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Information seeking behaviour of farmers: Role of input dealers in bridging the lab-to-land gap in telangana and Andhra Pradesh

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Abstract

Information can be defined as a collection of facts organized in such a way that they have additional value beyond the value of the facts themselves. Information seeking behaviour is the way people search for and utilize information. There is increasing work in the information searching field that is relating behaviours to underlying needs. In this study an attempt was made to analyze the information seeking behavior of farmers in Adilabad and Karim Nagar districts of Telangana and West Godavari and Guntur districts of Andhra Pradesh states respectively. In total, 120 farmers were randomly selected as respondents for assessing their information need on crop cultivation and - which was measured with modified Standardized Information Need Index (SINI) and Information Use Index (IUI) using *ex-post facto* research design. The study revealed that the information on crop protection was perceived as most important by majority of farmers (index value=77.2) followed by crop production and soil health management information. It was found that the input dealers were the main source of information with respect to different agriculture practices. It implied that input dealers played a significant role in meeting the information needs of various stakeholders by providing relevant and timely information on crop cultivation. Hence, input dealers are playing significant role in bridging the information gap which exists between lab and land.

Keywords: Information seeking behaviour, Information needs, Input dealers, Agriculture

Introduction

Agriculture and allied sector continues to be pivotal to the sustainable growth and development of the Indian economy which meet the food and nutritional requirements of 1.3 billion Indians and contributes significantly to production, employment and demand generation through various backward and forward linkages (GoI, 2016) ^[6]. Indian agriculture contributed by millions of small and marginal farmers who are generally illiterate and have little or no access to resources to access modern technology in agriculture (Yadav *et al.*, 2015) ^[19]. ICAR has generated a number of technologies and information through concentrated research efforts. However, a considerable proportion of information remains within the precincts of research institutes due to one or the other reasons, including poor linkages between research and extension systems (Reddy *et al.*, 2005) ^[16]. In India, though it is generally claimed that public extension is system the predominant source of farm information dissemination (Nirmala *et al.*, 1995) ^[14]. Although the public extension system strives to fulfill the demands of inputs as well as information, still there is a huge gap in the demand and supply of these needs which are mostly fulfilled by the private sector (Mukherjee *et al.*, 2012) ^[13]. The wide farmer extension workers ratio i.e., 2879:1 (Mukherjee and Maity, 2015) ^[12], may be due to administrative and bureaucratic workload and financial

limitations etc. and also due to the mode of public extension services which is more supply driven rather than demand driven (Sulaiman *et al.*, 2005) ^[17]. Farmers face new challenges due to lack of information on how to deal with the issues of climatic variability, market uncertainty, new technology etc. (Mittal, S., & Mehar, M. 2013) ^[10]. The access to reliable, timely and relevant information can help significantly in many ways to reduce farmers' risk and uncertainty, empowering them to make good decisions. However, whether or not this access leads to impact often depends on issues related to markets, institutions, policies and resource availability. Several studies have shown that the wide availability and multiple sources of information have not significantly changed farmers' behavior towards new technologies and information - a fact that is often attributed to a lack of knowledge or understanding of farmers' perspectives and needs on the part of information providers (Mittal, S., & Mehar, M. 2013) ^[10]. Although mobile phones play an important role in bridging the information gap, they cannot substitute for face-to-face interaction and their use to deliver information has to be complemented with other information sources.

Methodology

The study was conducted in the state of Telangana and Andhra Pradesh, which were selected purposively for the

study. MANAGE is the host institute of DAESI and this project is being implemented in these states very successfully. Multi-stage random sampling technique was adopted to select the respondents from both the states. From each selected state, two districts were also selected purposively based on the criteria of DAESI programme implementation. Hence, Adilabad and Karim Nagar districts of Telangana and West Godavari and Guntur districts of Andhra Pradesh were selected purposively as the project being implemented in these districts since its inception. A total of 30 farmers from each district were selected and, thus the final sample size was 120 farmers for the detailed survey work. An interview schedule was developed for assessing crop information need related to crops such as input availability, cultural practices, post-harvest practices, market related information and credit related information were assessed. A Likert type scale was used for getting responses on a 5-point scale ranging from very important information to not important information. A score

of 5 was given to very important information, 4 against somewhat important information so on and so forth. The information need of the farmers was measured with modified Standardized Information Need Index (SINI) developed by Kabir *et al.*, (2014) [8].

$$INI = InVI \times 5 + InSI \times 4 + InN \times 3 + InLI \times 2 + InNI \times 1$$

Where,

INI = Information Need Index

InVI = Number of respondents with very important information need

InSI = Number of respondents with somewhat important information need

InN = Number of respondents with neutral information need

InLI = Number of respondents with less important information need

InNI = Number of respondents with not important information need

Standard Information Need index (SINI) =

$$\frac{\text{Computed Information Need Index}}{\text{Possible Highest Information Need Index}} \times 100$$

Based on the index value information needs were priorities and highest value was arranged in descending order.

