

## AGRICULTURAL INFORMATION MANAGEMENT BEHAVIOR OF INDIAN FARMERS

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### Abstract

*Information is viewed as a resource like land, labour and capital. The information explosion in modern technologies has created a unique situation, making the recipients unable to understand and cope with the vast amount of information. There is a gap between those who use ideas and those who produce them. A good technique of information management will certainly reduce this gap. An ex-post-facto research design was followed for the study conducted in the purposively selected Southern Telangana agro-climatic zone of Andhra Pradesh. A total of 60, 12 farmers from each of the five selected villages of the five districts were taken as sample. The Agricultural Information Management was operationalized as the process of identifying and collection of information on agricultural technologies of origin, storing, updating and retrieving it whenever necessary to process, manipulate and disseminate the processed information to various users at the time they can most efficiently use it. Suitable measurements were determined to quantify the independent and dependent variables selected for the study. The responses were obtained by administering the pre-tested interview schedule. Majority of the respondents belonged to medium (68.34%) category of information management behavior followed by low (16.66%) and high (15.00%) categories. It was observed that identifying the 'needed information' phase was performed better by the farmers followed by dissemination, utilization, consequences, processing, getting information and feedback. Education, farmer-extensionists interaction, economic motivation and innovativeness were found positively and significantly correlated. Lack of plant advisory service at field level, lack of awareness and information about latest technologies, unsatisfactory experience with earlier technologies were found to be the perceived constraints encountered in AIMB. Significant message flow from the extensionists, clear communication of tested technologies, timely information about the technologies, were the suggestions given by the farmers to overcome the constraints in agricultural information management.*

### Introduction

Indian agriculture has made significant progress in increasing crop production and in acquiring a fair degree of resilience over the last four decades. In view of market liberalization particularly in relation to agricultural development and in the context of growing public concern for globalization, household food security, regional imbalance and wide variety of eco-systems, there is a need to provide new directions in planning and promoting proper technology developed

and its transfer. Consequent to liberalization and the entry of multinationals, the agricultural scenario is fast changing, from what used to be transferring the available technologies, to a need based technology transfer.

Technology transfer, in order to be effective, must be preceded and succeeded by technology assessment and refinement. How reliable has the assessment and refinement been can be judged by the effectiveness of transfer of a given technology. Therefore, technology assessment and technology transfer are complimentary to each other. Technology transfer must be based on the needs and capabilities of agro-ecological settings, resource endowments, agro-production and distribution systems and farm households. There is information explosion around the globe and our farmers have to keep pace with those developments. Information is viewed as a resource like land, labour and capital. The information explosion in modern technologies has created a unique situation, making the recipients unable to understand and cope up with the vast amount of information. There is a gap between those who use ideas and those who produce them. A good technique of information management will certainly reduce this gap, if not eliminate it. The importance of what happens prior to the beginning of a technology's diffusion particularly from the client system has been important. **Das** (1995) pointed out that feedback received in the past was not adequate enough to test the research and transfer of technology agenda. The process of technology assessment and refinement will bring out adequate feedback on concurrent basis in addressing the issue in a more comprehensive manner. With this in view the present investigation was carried out with the following **objectives**.

- i) To find out the agricultural information management behavior (AIMB) of farmers.
- ii) To analyze the factors influencing the agricultural information management behavior of farmers and
- iii) To bring out the constraints in the process of agricultural information management by the farmers and to elicit suggestions to overcome them.

### Methods

An ex-post-facto research design was used for the study conducted in the State of Andhra Pradesh, since all the major agricultural research centers of the country are located in the State, that too in the Southern Telangana agro – climatic zone of the state. The maximum number of research projects / schemes of the State agricultural University are in operation in this zone. Hence, the State and the zone were selected purposively. On quota sampling basis, 12 farmers from each of the five selected villages of the five districts (Mahaboobnagar, Nalgonda, Warangal, Ranga Reddy and Medak) were taken as a sample. Thus the total sample of farmers was 60.

