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Utilization of e-NAM Facilities and Services by Farmers in Telangana

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ABSTRACT

The study was undertaken to know the e-NAM usage pattern of farmers in Hyderabad and Warangal Districts of Telangana, India, in 2019-20. The utilization index was constructed based on the responses received from the respondents for statements related to utilization patterns. The Pearson correlation method was used to measure the relationship between the profile characters of the respondents and the utilization index. More than 50 per cent of the farmers in the study were imitators and more than 60 per cent of respondents belonged to the medium category in information seeking behavior. e-NAM facilities viz., checking price (70%), mobile number linkage for the information (53%) were the most used facilities by the respondents. Education and Awareness factors significantly contributed to the utilization pattern of e-NAM resources.

INTRODUCTION

Agriculture marketing plays a driving role in moving these farm products from farm to plate and industrial products to farms. Farmers have been exchanging their produce under the barter system with other farmers for ages, whereas the first regulated market in India was established in the Karanj Market of Hyderabad to get an uninterrupted Cotton supply for Manchester textile mills (Acharya & Agarwal, 2004). In later stages, the Directorate of Marketing and Inspection (DMI) was established in 1935, which led to the creation of respective APMC Acts in each state and the establishment of regulated markets (Shalendra, 2022). APMC Acts were introduced mainly to ensure transparency in pricing and market transactions, save the farmers from exploitation by intermediaries and traders, and offer market-led extension services. These regulations have succeeded in serving their purposes, viz., removing misconducts and limitations in markets and have guaranteed fair prices to the farmers, providing immediate payment (Gori & Kharkwal, 2016; Rupa et al., 2018; Behera & Modak, 2022). This APMC marketing system was not beyond limitations; it had the drawbacks like exploitative practices of intermediaries, payment delays (Gohain & Singh, 2018), lack of transportation, and lack of grading and storage problems (Rampure, 2015). However, in the digital era, the world is emerging as a global market beyond borders, and regulations are considered irrelevant when private trade is not permitted (Chand, 2012). Hence, reforms were introduced in agricultural marketing to allow the participation of private players and direct contact between producers and consumers. In the process of reforms, many initiatives were taken by the Government, viz., Model APMC Act, 2003 and 2017, followed by e-NAM. e-NAM is a nationwide e-trading gateway connecting all the APMC markets/mandis across States and Union territories, aimed at building an integrated countrywide e-trading platform for agricultural commodities across the country (Aditya & Bhaskar, 2017; Deshmukh et al., 2018).

There are various studies reported the benefits of the e-NAM markets i.e. time- saving, convenience, transparent, fetching better prices, increasing competition, eliminating collusion among traders, increasing farmers' price and market arrivals (Shalendra & Paty,

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2018; Reddy 2018; Reddy & Mehjabeen, 2019; Bhatia et al., 2022). On the counter side, studies identified constraints like quantity traded through e-NAM is significantly less, there is less inter-market trading, and among the crops, marketed cereals have a significant share (Reddy, 2018; Reddy & Mehjabeen, 2019; Venkatesh et al., 2021). A lack of infrastructure in many markets hinders transactions through e-NAM (Reddy, 2018). On the other hand, reports are there about farmers selling their produce in the open markets in Madhya Pradesh, similar case was with small farmers in Maharashtra and whoever found sold their produce in e-NAM markets was said to have better prices (Kumar et al., 2020). Selling the product outside of e-NAM markets leads to whether farmers know the e-NAM markets and their utilization. Hence, in this regard, the present study was taken in the Hyderabad and Warangal Markets of Telangana State to understand the utilization pattern of e-NAM facilities in these markets.

METHODOLOGY

The study was conducted in Telangana State using an ex-post facto research design. In Telangana, five APMC markets (Nizamabad, Warangal, Hyderabad, Badepally, and Thirumalagiri) were connected by the Government of India for the pilot phase of e-NAM. From these, the study selected Warangal and Hyderabad APMC markets purposively. The random sampling method was employed to choose the respondents and a total of 60 respondents were selected for the study (30 from each market). Data was collected using the personal interview method using a well-structured and pre-tested questionnaire. Each identified statement (facility and service of e-NAM) was measured on a five-point scale ranging from very high, high, moderate, low, and very low, with a score of five to one, respectively. The utilization index was constructed to measure the farmers' utilization level. Utilization of Electronic National Agricultural Market (e-NAM) was operationally defined as the frequency of use of the online marketing e-NAM for selling and buying of the produce by the farmers/traders. The scoring procedure followed by Kumari (2016) was adopted for the study with slight modifications.

$$\text{Utilisation index} = \frac{\text{Score obtained}}{\text{Maximum possible scores}} \times 100$$

Then, ranks were given to the statements based on index scores in descending order to categorize which facilities and services were highly utilized by respondents. Pearson multiple correlation method was used to testing the relationship between profile characteristics and utilization of e-NAM. It ranges from -1 to +1. -1 indicates perfect negative relation between the variables whereas +1 indicates perfect positive relation between variables.

$$r = \frac{\sum(x_i - \overline{x})\,(y_i - \overline{y})xi}{\sqrt{\sum(x_i - \overline{x})^2\ \sum(y_i - \overline{y})^2}}$$

Where, r = correlation coefficient, x_i = values of the x-variable in a sample, $\overline{x}$ = mean of the values of the x-variable, y_i = values of the y-variable in a sample, $\overline{y}$ = mean of the values of the y-variable.

