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### Information needs and sources of information accessed by the farmers for problem-solving in agriculture in Andhra Pradesh

<sup>1</sup>K Sravya, <sup>2</sup>V Jyothi, <sup>3</sup>B Vijayabhinandana and <sup>4</sup>D Ramesh

<sup>1</sup>Assistant Professor, Department of Agriculture and Horticultural Sciences, Vignan's Foundation for Science Technology and Research, Vadlamudi, Guntur, Andhra Pradesh, India

<sup>2</sup>Associate Professor, Department of Agricultural Extension, Vignan's Foundation for Science Technology and Research, Vadlamudi, Guntur, Andhra Pradesh, India

<sup>3</sup>Professor and University Head, Department of Agricultural Extension, Vignan's Foundation for Science Technology and Research, Vadlamudi, Guntur, Andhra Pradesh, India

<sup>4</sup>Assistant Professor, Department of Statistics and Computer Applications, Acharya N.G. Ranga Agricultural University, Guntur, Andhra Pradesh, India

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Corresponding Author: K Sravya

#### Abstract

Online and digital learning is the process of acquiring new understanding, knowledge, behaviour and skills by the use of internet enabled electronic devices. Learning behaviour included activities enabling respondents to access online and digital content and interact with others productively in the community. The study was conducted in Andhra Pradesh during 2021-22 using exploratory research design. The respondents for the study included 50 farmers. The farmers who were using online and digital learning tools for problem solving in agriculture were selected using simple random sampling procedure. Farmers possessing smart phones and using them for at least a period of one year were sampled for the study. Data was collected using online questionnaire coupled with telephonic interview. Data was analyzed using descriptive statistics. The Online and digital learning behaviour of farmers was studied in terms of learning behaviour, frequency of using and time spent in browsing the internet for problem solving in agriculture. Nearly two third of the farmers had medium learning behaviour (64.00%), followed by low (20.00%) and high (16.00%) learning behaviour. The information accessed by the farmers and extensionists was about input sources & prices, new varietal information, new farm machinery, weather forecast, novel technologies, market price information, govt. schemes and subsidy information, crop choice, seed rate and seed treatment, new plant protection chemicals, weedicides, fertilizer application, pest management, disease management, pesticide application, physiological disorders, techniques of water saving, storage, post-harvest, dairy & poultry breeds, high yielding fodder varieties, crop diversification, organic farming, natural resource management, agroforestry, success stories, expert talks and interviews. The information sources of farmers included input dealers, state DOA, progressive farmers, friends/neighbors/ relatives, TV, mobile apps, newspaper articles and ANGRAU Scientists. The information sources of extensionists included internet, colleagues, *Vyavasaya panchangam*, magazines (*Vyavasayam*, others), seminars or workshops or conferences, scientific journals, newspapers, research institutes, television and radio.

**Keywords:** Online learning, digital learning, information needs and information sources

#### 1. Introduction

The value of information has increased significantly as the agricultural systems in developing countries become knowledge intensive. Access and use of current information is critical not only for financial success of farmers, but also to support sustainable agricultural systems. Information and Communications Technologies (ICTs) have facilitated learning and knowledge sharing, generated global information flows, empowered citizens and communities in ways that have redefined governance and have created significant wealth and economic growth resulting in a global information society. The new addition to the ICT world is the concept of online and digital learning. Agriculture is the backbone of Indian economy and farmer is the main player in it and extension personnel support farmers for technology

backstopping. The national objective of the doubling of farmer's income cannot be achieved without the successful delivery of information on latest technologies and modern practices.

These days everybody are actively using mobiles to search agricultural information, related audio and video files. Even the extensionists are giving agro advisories to farmers via electronic platforms.

Online and digital learning is the process of acquiring new understanding, knowledge, behaviour and skills by the use of internet enabled electronic devices. Learning behaviour is defined as learning activities that enable respondents to access online and digital content and interact with others productively in the community. A better understanding of farmers' online and digital learning behaviour could help,

guide extension and other agricultural programs to better target specific groups of farmers.