The use of information sources by the farmers was measured by placing fourteen information sources and making rank order of the sources. For rank order Information Use Index (IUI) was computed by the following formula:

$$IUI = IU_a \times 3 + IU_f \times 2 + IU_o \times 1 + IU_n \times 0$$

Where,

IUI = Information Use Index

IU_a = Number of respondents with always used information source

IU_f = Number of respondents with frequently used information sources

IU_o = Number of respondents with occasionally used information sources

IU_n = Number of respondents with never used information sources.

The IUI of each dimension, thus could range from 0 to 360 where, 0 indicating no use of information sources and 240 indicating highly use of information sources.

Results and Discussion

The socio-economic profile of the farmers is very much important with respect to understand the information seeking behaviour of the farmers. In particular, the education of the farmer has a greater impact and the education of the respondents from the study is presented in Table no. 01. It reveals that only 8.33% in Telangana and 22.50% in Andhra Pradesh were illiterate.

Table 1: Education level of respondents (N=120)

#	Education	Telangana			Andhra Pradesh		
		Adilabad	Karimnagar	Overall	Guntur	West Godavari	Overall
1.	Illiterate	10.00	6.67	8.33	28.33	16.67	22.50
2.	8 th	33.33	36.67	35.00	18.33	38.33	28.33
3.	10 th	10.00	10.00	10.00	13.33	13.33	13.33
4.	12 th	11.67	11.67	11.67	1.67	5.00	3.33
5.	Graduation	5.00	8.33	6.67	13.33	10.00	11.67
6.	Diploma	18.33	18.33	18.33	10.00	10.00	10.00
7.	Others	11.67	8.33	10.00	15.00	6.67	10.83

(Frequency percentage of the respondents)

Table 2 depicted the descriptive selective demographical features of the farmer respondents in the study area. The age distribution of the respondents revealed that majority of the farmers were old aged with mean age of 54.48 years in Telangana and 61.11 years in Andhra Pradesh. The majority of them were member of cooperative societies. It was observed that the agriculture was the main source of income for majority of farmers of more than 90 percent of farmers

in both the states. Ground water as a source of irrigation was available with 58.34 percentage of farmers in Telangana and 62.5 percentage of farmers in Andhra Pradesh. The average land holding of farmers in Telangana was 5.96 acres while that of Andhra Pradesh farmers was 5.55 acres. The average distance of the residence from the market for Telangana farmers was 5.96 kms while that of Andhra Pradesh farmers was 7.33 kms.

Table 2: Socio-Economic profile of farmers (N=120)

Variables	Telangana			Andhra Pradesh		
	Overall	Adilabad	Karimnagar	Overall	Guntur	W. Godavari
Age (mean)	54.48	58.2	53.77	61.11	62.1	60.14
PACS member (%)	58.34	56.67	60	57.5	51.67	63.34
FPC member (%)	26.67	25	28.34	30.84	35	26.67
Agri as main income	92.5	91.67	93.4	92.5	93.34	91.67
GW as source of irrigation (%)	58.34	51.67	65	62.5	61.67	63.34
Family size (mean)	3.87	4.07	3.68	5.94	6.4	5.48
Land holding size (mean)	5.96	6.02	5.72	5.55	4.9	6.2
Distance from market (km)	6.95	7.1	6.8	7.33	7.2	7.45

Information seeking is a complex process consisting of social, communicative and interactive behaviour (Fourie, 2004) [4]. This activity incorporates a series of encounters with information within a space of time, rather than a single reference point. The information seeking behaviour was assessed with the socioeconomic profile of the farmer respondents through logit regression model (Table 3). It was found that the information seeking behaviour was positive and significantly correlated with the age, education and distance from market. It is in line with the study of Brar *et al.* (2004) [2] regarding personality linkages with communication behaviour cotton growing farmers, education, land holding, income, mass media exposure and extension contacts had a positive and significant correlation with the information seeking behaviour and education, income and extension contacts were correlated positively and significantly with information sharing behaviour.