The Agricultural Information Management was operationalised as the process of identifying and collection of information on agricultural technologies of origin, storing, updating and retrieving it whenever necessary to process manipulate and disseminate the processed information to various users at the time they can most efficiently use it and obtain feedback. Suitable measurements were determined to quantify the independent variables selected for the study. An inventory on Agricultural Information Management behavior, a dependent variable was developed and measured on a response continuum as “frequently”, “occasionally”, “never” with scoring 3, 2 and 1 respectively. Content validity was established with the help of editing of statements based on Edwards (1957) criteria and later on with the help of experts opinion on refinement and selection of, phases and items in each phase. Further inventory was administered to 30 farmers (other than the sample) twice with an interval of 7 days. Test-retest reliability

coefficient calculated (0.721) found to be significant at one percent level of probability implied that the instrument was reliable. After obtaining the responses, the respondents were categorized into 3 groups (Low, Medium and High) based on Mean and Standard Deviation.

### Results

#### *Agricultural Information Management behavior of farmers*

The outcome of agricultural information management behavior of farmers is depicted in Table 1.

**Table 1. Distribution of the farmers based on their agricultural information management behavior.**

.	Category	Respondents	
		Frequency	Percentage
1.	Low	10	16.66
2.	Medium	41	68.34
3.	High	9	15.00
	<b>Total</b>	<b>60</b>	<b>100.00</b>

The results in Table 1 indicated that majority of the respondents belonged to medium (68.34%) category of information management behavior followed by low (16.66%) and high (15.00%) categories.

Phase wise distribution of farmers was also analyzed and presented in Table 2.

It could be seen from the Table 2 that, three fourth of the respondents were in medium (75.00%) category and the rest were distributed under low (25.00%) category in identifying their needed information, whereas majority (55.00%) of them fell under medium and the remaining were distributed under low and high categories with 26.65 per cent and 18.33 per cent respectively in collection of information.

**Table 2. Distribution of the farmers based on phases of agricultural information management behavior.**

Sl.	Category	Phases of AIMB													
		Identifying needed technologies		Information collection		Information processing		Information utilization		Information dissemination		Consequences		Feedback	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
1.	Low	15	25.00	16	26.67	11	18.33	16	26.66	17	28.33	-	-	10	16.67
2.	Medium	45	75.00	33	55.00	40	66.67	36	60.00	25	41.67	46	76.67	33	55.00
3.	High	-	-	11	18.33	9	15.00	8	3.34	18	30.00	14	23.33	17	28.33

<i>Total</i>	60	100	60	100	60	100	60	100	60	100	60	100	60	100
<i>Mean</i>	29.53		56.30		33.32		49.40		22.03		1.23		4.28	
<i>SD</i>	6.31		11.65		6.62		8.35		3.85		0.43		1.60	

The results also revealed that regarding processing the received technologies, majority of the farmer respondents (66.67%) were observed in medium category followed by low (18.33%) and high (15.0%), where as majority (60.00%) were in medium category in utilizing the received information followed by low (26.66%) and high (13.34%) category. With respect to dissemination of information, 41.67% of them fell under medium category, while 30 per cent and 28.33 per cent were found in high and low categories respectively.

It was further evident that more than three fourth of them were observed in medium (76.67%) category and remaining 23.33 per cent in high category regarding experiencing consequences of the received agricultural technologies information. It was also vivid that more than half of them (55.00%) were in medium feedback category followed by high (28.33%) and low (16.67%) categories.

Ranking of phase wise information management behavior by the farmers is given in Table 3.

**Table 3. Ranking of phase wise agricultural information management behavior of the farmers.**

S.No	Phase	Percentage Performance	Rank
1.	Identifying needed information	89.39	I
2.	Getting information	52.12	VI
3.	Processing	58.42	V
4.	Utilization	60.98	III
5.	Dissemination	73.33	II
6.	Consequences	60.00	IV
7.	Feedback	41.87	VII

It was observed that ‘identifying the needed information’ phase was performed better by the farmers followed by dissemination, utilization, consequences, processing, getting information and feedback.

As revealed from the results presented above, majority of the farmers were observed under medium category of agricultural information management behavior. The same trend was observed on all phases of information management behavior. Only in two phases of information management viz., identifying needed technologies and consequences the percentage of average

behavior was more than 75%. In all the other phases, the range of average behavior was 41 to 66%. This finding indicates that farmers do not solely depend on extensionists to receive the information on crop technology. Other source have played a role in transfer of technology. Therefore, to improve the management behavior of farmers, there is a need to improve the management behavior of extensionists first.

