

Revamping the Technology Dissemination Process through Farm Science Centre

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ABSTRACT

As concerns about environmental protection, natural resource stewardship, and the India's ability to feed ever-growing populations continue to mount, the sustainability of agriculture and natural resources is emerging as a central theme among the public and policymakers alike. In the changed scenario, with the vertical expansion of the agricultural innovation, agricultural extension system in India is more of informative extension or knowledge intensive extension embedded with the traditional social system than emancipatory extension. The paradigm shift of demand driven extension from supply driven extension gives rise to a new institutional, single window extension system of Farm Science Centre. In such a research climate, the present paper envisages the general impact of a remmandated farm science centre, situated at Cooch Behar district in the light of developing attitude, gaining knowledge and increasing exposure to communication sources. It also identifies the correlates in characterizing the impacts of the farm science centre for revamping the existing farm level technology dissemination process. The study was conducted at Coochbehar II block of Coochbehar District in West Bengal. The study revealed that the attributes cosmopolitaness, training received, risk orientation and adoption leadership of the adopted farmer had effective contribution in characterizing the impact of remmandated farm science centre.

Key words: Environmental protection; Agricultural extension system; Informative extension; Knowledge intensive extension; Farm Science Centre; Cosmopolitaness; Risk orientation; Adoption leadership;

In the changing global scenario, the technology dissemination process had played a pivotal role in mobilizing the agricultural information within a rural social system for maintaining sustainable livelihoods during the green revolution and post green revolution era. Many agricultural and natural resource management practices are increasingly implicated in environmental deterioration around the world. The importance given to it reflects the recognition that the quality of human life and the quality of the environment are inextricably linked. The issues involved transcend science. They encompass ideologies and values, ethics and aesthetics—the arena, in short, of public opinion and public policy. As more individuals and organizations have begun to recognize the need for adjustments to conventional agriculture that are environmentally, socially, and economically compatible, the phrase sustainable agriculture has come to connote approaches to agriculture that provide for the needs of current and future generations while conserving natural resources. As a result technology transfer involves complex

processes consisting of diverse structures, and relationship of inter-dependent factors and related variables, aimed at enhancing adoption of innovations (Farinde, 1996). Utilizing appropriate methods in reaching small scale farmers in India with relevant, economically viable and culturally acceptable agricultural technologies in order to improve their knowledge, skill and overall attitude towards agricultural productivity, is sustainable agricultural technology transfer and it also involves complex processes consisting of diverse structures, and relationship of inter-dependent factors and related variables, aimed at enhancing adoption of innovations in the farm level. In the changed scenario, with the vertical expansion of the agricultural innovation, agricultural extension system in India is more of informative extension or knowledge intensive extension embedded with the traditional social system than emancipatory extension. Now a day's agricultural technology dissemination is a process for accessing the farm families to make decision through which they reach their goals as good as possible. At the advent of WTO

or globalization and free trade initiation, farmers have to make different decisions than in the past. At that moment agricultural developments results in an increase in the production per unit of land, labour, capital and other resources through adoption of more productive technology, better management and integrating resources in an optimal way. A clear penchant has been occurred towards the demand driven extension approach instead of supply driven one for aptly utilizing the agricultural information in the rural areas during post globalization era. The demand driven approach bestows the need of the rural people, utilization of the rural resources in an appropriate manner, solving the farm problems with the help of existing rural resources. Such type of extension approach gives birth to a process of agricultural technology socialization instead of mere technology transfer. Socialization of technology emphasizes the venture wherein the knowledge and experience of the clientele have been taken into consideration with a system approach (Acharya *et al*, 2008). The prerogative of the farm people towards a new agricultural technology has been taken into account. The technology which has its immense potentiality in the particular situation had been socialized with a view to the right of the clientele for adopting or not adopting a technology in their own situation with a system approach. The decision making process in agricultural technology adoption involves various decision stimuli *viz.* level of physical capital, human capital, access to productive resources, risk attributes (Feder *et al*, 1985), agro-ecosystem and types of technology (Pingali *et al*, 2001), farming season (Moser and Barrett, 2003), as well as chance factors such as neighbours and village colleagues (Munshi, 2004; Zhang *et al*, 2002). Involvement of these factors in shaping the farmers' adoption-decision seems to vary (Baruah *et al*, 2011). The paradigm shift of demand driven extension from supply driven extension gives rise to a new institutional, single window extension system of Farm Science Centre with a view to socialize the innovative eco-friendly agricultural technology in a sustainable manner. The Krishi Vigyan Kendra, an educational institution, offers a very real opportunity by organizing training to work closely with trainees in developing a more skilled and educated work force (Dubey *et al*, 2008). In such a research climate, the present dissertation work had concentrated upon the general impact (attitude developed, knowledge gained and exposure to the communication sources) analysis of the remandated

farm science centre at Coochbehar district of West Bengal with respect to some socio-personal, socio-economic attributes of the target people as Ayichi (1995) suggested that the impact of any agricultural technology transfer system could be measured on the basis of extent of changes in the socio-cultural and economic characteristics of the farmers.

