
ORIGINAL ARTICLE

A Comparative Analysis of Nutritional Security Among Beneficiaries and Non-Beneficiaries of Integrated Farming System Demonstration (IFSD)

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ABSTRACT

India is an agricultural country where in more than 65 per cent of the population and their livelihood depends directly or indirectly on agriculture and other agro-based enterprises. The present study was conducted during 2016-17 in Mandya district of Karnataka state to know the comparative analysis of nutritional security among beneficiaries and non-beneficiaries of Integrated Farming System Demonstration (IFSD), and it implemented by RKVY project. The study was carried out in purposively selected 10 villages of Mandya taluk and district. The data were collected from the randomly selected 160 IFSD beneficiaries and 40 non-beneficiaries through personal interview method using structured pre-tested interview schedule. The results revealed that majority of the beneficiaries had higher level of nutritional security, whereas majority of the non-beneficiaries had lower level of nutritional security. The results of the study revealed that there is a significant difference in the nutritional security of beneficiaries and non-beneficiaries of IFSD. The t-value obtained was 7.14** which is significant at one per cent level indicating the beneficiaries and non-beneficiaries are different in their nutritional security.

Key Words: Nutritional security, IFSD, Beneficiaries and Non-beneficiaries

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INTRODUCTION

Agriculture system today can be described as goal oriented manipulations of ecosystems for human gains. Yield and profit maximization approach has led to serious environmental, ecological, economic and social problems. Farm and rural population has steadily declined leading to an overall economic and social demise of many rural communities. Human society today is nominated by rapid technological and political interventions, summed by terms like globalization or information technology. The disseminated information is making more conscious effort on the quality of food and environmental consequences.

Production of food grains per unit area has to be doubled. This could be made possible by putting the land, both irrigated and rainfed under intensive cultivation. Fortunately, most of our states lie in tropics and blessed with abundant solar energy thus making cropping possible round the year. Using these opportunities there is possibilities to increase both the agricultural production and productivity per unit area. In the scientific era of agriculture, cropping systems, genotypes, geometry of planting and management practices are designed to increase the productivity per unit area per unit time, simultaneously making efficient use of available resources and stabilizing yields.

The ultimate goal of sustainable agriculture is to conserve the natural resource base, protect the environment, and enhance the health and safety of human population over a longer period. This can be achieved by seeking the optimal use of internal production inputs in a way that provide acceptable levels of sustainable crop productivity and livestock production resulting in economically profitable return. The choice of components in the farming system and their management must ensure that the interaction between components should be the most complimentary with least competitiveness.

Sustaining household food and nutritional security has been an issue of prime importance to majority of the farmers belonging to the category of small and marginal holdings. New improved technologies, even when considered technically sound, find limited acceptance by majority of resource poor farmers because such technologies are mainly targeted to the resource endowed production systems. To solve the problems of farmers who operate in complex-diverse-risk-prone-environment the need is being felt to develop more holistic, client oriented, and interdisciplinary approach of farming system research. It envisages development and transfer of appropriate technologies by keeping in view the farm resources in farmers' participatory mode. The Integrated Farming System (IFS) approach is the way to conserve natural resources and to save the farming community from the vicious cycle of malnutrition and poverty. The farming system which is an appropriate combination of farm enterprises viz., cropping system, livestock, fishery, forestry, poultry and the other means available with the farmers to integrate them for better profitability. It interacts adequately with the environment without dislocating the ecological and socio-economic balance on one hand and attempts to meet the national goals on the other. The future agricultural system should reorient from the single commodity system to food diversification approach for sustaining food production and income generation. Integrating crops and cropping systems, horticulture, livestock, sericulture, agro-forestry, aquaculture, etc., therefore, assume greater importance for conserving and recycling of farm resources to enhance farm productivity, which will reduce environmental degradation and maintain agricultural sustainability by providing nutritional security. Hence, the present study is taken up with an objective: To compare the nutritional security of beneficiaries and non-beneficiaries of IFSD.

