

Analyzing Farmers' Information Need and Mitigation Pattern by Extension and Advisory Service(EAS) Providers in a Pluralistic System

ABSTRACT

Agriculture is one vital component of national growth. And Access to Information related to Agriculture is crucial for Betterment of Farmers. A complex web of connections amongst Extension and Advisory Service (EAS) providers mitigates the farmers' diverse information needs. Many EAS Providers, working alone or in tandem, facilitate this information need in a pluralistic extension scenario. This study attempted to clarify farmers' information needs and provide a comparative evaluation of EAS providers' ability to mitigate those needs. The study was carried out in three West Bengal districts, namely, Birbhum, Jalpaiguri, and Nadia. Four extension and advisory service providers, namely, ATMA & Dept of Agriculture, KVK, Input Dealer, and FPC; from each district were compared based on the preferences of the farmers regarding the specific information that each farmer needed. 20 farmers foreach extension advisory service provider totalling of 80 from every district, and ultimately 240 respondents from three study districts were examined. The study revealed that information about the Varietal Aspects, Government's schemes, Crop Production Techniques, and Market information are the mostly sought needs. And when Farmers Extent of Needs are Multiplied with percentage of farmers choosing any EAS for the informationneed, Magnitude Score generated and after summing them Need Mitigation Score for all the EAS Provider have been generated.And based on this Score FPCs emerged as the best need mitigator, followed by ATMA&DoA, KVK and Input Dealer in descending order.

Key Words: Pluralistic Extension, Information Need, Extension and Advisory Service(EAS), Need Mitigation Score

Introduction

Agriculture is considered as one of the main pillars of the National growth. And it involves a diverse set of information for better decision making by the farmer to make it from plough to plate. And this need is mitigated through complex set of Extension and Advisory Service (EAS) Providers.Farmers needs are Multifaceted and it encompasses aspects like,Pest Management, Variety Selection, Market Information

etc. (1) The ever-evolving agricultural landscape need for a thorough understanding of the Farmers' information needs. Lack of Agricultural information is deterrent to farmers (2). Improved Access to information lead to highproductivity (3). Despite of Extensive Pluralistic nature of Extension, there is a huge gap between knowledge base and information sharing to the farmer (4). In the Indian setting, pluralism in agricultural extension—the existence of a diversity of organizations, models, and institutional arrangements (public, private, community-based, NGOs, etc.) meeting farmers' demands for information, advice, and support services(5). Sahu *et al.*(6) found It was found that almost 60% of farm families used the various categories of extension service sources to obtain agricultural information and most of the farmers (35.78%) resorted to private agencies for a variety of needs; input dealers accounted for the majority (33.98%), with the remaining farmers being sparsely distributed among NGOs, Agri Clinic- Agri Business Centre, private processors, and private commercial agents.

In such context the study is conducted for assessing the farmers' need for information and most preferred source of mitigating the information need among four Extension and Advisory Service Providers i.e. Agricultural Technology Management Agency (ATMA) & Dept of Agriculture(DoA), Krishi Vigyan Kendra(KVK), Farmer Producer Companies (FPC) and Input Dealers.

Materials and Method

Three Districts of West Bengal selected purposely based on Cropping Intensity. For Higher Cropping Intensity Nadia (>Mean+SD) district; Medium Level of Cropping Intensity Birbhum (Mean+SD to Mean - SD) and low Cropping Intensity Jalpaiguri (<Mean-SD) were selected. From each district Four EAS Providers ATMA &DoA, KVK, FPC and Input Dealer were selected. From Each EAS Provider 20 beneficiary farmers were selected totalling 80 farmers from each district and 240 total farmers. Total 19 types of information need regarding agriculture were taken into consideration and their extent of needs were taken in a 5-point scale and normalized by Max-Min Normalization and categorized according to their mean and SD distribution. Need Mitigation Score of each Need was calculated using the following formula

$$\text{Need Mitigation Score of EAS Provider} = \sum X_i * Y_j / N_j$$

Where X_i = Normalized Extent of Need of ith item

Y_j = Frequency of Being most preferred source of jth EAS Provider

N_j = Number of Beneficiaries of thejth EAS Provider

Based on this Need Mitigation Score EAS Provider are compared and ranked accordingly.

RESULTS AND DISCUSSION

Table 1 shows the beneficiary distribution across the four EAS providers taken for this study. It is evident that all the 240 Farmers i.e. 100% are beneficiaries of Input Dealer, although 60 beneficiaries were taken under KVK but later found that in total 103 farmers(42.91%) are found to be associated with KVK. Similar findings for FPC total 102(42.5%) and for ATMA & DoA, 117 farmers (48.75%) are found to get benefit from the above organization.

