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Knowledge of Farmers on Functioning of e-NAM

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ABSTRACT

National Agriculture Market (e-NAM) is a pan-India electronic trading portal that networks the existing APMC *mandis* to create a unified national market for agricultural commodities. The study investigated the knowledge level of e-NAM registered farmers about the features and functioning of e-NAM in Duggirala market of Andhra Pradesh during 2019-2020. A total sample of 120 farmers was randomly selected from six mandals *viz*. Kollur, Kollipara, Bhattiprolu, Tenali, Mangalagiri and Duggirala of Guntur district in Andhra Pradesh. The data were collected with pre-structured interview schedule. The knowledge on functioning of e-NAM was measured in three phases *viz.* gate entry, quality assaying and e-bidding. Majority of the farmers had knowledge on details of registration fee, details of quality assaying fee and provision of choice to accept or reject the bid in the gate entry, quality assaying and e-bidding phases of e-NAM respectively. Further, it was observed that majority of the farmers had medium level of knowledge on functioning of e-NAM. Knowledge scores were significantly related with education, extension contact, market orientation, income orientation, mass media exposure, risk orientation and social participation. All the selected eleven variables of the profile put together explained about 59.90 per cent variation in the knowledge of respondents. There is a large scope for imparting training to the farmers about various aspects of e-NAM in order to enhance its utilization effectively and efficiently.

INTRODUCTION

National Agriculture Market (e-NAM) was launched on 14th April, 2016 as an electronic trading portal that interconnects physical existing wholesale markets across states and union territories. It enables online trade of agriculture and horticulture commodities using a transparent price discovery mechanism and provide remunerative prices to the farmers produce (Bisen & Kumar, 2018). The concept of e-NAM was evolved from a pilot project of e-tendering done in Karnataka state (Pavithra et al., 2018). Small Farmers Agribusiness Consortium (SFAC) is the lead agency for its implementation and Nagarjuna Fertilizers and Chemicals Ltd. is the strategic partner which is accountable for development, operation and maintenance of the platform (Deshmukh et al., 2018). Directorate of Marketing and Inspection (DMI) provides technical support for harmonization of standards for different trading commodities and assaying facilities, National Information Centre (NIC) provides necessary servers to the portal (Reddy, 2018). The key stakeholders include Farmers, Traders, APMCs, Assaying Bodies, Farmer Producer Organisations (FPOs), Banks, Logistics operators, Warehouses, Mandi board *etc*. The aim of scheme is to provide quality commensurate price realization, improve the

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mechanism of price discovery, streamline the procedures across the integrated agricultural markets in the country, remove information asymmetry between buyers and sellers and also to create the "One Nation, One Market" concept for agricultural products. It provide the farmers with multiple options of sale of their produce and enhance market accessibility through warehouse based sale (Yadav & Sharma, 2017) and can be regarded as a technology that bring a social change in markets (Gupta & Badal, 2018).

The e-NAM portal also provides single window services for all Agricultural Produce Market Committee (APMC) related information and services which includes commodity prices and arrivals, quality, settlement of e-payment settlement *etc* (Aditya & Bhaskar, 2017). So far, one thousand Agricultural Produce Market Committees (APMCs) markets have been integrated to this innovative marketing platform in 18 States and 03 Union Territories with over 1.69 crore farmers and 1.55 Lakh registered traders (Goswami & Jatana, 2021). To strengthen e-NAM, the Government of India had launched various features such as FPO trading module, warehouse trading module, GPS based mandi locator, integration with Agmarknet and Rashtriya e-Market Services (ReMS) portals and display of portal in English and eleven Indian languages for easy and effective use of farmers (Press Information Bureau, 2021). However, it has been found that markets are facing various challenges in implementation of e-NAM, which include difficulty in understanding its process flow and lack of awareness of farmers on various phases of e-NAM such as entry gate registration, quality assaying, e-bidding and online payment (Reddy & Mehjabeen, 2019; Bhusanar & Singh, 2019). Knowledge acquirement certainly leads to effective utilization of any new online technologies along with the support of various profile characteristics of farmers (Kanthisri et al., 2019). The socio-economic and psycho-personal variables had positive and significant relationship with knowledge level, also, education, and scientific orientation were positive and significant contributor to the knowledge level (Ravikumar et al., 2015). Therefore, a systematic study was conducted to measure the knowledge level of farmers towards features and functioning of e-NAM.