MATERIALS AND METHODS

The study was conducted in 14 villages of Mandya taluk and district of Karnataka state during 2017. Out of fourteen villages, ten beneficiary villages (Kattedoddi, B. Yarahalli, Kagehalladoddi, Javaregowdanadoddi, Mariyanadoddi, Mallaiahnadoddi, B. Gowdagere, Hadya, Machalli and Jayapura) and four non-beneficiary villages (Malligere, Gopalapura, Koppa and Guluru) were purposively selected for the study. Sixteen beneficiaries involved in IFSD were selected randomly from each of the 10 villages and 10 non-beneficiaries were selected randomly from each 4 villages selected for the study. Thus the total sample constituted 160 IFSD beneficiaries and 40 non-beneficiaries. Data was collected using a pre-tested interview schedule.

In the present study, Nutritional security is operationally defined as, Nutritional security is achieved when adequate food that is quantity, quality, safety, hygienic and socio-cultural acceptability is available for and satisfactorily used and utilized by beneficiaries and non-beneficiaries at all times to live healthy and active life. The Nutritional security was measured by using scale developed by Kowsalya (2017). The scale consists of 22 statements along a five-point continuum representing strongly agree, agree, undecided, disagree and strongly disagree with assigned score of 5, 4, 3, 2, and 1, respectively. Minimum and Maximum score a respondent could get one and 110 respectively. Based on the cumulated score, the respondents were categorized as low, medium and high levels of nutritional security considering mean and half standard deviation. The research design is the most important and crucial aspect of research methodology. Keeping in the view the nature of the study, ex-post facto research design was adopted for the study. This was considered as most appropriate because the phenomenon has already occurred. The collected data was scored and analyzed using mean, standard deviation, frequency, percentage and t-test.

RESULT AND DISCUSSION

The result in Table 1 revealed that 67.50 per cent of beneficiaries were small farmers followed by 32.50 per cent marginal farmers. Table also reveals that 75.00 per cent of non-beneficiaries were small farmers followed by 25.00 per cent marginal farmers. It also noticed that 46.25 per cent of beneficiaries had medium level of employment generation and 70.00 per cent of the non-beneficiaries belonged to low level of employment generation. It is also observed that 41.25 per cent of the beneficiaries fell under high level of income generation and 75.00 per cent of the non-beneficiaries fell under low level of income generation. With respect to innovative proneness, 70.00 per cent of the beneficiaries had medium innovative proneness and 62.50 per cent of the non-beneficiaries had low innovative proneness. It is also noticed that, half of the beneficiaries had high (51.25 %) level of extension participation, whereas 80.00 per cent of the non-beneficiaries had low level of extension participation. The findings of the study is supported by Mittal and Rai [4], Jayanthi [1], Lavanya [3] and Raksha *et al.* [2].

An examination of Table 2 indicates the overall nutritional security of beneficiaries and non-beneficiaries of IFSD. It is noticed that 41.25 per cent of beneficiaries had high nutritional security followed by 38.75 per cent and 20.00 per cent had medium and low nutritional security, respectively. Whereas, more than

half of the non-beneficiaries had low (60.00 %) followed by 30.00 per cent and 10.00 per cent had medium and high nutritional security. The results showed that there is a large difference in nutritional security among beneficiaries and non-beneficiaries. This might be due to the IFSD programme created awareness by organizing the demonstration, field visits regarding kitchen gardening and dairy, and provided inputs like vegetable seeds and seedlings to those activities to consumption of nutritious food. Consumption of nutritious vegetables and milk enhanced their protein, vitamins and minerals. Adequate knowledge about IFS technologies, accessibility of gross-root extension functionaries and regular participation in extension activities are the reasons for a majority of beneficiaries having high level of nutritional security. The finding of the study is supported by Suneetha Kadiyala *et al* [7] and Sultan Singh Jaswal [6].