Table 1: Beneficiary Distribution

District	Input Dealer	KVK	FPC	ATMA & DOA
Birbhum	80	33	32	31
Jalpaiguri	80	35	34	45
Nadia	80	35	36	41
TOTAL	240(100%)	103(42.91%)	102(42.5%)	117(48.75%)

Table 2 and Figure 1 shows the extent of perceived needs across 19 different needs. After distribution based on their Mean and SD; information regarding Varietal Aspects (76%), Govt Welfare Schemes(76%), Crop Production (72%), Market Information(68%) are perceived as Very High(> Mean + SD) in nature. While IPM(66%), Application of Fertiliser (Dose / Amount / Time / Mix) (64%), Weather Forecasting(64%), Weed Management(52%), ICT Based Advisory Services(52%) fell in the High(Mean to Mean + SD)category. Again, Medium (Mean to Mean - SD) information needs include Modern Cultivation Practice(48%), INM(46%), Post-Harvest Management(40%), Harvesting Method and Timing(38%), Crop Insurance(38%) in descending order of importance. Finally, Organic Farming(34%), Agripreneurship(32%), Farm Mechanization/Custom Hiring Centre (32%), Land Preparation(30%), Irrigation Time and Method(24%) are categorized into low(< Mean - SD) perceived need.

Table 2: Extent of Information Need perceived by Farmers

Sl No.	Information Needs	Groups	Normalized Extent of Needs
1	Varietal Aspects	Very High (> Mean + SD)	0.76
2	Government Welfare Schemes		0.76
3	Crop Production		0.72
4	Market Information		0.68
5	IPM	High (Mean to Mean + SD)	0.66
6	Application of Fertiliser (Dose / Amount / Time / Mix)		0.64
7	Weather Forecasting		0.64
8	Weed Management		0.52
9	ICT Based Advisory Services		0.52
10	Modern Cultivation Practice	Medium (Mean to Mean - SD)	0.48
11	INM		0.46
12	Post-Harvest Management		0.4
13	Harvesting Method and Timing		0.38
14	Crop Insurance		0.38
15	Organic Farming	Low (< Mean - SD)	0.34
16	Agripreneurship		0.32
17	Farm Mechanization/CHC		0.32
18	Land Preparation		0.3
19	Irrigation Time and Method		0.24
		Mean= 0.50	
		S.D= 0.165	

