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ADOPTION OF KVK ACTIVITIES BY TRIBAL FARMERS IN INDIA

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Abstract- Krishi Vigyan Kendra (the Farm Science Centre) is a noble concept developed by Indian Council of Agricultural Research (ICAR), which rests upon a solid base of transfer of technology from laboratory to farmer's field with respect to Agriculture, Horticulture, Animal husbandry, Floriculture. Bee keeping, Mushroom Cultivation, Broiler Farming and allied subjects. The present study was undertaken to assess the adoption level of beneficiaries and non-beneficiaries of KVKs working in the tribal district of Madhya Pradesh. The study was conducted with 300 tribal farmers i.e., 225 beneficiaries and 75 non-beneficiaries randomly selected in 12 villages of Mandla, Dindori and Shahdol district, which were results showed that. Tribal farmers were of comparatively middle age group, education up to high school, agriculture + other as their occupation, medium annual income, medium landholdings, medium experience, high attitude towards technological demonstration, high knowledge about KVK activities, high perception towards scientific agriculture, medium market orientation, high scientific orientation, high aspiration level, medium use of information sources and high training exposure. The adoption level of tribal farmers was high.

Keywords- Adoption, Beneficiaries, Krishi Vigyan Kendra, Non-Beneficiaries and Tribal farmers.

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Introduction

Krishi Vigyan Kendra (KVK) is a project of ICAR for testing and transfer of Agricultural technologies to bridge the gap between production and productivity and to increase self-employment opportunities among the farming communities. The trainings offered here follow the principles of Learning by doing and "seeing is believing". It offers skill and knowledge oriented trainings in multidisciplinary areas like crop production and plant protection, horticulture, Animal Sciences and Fisheries, Home Science and Agricultural extension. The KVK is the light house of knowledge to the farming community of the State. KVK's function by the collaborative participation of scientists, subject matter experts, extension workers and farmers. There are 642 Krishi Vigyan Kendra in India and 8 Zonal Project Directorate, which has been established to meet the mandates of KVK. In Madhya Pradesh state 47 KVK's are functioning under zone VII ZPD, out of which 6 KVK's are working in tribal districts. These KVK's are primarily focused on dissemination of location specific technologies access to information for up-liftment and empowerment of tribals.

KVKs working in tribal districts of Madhya Pradesh are actively engaged in dissemination of location-specific technologies related to agriculture. Location specific and need based agriculture extension services is a vital component for the small and marginal farmers, especially with the shifting from a production based to a market demand based system. It becomes imperative that the farmers are kept informed of the changing scenario, which is dictated by consumer preference. The complex equations that necessitate balancing the production cost to meet the competitive market, requires a multi-stakeholder participatory approach in the knowledge transfer process, to enable the farmers to take an informed decision

India has different types of tribal population reflecting its great ethnic diversity. They are an integral part of Indian social fabric and accounts for 8.2 per cent of total population, which comprises of 4.26 crores tribal men and 4.17 crores tribal women. This accounts for 8.40 per cent men and 8.01 per cent women

Agriculture has been and will continue to be the lifeline of our national economy at least in the foreseeable future. Besides, sustaining livelihood and providing directly employment, it forms the backbone of the agro-based industries. The development of the nation is therefore directly or indirectly related to its agricultural advancement, realizing the scope and importance of agriculture. Although the research studies have been conducted to evaluate the impact of development programme on health, education, nutrition, status of tribal populations, involvement of tribal women in agricultural operations, constraints in adopting the technologies by tribal farmers. Extent of technology adoption in different crops, but very few studies has been conducted to explore the contribution of KVK for empowering tribal populations.

MaterialsandMethods

The study was carried out in three district of Madhya Pradesh i.e. Mandla Dindori and Shahdol. As these districts come under tribal districts of M.P. The Mandla district comprises of seven blocks out of which two blocks were selected and from each selected block two adopted villages of KVKs were selected i.e., Prempur, Bhavarda, Silwara, Madanpur. The Dindori district also comprises of seven blocks out of which two blocks were selected and from each selected block two adopted villages of KVKs were selected i.e., Rusamal, Nariya, Bilasar, Chaura. The Shahdol district comprises of five blocks out of which two blocks were selected and from each selected block two adopted villages of KVKs were selected i.e., Sinduchunia, Kalyanpur, Shahpur, Kudeli. A comprehensive list of tribal farmers of each selected village was prepared with the help of KVKs of each district. 75 equal numbers of beneficiaries and 25 equal numbers of non-beneficiaries from each district was selected randomly, thus the total 300 tribal farmers was the sample size of the study.

