Economic and Technological Benefits Derived By Tribal Farm Women through Horticultural Interventions under NAIP

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ABSTRACT

The present study was conducted in purposely selected Udaipur district of Southern Rajasthan. The NAIP was implemented in four districts of Southern Rajasthan viz- Banswara, Dungarpur, Sirohi and Udaipur. Out of these, two districts i.e. Banswara and Dungarpur were selected for present investigation on the basis of maximum concentration of tribal population. To have an equal representation of survey area, all the 25 villages in which the NAIP programme implemented were included in the proposed study. Ten respondents were drawn from each village with the help of random sampling technique. Thus, a sample of 250 tribal farm women who belonged to beneficiary farm families was selected as respondents for the present study.The data showed that out of 250 respondents, majority of respondents got medium level of economic benefits followed by low and high level of economic benefits due to orchards.The results also showed that, out of 250 respondents, about 122 (48.80%) respondents got medium level of economic benefits followed by low (38.40%) and high (12.80%) level of economic benefits due to vegetable production.The results indicates that out of 250 respondents, 181 (72.60%) respondents derived medium technological benefits through horticulture interventions under NAIP followed by high (13.40%) and low (14.00%) level of technological benefits.

Key words: *NAIP; Economic benefits; Technological benefits; Horticultural interventions; Tribal farm women;*

As women are being increasingly seen as an important index for the development of nation, it is necessary to develop entrepreneurship among women and encourage them to take up independent income generating activities so that the significant work force of the country may be utilized more efficiently in the progress of the country.

Women are one of the major productive work forces in Indian economy. Nearly 84.00 per cent of all economically active women in India are engaged in agricultural and allied activities. In Indian agriculture, women contribute equally in number of farm operations with men. As per 2011 census, 23.30 per cent women were working as cultivators and 10.04 per cent as agriculture labourers.Women form an important sector of our society. They constitute about half of the population of the country. Rural areas encompass 80.00 per cent of the total women population. Women perform multiple roles, both in agriculture and home. They perform almost 60.00 per cent of all working hours, receive 10.00 per cent of the word's income and own even less than 1 per cent of the world's property. Socio-cultural roles have cast women in a secondary role for a long time. Women's work remains outside the cash sector. She works from dawn to dusk but she has to depend on her male counterpart for meeting out her financial requirement. The ever–increasing price line and the needs of the family have necessitated women to take up gainful employment. Empowerment of women could be in any sphere of life i.e. legal, social, political and economic, but economic empowerment is the ladder for all the other empowerment.

The six year ambitious National Agricultural Innovation Project was launched in India on 6th July, 2006. The project focused on innovations in agricultural technology. It was expected that project would facilitate an accelerated and sustainable transformation of the Indian agriculture so that it can support poverty alleviation

and income generation. This was achieved through collaborative development and application of agricultural innovations by the public organizations in partnership with farmers' groups, the private sector and other stakeholders. It is seemed as a prestigious World Bank assisted project which helped in making Indian Agriculture a profitable venture.

METHODOLOGY

The NAIP was implemented in four districts of Southern Rajasthan *viz*-Banswara, Dungarpur, Sirohi and Udaipur. Out of these four districts, two districts i.e. Banswara and Dungarpur were selected for present investigation on the basis of maximum concentration of tribal population.There were total four clusters, two in Banswara and two in Dungarpur where NAIP was implemented. All these four clusters were included in the present research study. In all, there were twenty five villages in which the NAIP programme was running. To have an equal representation of survey area, all the 25 villages were included in the proposed study. Sample of tribal farm women was drawn from these beneficiary families. Ten respondents were drawn from each village with the help of random sampling technique. Thus, a sample of 250 tribal farm women who belonged to beneficiary farm families was selected as respondents for the present study.

The income from the orchard establishment and vegetables production interventions was measured on the basis of response received from beneficiaries regarding average cost incurred and average return (in term of rupees) obtained. For calculating income from orchard establishment and vegetable production, the net average return was worked out in rupees per annum. Thus, the economic benefit of individual respondent was worked out in terms of rupees. To see the income benefits through orchardestablishment and vegetableproduction, the respondents were categorized into three groups on the basis of their income i.e. low income group, medium income group and high income group on the basis of mean score and standard deviation.

To measure the level of technological benefits from horticulture interventions under NAIP, a five point scale was developed. Total 18 important horticulture interventions were including in the schedule. To find out the level of technological benefits, overall percentage of score for every respondent related to 18 interventions

was calculated and they were classified into three groups based on ranges of percent score. Further, to determine intervention-wise technological benefits of respondents, mean per cent score for every intervention was worked out and these were ranked accordingly.