### Materials and Methods

The study was conducted in Andhra Pradesh during 2021-22 using exploratory research design. The entire state of Andhra Pradesh was purposively selected as the researcher hails from this state. The respondents for the study included 50 farmers. The farmers who were using online and digital learning tools for problem-solving in agriculture were selected using a simple random sampling procedure. Farmers possessing smartphones and using them for at least a period of one year were sampled for the study. Data was collected using an online questionnaire coupled with telephonic interview. Data was analyzed using descriptive statistics.

### Results and Discussion

An attempt was made in the present investigation to understand the online and digital learning behavior of farmers. The Online and digital learning behaviour of farmers was studied in terms of learning behaviour, frequency of use and time spent in browsing the internet for problem solving in agriculture.

#### Information needs of farmers for problem solving in agriculture

The information needs of farmers for problem solving in agriculture was studied in terms of Information needs and search behaviour; and Sources of information accessed by the farmers.

#### Information needs and search behaviour of farmers

It refers to the information required by the respondents to solve problems related to farm. Information needs of farmers was assessed in 28 key areas on three-point continuum *viz.*, high search, moderate search and low search. The data on information needs and search behaviour of farmers is presented in Table 1. and Figure 1.

#### Input sources & price

It is evident from Table 1. and Figure 1. that three fifth of the farmers were found in the category of high search (60.00%) of information on input sources & price, followed by moderate (30.00%) and low search (10.00%). The results are in conformity with that reported by Jyothi & Vijayabhinandana. (2024) <sup>[6]</sup>.

#### New varietal information

Majority of the respondents were found in the high search (84.00%) category for new varietal information, followed by moderate (4.00%) and low search (10.00%).

#### New farm machinery

Fifty eight percent of the farmers were found in the category of high search of information on new farm machinery, followed by moderate (16.00%) and low search (26.00%).

#### Weather forecast

Great majority (90.00%) of the farmers were found in the category of high search of information on weather forecast,

followed by moderate (8.00%) and low search (2.00%). The results are in conformity with that reported by Jyothi & Vijayabhinandana. (2024) <sup>[6]</sup>.

#### Novel technologies

Majority of the respondents were found in the high search (82.00%) of novel technologies, followed by moderate (8.00%) and low search (10.00%).

#### Market price information

Majority (86.00%) of the farmers were found in the category of high search of information on market price information, followed by moderate (10.00%) and low search (4.00%). The results are in conformity with that reported by Venkata Subbaiah *et al.* (2020) <sup>[23]</sup>.

#### Govt. schemes and subsidy information

Less than one fourth of the respondents were found in the high search (22.00%) of govt. schemes and subsidy information, followed by moderate (58.00%) and low search (20.00%).

#### Crop choice

Less than one third of the respondents were found in the high search (30.00%) of crop choice, followed by moderate search (44.00%) and low search (26.00%).

#### Seed rate and seed treatment

Majority (70.00%) of the farmers were found in the category of high search of information on seed treatment and seed rate, followed by moderate (16.00%) and low search (14.00%).

#### New plant protection chemicals

Majority (88.00%) of the farmers were found in the category of high search of information on new plant protection chemicals, followed by moderate search (12.00%). None of the respondents were found in low search category.

#### Weedicides

Majority (62.00%) of the farmers were found in the category of high search of information on seed treatment & rate, followed by moderate (26.00%) and low search (12.00%).

#### Fertilizer application

More than one third of the farmers were found in the category of high search (34.00%) of information on fertilizer application, followed by moderate (16.00%) and low search (50.00%).

#### Pest management

Nearly two-third (64.00%) of the respondents were found in the high search of pest management, followed by moderate (12.00%) and low search (24.00%).

#### Disease management

More than half of the respondents were found in the high search (52.00%) of disease management, followed by moderate (24.00%) and low search (24.00%).

**Pesticide application**

More than one fourth of the farmers were found in the category of high search (26.00%) of information on pesticide application, followed by moderate (18.00%) and low search (56.00%).

**Physiological disorders**

Forty two percent of the respondents were found in the high search of physiological disorders, followed by moderate (24.00%) and low search (34.00%).

**Techniques of water saving**

Less than one third of the respondents were found in the high search(30.00%) of information on techniques of water saving, followed by moderate (36.00%) and low search (34.00%).

