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A Study on Farmers' Perception about Uzhavan App in Select Districts of Tamil Nadu

S. Nandhini [a≡*] and A. Rohini [aφ]

[a] *Department of Agricultural and Rural Management, Tamil Nadu Agricultural University, Coimbatore, India.*

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

ICT provides more facilities to farmers by introducing agricultural mobile apps and encourage the farmers for effective farming. These mobile apps provide agriculture related information to farmers in timely and cost effective manner. The present study is carried out to find the farmers perception on uzhavan app which is developed by Government of Tamil Nadu. More than 5 lakh farmers have registered in this app and get various benefits. The uzhavan app has been used by many farmers in gaining more information about agricultural activities. Respondents revealed that dissemination of information through the uzhavan app is valuable and user friendly. The major challenges faced by the farmers were network problem mainly during the ATMA training registration, lack of price details of few commodity and in minor problem time consumes to use all services, app is quite difficult to use due to poor content visibility. From the study, it has been found that majority of farmers had good perception about the uzhavan app and they are satisfied with the features that support them in farming and they also expect some other features need to be integrated in uzhavan mobile app. The uzhavan app provides real time market price of some agricultural commodities and it has greater impact in selling farmers produce at fair price in mandis. Meanwhile, the features of e market online platform helps farmers to connects directly with traders and sell their produce at good price. The availability of farm guide in app provides information regarding fertilizer recommendations practices where most of sample respondents adopted recommended usage level and has positive impact in farming by increasing the yield of farmers.

[≡] *Research Scholar;*
[φ] *Professor;*
**Corresponding author: E-mail: snandhini225@gmail.com;*

Keywords: Uzhavan app; features; influencing factors; usage; farmers perception; challenges.

1. INTRODUCTION

Agricultural is the backbone of our Indian economy and contributes around 16 per cent of the GDP. Around 70 per cent of Indian population depends on agricultural for their livelihood support. The need for timely access to information for decision making in agriculture and allied sectors needs no emphasis. In this digital era, smart phones are becoming effective way of delivering information. ICT in the form of mobile apps are becoming more important in agricultural sector. Technology has paved way for solving rural agricultural farmers' problems by developing many apps for production technology, agro- advisory, marketing based, service based and allied sector apps. Many apps are utilized for different kinds of farm activities like seed procurement, weather forecast, crop production, pesticides and fertilizer, marketing information, etc [1-4]. The present study examines about the uzhavan app, launched by the government of Tamil Nadu on April 7, 2018. The farmers from remote villages get benefited by obtaining agriculture information through local language. This app is developed in bilingual local language (Tamil and English). The app provides eighteen services to farmers namely farm subsidy, benefit registration, crop insurance, fertilizer stock, seed stock, custom hiring center, market price, weather advisory, farmer - officer contact program, farm guide, organic products, fpo products, reservoir levels, agricultural news, feedback, pest and disease monitoring, ATMA training and demonstration program, and uzhavan e- mandi.

The Uzhavan app provides detailed information about subsidy scheme available for all agricultural inputs, crop insurance notified for crops in specific villages, also provides tractor and farm equipment services to farmers at low cost through custom hiring center by integrating with J-Farm services. The app provides weather forecast information, visit of agriculture department officials to the village. Apart from that, app also provides information about Farmer Producer Organization (FPO) products availability and organic products availability in their nearby region. Recently two new features like ATMA – training and demonstration programme were added to the uzhavan app [5-7]. Through this facility, the farmer can register their name and they can get information about the date and place of training and field demonstration programme. Many farmers have been benefited by attending various training programme like mushroom cultivation and honey bee farming. The e-Market features helps the farmers to buy and sell their produce at better and transparent price. This online platform provides direct linkage of farmers with traders.