RESULTS AND DISCUSSION

On the basis of economic benefits drawn by the respondents due to orchards, they were categorized into three categories i.e. low (UptoRs. 10000/year), medium (Rs. 10001 to 17000/year) and high (Above Rs. 17000/year). The data showed that out of 250 respondents, majority of respondents got medium level (53.60%) of economic benefits followed by low (29.60%) and high (16.80%) level of economic benefits due to orchards.

District-wise analysis showed that about 30.00, 50.00 and 20.00 per cent of respondent in Dungarpur district and 29.00, 59.00 and 12.00 per cent of respondents in Banswara district got low, medium and high level of economic benefits due to orchards, respectively.

Table 1. Distribution of the respondents according to economic benefits derived from orchard (N=250)

Level of Benefits economic	Dungarpur		Banswara		Overall	
	No.	%	No.	%	No.	%
Low (<Rs. 10000/year)	45	30.00	29	29.00	74	29.60
Medium (Rs. 10001to 17000/year)	75	50.00	59	59.00	134	53.60
High (>Rs. 17000/ year)	30	20.00	12	12.00	42	16.80
Total	150	100.0	100	100.0	250	100

From the data, it can be concluded that more than half of respondents (53.60%) got medium level of economic benefits due to orchards. The possible reason for better economic benefits might be due to the reason that majority of the respondent have small size of land holding (1 to 2 ha.) in the study area, and therefore, it was comparatively easy for them to manage the land and optimize the expenditures incurred on horticulture interventions introduced in orchards.

Distribution of the respondents according to economic benefits derived from vegetable production: On the basis of economic benefits derived due to vegetable, respondents were categorized into three categories i.e. low (Upto Rs. 15000/year), medium (Rs. 15001 to 20000/year) and high (Above Rs. 20000/ year).

The data showed that, out of 250 respondents, about 122 (48.80 %) respondents got medium level of economic benefits followed by low (38.40 %) and high (12.80 %) level of economic benefits due to vegetable production. The finding is in conformity with the finding of *Kumar, et. al. (2006).*

Table 2. Distribution of the respondents according to economic benefits derived from vegetable production (N=250)

Level of Benefits economic	Dungarpur		Banswara		Overall	
	No.	%	No.	%	No.	%
Low (<Rs. 15000/year)	58	38.67	38	38.00	96	38.40
Medium (Rs. 15001 to 20000/year)	69	46.00	53	53.00	122	48.80
High (>Rs. 20000/ year)	23	15.33	9	9.00	32	12.80
Total	150	100.00	100	100.00	250	100

Close analysis of data showed that about 38.67, 46.00 and 15.33 per cent of respondents in Dungarpur district and 38.00, 53.00 and 9.00 per cent of respondents in Banswara district got low, medium and high level of economic benefits due to vegetable, respectively.

From the data it can be concluded that more than half of respondents (87.20 %) got low and medium level of economic benefits due to vegetable production. The possible reason for better economic benefits might be

due to the reason that vegetable are considered as cash crops and get higher return in the market in monetary term as well as different vegetables grown at different times also gives better economic returns.

Table 3. Distribution of the respondents according to technological benefits (N=250)

Categories	Dungarpur		Banswara		Overall	
	No.	%	No.	%	No.	%
Low (<52)	27	18.00	13	13.00	35	14.00
Medium (52.1-61.8)	101	67.34	69	69.00	181	72.60
High (>61.8)	22	14.66	18	18.00	34	13.40
Total	150	100	100	100	250	100

Distribution of the respondents according to technological benefits: On the basis of technological benefits derived by the tribal farm women through horticulture interventions under NAIP, respondents were categorized into three categories i.e. low (<52), medium (52.1-61.8) and high (>61.8). The data in Table 3 indicates that out of 250 respondents, 181 (72.60 %) respondents derived medium technological benefits through horticulture interventions under NAIP followed by high (13.40 %) and low (14.00 %) technological benefits (Table 4).