**Storage**

Forty two percent of the farmers were found in the category of high search of information on storage, followed by moderate search (30.00%) and low search (28.00%).

**Post-harvest**

More than one third of the farmers were found in the category of high search (36.00%) of information on post-harvest, followed by moderate (10.00%) and low search (54.00%).

**Dairy & poultry breeds**

Forty four of the respondents were found in the high search of dairy & poultry breeds, followed by moderate (26.00%) and low search (40.00%).

**High yielding fodder varieties**

More than one third (of the farmers were found in the category of high search 36.00%) of information on high yielding fodder varieties, followed by moderate (18.00%) and low search (46.00%).

**Crop diversification**

Less than one third of the farmers were found in the category of high search (30.00%) of information on crop diversification, followed by moderate (16.00%) and low search (54.00%).

**Organic farming**

Less than one fourth of the farmers were found in the category of high search (24.00%) of information on organic farming, followed by moderate (22.00%) and low search (54.00%).

**Natural resource management**

Eighteen percent of the respondents were found in high search the of Natural resource management, followed by moderate (6.00%) and low search (76.00%).

**Agroforestry**

Ten percent of the respondents were found in high search of information on agroforestry, followed by moderate (14.00%) and low search (76.00%).

**Success stories**

Less than one third of the respondents were found in high search (30.00%) of information on success stories, followed by moderate (68.00%) and low search (2.00%).

**Expert talks**

Less than one fourth of the respondents were in high search (24.00%) of information on expert talks, followed by moderate (42.00%) and low search (34.00%).

**Interviews**

More than one fourth of the respondents were found in the high search (28.00%) of information on interviews, followed by moderate (12.00%) and low search (60.00%).

**Table 1:** Distribution of farmers according to information needs and their search behaviour (n<sub>1</sub>=50)

S. No	Category	High search		Moderate search		Low search	
		F	%	F	%	F	%
1	Input sources & price	30	60.00	15	30.00	5	10.00
2	New varietal information	42	84.00	3	6.00	5	10.00
3	New farm machinery	29	58.00	8	16.00	13	26.00
4	Weather forecast	45	90.00	4	8.00	1	2.00
5	Novel technologies	41	82.00	4	8.00	5	10.00
6	Market price information	43	86.00	5	10.00	2	4.00
7	Govt. schemes and subsidy information	11	22.00	29	58.00	10	20.00
8	Crop choice	15	30.00	22	44.00	13	26.00
9	Seed rate and seed treatment	35	70.00	8	16.00	7	14.00
10	New plant protection chemicals	44	88.00	6	12.00	--	--
11	Weedicides	31	62.00	13	26.00	6	12.00
12	Fertilizer application	17	34.00	8	16.00	25	50.00
13	Pest management	32	64.00	6	12.00	12	24.00
14	Disease management	26	52.00	12	24.00	12	24.00
15	Pesticide application	13	26.00	9	18.00	28	56.00
16	Physiological disorders	21	42.00	12	24.00	17	34.00
17	Techniques of water saving	15	30.00	18	36.00	17	34.00
18	Storage	21	42.00	15	30.00	14	28.00
19	Post-harvest	18	36.00	5	10.00	27	54.00
20	Dairy & poultry breeds	22	44.00	13	26.00	15	30.00
21	High yielding fodder varieties	18	36.00	9	18.00	23	46.00
22	Crop diversification	15	30.00	8	16.00	27	54.00
23	Organic farming	12	24.00	11	22.00	27	54.00
24	Natural resource management	9	18.00	3	6.00	38	76.00
25	Agroforestry	5	10.00	7	14.00	38	76.00
26	Success stories	11	22.00	14	28.00	25	50.00
27	Expert talks	15	30.00	12	24.00	23	46.00
28	Interviews	17	34.00	5	10.00	28	56.00