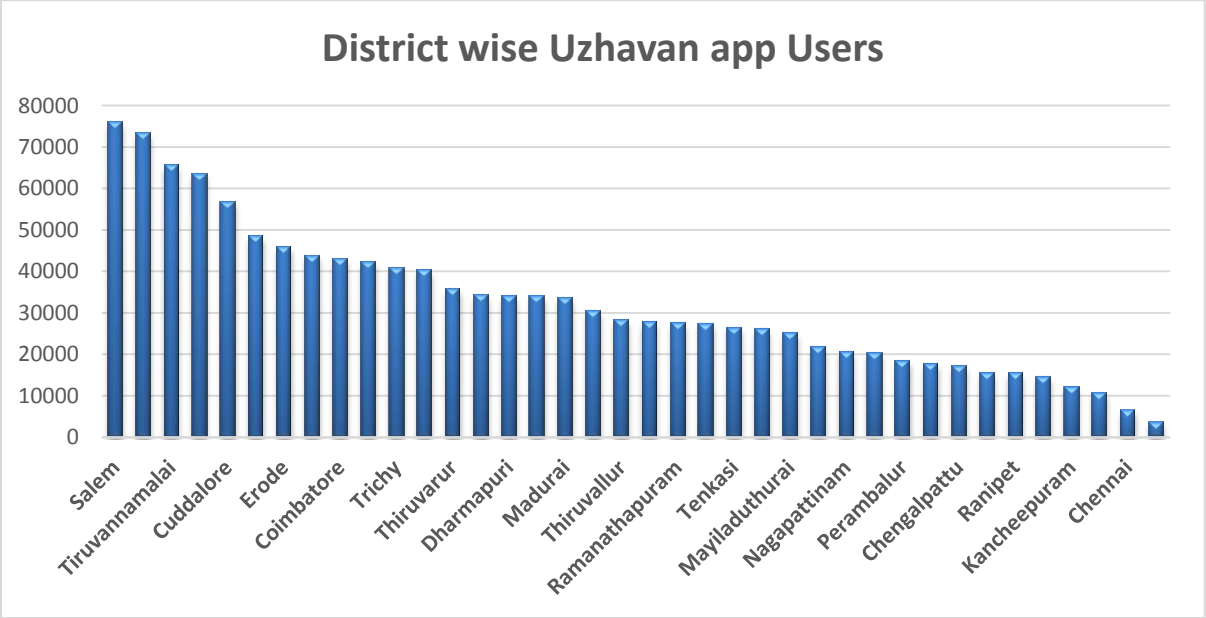

Fig. 1. District wise uzhavan app user's status
(Source: tnagrisnet.tn.gov.in)

The uzhavan app provides information to farmers that are most soughted in their local regions, support them to take appropriate and effective decisions in their day to day activities. Real time market price of agricultural commodities is displayed in the app. The prices of commodities that prevail in 277 regulated markets and 189 uzhavar sandhai's across the state are displayed. In addition to this, the price forecast advisories developed by Tamil Nadu Agricultural University is also available to assist the farmers in making sowing, storing and selling decision of their produces. Thus the effort made by government to take technology to next level, improving and sharing agricultural information were effective and very supportive to farmers to attain higher income and use resources efficiently. Recent study reported that at present nearly 1222239 farmers have registered and using the uzhavan app in TamilNadu. Highest number of users (75865) found in Salem district and lowest number of users (3557) found in Nilgiris district.

2. RESEARCH METHODOLOGY

Farmers' perception towards uzhavan app application on effective dissemination of information is attempted in this paper to suggest policy measures to solve problems faced by the users. The study was conducted in Dharmapuri and Coimbatore districts of Tamil Nadu. Nearly about 33927 farmers in Dharmapuri and 42705 farmers in Coimbatore district registered and using uzhavan app to get beneficial services. Two blocks from each district, Pennagaram, Palacode from Dharmapuri and Thondamuthur, Karamadai from Coimbatore districts were selected for primary data collection. In each selected blocks, 20 registered users and 10 non users were selected by snow ball sampling method that includes 80 uzhavan app user farmers and 40 non users comprising total of 120 sample respondents. Primary data were collected using pre- tested interview schedule. Conventional analysis is used to find the demographics features of sample farmers, Likert scaling technique employed to study farmers' perception about uzhavan app and Garrette ranking technique to find the problems faced by the uzhavan app users. Panda et al. [8] revealed that 70 per cent of farmers used mobile apps in search of agriculture related information like market price, production techniques, weather forecast so that they can improve their knowledge and skills. Agashe et al. [9] discussed about the effectiveness of Kisan Suvidha app in Surguja district of Chattisgarh. The Study concluded that the app provides information on timely availability of inputs, input dealers, market prices, plant protection measures, agro-advisory and agronomic practices. Kalyan and Patnaik [10] explained that farmers are receiving diverse facts of information about farming, crop selection, weather based information and farmers are more interested in obtaining market price to buy and sell their produce from the mobile apps.

3. RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of Respondents

The sample respondent's demographic characters such as age, gender, farm size, occupational status, faming experience and income details are given in the Table 1.

3.2 Factors Influencing Farmers for Uzhavan App Use

Probit model is used to find the factors that influences farmers to use uzhavan app for gaining knowledge related to agricultural activities. This model includes data collected from both user and non - user farmers considering the factors like age, gender, educational status, occupation, income, farm size and experience, extension agency contact, group communication, information seeking behavior and self-reliance. In probit regression model, dependent variable is considered as dummy which indicates "1" for uzhavan app users and "0" for non - users. All the above mentioned factors were considered as an independent variables. Table 2 explains about the significant and influencing factors for using uzhavan app by respondent farmers.

The above table depicts that factors like occupational status, extension agency contact have significant influences at 1% level of significance which indicates these two factors were highly influencing farmers for app usage. Other factors like educational status, annual income, farming experience, information seeking behavior of farmers, group communication and self-reliance were also influencing farmers at 5% level of significance. Pseudo R^2 value indicates that independent variable factors shows 51% of variation on dependent variables.

Table 1. Socio-economic characteristics of respondents (n = 120)

S. No	Classification	Particulars	No of Respondents (users) n = 80	No of Respondents (Non - users) n = 40	Total (n = 120)
1	Age	<35	38 (47.5)	10(25)	48(40)
		36-45	24(30)	17(42.5)	41(34.17)
		>45	18(22.5)	13(32.5)	31(25.83)
2	Gender	Male	59(73.75)	23(57.5)	82(68.33)
		Female	21(26.25)	17(42.5)	38(31.67)
3	Educational status	Illiterate	3(3.75)	0	3(2.50)
		Primary	13(16.25)	15(37.5)	28(23.33)
		Middle school	18(22.5)	7(17.5)	25(20.83)
		Secondary	32(40)	12(30)	44(36.67)
		Graduate	14(17.5)	6(15)	20(16.67)
4	Occupational status	Agriculture	37(46.25)	13(32.5)	50(41.67)
		Agri + Livestocks	34(42.5)	19(47.5)	53(44.17)
		Others (painters, weavers, teachers)	9(11.25)	8(20)	17(14.17)
5	Farm Size	< 1 ha	21(26.25)	13(32.5)	34(28.33)
		1-2 ha	36(45)	19(47.5)	55(45.83)
		>2 ha	23(28.75)	8(20)	31(25.83)
6	Annual Income	< 1 Lakh	43(53.75)	19(47.5)	62(51.67)
		1-3 lakh	24(30)	12(30)	36(30)
		> 3 lakh	13(16.25)	9(22.5)	22(18.33)
7	Farming Experience	< 15 years	32(40)	23(57.5)	55(45.83)
		16 -25 years	29(36.25)	9(22.5)	38(31.67)
		> 25 years	19(23.75)	8(20)	27(22.50)

Table 2. Factors influencing farmers for Uzhavan app use

S. No	Variables	Coefficient	Standard Error	P>|z|
1	Age	0.0769^{NS}	0.026	0.240
2	Gender	0.232^{NS}	0.453	0.608
3	Occupational status	0.159**	0.420	0.004
4	Educational status	0.378*	0.186	0.042
5	Annual Income	0.320*	0.210	0.058
6	Farm Size	0.285^{NS}	0.093	0.702
7	Farming experience	0.060*	0.021	0.050
8	Extension agency contact	1.226**	0.326	0.000
9	Information seeking behavior	0.795*	0.365	0.029
10	Group communication	1.241*	0.756	0.041
11	Self-reliance	0.453*	0.092	0.018
	Number of observation = 120			
	LR chi2(10) = 55.49			
	Prob > chi2 = 0.0009			
	Log likelihood = -39.556783 Pseudo R^2 = 0.5122			

3.3 Purpose of Using Uzhavan App by Farmers

The farmers used the app for variety of purposes like getting the scheme benefits, information on weather, inputs, markets, prices and several other services available in the mobile app. The major reasons for their usage of this app are presented in the Table 3.

