coping strategies against stress	299	445	48.82
7	Employment security	455	658	44.61
	Overall livelihood security	2542	3668	44.29

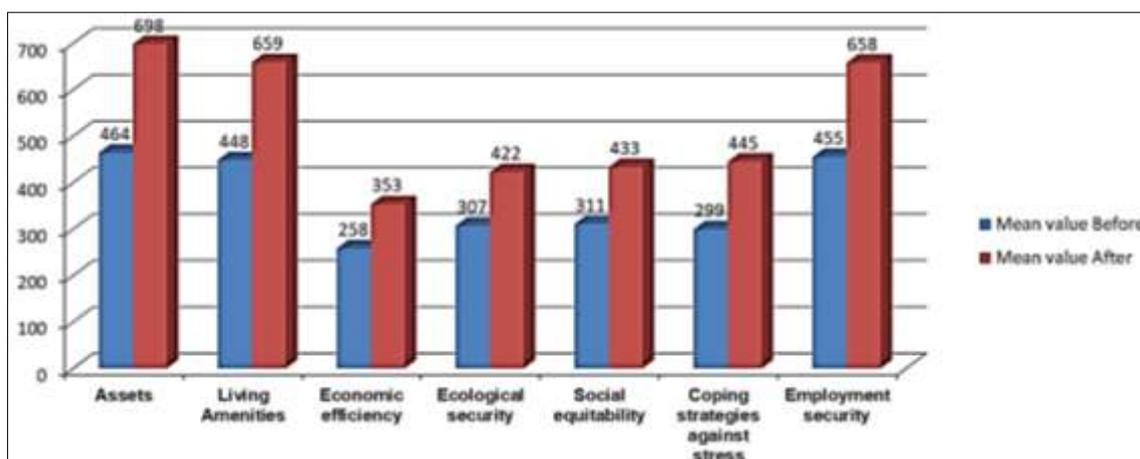


Fig 1: Dimension-wise analysis of livelihood security pattern among respondents in different villages of MM hills, Chamarajanagara district

Table 4: Economic analysis of crop components before and after implementation of project in different villages of MM hills, Chamaraja nagara district (N = 150)

Crop component	Before									After									Change in yield (%)	Change in income (%)	Employment Gene. in man days/ac.	Employment Gene. in B farmers (man days/ac)
	Avg. Land holding (Acre.)	Avg. Yield (Q/ac.)	Avg Yield of Beneficiary farmers (Q/ac.)	Price Rs/Q	Prod. cost/ac (Rs.)	Prod. cost/ac Beneficiary farmers (Rs.)	Gross Income (Rs/ac)	Net Income (Rs/ac)	B:C ratio	Avg. Yield (Q/ac.)	Avg Yield of Beneficiary farmers (Q/ac.)	Price Rs/Q	Prod. cost/ac (Rs.)	Prod. cost/ac Beneficiary farmers (Rs.)	Gross Income (Rs/ac)	Net Income (Rs/ac)	B:C ratio					
Ragi	1.00	6.5	6.57	1600	5100	5151	10504	5353	2.04	9.00	9.09	1900	7500	7575	17271	9696	2.28	38.46	64.42	84	84.84	
Cowpea*										0.60	0.61	3700	1200	1212	2242	1030	1.85	-	-	6.00	06.06	
Avare*										0.50	0.51	2500	600	606	1262	656	2.08	-	-	6.00	06.06	
Foxtail millet	1.00	6.0	5.50	3500	6500	6800	19250	12450	2.83	7.00	7.20	3500	8000	8500	25200	16700	2.96	30.90	40.58	50	65.00	
Little millet	1.00	5.0	4.50	3700	6300	6500	16650	10150	2.56	6.00	6.50	3700	7500	8000	24050	16050	3.00	44.44	49.38	50	65.00	
Amaranthus										6.00	5.75	4000	11500	12000	23000	11000	1.91	-	-	25.0	25.00	
Paddy	0.69	21.00	14.49	1300	9856	6800	18837	12036	2.77	24.00	16.56	1550	10235	7062	25668	18605	3.63	14.29	36.26	93.00	64.17	
Sunflower										8.00	7.00	3500	9000	9500	24500	15000	2.57	-	-	60	60.00	
Total						25251	65241	39989	2.58					54455	143193	88737	2.62		190.64		376.13	

It was clear from the Table 2, after the implementation of the project 37 percent of them were less satisfied with livelihood security followed by 35 and 28 percent belong to highly satisfied and satisfied categories respectively.