Table-1 *Profile of Beneficiaries &Non-beneficiaries*

S. No.	CATEGORIES	N= 225 Beneficiaries		N= 75 Non-Beneficiaries	
		Freq	% age	Freq	% age
A. Independent Variable					
Age	Young age group (Up to 35 years)	66	29.34	27	36.00
	Middle age group (36-50yrs)	117	52.00	38	50.66
	Old age group (Above 50)	42	18.66	10	13.34
Education	Illiterate	39	17.34	15	20.00
	Up to primary school	31	13.78	10	13.33
	Up to middle school	34	15.11	07	09.33
	Up to High school	53	23.55	20	26.67
	Up to Higher Secondary	53	23.55	17	22.67
	Up to College	15	06.67	06	08.00
Occupation	Agriculture	35	15.55	10	13.34
	Agriculture + Labour	23	10.22	30	40.00
	Agriculture + Other	111	49.33	18	24.00
	Agriculture + Cast Occupation	11	04.88	09	12.00
	Agriculture + Independent Business	45	20.00	08	10.66
Annual income	BPL (Below Rs 24,000/-)	30	13.33	29	38.66
	Low income (Rs 24,000 - 1,00,000 /-)	59	26.22	16	21.34
	Medium income (Rs 1,00,001 – 1,76,000/-)	95	42.23	20	26.66
	High income (Rs 1,76,001 – 2,50,000/-	41	18.22	10	13.34
Land Holding	Marginal (Below 1 ha)	40	17.77	19	25.33
	Small (1.01 – 2 ha)	65	28.88	16	21.33
	Medium (2.01 – 4 ha)	79	35.12	30	40.00
	Large (Above 4 ha)	41	18.23	10	13.34
Farming Experience	Low experience (5 - 16 years)	78	34.66	30	40.00
	Medium experience (17 - 27 years)	87	38.67	29	38.66
	High experience (28 - 38 years)	60	26.67	16	21.34
Attitude towards Technological Demonstration	Low (10 – 23)	40	17.77	10	13.33
	Medium (24 - 36)	29	12.88	44	58.60
	High (37 - 50)	156	69.33	21	28.00
Knowledge about KVK activities	Low (Up to 8)	30	13.33	25	38.33
	Medium (19 - 17)	20	08.89	36	48.00
	High (18 – 25)	175	77.78	14	18.67
Perception towards Scientific Agriculture	Low (7 - 21)	40	17.78	14	18.66
	Medium (22 - 35)	65	28.88	42	56.00
	High (36 - 49)	120	53.34	19	25.34
Market Orientation	Low (Up to 3)	63	28.00	34	45.33
	Medium (4 - 6)	79	35.12	25	33.33
	High (7 - 10)	83	36.88	16	21.34
Scientific Orientation	Low (6 - 18)	30	13.33	22	29.33
	Medium (19 - 30)	20	08.89	37	49.33
	High (31 - 42)	175	77.78	16	21.34
Aspiration level	Low (3 - 8)	12	05.33	41	54.66
	Medium (9 - 14)	61	27.11	16	21.34
	High (15 - 20)	152	67.56	18	24.00
Participation in KVK activities	Low (Up to 4)	17	07.55	43	57.33
	Medium (5 - 9)	106	47.11	20	26.67
	High (10 – 14)	102	45.34	12	16.00
Use of information sources	Low (0 – 6)	20	08.88	40	53.34
	Medium (7 – 13)	180	80.00	14	18.66
	High (14 - 20)	25	11.12	21	28.00
Training exposure	Low (Up to 2)	28	12.44	39	52.00
	Medium (3 - 4)	52	23.11	20	26.67
	High (5 - 6)	145	64.45	16	21.33

[Table-1] shows profile of beneficiaries. The study revealed that the majority of beneficiaries 54.66 % belonged to middle age group. The data indicates that their level of education was high school about 23.55 % of the beneficiaries had education up to high school.

In case of occupation most of the beneficiaries 49.33% was doing agriculture + other as an occupation for lively hood of the family. In case of annual income most of the beneficiaries 42.33 % had medium annual income (Rs 1, 00,001 – 1, 76,000/-). The average land holding of beneficiaries was 2.01 – 4 ha. About 35.12 % of beneficiaries had medium land holdings. In case of farming experience majority of beneficiaries, 38.67 % had medium experience. The data regarding attitude towards technological demonstration indicates that majority of beneficiaries 69.33 % had high attitude towards technological demonstration and 77.78% had high knowledge about KVK activities. Perception of beneficiaries towards scientific agriculture majority 53.33% of beneficiaries had high perception. In case of market orientation majority, 36.88 % of beneficiaries had high market orientation and 77.77 % of beneficiaries had high scientific orientation. It is evident from the data that about 67.56 % of beneficiaries had high aspiration level. In case of participation, 47.11% had medium participation in KVK activities, 80.00 % beneficiaries had medium use of information sources and 64.45% beneficiaries had high training exposure.

