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Study the Impact of Corporate Social Responsibility Funds of Usha Martin for Socio-economic Development in Ranchi District of Jharkhand

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Authors' contributions

This work was carried out in collaboration between both authors. Author MG designed the study, performed the statistical analysis, wrote the protocol and first draft of the manuscript. Author VBS guided and supervised the analyses of the study. Both authors have read and approved the final manuscript.

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ABSTRACT

The impact of Corporate Social responsibility (CSR) funds was studied in Hutup village in Ormanjhi Block of Ranchi district of Jharkhand, where CSR sponsored project was implemented by KGVK under the guidance of Usha Martin Ranchi for improving the quality of life of the work fore and their families as well as of the community and society at a large. Out of total 270 beneficiaries 30 farmers were selected as respondents in the study. It was observed that 27.40 percent of farmers come below the socio-economic status group, whereas 61.1240 in medium and 11.48% comes from a high socio-economic status group. Due to the creation of water harvesting structure in the village overall 38.21% assured irrigation has been increased. The productivity of cereals, pulses, oilseeds and vegetables has been increased 76.47, 116.66, 125 and 88.23 percent respectively, resulting thereby 24.56, 52.94, 60.86 and 83.33 percent income of farmers has been increased through cultivation of Cereal, Pulses, Oilseeds and vegetables respectively. Result reveals that development of water harvesting structure is an important intervention for enhancing production and productivity of agricultural crops in Jharkhand. The results also suggested that demonstration of improved

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production technologies coupled with capacity building of farmers through trainings of improved package of practices of different crops and vegetables as well as timely input support services increase the production and availability of local market for selling of produce at remunerative price enhance the income of farmers.

Keywords: Corporate social responsibility; Krishi Gram Vikas Kendra; Usha Martin Ltd.; Krishi Gram Vikas Kendra; Hutup village; impact of corporate social responsibility on natural resurce management crop yield; income generation; production; food security; income generation.

1. INTRODUCTION

Corporate Social Responsibility (CSR) is emerging concept in era of corporate economy which suggests that it is the responsibility of the corporations operating within society to contribute towards economic, social and environmental development that creates positive impact on society at large and the poorest of poor [1-4]. Although there is no fixed definition, however the concept revolves around that fact the corporations need to focus beyond earning just profits [5]. The World Business Council for Sustainable Development defines CSR as "the continuing commitment by business to contribute to economic development while improving the quality of life of the workforce and their families as well as of the community and society at large." In short, CSR is a voluntary management action for well-being of the society with a view to create a positive image as a corporate citizen [6].

In Jharkhand so many companies i.e. Central Mine Planning and Design Institute I, Central Coalfields Limited, Jharkhand Renewable Energy Development Agency, Jharkhand Bijli Vitran Nigam Limited, USHA MARTIN, Jharkhand State Livelihood Promotion Society [4,7], National Thermal Power Corporation, Jharkhand Silk Textile and Handicraft Development Corporation and National Bank for Agriculture & Rural Development genuinely address social and environmental concerns, donate a certain share of their profits to charitable causes and whole heartily participated in the upliftment of their society [6].

Usha Martin company has been doing commendable social work in various districts of Jharkhand with collaboration with Krishi Gram Vikash Kendra. Its work includes Natural Resource Management, Resource Mobilization, Health Nutrition, Energy, Education, Women empowerment, etc. [8,9].

Keeping this fact under consideration, study conducted to know the impact of agriculture development activity conducted by KGVK Ruka under CSR fund provided by Usha Martin industries with the following objective.

1. To study the socio-personal and economic characteristics of People under the adopted village by KGVK under CRR fund.
2. To analysis the impact of the selected intervention in an adopted village.

2. RESEARCH METHODOLOGY

The study was conducted in purposively selected villages Hutup in Ormanjhi Block of Ranchi district in Jharkhand, where the agriculture Development Project was operated by USHA Martin under the CSR Fund. Out of total 270 beneficiaries 30 farmers were selected as a respondent in study, those who are directly and indirectly benefited through CSR sponsored program. The programme is implemented by KGVK Ruka under CSR fund provided by Usha Martin industries for agriculture development under CSR fund given in Table 1 and Table 2 Ex-post facto research designed used for study.

2.1 Selection of Variables and their Measurement

For better interpretation of finding independent and dependent variables were selected for data collection.

Independent variables: The Independent variable is the variables the experimenter changes or controls and assumed to have a direct effect on the dependent variables [6].

