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Effectiveness of Crop Advisory Services in Aurangabad District of Maharashtra in India

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Abstract

The project was undertaken to study the evaluation of effectiveness of crop advisory services and suggested measures for filling the gap in Aurangabad district of Maharashtra in India. The survey was carried out in 2010. The data was collected with the help of a specifically designed and pre-tested questionnaire. The project carried out in catchment area of advisory services has given substantial insight on the current status of different dimensions of advisory services running in Aurangabad and also recommends strategies to make advisory services accessible to all. The farmer's willingness to pay assumes a key role in determining the success of a cost-recovery strategy. During the study it was interesting to note that of all the 115 respondents 46.67% agreed that their critical need was supply of inputs followed by credit purchase on which the advisory services provider should focus. The dissemination channels were not utilized properly. The results of correlation study indicate that the recommendations by the advisory services and the results after advise have a positive correlation with increase in yield showing the effectiveness of these crop advisory services. The results of multivariate regression indicated that the cropping and harvesting method, credit access, input supply linkage, insurance, age, education and interaction with other farmers have the main role in showing the variations of attitude to adoption of the advisory services.

Keywords:
Channels, Recommendations, Critical need, Yield, Effectiveness, Multivariate regression

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INTRODUCTION

Agriculture currently accounts for 14.6 % of the national GDP (Economic Survey, 2010-11) and provides employment to about 52% of the total work force in India. Agriculture is the backbone of Indian Economy. In the era of globalization and phenomenal technological progress, Indian agriculture faces the twin challenges of meeting the rising demand of food for increasing population in a sustainable manner and making the best use of available resources and technology for enhancing the production and productivity of agricultural sector. The national average yields of most commodities are low. In many areas there are limits to achievable increase in productivity, unless appropriate institutions that can help farmers to access information, inputs and services are strengthened, and joint action for natural resources management, marketing and processing are promoted. Agricultural extension services (in the public as well as private sector) need to play a much larger role in assisting farmers in meeting the above challenges. Extension services are an important element within the array of market and nonmarket entities and agents that provide human capital-enhancing inputs, as well as flows of information that can improve farmers' and other rural peoples' welfare. The goals of extension includes transferring of knowledge from researchers to farmers, advising farmers in their decision making and educating farmers on how to make better decisions, enabling farmers to clarify their own goals and possibilities, and stimulating desirable agricultural developments (van der Ban & Hawkins, 1996). As Schultz (1975) has argued, agriculture-specific human capital is important in improving farm yields in a changing environment because it enhances resource allocation abilities of farmers. Sustainability of an extension service depends crucially on its ability to provide benefits and generate support from internal and external stakeholders (Gustafson, 1994).Yet development scholars and practitioners have generally concluded that the performance of extension services in developing countries has been disappointing. (Rivera *et al.*, 2001).

Public extension alone can't meet the specific need of various regions and different classes of farmers and policy to promote private and community driven extension to complement, supplement, work in partnership and even substitute for public extension is required (Department of Agriculture and Co-operation, 2000). The World Development Report 2008 (World Bank, 2007) emphasizes agricultural extension as an important development intervention for: (1) increasing the growth potential of the agricultural sector in the light of rising demand- and supply-side pressures, and (2) promoting sustainable, inclusive, and pro-poor agricultural and hence economic development.

The improvement in agricultural productivity requires demand-driven and farmer-accountable, need-specific, purpose-specific, and target-specific extension services. In order to use extension approaches that best fit a particular situation, the agricultural extension system has to be sufficiently flexible to accommodate the different options. To this end, the recent agricultural-sector reforms have been geared towards creating a demand-driven, broad-based, and holistic agricultural extension system (Sulaiman & Hall, 2002, 2004; India Planning Commission, 2005).

The services that extension systems need to provide to cover a much wider agenda than the traditional technology transfer function, includes:

1- linking farmers to domestic and international markets, reducing their vulnerability and enhancing the voice of the rural poor (Farrington *et al.,* 2002);

2- advising on and promoting environmental conservation (Alex *et al.*, 2002);

3- advising on farm and small rural business enterprise development and non-farm employment (Rivera *et al*., 2002);

4- augmenting technology transfer with services relating to both input and output markets (Neuchatel Group, 2002); and

5- contributing to capacity development through training, strengthening the innovation process, building linkages between farmers and other agencies, and helping to strengthen farmers'

bargaining position through appropriate institutional and organizational development (Sulaiman & Hall, 2002).

While there is limited evidence on income gains, a recent case study by (Goyal, 2010) suggests that the presence of e-Choupals in Madhya Pradesh in India has increased the average price in government-regulated wholesale agricultural markets in a district by 1-3 percent, and raised farmers' net profits by 33 percent. This e-Choupal business model has eliminated the middlemen from the transaction, which has made the system attractive for both the farmers and the company.