RESULTS AND DISCUSSION

Innovativeness, information-seeking, decision-making ability, and market access behavior of the farmer directly affect the adoption and utilization of any innovations. Hence, these were studied and the results are presented in Table 1 and the results nearly replicated the adoption theory by Rogers Adoption (Ray, 2011), which shows that there will be more imitators than the others in the adoption categories. The study comprised more than half of the respondents who are innovation imitators (53%) and were followed by Fabians (30%) and drones (5%). One critical observation in the study was that there were 12 per cent of innovators, which is way more than Roger's adoption theory (Ray, 2011). In the information-seeking behavior 50 per cent of the respondents belonged to the medium category i.e. this category of respondents will search for information whenever they need it. 20 per cent of the respondents who belonged to the high category were up to date with their knowledge way earlier than it was required. Remaining 23 per cent belonged to low information-seeking behavior. The result of the study is in conformity with

Table 1. Classification of respondents based on the social characteristics (%)

S.No.	Variable	Category	Hyderabad	Warangal	Both
1	Innovativeness	Innovators	13.33	10.00	11.67
		Imitators	50.00	56.67	53.33
		Fabians	30.00	30.00	30.00
		Drones	06.67	3.33	5.00
2	Information seeking behavior	Low	16.67	20.00	23.33
		Medium	60.00	60.00	56.67
		High	23.33	20.00	20.00
3	Decision-making ability	Low	16.67	20.00	18.33
		Medium	66.67	53.33	65.00
		High	16.67	26.67	16.67
4	Market orientation	Low	26.67	10.00	20.00
		Medium	56.67	83.33	56.67
		High	16.67	6.67	23.33
5	Awareness of eNAM	Low	03.33	01.67	05.00
		Medium	36.67	41.67	78.33
		High	10.00	6.67	16.67

Bandhavya (2020). Decision-making ability helps in choosing between alternatives in the shortest time. In the agricultural profession, farmers encounter many choices where the decision-making capacity should be high. The majority (65%) of the respondents fell into the medium decision-making category, indicating that respondents needed support during their decision-making process and information was lacking with them. Only 1/6th of the respondents were confident with their decision-making ability. In the market orientation, around half (57%) of the respondents have fallen into the medium market orientation i.e. these respondents may be producing for the self-consumption and were marketing only the surplus. Nearly 1/4th of the respondents were producing entirely for the consumers and have fallen into the category of high market orientation. Raju et al., (2022) found alike results in the Guntur market of Andhra Pradesh. Awareness of the e-NAM portal has a direct relationship with the usage of the facilities. More than 3/4th of the respondents had medium knowledge about the e-NAM portal and only 1/6th of them rated themselves as highly aware. This indicates that there was a hiatus of awareness and understanding about the e-NAM among people, and there is a greater need to spread awareness to farmers for the success of the intervention. Raju et al., (2022) have found similar results in the Guntur district of Andhra Pradesh and opined that there is a lack of access to comprehensive guidelines on e-NAM.

Nineteen commonly available facilities (Table 2) in both markets are listed and asked to indicate the level of utilization by the respondents. In the listed e-NAM uses at both markets, respondents have broadly used two things i.e., checking prices online (Hyderabad - 69.66; Warangal – 70.00) and getting the mobile number linked to the e-NAM portal (Hyderabad - 53.33; Warangal – 52.67). From the table, it is understood that the respondents have utilized facilities that don't need any computer/digital literacy i.e., they are familiar with the utilities viz, Checking price (69.67), Mobile number linking/Message alerts (53.00), Checking Progress of lot (39.33), Checking real-time bidding progress (38.00), Assaying/Quality checking of commodities (37.67) and Use of warehouse facilities (35.00). The least utilized facilities are as follows Finding different markets (28.00), Usage of the e-NAM mobile app (26.34), Checking trading details (25.34), Watching e-Learning videos about the e-NAM process (25.00), E-payments (23.34), Checking mandi dashboard (23.00), Grievance on e-NAM (22.67), Checking stakeholder data (22.34), Checking live trading data (22.00), Buying through e-NAM (20.00), Advance online booking for gate entry through the mobile app (20.00), Checking e-NAM MIS (20.00) and Checking interstate trading dashboard (20.00). The less utilization of warehouse facilities was mainly because respondents were selling the produce on the same day they were brought to the market, which was mainly due to their immediate cash requirement and the lack of awareness about the existence of warehouse facilities. Utilization of the e-payment facility was also lesser because in many situations there were delays in crediting the money by traders and farmers were supposed to follow up for the payment at traders. Hence, there was less utilization of the e-payment option too. From the results, it was understood that illiterate or less educated respondents are finding it challenging to use the various facilities provided by the e-NAM. Hence, there is an immediate need to take up awareness programs and training sessions about both e-literacy and about existence also utilization of e-NAM facilities at various markets. The Government should also plan to strengthen computer literacy in the primary schools or at least in higher primary, and policies should be designed in such that no one should be deprived of computer/digital literacy. Failing to implement computer literacy may cause a digital divide in society and may cause a social imbalance in the future.