Table 1. Intervention conducted under natural resource management in village during 2017-18 & 2018-19

S.no.	Intervention	Number
01	Dova Construction and Renovation	08
02	Pond Construction and Renovation work	02
03	Low land well construction land renovation	4
04	Check Dam	01
05	Irrigation channel	01

Table 2. Farmer based livelihood intervention conducted in village

S. no.	Intervention	Area (in ha)
01	Paddy cultivation through SRI	120
02	Winter vegetable cultivation with improved package of practices with improved package of practices.	390
03	Summer vegetable cultivation	98

2.1.1 Socio-personal and economic variables

Age: It refers to approximate age of the respondents at the time of data collection. The approximate age of the respondents in years on the date of the interview was recorded. The respondents were classified into three age groups, viz, young (18-35 years), middle-aged (36-50 years) and old (>50 years).

Education: It refers to the respondents' academic qualifications through schooling. Respondents were classified into five educational groups, namely, illiterate, schooling up to the primary, middle, high school, and levels graduation and above.

Chart 1. The scoring was done as per the following procedure

Sl. No.	Educational level	Score
1.	Illiterate	0
2.	Primary school	1
3.	Middle school	2
4.	High school	3
5.	Graduate and above	4

Caste:

Chart 2. The procedure was followed for scoring the caste of the respondents was classified as per notification of Government of Jharkhand

Sl. No.	Caste	Score
1.	Scheduled castes	1
2.	Scheduled tribes	2
3.	Backward castes	3
4.	Upper castes	4

Chart 3. Size of holding

The respondents were classified into four groups on the basis of size of holding, viz., and marginal small, medium and large. The scoring procedure followed is given as below:

Sl. No.	Size of holding	Score
1.	Marginal (upto 1ha)	1
2.	Small (1.1- 2 ha)	2
3.	medium (2.1- 4 ha)	3
4.	Large (>4 ha)	4

Chart 4. Occupation

It refers to the main source of livelihood and was measured with the help of a schedule developed for the purpose. It was measured with the help of the following scoring system:

Sl. No	Occupation	Score
1.	Farming	1
2.	Business	2
3.	Service	3

Chart 5. Social participation

Participation of respondents in formal organisation was quantified by following the scoring procedure as mentioned below:

Sl. No.	Social participation	Score
1.	No social participation	0
2.	Member of one organization	1
3.	Member of more than one organizations	2
4.	Office bearer	3

Family type:

It refers to the type of family either nuclear or joint. The respondents were classified into two groups with respect to type of their families i.e. nuclear and joint with scores of 1 and 2 respectively.

Farm power:

Chart 6. The following scoring procedure was followed for measurement of farm power possession by the respondents

Sl. No.	Farm power	Score
1.	No draught animal	0
2.	1-2 draught animals	1
3.	3-4 draught animals	2
4.	5-6 draught animals	3

House type:

Chart 7. The following procedure was adopted for scoring the type of house of the respondents

Sl. No.	Type of house	Score
1.	*Kutcha*	1
2.	Mixed	2
3.	*Pucca*	3

Material possession:

Chart 8. Scoring was done as per the following procedure

Sl. No.	Material possessed	Score
1.	Improved stove	1
2.	Bicycle	1
3.	Radio set	1
4.	T.V set	2
5.	Scooter	2

2.2 Annual Family Income

The respondents were divided into four income groups on the basis of their annual family income. Those having annual family income less than Rs. 12000/- were kept under below poverty line. Those having annual income between Rs. 12,000/- to Rs 25,000 were kept under low income group. Those having annual income between Rs. 25000 to Rs. 50,000 were kept under medium income group and the respondents whose annual family income was above Rs. 50,000/- were kept under high income group with respective scores of 1,2,3 & 4.

2.3 Socio-economic Status

Socio-economic status as the position an individual or a family occupies concerning the prevailing average standards of cultural possessions, effective income, material possession, and participation in the group activity of the community.

The socio-economic status of respondents was measured with the help of the "Socioeconomic Status Scale" developed by Trivedi [10] with certain modifications. The scale consisted of nine items, namely caste, size of holding, education, house type, occupation, farm power, material possession, type of family, and social participation. The respondents were classified into three socio-economic status groups with their scores given in parentheses, namely, low (<13.14), medium (13.14 to 18.26) and high (>18.26) based on mean X =15.70) and standard error (SE=2.56) [10].

Dependent variables The dependent variable is the variable being tested and measured in an experiment and is dependent on the independent variable [6].