METHODOLOGY

The present study was conducted in Coochbehar II block of Coochbehar District in West Bengal. To select the district and block purposive sampling technique was followed. In case of selecting the villages and respondents the simple random sampling technique was followed. Out of five numbers of adopted villages in this block by remandated Farm Science Centre, the three villages had been randomly selected for the present study. An exhaustive list of the adopted farmers was prepared for delineating the respondents. From this list 100 respondents had been identified randomly for the present study. The general impact of the Farm Science Centre activities was considered as the predicted variable for the study. This has been operationalized as the composite score of attitude towards Farm Science Centre's activities, knowledge gained by the farmer through farm science centre activity regarding new agricultural practices and exposure towards communication sources. The socio-economic, socio-personal and socio-psychological as well as communication attributes of the target people were considered as the predictor variables for the study. The data were collected with the help of structured interview schedule by personal interview method. The collected data were analyzed with the help of statistical tools like correlation coefficient and multiple regression analysis for drawing conclusion.

RESULTS AND DISCUSSION

Table 1 reveals the correlation coefficient of general impact (Y) with sixteen causal variables. The cosmopolitanism is a character of an individual for delineating his entry exposure towards the environment and towards the sources of information. The general impact of farm science centre had positively and significantly associated with the variable cosmopolitanism in this study. The exposure to an individual makes a man too informative and knowledgeable. In a very real sense the general impact had a positive and significant relationship with cosmopolitanism of a person.

Training means a capacity building process of an extension institution for the farmer. Training helps a farmer to gather knowledge about his unknown or hardly known matter. It also enhances the uptake capacity of the farmer. In the study, it revealed that the general impact had positively and significantly correlated with the training received. Training enhances adoption capacity and knowledge of the farmer. For this the general impact is positively and significantly correlated with training received by the farmer.

Adoption leadership is a unique character of a human being, which helps a human being to influence his follower in a definite purpose. The farm science centre's general impact had also positively and significantly correlated with the adoption leadership of the farmer. It reflects that the working process of farm science centre is able to prepare more effective leader in the village community.

Risk orientation enhances the adoption capacity of a farmer. An early adopter who has some skill and knowledge improved through an extension system, is more profound to take a new venture for improving his skill or knowledge. In this study, also the general impact

of farm science centre is positively and significantly correlated with the risk orientation. The farmers, who have clear penchant to the farm science centre, have a positive attitude of risk orientation to the new initiative through farm science centre.

From this analysis it is also reflected that the cosmopolitaness, training received, adoption leadership, risk orientation have also a relation shift with general impact. The three variables (attitude towards farm science centre's activity, knowledge gained by the farmer through farm science centre activity regarding new agricultural practices and exposure towards communication sources developed by farm science centre) had also positive and significant relation with the four causal variables (cosmopolitaness, training received, adoption leadership, risk orientation). It is to infer that not only the improvement of attitude, knowledge and exposure has been created by the activity of farm science centre but also the cosmopolitaness, attitude to receiving training, adoption leadership and risk orientation of the adopted farmers have also been improved by the activity of farm science centre.

Table 2 has reflected the multiple regression analysis of the dependent variable general impact of farm science centre with sixteen causal variables. From the above table it is clear that the causal variables - cosmopolitaness, training received, risk orientation had positively and significantly contributed towards the general impact of farm science centre. One causal variable farm material possession had negatively and significantly contributed towards the general impact of farm science centre. The variable general impact is the simple average of the three dependent variables like altitude towards farm science centre's activities, knowledge gained by the farmer through farm science centre's activity regarding new agricultural practices and exposure towards communication sources developed by farm science centre.