\*F=frequency \*%=percentage

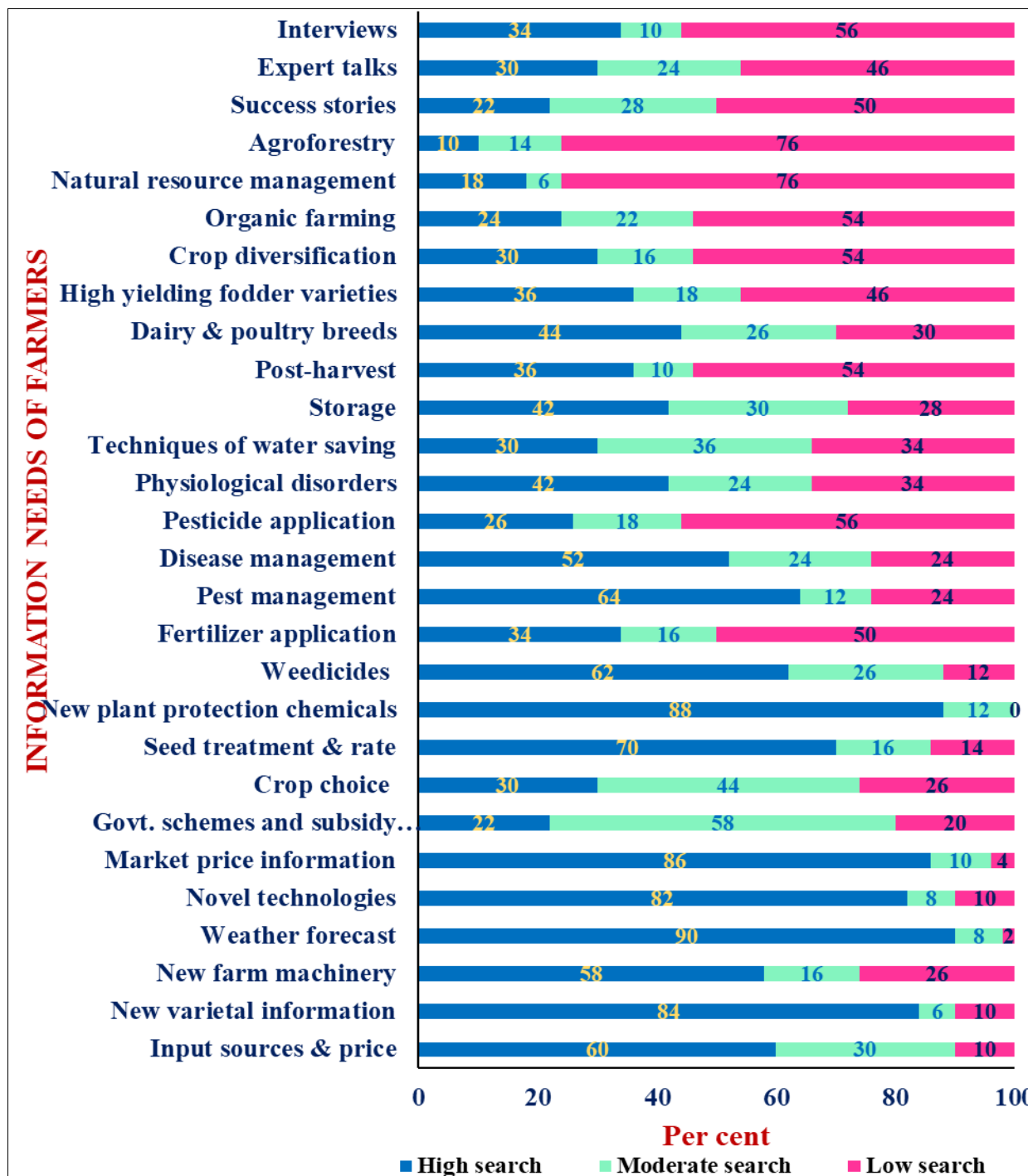


Fig 1: Distribution of farmers according to information needs and their search behaviour

**Success stories**

Less than one fourth of the respondents were found in high search (22.00%) of information on success stories, followed by moderate (28.00%) and low search (50.00%).

**Expert talks:** Less than one third of the respondents were in high search (30.00%) of information on expert talks, followed by moderate (24.00%) and low search (46.00%).