2.4 Bio-physical Profile

2.4.1 Cultivable area topography-wise

Cultivable land of a particular respondent was categorized into three groups i.e. upland, medium land, and low land, and further, it was categorized into three types of fertility statuses and two types of irrigation statuses. Fertility status was characterized in terms of soil texture and structure, acidity, nutrient content, and extent of erosion based on respondents' perception. For a clear cut distinction between two types of production systems concerning the land situation, quantification of actual hectares in acres was done for each category.

2.4.2 Irrigated area

It refers to the actual area in hectares under irrigation belonging to a particular respondent in three different land situations i.e. up, medium, and low lands. Further, it was categorized into two different irrigation statuses i.e. area under assured irrigation and area under partial irrigation in hectares. The irrigated area under both the production systems i.e. well-endowed production systems and small production systems were quantified into two irrigation statuses.

2.4.3 Farming systems

To study the components of farming systems of the respondents a structured interview schedule consisting of prevalent enterprises i.e. field and vegetable crops, fruit trees, livestock, and other enterprises was prepared and information was sought. The computation was done in terms of frequencies and percentages of the respondents who had undertaken the said enterprises.

2.4.4 Techno-economic parameters

To examine the effects of intervened technologies on selected techno-economic parameters, the following procedures were adopted:

2.5 Effect of Selected Technology Interventions on Productivity

The effect of technology on productivity was computed in terms of the percentage change in the productivity of selected crops due to the adoption of improved practices. The productivity of crops ~~be~~fore and after the adoption of technology interventions was computed with the following procedure: [11] Productivity – Productivity.

Effect on productivity (%) = (After adoption before adoption / Productivity before adoption) X 100

2.6 Effect of Technology Interventions on Income

The effect of technology interventions on income was computed in terms of the percentage change in net income in the cultivation of selected crops due to the adoption of improved technologies. Crop-wise net income before and after the adoption of technology interventions was computed with the following procedure: [11].

Net income - Net income

Effect on income (%) = (after adoption before adoption/ Net income before adoption) X 100

2.6.1 Benefit: Cost ratio

Benefit: cost ratio of each treatment of OFR and VT was measured in terms of gross return, net return and net return on per rupee investment [11].

i. Gross return (Rs/ha): Yield ha^{-1} were multiplied by current market price and then summed up.
ii. Net Return (Rs/ha): This was computed by using the following formula

Net Return (Rs/ha) = Gross Return – Cost of cultivation (Rs. ha^{-1})

iii. Net return on per rupee investment: This was computed by using the following formula

(Net return per hectare/ Total cost of cultivation ha^{-1})

2.7 Effect of Technology Intervention on Household Food Security

To assess the effects of adoption of technologies on improved technologies on household food security, the data were collected concerning before and after adoption in terms of number of months of food security per year.

2.8 Effect of Technology Intervention on Employment

Effect of technology interventions on employment was computed in terms of percentage change in employment in cultivation of selected crops due to adoption of improved practices. Crops-wise employment before and after adoption of technology intervention was computed with the following procedure: [11]

Employment after - Employment before

Effect on employment (%) = (After adoption before adoption/ Employment before adoption) X 100

A well-structured interview schedule was prepared concerning each objective. After the draft preparation of the schedule, it was pre-tested. Based on experiences gained in pre-testing, necessary modifications were made and the final draft of the schedule was prepared. The data were collected by personally interviewing the respondents through a structured scheduled. Besides this matrix scoring technique of PRA, field observation and non-participant observation techniques were thoroughly used.

Apart from the use of schedule detailed information were collected through informal discussion with the respondents. After collection off the data systematically arranged and tabulated for analysis and interpretation. The statistical techniques used for analysis of data under study included frequency, percentage and mean [11].

3. RESULTS AND DISCUSSION

3.1 Socio-economic Profile of Adopted Village

The present section deals with profile of the respondents with respect to selected socio-economic variables. The percentage distribution of respondents by their selected socio-economic characteristics have been presented in Table 3**.**

Table 3 shows that 36% of the respondents were young, 52% were middle-aged and 12% belonged to old age group. The mean age of farmers was 40.95, 37.83 and 39.82 years respectively. Respect to cast analysis of respondents revealed that 3.33% of the respondents were schedule castes, 46.67 % were scheduled tribes, 23.33% backward caste and 26.67 % belonged to upper castes. The education level of respondent's analysis revealed that about 10 per cent of the respondents were illiterate, 3667 (36.67)per cent had education up to primary level, 16.67 per cent had education up to high school and 6.67 per cent had education up to graduation level.