The data on mean nutritional security score of beneficiaries and non-beneficiaries of IFSD is also presented in Table 3 and it revealed that the mean nutritional security score of beneficiaries is 95.30 while it was 85.83 in non-beneficiaries. The t-value obtained was 7.14** which is significant at one per cent level indicating the beneficiaries and non-beneficiaries are different in their nutritional security. The results showed that there is huge difference in nutritional security among beneficiaries and non-beneficiaries. This might be due to the Consumption of nutritious vegetables and milk enhanced their protein, vitamins and minerals and adequate knowledge about IFS technologies. The finding of the study is supported by Suneetha Kadiyala *et al* [7] and Sultan Singh Jaswal [6].

The statements of nutritional security of beneficiaries and non-beneficiaries were analyzed and examined in table 4.

Table 1: Socio-economic characteristics of beneficiaries and non-beneficiaries of IFSD
(n = 200)

Sl. No.	Particulars	Criteria	Beneficiaries (n ₁ =160)		Non-beneficiaries (n ₂ =40)	
			No	%	No	%
1	Land Holding	Marginal farmers (>1.5)	52	32.50	10	25.00
		Small farmers (1.5-2.5)	108	67.50	30	75.00
2	Employment Generation	Low	36	22.50	28	70.00
		Medium	74	46.25	9	22.50
		High	50	31.25	3	7.50
3	Income Generation	Low	45	28.13	30	75.00
		Medium	49	30.62	6	15.00
		High	66	41.25	4	10.00
4	Innovative Proneness	Low	6	3.75	25	62.50
		Medium	112	70.00	15	37.50
		High	42	26.25	0	0.00
5	Extension Participation	Low	9	5.63	32	80.00
		Medium	69	43.12	5	12.50
		High	82	51.25	3	7.50

Table 2: Overall nutritional security of beneficiaries and non-beneficiaries of IFSD
(n = 200)

Particular	Criteria	Beneficiaries (n ₁ =160)		Non-beneficiaries (n ₂ =40)	
		No	%	No	%
Nutritional Security	Low	32	20.00	24	60.00
	Medium	62	38.75	12	30.00
	High	66	41.25	4	10.00

Mean = 93.05

SD = 8.20

Table 3: Overall nutritional security mean score of beneficiaries and non-beneficiaries of IFSD
(n = 200)

Nutritional Security			t value
	Mean	SD	
Beneficiaries	95.30	7.11	7.14**
Non-beneficiaries	85.83	7.60	

**=Significant at 1% level, t(0.01,198df)=2.58

Table 4: Statement wise analysis of nutritional security among beneficiaries and non-beneficiaries of IFSD (n = 200)

Statements	Beneficiaries (n ₁ =160)		Non-beneficiaries (n ₂ =40)	
	Mean score	Rank	Mean score	Rank
Sprouted and fermented cereals have a better value	4.73	XI	5.37	V
Over cooking the food destroys the nutrients	3.68	XXI	5.48	I
Washing vegetables before cutting will avoid nutritional loss	3.97	XIX	5.31	VIII
Green and yellow colour vegetables are good for eye sight	4.71	XII	4.80	XIV
Consumption of fruits and vegetables are good for health	5.52	V	5.46	II
Organic foods are very healthy	5.80	I	4.48	XIX
Raw salads are more nutritious than cooked vegetables	3.60	XXII	5.11	XII
Discarding the excess water after cooking of food leads to loss of nutrient	4.62	XIV	3.98	XXII
Consumption of egg is good for health	5.47	VI	5.39	IV
Ragi is excellent source of calcium	4.10	XVII	5.00	XIII
Consumption of germinated pulses enrich the vitamins	5.56	IV	4.60	XVII
Millets ensure nutritional security more easily through regular consumption	5.63	II	4.16	XXI
Consumption of fresh fruits is good for health than processed	4.76	X	5.33	VII
Nutritional garden contribute to the nutritional & social well being of rural households	5.60	III	5.20	X
Capacity building (Training) is required for nutritional garden	5.41	VII	4.20	XX
Education on nutrition should start at school level	5.40	VIII	5.40	III
Demonstration on value added products will help in enriching knowledge about nutrition	4.50	XV	4.72	XVI
By appropriate knowledge of nutrition Misconcepts (Taboos) can be eradicated	8.98	XVIII	5.26	IX
Socio-economic status is one of the determinant of nutritional status in a community	4.48	XVI	5.16	XI
Nutritional awareness to rural farmers will help to alleviate the problems of malnutrition / attain nutritional security	4.80	IX	4.56	XVIII
Nutritional education through audio-visual aids is more effective in giving knowledge on nutrition.	4.67	XIII	4.76	XV
Income, education and access to health service are the important factors to decide nutritional security	3.71	XX	5.36	VI