Uzhavan app usage level has been increasing since its launch and many farmers registered and uses the app for a variety of services, 27.5 per cent of sample farmers revealed that they use the app to find the information where to buy and sell the produce at reasonable price, 23.75 percent of farmers stated that it connects market and distribution network, 22.50 per cent of farmers revealed that the app is easy, fast and

convenient way to communicate, then 16.25 percent revealed that the app provides useful information which is applicable in all activities right from production to marketing, remaining 10 per cent revealed that it helps to access agricultural extension services.

3.4 Most Common Features Used by Sample Farmers in Uzhavan App

Although the farmers know about all the features of Uzhavan app (18 features), uzhavan e-Market services was used by most of the farmers to find out the availability of products and also for direct sale of their produce. This e- Market service supports farmers to find the market price of commodity, buyers and traders details, commodity available for sale. Next to that, the farmers' uses the service AO/HO Visit, seed stock and fertilizer stock availability, agricultural news, weather forecast and ATMA training services. Most farmers had availed the ATMA Training services. They had attended training programs on mushroom cultivation and honey bee farming. Subsidy schemes and crop insurance features are used by the sample farmers (15%). Custom hiring center and feedback services are the least features used by the farmers as they felt ambiguity in using these features. Hence, training or simplifying the feature has to be done for effective utilization of custom hiring center. Figure 2 shows the percentage of app features used by respondent's farmers.

3.5 Farmers' Perception towards Uzhavan App

The respondents farmers revealed that the app provides latest information about technology development in agriculture and the information provided in the app are applicable in day to day agricultural activities. The farmers' perception about the Uzhavan app is given in the Table 4.

The respondents while ranking their perception felt that the app provides relevant information, improved knowledge on market price, technology required for crop production, buying and selling their produces at reasonable price, regularly updated information, assistance in new technology adoption, location specific information, saves time in input purchase, more social participation and finally felt that due to network problem sometimes respondents feel difficult to use the app.

Table 3. Purpose of using Uzhavan app by farmers

S. No	Reasons for using Uzhavan app	No of respondents	Percent Share
1	App provides most useful information	13	16.25
2	Better connections with market and distribution network	19	23.75
3	Easy access to agricultural extension services	8	10.00
4	Able to buy and sell the produce at reasonable price	22	27.50
5	Easy, fast and convenient way to communicate	18	22.50
Total		80	100

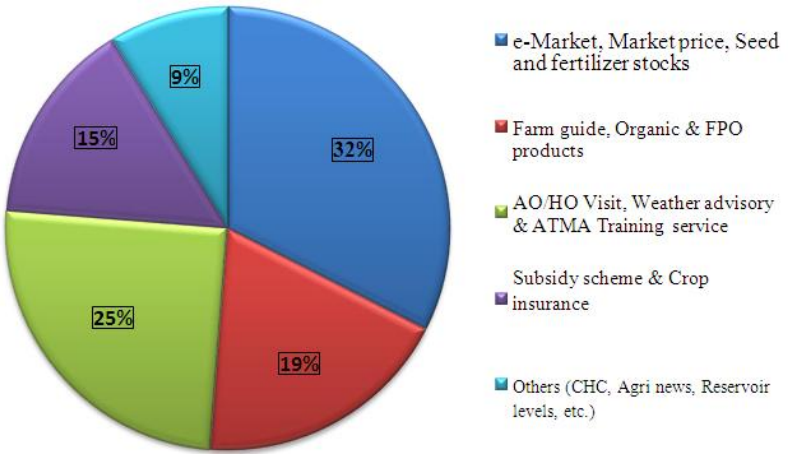

Fig. 2. Features used by respondents farmers

Table 4. Farmers' perception towards Uzhavan app

S. No	Farmers perception towards Uzhavan app	Mean score	Rank
1	App provides relevant information to crop husbandry	76.23	I
2	App improved knowledge in market price of produces	72.51	II
3	App provides technology required for crop production	66.66	III
4	Buying and selling the produce at reasonable price due to app usage	58.68	IV
5	Information are updated regularly in the app	47.53	V
6	Apps helps in adoption of new technology like sowing based on forecast update, sourcing and planting of tissue culture banana suckers.	40.11	VI
7	Location specific information is provided in the app	36.01	VII
8	Purchase of inputs through online mode saves time	35.10	VIII
9	App develops social participation through training programs	26.71	IX
10	Sometimes difficult to use app due to network problem	23.88	X