The data presented in the Table 3 and fig 1 indicates the change in different dimensions of livelihood security before and after implementation of the project in the target area.

Overall scores indicates there is 44.29 percent increase after the implementation of the project. This clearly shows the impact of all interventions on the Soliga farmers of MM Hills. 96% of the identified farmers showed positive response for growing nutritive crop varieties in the training programme. More than 150 identified farmers are cultivating the nutritive crop varieties on commercial scale. There is an increased response for cultivation of highly nutritive crop varieties. Nutritional impact: The identified farmers growing these new varieties, have replaced the old /local cultivars with nutritionally enriched ragi, millets, cowpea, amaranthus, sunflower in their regular diet. Usha Ravindra, *et al.* (2020) [3, 8], reported there was a significant difference observed in nutritional diet and status between normal and nutritive farms established by tribal women.

The economic analysis data presented in Table 4 indicates that, after implementation of the project, in different villages of MM Hills, Chamaraja nagara District, beneficiary farmers introduced different varieties of ragi, amaranthus, foxtail millet, little millet, paddy and sunflower as main crop and cowpea, avare as mixed and inter crop cultivation in their farms. The average yield of all the crops ragi, foxtail millet and little millet was increased after the implementation of the project, whereas paddy (Paustic 9- protein rich variety) was grown as aerobic conditions with optimum water only for home consumption. In 2016 reported that average gross income of Rs.65241/- from all the crops (range from Rs.10504 to Rs.18837) before implementation of the project. In 2019-20, reported that average gross income of Rs.143193/- from all the crops (range from Rs.1262 to Rs. 25668) after the implementation of the project. In total they could realise about Rs.88737/- (range from Rs.656 to Rs. 18605) net profit by adopting the nutritive crop varieties in their farm. As such, for every one rupee investment they are getting 2.62 rupee income. This was supported by the earlier findings of Halakatti *et al* (2010) [1].

Conclusion

The project intended for increased production, productivity, income, employment generation and improved the nutritional status, livelihood among Soliga farmers. The technical knowledge and door to door delivery critical inputs free of cost to the farmers helps to use it very effectively and efficiently based on their convenience and requirement. It provides wide range of information on latest developments of nutritive crop varieties, through various extension educational activities by the concerned scientists. The project ultimately facilitates the Soliga farming community to realize more yield which in turn increases their economic returns from their farm holdings, provides employment and increases the nutritional status and livelihood security. The farmers changed their mind set to remain in agriculture. Change in cropping system with higher income led to improved standard of living and health status of small and marginal scheduled tribe Soliga farmers and prevented rural migration.

Acknowledgements

The authors are gratefully thanking DST-GOI for providing financial assistance to conduct this study.

References

1. Halakatti SV, Kamraddi V, Natikar KV. Economic impact of improved production technology of small millets in Haveri district of Karnataka. *Agriculture* 2010; 5(3&4):453-455.
2. Uma MS, Usha Ravindra. Participatory selection of nutritive crop genotypes by Soliga woman farmers for their economic and nutritional enhancement. 107th Indian science congress -Women science congress held at UAS Bengaluru 2020.
3. Usha Ravindra, Uma MS, Madhu Prasad VL, Chandrakala Hanagi. Nutrifarm-A tool to manage nutritional anaemia. 107th Indian science congress - Women science congress held at UAS Bengaluru 2020.
4. Vennila MA, Annmalai R. Knowledge level of millet growing farmers and relationship with their characteristics. *J Extn Edu* 2005;17(3&4):3799-3802.