While in case of non-beneficiaries, the study revealed that the majority of non-beneficiaries 50.66% belonged to middle age group, their level of education were high school about 26.67 % of the non-beneficiaries had education up to high school. In case of occupation most of the non-beneficiaries 40.00% was doing agriculture + labour as an occupation for lively hood of the family. In case of annual income, most of the non-beneficiaries 38.66 % had come under below poverty line. The average land holding of non-beneficiaries was 2.01 – 4 ha. About 40.00 % of non-beneficiaries had medium land holdings. In case of farming experience majority of non-beneficiaries, 40.00 % had low experience. The data regarding attitude towards technological demonstration indicates that majority of non-beneficiaries 58.60 % had medium attitude towards technological demonstration and 48.00% had medium knowledge about KVK activities. Perception of non-beneficiaries towards scientific agriculture majority 56.00% of non-beneficiaries had medium perception. In case of market orientation majority 45.00 % of non-beneficiaries had low market orientation and 49.33 % of non-beneficiaries had medium scientific orientation. It is evident from the data that about 54.66 % of non-beneficiaries had low aspiration level. In case of participation 57.33% had low participation in KVK activities In case of use of information sources the majority of non-beneficiaries 53.34 % had low use of information sources. 52.00% non-beneficiaries had low training exposure.

Table-2 *Distribution of tribal farmers according to their mean score, standard deviation with respect to socio-personal economic, communicational and psychological factors*

Attributes	Categories of Tribal Farmers	Statistical parameters		
		Mean	S.D.	t- test
Age	B NB	42.61 42.72	10.05 12.05	-0.07^{NS}
Education	B NB	2.37 1.81	2.17 1.55	2.77*
Occupation	B NB	3.05 2.53	1.25 1.03	3.57*
Annual income	B NB	124502 66560	114957 52518	6.21*
Land holding	B NB	3.07 2.51	1.80 1.26	2.98*
Farming Experience	B NB	21.28 19.33	8.39 8.86	1.72^{Ns}
Attitude towards technological demonstrations	B NB	37.83 33.25	8.65 4.95	5.63**
Knowledge about KVK activities	B NB	20.41 9.45	5.86 3.43	19.66**
Perception towards scientific agriculture	B NB	35.25 29.84	8.92 6.19	5.82**
Market Orientation	B NB	5.41 4.09	2.00 1.96	4.99**
Scientific Orientation	B NB	32.54 26.08	7.09 5.92	7.10**
Aspiration Level	B NB	15.06 9.64	3.73 3.93	10.75**
Participation in KVK activities	B NB	8.72 5.13	2.59 3.67	7.83**
Use Information sources	B NB	9.86 8.12	2.81 4.33	3.27**
Training Exposure	B NB	4.96 2.48	1.39 1.79	10.95**

* Significant at 0.05 probability level, ** Significant at 0.01 probability level
B=Beneficiaries, NB=Non-beneficiaries

It is evident from the [Table-2] that the mean score of beneficiaries is higher than the non-beneficiaries with respect to education, occupation, annual income, land holding, attitude towards technological demonstrations, knowledge about KVK activities, perception towards scientific agriculture, market orientation, scientific orientation, aspiration level, participation in KVK activities, use information sources, training exposure. The t-test calculated was found to be significant; this indicates that there was considerable difference between the adoption level of beneficiaries and non-beneficiaries. The attributes like age and farming experience was found to non-significant.

Table-3 *Percentage distribution and statistical parameters of tribal farmers according to their adoption level*

Categories	Beneficiaries	Non-Beneficiaries	Total
Low (14 - 23)	40 (17.78)	40 (53.33)	80 (26.66)
Medium (24 - 32)	66 (29.34)	20 (26.67)	86 (28.67)
High (33 - 42)	119 (52.88)	15 (20.00)	134 (44.67)
Total	225	75	300
Mean	**32.31**	**22.98**	
S.D.	**6.61**	**6.23**	
t = 10.73**	** Significant at 0.01 probability level		

The data in the [Table-3] indicates that out of the total beneficiaries, highest percentage i.e. 52.88 per cent was found in high adoption category, followed by 29.34 per cent in medium and 17.78 per cent in low adoption categories. While in case of non-beneficiaries, 53.33 per cent had low adoption, whereas 26.67 per cent medium and 20.00 per cent had low adoption. Thus, it can be concluded that the higher 52.08% of the beneficiaries had high level of adoption while, 53.33% of non-beneficiaries had low adoption.

Statistical parameters reveal that mean score for beneficiaries and non-beneficiaries 32.31 and 22.98 respectively with standard deviation of 6.61 and 6.23 respectively. The t-test calculated was found to be significant, this indicates that there was considerable difference between the adoption level of beneficiaries and non-beneficiaries.