It is already discussed before that the cosmopolitaness is a character for delineating his exposure towards the environment and to the source of information. The farm science centre helps to give the farmer a new relation to the outer world. It can be through training, exposure visit etc. For this a farmer can better to know about his surroundings in case of agriculture as well as livelihood. That was why the variable cosmopolitaness had positively and significantly contributed towards determining the general impact of farm science centre.

Training makes a trainee more knowledgeable and

Table 1. Correlation co-efficient of "General Impact(Y)" with sixteen causal variables

Variables	Co-efficient correlation (r)
<i>Socio-personal</i>	
Age(X_1)	-0.177
Education status(X_2)	0.191
Family size (X_3)	0.025
Family education status(X_4)	0.103
<i>Socio-economic</i>	
Primary occupation(X_5)	0.035
Land holding (X_6)	-0.085
Annual income(X_7)	0.136
Farm material possession(X_8)	-0.046
Consumer durable assest possession(X_9)	0.204
House Type (X_{10})	0.175
Sanitation status(X_{11})	0.206
<i>Socio-psychological</i>	
Adoption leadership(X_{12})	0.500**
Management orientation(X_{13})	0.108
Risk orientation(X_{14})	0.550**
<i>Communication</i>	
Cosmopolitaness(X_{15})	0.424**
Training received (X_{16})	0.600**

* Significant at 5% level of significance.

** Significant at 1% level of significance.

Table 2. Multiple regression analysis of the variable “General Impact (Y)” with sixteen causal variables

Variables	Standard regression Co-efficient(b)	Regression Co-efficient (b)	Standard error of (b)	‘t’ value of (b)
<i>Socio-personal</i>				
Age(X ₁)	0.071	0.015	0.027	0.596
Education status(X ₂)	0.186	0.140	0.086	1.623
Family size (X ₃)	-0.001	-0.002	0.189	-0.010
Family education status(X ₄)	-0.118	-0.143	0.150	-0.954
<i>Socio-economic</i>				
Primary occupation(X ₅)	0.023	0.347	1.332	0.261
Land holding (X ₆)	0.076	0.038	0.089	0.432
Annual income(X ₇)	0.005	0.001	0.022	-0.031
Farm material possession(X ₈)	-0.330	-0.112	0.039	-2.841**
Consumer durable asset possession(X ₉)	0.048	0.053	0.108	0.490
House type (X ₁₀)	0.159	0.850	0.533	1.595
Sanitation status(X ₁₁)	0.009	0.021	0.217	0.096
<i>Socio-psychological</i>				
Adoption leadership(X ₁₂)	0.102	0.075	0.085	0.876
Management orientation(X ₁₃)	-0.034	-0.030	0.076	-0.395
Risk orientation(X ₁₄)	0.242	0.228	0.103	2.214*
<i>Communication</i>				
Cosmopoliteness(X ₁₅)	0.298	0.446	0.141	3.153**
Training received (X ₁₆)	0.440	0.535	0.122	4.404**

$R^2 = 0.630$, Adjusted $R^2 = 0.528$ * Significant at 5% level of significance. ** Significant at 1% level of significance.

efficient. In the mandate of farm science centre, it is an activity of the centre to build the capacity of the farmer more profoundly. When a farmer attending more training delivered by farm science centre, he will be more acquainted with the activities of this institution as well as gathered more knowledge regarding new agricultural practices with skill. So, obvious training is the cause and general impact is the result through which the farmer can equip themselves with the latest knowledge regarding agriculture. That was why the variable training received had positively and significantly contributed to the general impact of farm science centre.

Risk orientation is a character of a farmer to take risk by introducing new agricultural practices in their farming situation. Farm science centre with their different activities prepare the farmer to take risk and new initiative which is obviously an impact of farm science centre. That was why the variable risk orientation had positively and significantly contributed in determining the general impact of farm science centre.

Farm material possession reflects the social status of a farmer. These who have possessed more farm materials may be termed as progressive farmer. Mostly in the study area the progressive farmers are much more saturated in case of agricultural information seeking and passing. The character of self dependency has

developed within themselves. It is evident that the progressive farmers who possess much more farm materials they don't have the mental psyche to seek any information from the farm science centre regarding agriculture due to their self dependency and self confidence. That was why the variable farm material possession had contributed negatively and significantly in case of determining the dependent variable general impact of farm science centre.