Evaluating the results of the assessment study of gender – related reforms, Danida (2002) concluded that all extension services projects have improved the economic status of trained women and contributed to poverty reduction and reflected the corresponding effect of (1) higher crop yields (2) savings on the use of chemical fertilizer, and (3) higher agricultural productivity through improvements in agricultural practices.

In many developing countries, lack and shortage of relevant and appropriate technologies to improve productivity is a major constraint confronting the extension service, a problem which is more serious in rainfed, resource poor environments (Axinn, 1988; Purcell & Anderson, 1997). Part of the reason for the lack and shortage of appropriate technologies is the weak linkage between research, extension and farmers. To alleviate the aforementioned generic problems of extension, a range of institutional arrangements have been tried, including improvements in extension management, decentralization, and commodity-focused approach, fee-for-service public provision, institutional pluralism, empowerment and participatory approaches, privatization, service contracting, and inter-connecting rural people and use of appropriate media (Anandajayasekeram *et al.*, 2005)

MATERIALS AND METHODS

The main objectives of the study:

1- to evaluate advisory services by knowing its effectiveness, reach and comparative advantages to farmers in catchment area of advisory service providers.

2- to explore gaps for slow adoption of the advisory services and suggest strategy for filling them.

The research conducted was of evaluation type research. Primary data was collected for the purpose of study by adopting survey method. A well structured questionnaire with both closed and open-ended questions was prepared and administered among the farmers living in catchment area of advisory services. Open ended questions were used to evaluate performance of field visit & technical advice and evaluate results after advice, while closed ended questions were used to evaluate customer satisfaction level. A 5-point likert's scale has been used to measure the performance field visit & technical advice of advisory services. Open-ended questions are also used to know farmers expectation from the extension service providers. A random sampling method was adopted to select 115 respondents. The samples were distributed all over the catchment area of which 90 were paid members of extension service providers and 25 were non-members. Data collected was analyzed using the Statistical Package for Social Science (SPSS).

RESULTS AND DISCUSSIONS

The respondents were interviewed to find the effectiveness of the paid advisory services and the data collected was tabulated. Table 1 revealed that 75.65% of the respondents have studied till primary or middle class. However, 15.65% of

Table 1: Characteristics of respondents (n=115 respondents)

Characteristics	Frequency	Percentage
Education level		
Illiterate	18	15.65
Primary	36	31.30
Middle	51	44.35
Matric & above	14	12.17
Land holding		
<2 ha	27	23.48
2-10 ha	83	72.17
>10 ha	5	4.35
Advisory services		
Paid members	90	78.26
Non-members	25	21.74

Table 2: Advisory services for crops (n=90 paid members)

Crops	Frequency	Percentage
Cotton	70	77.78
Sweet lime	9	10.00
Onion	7	7.78
Mango	1	1.11
Pome	3	3.33

Table 3: Critical needs of respondents (n=115 respondents)

Critical needs	Frequency	Percentage
Input supply linkage	42	46.67
Credit Purchase	34	37.78
Discount on fees	16	17.78
Financial services	23	25.56

the respondents were illiterate. The education level of the studied area was low. The data presented in table 1 revealed that 23.48% of the respondents had small landholding upto 2 ha. followed by 72.17% having landholding up to 2-10 ha. and large holders were 4.35% with land above 10 ha. Table 2 revealed that 77.78% of the paid members have taken advisory services for cotton crop which shows that cotton is the major crop in Aurangabad and main focus for extension service providers. The advisory services for other crops such as sweet lime, onion, pome and mango were taken by few respondents.

The perception of the farmers not subscribing to the advisory services revealed that the most frequently accessed source of 60% of them was 'other progressive farmers' and the 'dealer providing inputs'. The similar findings were reported by NSSO (2005, p.7). Of all the respondents 46.67% agreed that their critical need was supply of inputs followed by credit purchase for 37.78% of respondents which proves to be core constraints on which the advisory services provider should focus. We can say that majority of the respondents were aware of the crop advisory services but the fee charged and lack of financial services were additional constraints in approaching the crop advisory service providers (Table 3). Similar findings were confirmed by Gebremedhin, Hoekstra, and Tegegne (2006) who have indicated input supply linkage as critical need in case of Ethiopian farmers. Of all the respondents, 49.6% were aware about the advisory services mainly through fellow farmers and others were informed by advisory service providers or the leaflets. This shows that the dissemination channels for advisory services were not proper. The importance of ICTs was needed to be identified by service providers as an important means to increase agricultural productivity and consequently agricultural and rural income (Annamalai & Rao, 2003; Singh, 2006). Table 4 revealed that 23.3% respondents rated advisory services "good" and 51.1 % rated "fair" as it helped in reducing the cost of cultivation by utilization of better techniques. 11.1% rated these advisory services as "excellent" and 73.3% rated them as "good" due to regular follow up from the staff. The respondents were also satisfied with the recommendation and knowledge of the staff of the