Table-4 *Relationship of socio-personal economic, communicational and psychological factors with their adoption*

Factors	Correlation Coefficient	
	Beneficiaries	Non-beneficiaries
Age	-0.214*	0.278*
Education	0.213**	0.388**
Occupation	0.240*	0.797*
Annual income	0.284**	0.350**
Land Holding	0.379**	0.704**
Farming Experience	0.312*	0.371*
Attitude towards Technological Demonstration	0.617**	0.546**
Participation in KVK activities	0.480**	0.301**
Knowledge about KVK activities	0.570**	0.348**
Perception towards Scientific Agriculture	0.630**	0.221**
Market Orientation	-0.058**	0.180**
Scientific Orientation	0.549**	0.552**
Aspiration level	0.348**	0.643**
Use of information	0.167**	0.238**
Training exposure	0.438*	0.928*
*,** Significant at 0.05 and 0.01 level of probability, NS, Non-significant		

It is evident from the data that the correlation coefficient of age, education level, occupation, annual income, land holding, farming experience, attitude towards technological demonstration, participation in KVK activities, knowledge about KVK activities, perception towards scientific agriculture, scientific orientation, aspiration level, use of information sources, training exposure were found to have positive and significant correlation of both the categories beneficiaries and non-beneficiaries with their adoption but market orientation was found to be non-significant of beneficiaries and non-beneficiaries.

Constraints

Table-5 *Constraints reported by Tribal farmers*

Constraints	Beneficiaries N=225			Non-Beneficiaries N=75		
	f	%	Rank	f	%	Rank
Economic constraints						
Lack of agro based and rural industries for the income generation and employment to tribals.	90	40.00	I	60	80.00	II
Lack of money to purchase useful inputs.	50	22.22	II	40	53.33	IV
Lack of money for land preparation.	45	20.00	III	50	66.66	III
High cost of seeds.	40	17.77	IV	65	86.66	I
High labour charges.	30	13.33	V	40	53.33	V
Technical constraints						
Lack of information's about tribal programmes and insurance policies.	50	22.22	II	70	93.33	II
Lack of current agricultural literature.	80	35.55	I	55	73.33	V
Lack of knowledge about insects and diseases.	40	17.77	III	65	86.66	III
Lack of crop related training.	25	11.11	IV	50	66.66	VI
Lack of knowledge about soil testing.	10	4.44	V	60	80.00	III
Technological skills are not developed through special training programme.	10	4.44	VI	75	100.00	I
Extension constraints						
Lack of technical guidance by the KVK.	50	22.22	III	75	100.00	I
Irregular visit of FEOs.	100	44.44	II	50	66.66	IV
Demonstrations not conducted adequately and timely	160	71.11	I	70	93.33	II
Lack of trainings provided by KVKs.	40	17.77	IV	60	80.00	III
Institutional constraints						
Co-operative societies are not providing seeds timely.	100	44.44	I	65	86.66	I
Lack of technical information from KVKs.	50	22.22	II	55	73.33	II
Situational constraints :						
Low market price.	200	88.88	II	65	86.66	II
Lack of storage facilities.	220	97.77	I	60	80.00	III
Lack of Irrigation facilities.	170	75.55	III	70	93.33	I
Lack of market.	150	66.66	IV	50	66.66	IV

Conclusion

Regarding the adoption of tribal farmers majority of beneficiaries had high level of adoption while, non-beneficiaries had low adoption. The t-test calculated was found to be significant, this indicates that there was considerable difference between the adoption level of beneficiaries and non-beneficiaries. This finding was in conformity with the work of [1,2]

In case of age, it was found to be significant and positively correlated with other independent variables, except occupation, annual income, aspiration level, participation in KVK activities and use of information sources, which was negatively correlated with age of both the categories beneficiaries as well as non-beneficiaries.

Annual Income was found to be significant and positively correlated with other independent variables but non-significant with farming experience.

Attitude towards technological demonstration and Perception towards scientific

agriculture was found to be significant and positively correlated with other independent variables but non-significant with market orientation.

In case of correlation coefficient socio-personal economic, communicational and psychological factors except of market orientation were found to have positive and significant correlation of both the categories beneficiaries and non-beneficiaries with their adoption. It means if these characteristics of tribal farmers are increased by any means that will lead to their higher adoption. This finding found similar to the finding of [3, 4]

The major constraints reported by the tribal farmers were lack of agro based and rural industries for the income generation and employment to tribal's, High cost of seeds, Technological skills are not developed through special training programme, Lack of current agricultural literature, Irregular visit of FEOs, Demonstrations not conducted adequately and timely, Co-operative societies are not providing seeds timely, Low market price, Lack of storage facilities, Lack of Irrigation facilities, Lack of market. The findings are similar with the work of [5, 6]

Conflict of Interest: None declared

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