Table 3: Factors affecting Information seeking behaviour of farmers (N=120)

Logit regression		
Independent variables	Odds Ratio	P>z
Age	0.838	0.083*
Education	1.280	0.012**
Family size	0.928	0.501
Landholding	1.180	0.781
Distance from market	0.729	0.023**
Ground water as source of irrigation	1.510	0.014**
Agriculture as main source of income	1.350	0.038**

No of Observation: 120; LR chi² (8): 9.04 Prob> chi2: 0.003 Pseudo R²: 0.731

The type of information with respect to the crop production is also important from the view point of farmers. An assessment was done to the type of information by the farmers from different sources (Table 4). Based

Table 4: Type of Information Need of Farmers N=120

S. No.	Type of information	Extent of Need						
		High	Medium	Low	Never	INI	SINI	Rank
1.	Crop protection	63	39	11	7	278	77.2	I
2.	Crop production	56	44	14	8	267	74.1	II
3.	Soil health management	51	49	6	14	257	74.1	III
4.	Market related	41	57	8	15	243	67.5	IV
5.	Credit source related	33	42	26	20	209	57.9	V
6.	Agri. Machinery related	27	45	24	24	195	54.1	VI
7.	Crop processing and Post Harvesting	18	35	41	27	164	45.4	VIII

Scale: High=3, Medium=2, Low =1 and Not ever=0

The results of standard information need index (SINI) values reveal that information related with crop protection had been ranked one with SINI value 77.2. This finding is in consonance with the NSSO (2005) finding which stated that the four most important information needs are disease and pest management, pesticide and fertilizer application. Similarly, Ganesan *et al.*, (2013) [5], in their study of use of mobile multimedia agricultural advisory systems by Indian farmers, opined that a majority of the farmers perceived information on pest and disease control as most important. The results of SINI index showed that the information related with crop production were 74.1, and were ranked as second by the respondents. Similarly Tologbonse, *et al.*, (2008) [18] carried the study of information need of rice farmers community in Niger state disclosed that majority of farmers (89.9%) need information about the crop production packages. Thereafter, different information needs were ranked by the farmers, viz., soil health management (74.1), Market related (67.5), crop processing and post-harvest (57.9), Agri. Machinery (54.1) and crop processing and PH

(45.4). This finding is similar to NSSO, 2005, which mentioned that the information given the lowest importance was related to post-harvest aspects - grading, storage, consumer behavior, transport and distribution.

Access to Information sources by farmers

All the farmer respondents reported that they accessed information from various sources. It was mentioned that farmers do not rely on a single source for getting all the farm related information. Among the different sources that each farmer uses for collecting information, they were asked to list the sources of information. Based on their response (Table 5), input dealers were found as major source of information by 92.5% of the farmers, followed by other farmer friends by 85% of farmers, mobile and internet (43.3%), television (41%), state department of agriculture (29.2%), radio (17.5%), cooperatives (13.3%), Krishimela (12.5%), KVKs (10.8%), commission agents (7.5%), NGOs (1.7%), and SAUs (1.67%).

Table 5: Information Sources of the farmers (N-120)

S. No.	Sources of information	Degree of Uses					
		Always	Frequently	Occasionally	Never	IUI	Rank order
1.	Input Dealers	45	54	15	6	258	I
2.	Other Farmers	50	45	18	8	256.5	II
3.	Mobile & internet	30	59	21	11	228	III
4.	Television	30	56	23	12	223.5	IV
5.	State Dept. of Agri.	39	36	26	20	214.5	V
6.	Radio	35	42	24	20	211.5	VI
7.	Cooperatives	27	35	29	30	178.5	VII
8.	Newspaper	18	44	33	26	174	VIII
9.	KVKs	24	18	45	33	153	IX
10.	SAUs	14	27	39	41	133.5	X
11.	Commission agent	12	24	47	28	130.5	XI
12.	Krishi Mela	8	12	57	44	103.5	XII
13.	NGOs	2	11	18	90	43.5	XIII