Table 4: Distribution of respondents according to their perception about advisory services (n = 90 paid members)

	Excellent		Good		Average		Fair		Poor	
	f	%	f	%	f	%	f	%	f	%
Cost of cultivation and Market price	0	0.0	21	23.3	46	51.1	12	13.3	11	12.2
Reduction in Cost of cultivation	0	0.0	46	51.1	39	43.3	5	5.6	0	0.0
Market price of the produce										
Customer relationship status	6	6.7	70	77.8	14	15.6	0	0.0	0	0.0
Adviser's field visit	10	11.1	66	73.3	14	15.6	0	0.0	0	0.0
Follow-up by staff	16	17.8	56	62.2	18	20.0	0	0.0	0	0.0
Knowledge of staff										
Effectiveness of advice	9	10.0	47	52.2	34	37.8	0	0.0	0	0.0
Recommendation	6	6.7	55	61.1	29	32.2	0	0.0	0	0.0
Result after advice										

Table 5: Coefficient of correlation and significant levels

Variable 1	Variable 2	R
Recommendation	Increase in yield	0.767*
Result after advise	Increase in yield	0.879*

*Correlation is significant at the 0.01 level (2-tailed).
n= 90 paid members

advisory service providers.

For describing relation between independent variables with dependent variable (increase in yield), Pearson's coefficient of correlation was used (Table 5). The correlation study shows that the recommendations by the advisory services and the results after advice have a positive correlation of 0.767 and 0.879 respectively with increase in yield showing the effectiveness of these crop advisory services. The farm demand for improved technology is significantly influenced by household utilization of advisory services and risks associated with farming. Results show that intensity of adoption first decreases, then increases with more advisory visits, suggesting that increased interaction of the farmer with service providers increases their awareness and knowledge regarding the use of improved technologies. Similar findings were reported by Isengildina, Pennings, Irwin, and Good (2004) and Mugisha & Diiro (2010). To describe the role of independent variable on dependent variable multivariate regression was used. The results of multivariate regression (Table 6 and 7) indicated that the cropping and harvesting method, credit access, input supply linkage, insurance, age, education and interaction with other farmers have the main role in showing the variations of attitude to adoption of the advisory services. It was concluded that different dissemination channels were not fully utilized in the area which hindered not only awareness level of the respondents but also adversely affected the rate of adoption level regarding the latest production technology.

CONCLUSIONS AND RECOMMENDATIONS

The advisory services were found to be a critical factor for increased adoption. It was concluded that the farmers who were visited regularly by crop advisory service providers, tended to adopt technology sooner and achieved

Table 6: Findings of multivariate regression

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	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3.808	9	.423	2.723	.007a
Residual	16.314	105	.155		
Total	20.122	114			

a. Predictors: (Constant), Input Supply Linkage, Education, Interaction with Farmers, Crop Pattern, Insurance, Harvesting Method, Age, Credit Access
b. Dependent Variable: Participation in Advisory Services

Table 7: Findings of multivariate regression

Independent variable	B	Std. Error	Beta	T	Sig
(Constant)	1.228	0.302		4.06	0.000
Age	0.004	0.006	0.067	0.716	0.476
Education	0.023	0.044	0.049	0.53	0.597
Insurance	0.047	0.11	0.039	0.424	0.673
Crop Pattern	-0.142	0.077	-0.164	-1.845	0.068
Harvesting Method	-0.128	0.08	-0.144	-1.609	0.111
Interaction with Farmers	-0.012	0.076	-0.014	-0.154	0.878
Credit Access	0.131	0.096	0.131	1.371	0.173
Input Supply Linkage	0.052	0.077	0.062	0.668	0.506

a. Predictors: (Constant), Input Supply Linkage, Education, Interaction with Farmers, Crop Pattern, Insurance, Harvesting Method, Age, Credit Access
b. Dependent Variable: Participation in Advisory Services

higher yields. Lack of knowledge was rarely cited as a reason for non-adoption of a specific technology. The most common reasons cited were economic considerations, climatic factors, unavailability of inputs, and lack of irrigation. This implies that rates of adoption were acceptable for those technologies that farmers easily perceived as advantageous; and lower for those that either were or seemed irrelevant to farmers' situations. The quality of the extension service should receive as much attention as the extension method. There was need to create awareness through various dissemination channels for faster adoption of technology. The critical need was input supply linkage and purchase on credit. The frequent extension staff visit and establishment of telecentres was required for faster dissemination of advisory services and latest technology with special emphasis on Integrated Water Management as the district has semi-arid type of climate.

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