The overall study had revealed that the three causal variables cosmopoliteness, training received and risk orientation had positively and significantly contributed and the other one, i.e., farm material possession had negatively and significantly contributed to the three dependent variables (attitude towards farm science centre's activity, knowledge gained by the farmer through farm science centre's activity regarding new agricultural practices, exposure towards communication sources developed by farm science centre) as a whole the general impact of farm science centre. It can be inferred that general impact can also be explained in terms of cosmopoliteness, farm material possession, and training received and risk orientation. So, the activities of farm science centre are impactful in case of increasing cosmopoliteness, farm material possession, training received and risk orientation.

The R^2 value being 0.630, it is to infer that the sixteen causal variables put together had explained 63 per cent variation embedded with the dependent variable general impact of farm science centre. From the study it is clear that still 37 per cent variation embedded with the dependent variable is still unexplained.

CONCLUSION

With an aim to find out the general impact of the remandated farm science centre, a single window agro-technology transfer system the present study endeavors and ventures into the ripples of adopted farmers' attitude, breaking the ices of frozen emotions and extracting the aroma of imbued local values towards the farm science centre. The impacts of any extension system relate to improvement in the socio-cultural and economic characteristics of the farmers, such as increases in farmers' income and improvement in overall standard of living. Earlier impact studies identified increases in the levels of participation in programme planning, hectare of land cultivated by farmers, positive changes towards agriculture and greater access to social services, as success indicators. Similarly, the present

study had considered the general impact of the farm science centre as gaining of knowledge about the agro-technology, developing positive attitude towards the technology and increasing exposure to keep abreast with the up to date information. The farm science centre, an emerging extension model ultimately aims to the socialization of agro-technology with a view to uplift the socio-economic condition of the people with the help of eco-friendly agro-technology in a sustainable manner along with a system approach. The present study also identifies some critical attributes of the adopted farmers which have the prime importance in case of developing the new approach and paradigm for the technology transfer system. With the help of identified critical attributes, it can be inferred that not only the improvement of attitude, knowledge and exposure has been occurred with the help of the activity of remandated farm science centre but also the cosmopolitaness, attitude to receiving training, adoption leadership and risk orientation of the adopted farmers have also been improved by the activity of farm science centre.

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REFERENCES

- Acharya, S.K.; Pradhan, K and Adhikary, M.M. (2008). Socialization of technology in agriculture (A paradigm shift from TOT). *Agro Tech Publishing Academy*. Udaipur, India.
- Ayichi, D. (1995). Agricultural Technology Transfer for Sustainable Rural Development. In *Rural Development in Nigeria: Concepts, Processes and Prospects*, E.C. Eboh; C.U. Okoye; and D. Ayichi eds., Enugu: Auto-Century Publishing Company, pp. 126-134.
- Baruah, U.K.; Barman, J. and Kaman, B. (2011). Adoption behaviour of the farmers of Goalpara district of India towards aquaculture technology. *Journal of Agril. Ext. and Rural Development*. **3** (12): 212-219.
- Dubey, A.K.; Srivastava, J.P. and Sharma, V.K. (2008). Attitude of respondents towards KVK training programmes. *Indian Res. J. of Ext. Edu.*, **8** (2&3): 78-80.
- Farinde, J.A. (1996). Effective Agricultural Technology Transfer: Need for a Model Extension Delivery Body for Sustainable Rural Development in Nigeria". In *Sustainable Development in Rural Nigeria; Proceedings of the Eight Annual Ago-Iwoye Conference of the Nigerian Rural Sociological Association*, S. Fola Adedoyin and J.O.Y. Achonsu eds., Ogun State University, Nigeria, pp. 119-131.
- Feder, G.; Just R.E. and Zilberman D (1985). Adoption of agricultural innovations in developing countries: A survey. *Economic Development and Cultural Change*. **33**(2): 225-298.
- Moser, C.M. and Barrett C.B. (2003). The disappointing adoption dynamics of a yield-increasing, low external-input technology: the case of SRI in Madagascar. *Agriculture System*. **76** (3) : 1085-1100.
- Munshi, K. (2004). Social learning in a heterogeneous population: Technology diffusion in the Indian Green Revolution. *J. of Development Economics*. **73** (1) : 185-213
- Pingali, P.L.; Rozelle, S.D. and Gerpacio R.V. (2001). The farmers' voice in priority setting: a cross-country experiment in eliciting technological preferences. *Economic Development and Cultural Change*. **49** (3) : 591-610.
- Zhang, X.; Fan S. and Cai , X. (2002). The path of technology diffusion: which neighbors to learn from? *Contemporary Economic Policy*. **20** (4) : 470-479.