Table 5. Challenges faced by Uzhavan App users

S. No	Problems	Mean score	Garette rank
1	Poor Network problem registering in various Services	68.23	I
2	Lack of price details like Cotton, Coconut Copra and Fruits prices	63.53	II
3	Difficult in Custom Hiring Centre feature usage	55.75	III
4	Lack of knowledge to register for crop insurance and benefit registration	48.20	IV
5	Time consumption to use all services	46.83	V
6	Difficult to use due to lack of training on usage	41.05	VI
7	Content Visibility is lacking	35.20	VII

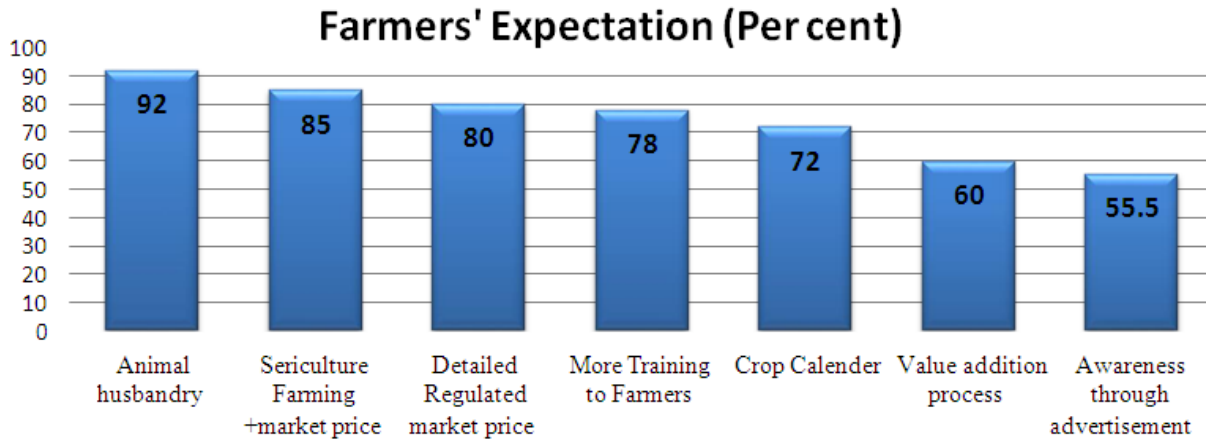

Fig. 3. Farmers expectation about Uzhavan App

3.6 Challenges Faced by the Uzhavan App Users

The problem faced by uzhavan app users were poor network while registering in various services, Lack of price details for some commodities, difficult in understanding about custom hiring center, lack of knowledge to register in benefit and crop insurance features, no time to use all features and lack of training about uzhavan app usage makes low educated farmers to feel difficult to use and small sized content visibility. Table 5 describes about the challenges faced by uzhavan app users and garette scores were given.

3.7 Farmers Expectation about Uzhavan App

The respondents expected many features to be included in the app so that it would be more beneficial to them. They expected features on animal husbandry that provides details on veterinary doctor visit and further sericulture information on cocoon market prices, also market prices for extended crops and markets, capacity building on various new technology, crop calendar information, value addition practices and finally awareness about all these facilities.

4. CONCLUSION

The Uzhavan app has been useful and supportive to farmers for effective farming. The app helps in gaining more information about agricultural activities right from production to marketing of their produce. Farmers mostly get benefitted by the feature of market price for their produce as they sold them at fair and remunerative price. It has been found that farmers are expecting more detailed information about all crops, market price for all agricultural and horticultural commodities, value addition process, sericulture rearing techniques and cocoon price in market, mushroom cultivation, honey bee farming and details about other agribusiness farming to bring profitability in farming. The farmers also expect cattle rearing and animal husbandry farming details with this Uzhavan app application. Hence addition of these extra features that farmers are expecting and improving its content visibility with ease of use would make all farmers to start using this single app. Nowadays many youngsters start their profession as farming, in order to help them crop calendar can be added to this app. Information based on warehouse or storage godown availability and charge for storage of farmer produce need to be given. Dissemination of information to farmers through agricultural college students to create more awareness about its usefulness would be made to improve its awareness. This app should focus on location specific recommendations that would be more useful to farmers for effective farming practices.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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