The majority of the respondents were having small size of holdings (46.67%) followed by medium (26.67%), marginal (16.67%) and large size (10%). The analysis revealed that occupation of majority (86.67%) of the respondents was farming followed by business (10%) and service (3.33%). It is also found that majority of the respondents (76.67%) had participation in social institutions, who were members of either one or two organisations. However, percentage of the office bearers among them was only 3.33 per cent. Similarly.

Table 3. Frequency distribution of respondents by their selected socio-economic characteristics

Variable		Pooled (N=30)
i. Age		
Young (upto 35 years)		11 (36.67 %)
Middle-aged (36-50 years)		15(50 %)
Old (Above 50 years)		4 (13.33 %)
ii. Caste		
Scheduled castes		1 (3.33 %)
Scheduled tribes		14 (46.67 %)
Backward castes		7 (23.33 %)
Upper castes		8 (26.67 %)
iii. Education		
Illiterate		3 (10 %)
Primary School		11 (36.67 %)
Middle School		9 (30.00 %)
High School		5 (16.67 %)
Graduate		2 (6.67 %)
iv. Size of holding		
Marginal (up to 1.0ha)		5 (16.67 %)
Small (1.01-2.0ha)		14 (46.67 %)
Medium (2.01 – 4.0ha)		8 (26.67 %)
Large (above 4.0ha)		3 (10 %)
v. Occupation		
Farming		26 (86.67%)
Business		3 (10%)
Service		1 (3.33%)
vi. Social participation		
a.	No participation	3 (10%)
b.	Member of one organization	23 (76.67%)
c.	Member of more than one organization	3 (10%)
d.	Office bearer	1 (3.33%)
vii. Family type		
Nuclear		23 (76.67%)
Joint		7 (23.33%)
viii. House type		
Katcha		8 (26.67%)
Mixed		12 (40%)
Pucca		10 (33.33%)
ix. Family income		
Below poverty line		2 (6.67%)
Low income		4 (13.33%)
Medium income		19 (63.33%)
High income		5 (16.67%)
x. Farm power		
No draft animal		3 (10%)
1-2 draft animal		20 (66.67%)
3-4 draft animal		5 (16.67%)
5-6 draft animal		2 (6.67%)
xi. Material possession		14 (46.67%)
Stove		27 (90 %)
Cycle		17 (56.67%)
Radio		6 (20 %)
T.V. set		10 33.33%)
Two-wheeler		14 (46.67%)

Table 4. Frequency distribution of respondents according to their socio-economic status

Socio-economic status	Pooled (N=30)
Low < (13.14)	8 (26.67)
Medium (18.26)	18(60.00)
High > (18.26)	4 (13.33)

77 percent of farmers were having nuclear type of families where as 23 percent had joint families and 27 per cent respondents were having *kaccha* type of houses. 40 per cent had mixed and 33 per cent had *pucca* type of houses. Families income revealed that 6.67 per cent of the respondents were below the poverty line. 13.33 per cent had low income and 63.33 per cent had medium income followed by 16.67 per cent under high-income group.

Farm power pooled data show that about 10 per cent of the respondents had no draft animal, 68 per cent had 1-2 draft animals. 16 per cent had 3-4 draft animals and 6 per cent had 5-6 draft animals. It is evident from Table 3 further shows that majority of the respondents (90%) possessed bicycles followed by radio sets (56.67%) and stoves (46.67%), whereas only (20%) respondents possessed T.V. sets and (33.33%) had two wheelers.

3.2 Socio-economic Status

Keeping all the characteristics together, an attempt was made to classify the respondents into various socio-economic status groups presented in Table 4.

The data have been presented in Table shows that 26.67 present farmers are low, 60 % have medium and 13.33% have high socio-economic status group.

3.3 Land Situation in Village

Based on land type, there were as many as six micro-farming situations. The land located at the upper slope is called *Tanr* (upland) land. Following the tanr is called *Don* land (low land). These two classes are again sub-divided into three sub-classes i.e. as *Tanr*-I, *Tanr* II and *Tanr* III and *Don* III, *Don* II and *Don* I. For the convenience of presentation of data these sub-classes have been grouped into three categories i.e. upland comprising of *Tanr* I and *Tanr* II, medium land comprising of *Tanr* III and *Don* III and low land comprising of *Don* II and *Don* I. The findings have been presented in Table 4.