The correlation was carried out between the index developed for utilization and other parameters in the study. Table 3 shows that education and awareness had a positive relationship with the e-NAM utilization pattern of the respondents at a one per cent significance level. Other factors viz., age, occupation, and

Table 2. Utilization of e-nam facilities and services by respondents (index)

S.No.	Particulars	Hyderabad	Warangal	Average
1	Checking price	69.33	70.00	69.67
2	Mobile number linking	53.33	52.67	53.00
3	Checking Progress of lot	41.33	37.33	39.33
4	Checking real time bidding progress	40.67	35.33	38.00
5	Assaying/Quality checking of commodities	30.00	45.33	37.67
6	Use of warehouse facilities	28.00	42.00	35.00
7	Finding different markets	29.33	26.67	28.00
8	Use of e-NAM mobile app	24.67	28.00	26.34
9	Checking trading details	24.00	26.67	25.34
10	Viewing e-Learning videos about e-NAM process	25.33	24.67	25.00
11	e-payments	22.67	24.00	23.34
12	Checking mandi dashboard	24.67	21.33	23.00
13	Grievance on e-NAM	22.67	22.67	22.67
14	Checking stakeholder data	22.67	22.00	22.34
15	Checking live trading data	22.00	22.00	22.00
16	Checking interstate trading dashboard	20.00	20.00	20.00
17	Checking e-NAM MIS	20.00	20.00	20.00
18	Advance online booking for gate entry through mobile app	20.00	20.00	20.00
19	Buying through e-NAM	20.00	20.00	20.00

information-seeking behavior were positively related and were significant at a five per cent significance level. The remaining factors like information-seeking behavior and market orientation were completely related but non-significant. Other factors viz., farming experience, innovativeness and decision-making ability were negatively related and non-significant. Age was positively associated with respondents in the Hyderabad market and negatively related to the Warangal market. This might be due to the factors that the Warangal market had more young respondents who were selling outside the e-NAM market. The Decision-making ability of the Warangal respondents had a negative correlation with the decision-making ability might be because Warangal comparatively had a large number of respondents with low decision-making ability (Table 1). Table 3 reveals that educational status and awareness about e-NAM variables positively correlated with e-NAM facilities and services utilization. This was highly significant at the 0.01 level. The results are alike to the findings of Raju et al., (2022). The educated farmers may be more e-literate hence, they were more aware of the facilities and services provided through e-NAM thereby increasing the utilization of e-NAM facilities. The significant positive correlation of awareness of e-NAM with utilization is quite logical as these are gratuities for using e-NAM. Kanthisri et al., (2019) reported that acquiring more knowledge effectively contributes to using technologies. Age and decision-making ability were also significant but showed a negative relationship which might be because aged farmers are less e-literate and the older generation is not that tech-savvy. The Negative relationship of Decision Making ability might be because they might be quick enough to make the decisions and harness the price difference in other markets. This might have reduced the utilization of the e-NAM.

Education equips people with the necessary skills to achieve their desired goals. Literates will be keen enough to gather the information and use it at the appropriate place and time. Educates will also be good in decision making and choosing the suitable options, making the right decision at the right time is very much necessary in any business activity, especially in agricultural marketing. Hence, graduates should enter the agriculture industry and thereby, efficiency can be achieved at various stages in agriculture. Awareness is another crucial factor for the success of e-NAM and mass media plays a vital role in creating knowledge. In the current era, social media is very effective in creating awareness. Hence, there should be more efforts to create awareness about the e-NAM among the farming community and for which various options like Extension Agents, Agriculture Department Officers and Mass Media should be effectively utilized as suggested by Raina et al., (2011) & Nain et al., (2015). Government should think in the way of the corporate sector and adopt Social Media platforms for effective awareness campaigns, as there is an increase in social media usage by the people over the years (Sardesai, 2021).

Table 3. Correlation between independent variables and utilization of e-NAM resources

S.No.	Particulars	Hyderabad	Warangal
1	Age	0.457*	-.390*
2	Gender	-	0.072
3	Education	0.625**	0.537**
4	Occupation	0.368*	-0.164
5	Farming Experience	-0.282	-.429*
6	Innovativeness	-0.179	0.122
7	Information Seeking Behavior	0.092	0.398*
8	Decision-Making Ability	-0.264	-.367*
9	Market Orientation	0.238	0.063
10	Awareness	0.741**	0.602**

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

CONCLUSION

The majority of respondents was imitators of innovation and had medium information-seeking behavior. Most of the respondents had medium-level awareness of the e-NAM and its facilities. Respondents used e-NAM mainly to check the price of the commodities and get price-related information through mobile number linking. Education and awareness significantly contributed to the usage of the services. Hence care should be taken to increase awareness among the farming fraternity.

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