**Interviews**

More than one third of the respondents were found in the high search (34.00%) of information on interviews, followed by moderate (10.00%) and low search (56.00%). Farmers accessed a variety of information related to

agriculture to solve field related problems. The information accessed was about input sources & price, new varietal information, new farm machinery, weather forecast, novel technologies, market price information, govt. schemes and subsidy information, crop choice, seed rate and seed treatment, new plant protection chemicals, weedicides, fertilizer application, pest management, disease management, pesticide application, physiological disorders, techniques of water saving, storage, post-harvest, dairy & poultry breeds, high yielding fodder varieties, crop diversification, organic farming, natural resource management, agroforestry, success stories, expert talks and interviews. based on the requirement they accessed this information.



**Sources of information accessed by the farmers**

It refers to the extent to which the farmer accessed various information sources for problem solving in agriculture. The information sources included input dealers, state DOA, progressive farmers, friends/ neighbours / relatives, TV, mobile apps, newspaper articles and ANGRAU Scientists. It was measured on three point continuum, viz: never, occasionally and frequently.

It is evident from Table 2. that 18.00 percent of the farmers accessed information from input dealers frequently, followed by occasionally (42.00%) and never (40.00%). More than half of the farmers accessed information from state DOA frequently (54.00%), followed by occasionally (30.00%) and never (16.00%). The results are in conformity with that reported by Jyothi (2006). Sixty percent of the farmers accessed information from progressive farmers frequently, followed by occasionally (34.00%) and never (6.00%). Majority (78.00%) of the farmers accessed information from friends/ neighbours/ relatives frequently and occasionally (22.00%). Less than one third of the farmers accessed information from TV frequently (30.00%), followed by occasionally (54.00%) and never (16.00%). More than half of the farmers accessed information from mobile apps frequently (52.00%), followed by occasionally (22.00%) and never (26.00%). A meagre proportion of the farmers accessed information from newspaper articles frequently (12.00%), followed by occasionally (36.00%) and never (52.00%). More than half of the farmers accessed information from ANGRAU Scientists frequently (54.00%), followed by occasionally (30.00%) and never (16.00%). The results are in conformity with that reported by Jyothi & Vijayabhinandana. (2024) [6].

Based on the requirement farmers accessed a variety of sources to fulfil their information needs. For technical information in agriculture they mostly contacted ANGRAU Scientists and later the field extension staff from department of agriculture. Farmers approached informal sources for information related to agriculture. They contacted friends, relatives who are close to them. For immediate information needs they contacted neighbours who are residentially near to their house. Mass media sources like TV, newspaper were also a source of information for farmers. Mobile apps were also browsed very frequently for information.

**Table 2:** Distribution of farmers according to the sources of information accessed (n<sub>1</sub>=50)

S. No	Source	Frequently		Occasionally		Never	
		F	%	F	%	F	%
1.	Input dealers	9	18.00	21	42.00	20	40.00
2.	State DOA	27	54.00	15	30.00	8	16.00
3.	Progressive farmers	30	60.00	17	34.00	3	6.00
4.	Friends/neighbours/relatives	39	78.00	11	22.00	--	--
5.	TV	15	30.00	27	54.00	8	16.00
6.	Mobile apps	26	52.00	11	22.00	13	26.00
7.	Newspaper articles	6	12.00	18	36.00	26	52.00
8.	ANGRAU Scientists	31	62.00	12	24.00	7	14.00

\*F= frequency % =percentage

**Conclusion**

▪ Farmers accessed a variety of information related to agriculture to solve field related problems. The information accessed was about input sources & price,

new varietal information, new farm machinery, weather forecast, novel technologies, market price information, govt. schemes and subsidy information, crop choice, seed rate and seed treatment, new plant protection chemicals, weedicides, fertilizer application, pest management, disease management, pesticide application, physiological disorders, techniques of water saving, storage, post-harvest, dairy & poultry breeds, high yielding fodder varieties, crop diversification, organic farming, natural resource management, agroforestry, success stories, expert talks and interviews. based on the requirement they accessed this information.

- The information sources of farmers included input dealers, state DOA, progressive farmers, friends/ neighbors/ relatives, TV, mobile apps, newspaper articles and ANGRAU Scientists.

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