As it possessed by the farmers (693 ha) 42.42 per cent was upland, 36.67 per cent was medium land 20.93 per cent was low land.

3.4 Irrigation Status after Intervention

The area under assured irrigation increase in village due to corporation of water harvesting structure like Dova, Pond, Well, Check dam and irrigation channel. The data on increasing assured irrigation area given in Table 6.

Table indicated that in upland before intervention out of 294 ha area only 22 ha is irrigated, but after intervention is become 71ha i.e. 24.14% of total upland area. It is further indicated that in medium land out of 254 ha land before intervention 66 ha is area irrigated, but after intervention is become 114 ha i.e. 44.88%, in low land out of 145.5 ha area only 20ha land was irrigated but after creation of check-dam the low land well irrigation % is increase up to 80ha area. Over all 38.21% area of the village is having assured irrigation facility after different intervention.

Table 5. Distribution of cultivated land among farmers of the villages according to topography

(Area in ha.)

Land type	Pooled
Upland	294 (42.42)
Medium land	254 (36.65)
Low land	145 (20.93)
All types	**693**

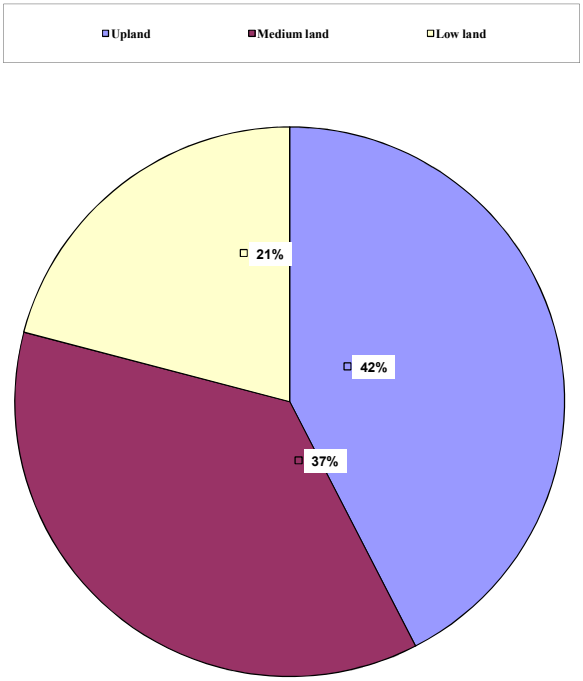

Fig. 1. Distribution of cultivated land according to topography

Table 6. Distribution of topography wise irrigation states before nd after intervention

S.No	Land type	Total land	Irrigated area Before intervention (ha)	Irrigated area After Intervention (ha)	% of irrigated land
01	Upland	294	22	71	24.14
02	Medium land	254	76	114	44.88
03	Low land	145.5	20	80	55.17
04	**All types**	**693.5**	**118**	**265**	**38.21**

Table 7. Effect of yield and economic of intervention crops and % increase

Intervention	Yield (q/ha)			Gross Income (Rs/ha)		
	Before intervene-tion	After intervene -tion	% increase	Before intervention	After intervention	% increase
Rice	18	28	55.55	36000	56000	55.55
Winter vegetable	128	270	110	64000	135000	96.14
Summer vegetable	192	305	95.77	71000	152500	87.11
						55.55%

3.5 Effect of Intervention on Yield and Income of Conducted Intervention

The finding indicated that due to SRI Rice yield increase (55.55% where as 110% yield increase in winter vegetable cultivation followed by 95.77% in summer vegetables due to adaption of improved varieties and package of practices. Table further indicated that gross income also increases 55.55% in SRI cultivation where as

90.14% in winter vegetable cultivation and 87.11% in summer vegetable cultivation respectively. It happens due to creation of rainwater harvesting structure like Dova, Pond, Well, Check-dam and irrigation channel. Which harvested store water used in rice field during drought spell and cultivation of summer and winter vegetables cultivation.

Over all intervention on productivity, income, household food security and employment in the village.

3.6 Effect of Selected Technologies on Productivity

The effects of demonstrations on selected technologies were studied in terms of changes in productivity, income, food security and employment.

Data on effects of intervention technologies on productivity of selected Cereal, Pulses, Oilseed and vegetables presented in Table 8.

Table 8 shows that before intervention productivity of different crops is very low i.e. (17q/ha) in Cereals (6q/ha) pulses, (4q/ha) oilseed and (170q/ha) in vegetables respectively. But after creation of different irrigation source and conducting training, demonstration and regular sensitization programme organized by Usha Martin through CSR fund productivity increase (76.47%) in Cereals, (116.66%) in pulses, (125%) in oilseed and (88.23%) in vegetables respectively. The finding was also supported with the finding of Oraon et al. [12].