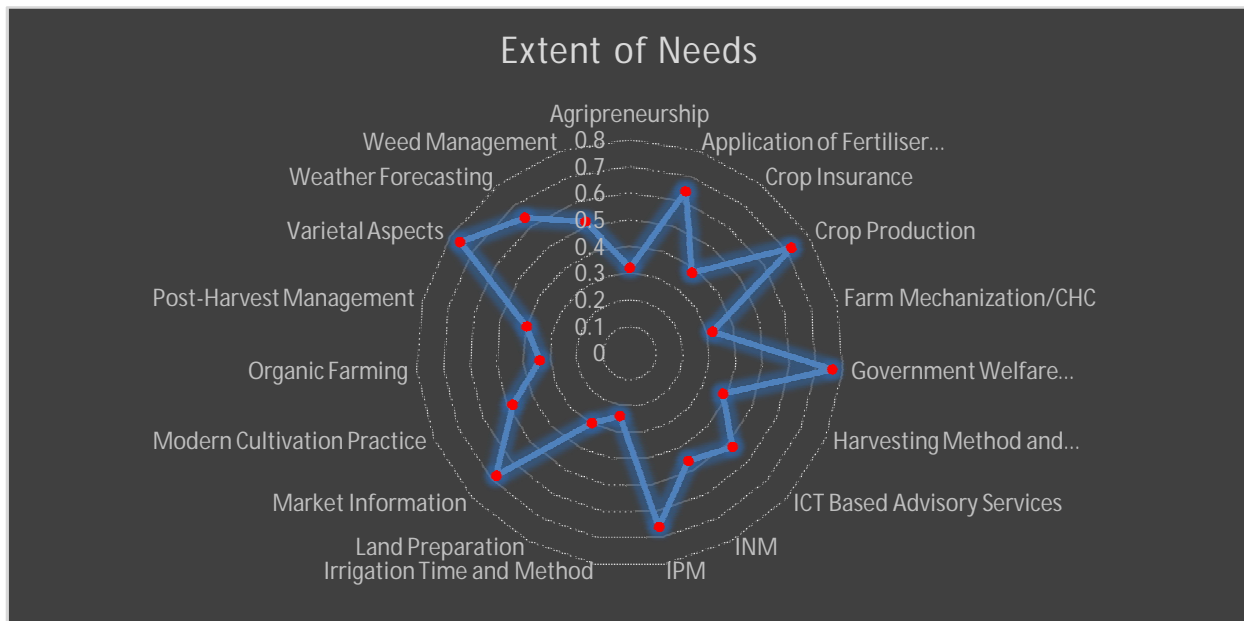


Fig 1: Extent of Information Need perceived by Farmers

In Table 3 each information needs frequencies of being most preferred EAS Provider are depicted and percentage are also shown, and it was taken based on beneficiary number. For Example, 57.50 % farmer among the beneficiaries of Input Dealer (240) choose Input Dealer as their most preferred source for Information need regarding Varietal Aspects and 82.91% farmer among the beneficiaries of ATMA &DoA (117) choose ATMA &DoA as their most preferred source of Information need about Govt Welfare Schemes. For all the need Input dealer ranked first (1038) with highest time being best mitigator of information needs like, Varietal Aspect, IPM, Application of Fertiliser (Dose / Amount / Time / Mix), INM, and Weed Management. While FPC ranked second (1035) with highest time being best mitigator of information needs like, Market information, ICT Based Advisory Services, Harvest Method & Timing, Agripreneurship, and Farm Mechanization. ATMA &DoA ranked third (1001) by being most preferred source of information needs like, Govt Welfare Scheme, Modern Cultivation Practice, Post Harvest Management, Crop Insurance, Land Preparation, Irrigation Time and Method. While KVK stood at fourth position (936) with being most preferred source of information needs like, Crop Production, Weather Forecasting, and Organic Farming.

Table 3: Most Preferred Information Need Mitigator

Sl No	Information Needs	Frequency of being Most Preferred Need Mitigator			
		ATMA &DoA (n=117)	KVK (n=103)	FPC (n=102)	Input Dealer (n=240)
1	Varietal Aspects	33 (28.21%)	27 (26.21%)	42 (41.18%)	138 (57.5%)
2	Government Welfare Schemes	97 (82.91%)	77 (74.76%)	58 (56.86%)	8 (3.33%)
3	Crop Production	59 (50.43%)	75 (72.82%)	56 (54.9%)	50 (20.83%)
4	Market Information	52 (44.44%)	43 (41.75%)	97 (95.1%)	48 (20%)
5	IPM	65 (55.56%)	54 (52.43%)	58 (56.86%)	163 (67.91%)
6	Application of Fertiliser (Dose / Amount / Time / Mix)	34 (29.06%)	38 (36.89%)	29 (28.43%)	139 (57.92%)
7	Weather Forecasting	32 (27.35%)	89 (86.41%)	27 (26.47%)	5 (2.08%)
8	Weed Management	27 (23.08%)	22 (21.36%)	16 (15.69%)	175 (72.92%)
9	ICT Based Advisory Services	30 (25.64%)	45 (43.69%)	57 (55.88%)	22 (9.17%)
10	Modern Cultivation Practice	59 (50.43%)	45 (43.69%)	52 (50.98%)	24 (10%)
11	INM	53 (45.3%)	54 (52.43%)	47 (46.08%)	89 (35.41%)
12	Post-Harvest Management	65 (55.56%)	58 (56.31%)	64 (62.74%)	21 (8.75%)
13	Harvesting Method and Timing	36 (30.77%)	42 (40.78%)	75 (73.53%)	20 (8.33%)
14	Crop Insurance	90 (76.92%)	12 (11.65%)	76 (74.51%)	13 (5.42%)
15	Organic Farming	85 (72.65%)	89 (86.41%)	67 (65.69%)	11 (4.58%)
16	Agripreneurship	36 (30.77%)	39 (37.86%)	75 (73.53%)	27 (11.25%)
17	Farm Mechanization/CHC	67 (57.26%)	43 (41.75%)	74 (72.55%)	42 (17.5%)
18	Land Preparation	44 (37.61%)	36 (34.95%)	42 (41.18%)	32 (13.33%)
19	Irrigation Time and Method	37 (31.62%)	28 (27.18%)	23 (22.55%)	11 (4.58%)
	Total	1001	916	1035	1038
	Rank	3	4	2	1

Presuming that one EAS provider will have an advantage over another in terms of need mitigation if they have a greater preference for a specific information need that farmers view as being of a higher extent of

need(Fig-2). For this, the extent of needs was multiplied with percentage of being most preferred need mitigator and magnitude score against each information need, and overall Need Mitigation score for each EAS provider is generated by summing the magnitude score. Based on Need Mitigation Score FPC (5.079) ranked top, KVK(4.772) ranked second, ATMA & DoA (4.351) and Input Dealer(2.241) ranked third and fourth respectively as shown in Table 4.