In case of beneficiaries,

With respect to organic foods are very healthy had ranking first followed by Millets ensure nutritional security more easily through regular consumption (Rank II), nutritional garden contribute to the nutritional & social well-being of rural households (Rank III), consumption of germinated pulses enrich the vitamins (Rank IV), consumption of fruits and vegetables are good for health (Rank V), consumption of egg is good for health (Rank VI), capacity building (Training) is required for nutritional garden (Rank VII), education on nutrition should start at school level (Rank VIII), nutritional awareness to rural farmers will help to alleviate the problems of malnutrition / attain nutritional security (Rank IX), consumption of fresh fruits is good for health than processed (Rank X), sprouted and fermented cereals have a better value (Rank XI), green and yellow colour vegetables are good for eye sight (Rank XII), nutritional education through audio-visual aids is more effective in giving knowledge on nutrition (Rank XIII), discarding the excess water after cooking of food leads to loss of nutrient (Rank XIV), demonstration on value added products will help in enriching knowledge about nutrition (Rank XV), socio-economic status is one of the determinant of nutritional status in a community (Rank XVI), ragi is excellent source of calcium (Rank XVII), by appropriate knowledge of nutrition Misconcepts (Taboos) can be eradicated (Rank XVIII), washing vegetables before cutting will avoid nutritional loss (Rank XIX), income, education and access to health service are the important factors to decide nutritional security (Rank XX), over cooking the food destroys the nutrients (Rank XXI) and raw salads are more nutritious than cooked vegetables (Rank XXII).

In case of non-beneficiaries,

With respect to Over cooking the food destroys the nutrients had ranking first followed by consumption of fruits and vegetables are good for health (Rank II), education on nutrition should start at school

level(Rank III), consumption of egg is good for health (Rank IV), sprouted and fermented cereals have a better value (Rank V), income, education and access to health service are the important factors to decide nutritional security (Rank VI), consumption of fresh fruits is good for health than processed (Rank VII), washing vegetables before cutting will avoid nutritional loss (Rank VIII), by appropriate knowledge of nutrition Misconcepts (Taboos) can be eradicated (Rank IX), nutritional garden contribute to the nutritional & social well-being of rural households (Rank X), socio-economic status is one of the determinant of nutritional status in a community (Rank XI), raw salads are more nutritious than cooked vegetables (Rank XII), ragi is excellent source of calcium (Rank XIII), green and yellow colour vegetables are good for eye sight (Rank XIV), nutritional education through audio-visual aids is more effective in giving knowledge on nutrition (Rank XV), demonstration on value added products will help in enriching knowledge about nutrition (Rank XVI), consumption of germinated pulses enrich the vitamins (Rank XVII), nutritional awareness to rural farmers will help to alleviate the problems of malnutrition / attain nutritional security (Rank XVIII), organic foods are very healthy (Rank XIX), capacity building (Training) is required for nutritional garden (Rank XX), millets ensure nutritional security more easily through regular consumption (Rank XXI) and discarding the excess water after cooking of food leads to loss of nutrient (Rank XXII).

CONCLUSION

The present study was conducted in Mandya district to know the nutritional security of beneficiaries and non-beneficiaries of IFSD funded by GOK. The study revealed that nearly half of the beneficiaries had high level of nutritional security. On the contrary, low level of nutritional security has observed in non-beneficiaries. A statistically significant difference was found out between beneficiaries and non-beneficiaries of IFSD. The results implied the need of conducting more number of extension related activities to motivate non-beneficiaries to adopt IFS activities to improve the nutritional security.

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