*Factors influencing AIMB of farmers*

A birds eye view of Table 4 indicated that education, farmer-extensionist interaction, economic motivation and innovativeness variables were positively significant with ‘information getting’ by the farmers. Education, farmer extensionist interaction, risk orientation and innovativeness were significantly related to information processing. The variables like education, farm size, farmer-extensionist interaction and innovativeness were significantly related to information utilization.

**Table 4. Correlation coefficients between the phases of information management behavior of farmers and their independent variables.**

Sl.	Variable	Identifying needed in formation	Getting information	Information processing	Information utilization	Information dissimulation	Consequences	Feedback
X <sub>1</sub>	Age	-0.631	0.07565	-0.05977	0.01869	-0/09718	0.15478	0.06366
X <sub>2</sub>	Education	0.02955	0.31798*	0.50838**	0.41509**	0.29047*	0.17404	0.00235
X <sub>3</sub>	Experience	-0.00514	-0.05954	-0.190307	-0.16113	-0/08308	-0.10290	0.07685
X <sub>4</sub>	Farm size	-0.0298	0.17649	0.15862	0.25409*	-0.03128	0.31827*	-0.20500
X <sub>5</sub>	Training	-0.04888	0.06198	0.09661	0.17308	0.13818	-0.01861	-0.18160
X <sub>6</sub>	Farmer extensionists interaction	-0.04888	0.47469**	0.44190**	0.45094**	0.15097	0.48964**	-0.02415
X <sub>7</sub>	Farmer Researcher interaction	-0.05896	0.16678	0.18068	0.06315	-0.07278	-0.12325	-0.04581
X <sub>8</sub>	Scientific Orientation	0.0588	0.06089	0.13402	0.17252	0.21597	0.16316	0.08065
X <sub>9</sub>	Risk orientation	0.16849	0.10017	0.24523*	0.10328	0.02927	-0.06452	0.19394

X <sub>10</sub>	Economic Motivation	0.04705	0.26418*	0.16235	0.16617	-0/00125	0.16211	-0.02339
X <sup>11</sup>	Innovativeness	-0.05527	0.45047**	0.42483**	0.36216*	0.26303*	0.11759	-0.31390*

\* Significant at 0.05 level of probability \*\* Significant at 0.01 level of probability.

Education and innovativeness were significantly correlated with 'information dissemination'. The variables, namely farm size and farmers-extensionist interaction were significantly correlated with consequences whereas innovativeness was negatively and significantly correlated with their feedback.

**Table 5. Regression co-efficients between information management behavior and independent variables of farmers.**

Sl.	Variable		Information management behavior	
			R.C	T - values
X <sub>1</sub>	Age		0.8994	1.171
X <sub>2</sub>	Education		3.6979	1.783
X <sub>3</sub>	Experience		-1.0058	-1.351
X <sub>4</sub>	Farm size		-0.8044	-1.817
X <sub>5</sub>	Training		1.2705	0.382
X <sub>6</sub>	Farmer extensionists interaction		0.6038	0.816
X <sub>7</sub>	Farmer Researcher interaction		-0.8266	-0.534
X <sub>8</sub>	Scientific Orientation		-0.9284	-0.665
X <sub>9</sub>	Risk orientation		1.6593	0.892
X <sub>10</sub>	Economic Motivation		2.3186	1.415
X <sub>11</sub>	Innovativeness		3.1025	2.751*
	R <sup>2</sup>	0.6276		
	F = 0.3227	2.836		

\* Significant at 0.05 level of probability

An examination of regression coefficients presented in Table 5 indicated that innovativeness factor explained positively significant variation. R<sup>2</sup> value of 0.6276 revealed that

all the independent variables could explain the variation to the extent of 62.76 per cent in information management behavior of farmers.

### *Constraints and suggestions*

As seen from the Table 6 it is evident that farmers had encountered the constraints in 'getting information' of agricultural technologies were lack of plant advisory service at field level, lack of awareness and information about latest technologies, inadequate credit facilities, lack of awareness of pests and diseases and other field problems, non-availability of needed inputs and facilities, lack of irrigation facilities, limited contacts with scientists, low support price of farm produce and poor marketing facilities, lack of training, lack of detailed information of skill oriented technologies, irregularity of field visits by the concerned authorities, lack of proper utility of the message/information, lack of support and motivation from government agencies, complexity of the messages, lack of participation in different extension activities, location and research stations far away from research, lack of compatibility for the message, unsatisfactory experience with earlier technologies.