Table 4: Need Mitigation Score of EAS Providers

	Information Needs	Normalized Extent Of Needs	Magnitude Score			
			ATMA & DOA	KVK	FPC	Input Dealer
1	Varietal Aspects	0.76	0.214	0.199	0.313	0.437
2	Government Welfare Schemes	0.76	0.630	0.568	0.432	0.025
3	Crop Production	0.72	0.363	0.524	0.395	0.150
4	Market Information	0.68	0.302	0.284	0.647	0.136
5	IPM	0.66	0.367	0.346	0.375	0.173
6	Application of Fertiliser (Dose / Amount / Time / Mix)	0.64	0.186	0.236	0.182	0.371
7	Weather Forecasting	0.64	0.208	0.657	0.201	0.016
8	Weed Management	0.52	0.148	0.137	0.100	0.467
9	ICT Based Advisory Services	0.52	0.133	0.227	0.291	0.048
10	Modern Cultivation Practice	0.48	0.242	0.210	0.245	0.048
11	INM	0.46	0.208	0.241	0.212	0.125
12	Post-Harvest Management	0.4	0.222	0.225	0.255	0.035
13	Harvesting Method and Timing	0.38	0.117	0.155	0.279	0.032
14	Crop Insurance	0.38	0.292	0.044	0.283	0.021
15	Organic Farming	0.34	0.247	0.294	0.223	0.016
16	Agripreneurship	0.32	0.098	0.121	0.235	0.036
17	Farm Mechanization/CHC	0.32	0.183	0.134	0.232	0.056
18	Land Preparation	0.3	0.113	0.105	0.124	0.040
19	Irrigation Time and Method	0.24	0.076	0.065	0.054	0.011
	Need Mitigation Score		4.351	4.772	5.079	2.241
		Rank	3	2	1	4

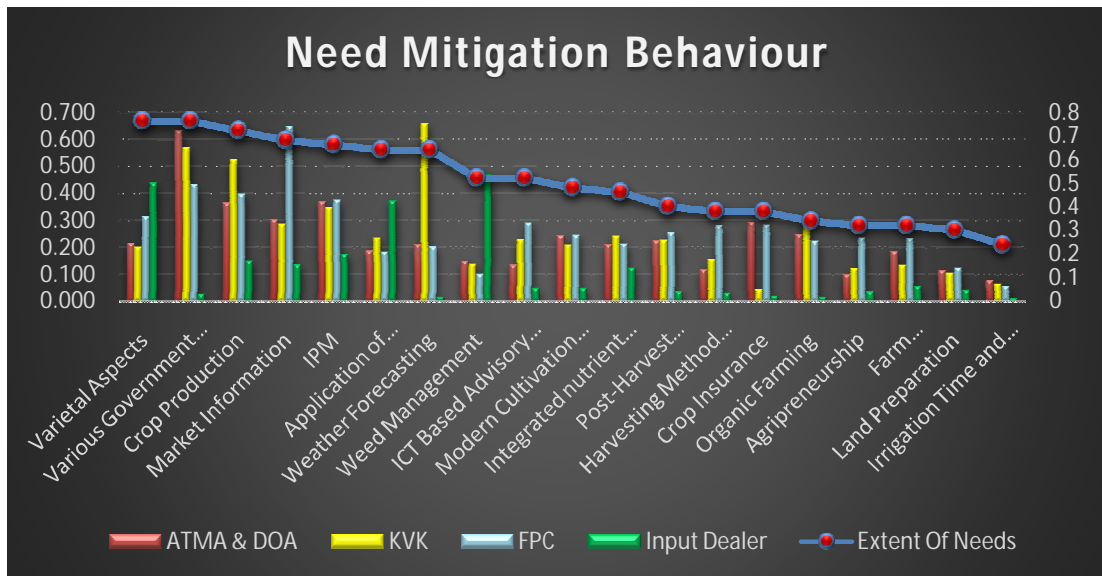


Fig 2: Need Mitigation Behaviour

Conclusion-

In pluralistic extension system, multiple actors exist to mitigate the farmers' need. Among the above-mentioned EAS providers; Input Dealers are having a great penetration to the rural areas. It is the most preferred and most accessible option to the maximum of farmers. But when we incorporate two other factors, i.e. Percentage of Beneficiary preferring the EAS Provider and Extent of Needs perceived, the results are altogether different pushing Input Dealer into fourth position. While Farmer Producer Companies (FPC), a community-based organization conceptualized to transfer the information to their members effectively is performing in great way and ranked top in terms of Need Mitigation score. For Different Information need Different EAS Provider is preferred, thus exuding the importance of having a pluralism for better access of Information and mitigation of perceived needs of the farming communities.

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