Table 9 shows that in rain fed situation productivity of Cereal, pulses, oilseed and vegetable (Tomato, Brinjal and Cauliflower) also increase due to introduction of improved varieties, plant protection measure more than 50%.

3.7 Effect of Intervention Technology on Income

In irrigated situation overall cereals crops income increased up to (24.56%) where as in pulses it was observed (52.94%) in oilseed (60.86%) and in vegetables (83.33%) respectively. It also due to intervention of Usha Martin and CSR fund.

Table 8. Effect of selected intervention on productivity of Cereal pulses and oilseed and vegetables crops in irrigated situation in village

Crop	Average yield q/ha among farmers		
	Before (q/ha)	After (q/ha)	% increase
Cereals	17	30	76.47
Pulses	06	13	116.66
Oilseed	04	09	125.00
Vegetable (Tomato, Brinjal, Cauliflower)	170	320	88.23

Table 9. Effect of selected intervention on productivity of Cereal pulses and oilseed and vegetables crops in rain fed situation in village

Crop	Average yield q/ha among farmers		
	Before (q/ha)	After (q/ha)	% increase
Cereal	11	18	63.63
Pulses	04	09	55.55
Oilseed	03	07	57.14
Vegetable (Tomato, Brinjal, Cauliflower)	80	195	58.97

Table 10. Effect of selected intervention on income of Cereal pulses and oilseed and vegetables crops in irrigated situation in village

Crop	Average income q/ha among farmers		
	Before (q/ha)	After (q/ha)	% increase
Cereal	28900	36000	24.56
Pulses	17000	26000	52.94
Oilseed	9200	14800	60.86
Vegetable (Tomato, Brinjal and Cauliflower)	72000	132000	83.33

Table 11. Effects of intervention on household food security in adopted village

Crop	Average three-year food availability in month through intervention	
	Before demonstration	After demonstration
Cereal	6	9
Pulses	3	8
Oilseed	3	7
Vegetable (Tomato, Brinjal, Cauliflower etc)	3	11

Table 12. Effect of technology interventions on employment (man days/ha) intervention

Crop	Average employment generation of three year in (man days/ha)		
	Before demonstration	After demonstration	% increase
Cereal	116	174	50.00
Pulses	123	189	53.65
Oilseed	109	152	39.44
Vegetable (Tomato, Brinjal, Cauliflower)	222	355	59.90

3.8 Effect of Internet it on Household Food Security

Data on effects of demonstrations on household food security in selected village presented in Table 11.

Table 11 shows that due to intervention in Cereals crops the household food security increase from 6 months to 9 months in year. Through pulses it is increase from 3 months to 8 months, Oilseed 3 months to 7 months and in vegetables 3 months to 11 months in year due to increasing in productivity.

3.9 Effect of Technology Interventions on Employment

Data on effects of demonstrations on employment generation before and after through different intervention is presented in Table 12.

Table 12 shows that effect of different intervention (50%) addition man days/ha created under Cereals (53.65%) through pulses, (39.44%) in oilseed crops and 59.90% in vegetables crop. It is due to scientific cultivation of different crops.

4. CONCLUSION

The findings presented in the preceding section lead to the following conclusions that:

- Majority of the respondent's farmers were middle-aged having education upto primary school level with cultivation as their main occupation belonging to medium income as well as socio-economic status group with greater degree of their participation in social organizations.
- There were no significant differences of respondents concerning the selected socio-economic characteristics except caste and size of holding. Based upon the hypothesis that the improved seeds (resistant varieties) of solanaceous vegetables and use of micronutrients in cauliflower would lead to increase production and productivity, Application of boron and molybdenum contributed significantly in mitigating the problem of rotating of heads and whiptail disease in rainy season cauliflower. Improved seed of capsicum (California wonder) gave higher yield and better-quality fruits compared to farmers' locally available varieties. It all happens due to creation of water harvesting structure in the village under CSR fund which increase assured irrigation areas in village.
- The respondents favorably reacted to the interventions in terms of selected attributes and opined for their acceptance provided the related inputs are made available on time and proper price in their locality.
- All the intervened technologies were found to be agro-climatically more suitable, more profitable and more compatible contributing to their overall appropriateness.
- All the intervened technologies gave higher productivity with increase in income, level of household food security and employment.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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