District-wise data showed that in Dungarpur district, out of 150 respondents, 101 (67.34 %) respondents derived medium technological benefits through horticulture interventions under NAIP followed by low

Table 4. Aspect wise ranking of technological benefits (N=250)

Technological Benefits	Dungarpur		Banswara		Overall	
	MPS	Rank	MPS	Rank	MPS	Rank
HYVs of Vegetables	80.40	1	83.60	1	81.68	1
Fruits plantation	58.40	15	58.60	15	58.48	16
Nursery raising	70.53	3	72.80	2	71.44	2
Seeds' replacement	59.06	13	67.00	5	62.24	12
Seed treatment	67.60	8	64.80	10	66.48	8
Line sowing	70.53	3	66.60	6	68.96	4
Use of polyhouse/green house	35.73	18	35.60	18	35.68	18
Application of chemical fertilizers	62.53	11	62.00	14	62.32	11
Application of bio-fertilizers	52.40	17	36.60	17	46.08	17
Application of pesticides	62.54	10	55.20	16	59.60	15
Quality seed production	60.66	12	63.40	12	61.76	13
Processing of farm produce	64.13	9	65.60	9	64.72	9
Use of processing equipments	69.20	6	66.00	7	67.92	5
Water management	70.26	5	68.00	4	69.36	3
Post- harvest management	58.93	14	68.60	3	62.80	10
Use of improved agricultural implements	68.80	7	64.60	11	67.12	7
Marketing of fruits and vegetable produce	56.66	16	65.80	8	60.32	14
Installation of drip unit, PVC pipelines, sprinkler	70.80	2	62.60	13	67.52	6

MPS=mean per cent score

(18.00%) and high (14.66%) technological benefits, while, in case of Banswara district, 13 (13.00%), 69 (69.00%) and 18 (18.00%) respondents derived low, medium and high technological benefits, respectively. The finding is supported by *Kumar and Sailaja (2012).*

Aspect wise ranking of technological benefits: An observation of data on various technological benefits derived by the tribal farm women through horticulture interventions under NAIP as given in Table 4 indicates that technological benefit namely 'HYVs of Vegetables' was derived by the highest number of respondents of Dungarpur and Banswara districts with mean per cent score of 80.40 and 83.60, respectively. Accordingly, this aspect of technological benefits was ranked first by the respondents of both the districts. The next significant benefits realized by respondents were 'Installation of drip unit (70.80 MPS)', 'Line sowing and Nursery rising' (70.53 MPS each) and Water management (70.26 MPS) in Dungarpur district and accordingly ranked 2nd, 3rd, 4th and 5th rank. Similarly, 'Nursery raising' (72.80 MPS), 'Post- harvest management' (68.60 MPS) and 'Water management' (68.00 MPS) were realized as major technological benefits by the respondents in Banswara district. These benefits were ranked 2nd, 3rd and 4th, respectively in the rank hierarchy, respectively.

Withregards to overall technological benefits, 'HYVs of Vegetables' (81.68 MPS), 'Nursery raising' (71.44 MPS), 'Water management' (69.36 MPS) and 'Line sowing' (68.96 MPS) were the most derived technological benefits and accordingly ranked as 1st, 2nd, 3rd and 4th in rank hierarchy. On the other hand, 'Fruits plantation' (58.48 MPS), 'Application of bio-fertilizers' (46.08 MPS) and 'Use of poly house/green house' (35.68 MPS) were the least derived technological benefits which

were ranked as 16th, 17th and 18th in rank hierarchy respectively. The finding is supported by *Kumar, et.al. (2014), Meena, and Bangarva, (2006)* and *Verma (2003).*

CONCLUSION

Findings indicated that on the basis of economic benefits drawn by the respondents due to orchards, they were categorized into three categories i.e. low (Upto Rs. 10000/year), medium (Rs. 10001 to 17000/year) and high (Above Rs. 17000/ year). The results showed that out of 250 respondents, majority of respondents got medium level of economic benefits followed by low and high level of economic benefits due to orchards. Similarly, on the basis of economic benefits derived due to vegetable production, the respondents were categorized into three categories i.e. low (Upto Rs. 15000/year), medium (Rs. 15001 to 20000/year) and high (Above Rs. 20000/ year). The data showed that, out of 250 respondents, majority of respondents got medium level of economic benefits due to vegetable production.

On the basis of technological benefits derived by the tribal farm women through horticulture interventions under NAIP, respondents were categorized into three categories i.e. low, medium and high. The results indicated that majority of respondents derived medium technological benefits through horticulture interventions under NAIP followed by high and low technological benefits.The results on technological benefits derived by the tribal farm women through horticulture interventions under NAIP showed that technological benefit namely 'HYVs of Vegetables' was derived by the highest number of respondents of Dungarpur and Banswara districts.

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