Similarly, farmers had experienced various constraints in 'utilizing information' like lack of plant doctoral advisory service at field level, lack of awareness and information about latest technologies, non availability of needed inputs and facilities, inadequate credit/facilities, irregularity of field visits by the concerned authority, lack of motivation and support from government agencies, lack of detailed information of skill oriented technologies, lack of awareness of pest and diseases and other field problems, complexity of message, lack of participation in different extension activities, lack of training, limited contact with scientists, location of research stations far away from research, low statutory price of farm produce and poor marketing facilities, lack of irrigation facilities, lack of proper utility of the message/information, lack of compatibility of message, unsatisfactory experience with earlier technologies.

It is revealed from the results that lack of plant doctoral advisory service at field level, lack of awareness about technologies, lack of awareness of pest and disease and non-availability of needed inputs and facilities were the constraints experienced by farmers in 'getting and utilizing agricultural information'.

The above identified constraints do not act separately. They interact with each other and act as barriers for agricultural information management behavior. Hence, any programme for agricultural development of farmers must take into consideration of all the identified constraints for improving the information management behavior of farmers.

The suggestions elicited from the farmers are given in Table 7. Significant message flow from the extensionists, clear communication of tested and successful technologies, more and timely information about the technologies, timely availability of critical inputs, complete information (source, place, time and person to be contacted) about new technology, skill components should be taught clearly with specific care taken at each stage, demonstration of technologies in many places of the village, field trips to research stations / farms where technologies were implemented successfully, were the suggestions given by the farmers to overcome the constraints in agriculture management.

**Table 6. Constraints perceived by the farmers in agricultural information management behavior.**

S.No	Constraints	Information getting		Information utilization	
		Frequency	Rank	Frequency	Rank
1.	Lack of plant doctoral advisory service at field level	49	I	49	I
2.	Lack of awareness about latest technologies	44	II	44	II
3.	Inadequate credit/facilities	32	X	37	IV
4.	Lack of participation in different extension activities	16	XIV	28	IX
5.	Lack of proper utility of the message information	24	XI	19	XV
6.	Lack of compatibility of message	12	XVI	18	XVI
7.	Complexity of message	18	XVII I	29	VIII
8.	Unsatisfactory experience with earlier technology	10	XVII	10	XVII
9.	Non availability of needed inputs and facilities	14	IV	40	III
10.	Location of research stations far away from reach	15	XV	22	XII
11.	Irregularity of field visits by the concerned authority	29	X	36	X
12.	Limited contact with scientists	38	VI	25	XI
13.	Lack of irrigation facility	40	V	20	XVI
14.	Unware of pest and diseases and other field problems	42	III	30	VII
15.	Lack of training	36	VIII	26	X
16.	Low statutory price of farm produce and poor marketing facilities	37	VII	21	XIII
17.	Lack of detailed orientation of Skill oriented technology	37	VII	21	XIII
18.	Lack of motivation and support from government agencies	35	IX	32	VI

**Table 7. Suggestions given by the farmers to overcome the constraints in agricultural information management.**

Sl.No.	Suggestions	Frequency	Rank
1.	More and timely information about the technologies	49	III
2.	Significant message flow from the extensionists	53	I
3.	Complete information (source, place, time and person to be contacted) about any new technology.	44	V
4.	Field trips to research stations / successfully technologies implemented farms	39	VIII
5.	Clear communication of tested and successful technologies.	50	II
6.	Demonstration of technologies in many places of the village.	40	VII
7.	Any technologies skill components should be taught clearly with specific care to be taken at each stage.	43	VI
8.	Establishing Agricultural Information center in each village	33	IX
9.	More field diagnostic term visits	18	XIII
10.	Timely availability of critical inputs	47	IV
11.	Village adoption by the research and extension organizations	23	XI
12.	Specialists consultancy/advisory services	20	XII
13.	New crops and technologies may be introduced on test basis, in as many places as possible by taken leased lands in village.	24	X

### Implications

Results reveal that unless the information is communicated clearly which is significant economically, socially to the needs, interests and values of the farmers they cannot utilize the information. The technologies are to be demonstrated in many places of villages with special emphasis on skill components. Farmers should be taken round the nearby progressive farmers' fields and research stations, so that they can accept and utilize the generated technologies.

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