Scale: Always=3, Frequently=2, Occasionally = 1, and Never=0

Based on information Use Index (IUI), farmers were used to collect necessary information from input dealer (IUI-258). The farmers had more trust on the input dealers and the fellow farmers rather than the agricultural institutes/organizations viz. SAU, KVKs etc. Similar results were found by Kabir *et al.*, (2014) ^[8] and reported that input dealers were the chief source of information for the farmers for information seeking behavior of farmers in Bangladesh. It was also found that other farmers' friend (IUI-256.5) was second important source of information need as perceived by the farmers. Bachav (2012) reported that first preferred sources of the information of the farmers were colleague or fellow farmers for the information needs of the rural farmers from Maharashtra. Mittal and Mehar (2013) ^[10] also reported that for information regarding farming, the farmers usually inquire from other farmers and input dealers. Kumar *et al.*, (2017) reported that the majority of farmers were dependent on input dealers, agriculture extension officers and neighbours and friends for agricultural information. The public sector research stations and Krishi Vigyan Kendras (Farm Science Centers) were accessed by even fewer respondents - 1.7% and 1.6% respectively (NSSO, 2005). The public agricultural extension system which is responsible for disseminating agricultural information to farmers has become less effective, more time consuming and unsuccessful in meeting the requirements of those involved in agricultural production and there is a gap between the extension agent and the farmers (Mruthunjaya and Adhiguru, 2005) ^[11]. Input dealers who promote their agrochemicals play a critical role in filling the information gaps that may exist in rural areas (NSSO, 2005). Mobile and internet was ranked third (Ganesan *et al.*, 2013) ^[5]. The results also showed that nearly 32% of farmers used mobile multimedia agricultural advisory system frequently as and when they needed information. The farmers perceived market information, including daily updates on the prices of agricultural commodities in the local markets of the surrounding district, as one of the most relevant mobile based agricultural information services. This was considered as most appropriate by 50.66% of farmers. Timely access to

market price information at the time of harvest helps farmers decide where to sell, which enables them to fetch good prices for their products. Television and State department of agriculture, fourth and fifth, respectively. Agricultural researchers and SAUs were rarely sought for information by the farmers in the study area (Sunil & Sangeetha, 2016) ^[9].

Reasons for choosing a particular Source of Information

Farmers were asked to give the most important reason for choosing any particular source of information. Farmers face a lot of difficulties in getting timely, reliable, and relevant information (Claire *et al.*, 2010). Information must be relevant and meaningful to farmers, in addition to being packaged and delivered in a way preferred by them (Diekmann *et al.*, 2009) ^[3]. In agriculture relevant and timely information helps farmers' community to take right decision to sustained growth of agriculture activity, timely access to market information helps farmer make correct decisions about what crops to plants and where to sell their product and buy inputs (Bachav, 2012). NSSO, 2005 also reported that the major constraints to information access were poor reliability and timeliness. The main reason for choice of source was proximity (33.7%), assured quality (21.1%), only available option (20.6%), and timely availability (13.7%). It was found that a total of 111 farmers visited input dealers due to proximity (57 farmers), timely availability of information (30 farmers), and good quality of information (24 farmers) provided by them. The second highest number of farmers preferred other fellow farmers over other sources because they were the source nearby. Hence it is inferred that the majority of farmers opted for input dealers and fellow farmers as their chief source of information because of proximity. This finding is in line to NSSO (2005) finding which mentioned that the interpersonal contacts were the most preferred medium of information. Farmers still consider the information from government agencies like KVKs, SAUs, Line departments as reliable, but the main problem is in convenience and timeliness of information.

Table 6: Reasons for choosing a particular Source of information (N=120)

Sources of information	No. of farmers	Reason for choosing		
		Convenience	Reliable and Relevant	Timeliness
KVKs	13	2	9	2
SAUs	2	-	2	-
Krishi Mela	15	2	10	3
Input Dealers	111	57	24	30
Commission Agents	9	4	2	3
State Dept. of Agri.	35	7	18	10
NGOs	2	2	-	-
Cooperatives	16	4	9	3
Other Farmers	102	73	12	17
Television	50	24	16	10
Radio	21	10	6	5
Newspaper	16	7	3	4
Mobile & internet	52	23	13	16

Conclusion

Information is a basic necessity of everyday life, which can be obtained or retrieved from a variety of sources to meet the several needs of life. Farmers constitute a particular group of users whose information needs is very specific viz., information for crop protection, crop production, soil health management, market related, credit source, machinery, processing and post-harvest. It was revealed from the study that the information seeking behaviour of the farmers was mostly related to crop protection and crop production. The main basic sources of information of the farmers were input dealers as well as well friend farmers. It was also revealed that the main reasons for choosing the input dealers and friend farmers were, i.e., convenience for the information, reliable and relevant, and timeliness of the information. It can be concluded that the delivery of agricultural information tailored to the different information search behaviors of farmers is important for extension programmes in its implementation. Therefore, it is necessary to understand farmers' information needs in designing appropriate policies, programmes, and organizational innovations to increase its suitability at grassroots level. Farmer needs and preferences should be given due consideration for achieving success in implementing the modern tools and technology.

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