METHODOLOGY

The study was conducted in Guntur district of Andhra Pradesh during 2019-2020 by adopting Exploratory and Ex-post facto research designs. Duggirala e-NAM integrated APMC in Andhra Pradesh was purposively selected for the study. Six mandals with highest number of Duggirala e-NAM registered farmers namely Bhattiprolu, Kollur, Kollipara, Tenali, Mangalagiri and Duggirala in Guntur district were selected purposively. From each of the selected mandal, twenty e-NAM registered farmers were selected randomly, making a total of 120 respondents. The respondent for the study was operationally defined as the farmers who registered and traded with e-NAM in Duggirala APMC of Andhra Pradesh. The data were collected by personal interview method through a pre-structured interview schedule consisting of both open and close-ended questions. A teacher made test was prepared in consultation with mandi officials and experts in the field of agricultural marketing in order to study the knowledge level of the respondents regarding functioning and features of e-NAM. The knowledge on e-NAM was categorized in to three phases *viz.* gate entry, quality assaying and e-bidding. It consists of twenty three items in total and were presented in the form of multiple choice questions, fill in the blanks, true/false *etc*. covering all the aspects of e-NAM. A score of 1 was given to right answer and 0 for the wrong answers. The maximum scores that a respondent could obtain was 23 and the minimum score that a respondent could obtain was zero. Later the responses were tabulated and analysed by using statistical tools such as frequency, percentage and standard deviation. The total knowledge score was categorized into three categories of the level of knowledge *i.e*. low, medium and high. To study the influence of profile characteristics on knowledge level of respondents, correlation and multiple regression analysis were used.

RESULTS AND DISCUSSION

The data on classification of sample respondents according to their level of knowledge on e-NAM is given in Table 1. Majority of the respondents (58.33%) had medium level of knowledge, followed by low (22.50%) and high (19.17%) levels of knowledge on e-NAM. The medium to low level of knowledge of respondents on e-NAM can be attributed to the fact that the respondents had tried to learn about basic features of e-NAM which are must for involving the trading operations. They obtained this minimum knowledge through observation and direct experiences that were encountered during the trading process. The findings are accordance with the study reported by Kaur et al., (2020); Rajan et al., (2021); Pandya (2015) & Girish (2017).

Table 1. Distribution of respondents according to their level of knowledge on e-NAM (n= 120)

Category	Frequency	Percentage
Low	27	22.50
Medium	70	58.33
High	23	19.17

Knowledge of respondents regarding different aspects of three phases in e-NAM

The data presented in the Table 2 revealed that majority (95.00%) of the respondents were having knowledge about entry gate registration fee details followed by requisite documents of registration (93.33%), process of entry gate registration (85.83%), creation of unique lot ID (80.00%) and timings of entry gate registration (52.50%). Only 5.83 per cent respondents had knowledge about pre-registration process. Similar results were reported by Sonawane et al., (2020).

The data presented revealed that majority (96.67%) of the respondents were having knowledge about fee details of quality assaying followed by quality enhancement practices (74.17%), procedure of quality assaying (55.83%), optionality of quality assaying (50.83%), usage of digital moisture meter (40.83%), tradable parameters of produce (37.50%), categorization of produce (36.67%) and weight of sample (11.67%). Only 9.17 per cent of respondents had knowledge on prescribed curcuminoid content ranges of turmeric in e-NAM. The findings are accordance with the studies reported by Sonawane et al., (2020); Reddy & Mehjabeen (2019); Prasad & Rao (2019).

Table 2. Knowledge regarding various phases

Item	Percentage	Rank
Entry gate phase		
Timings of entry gate registration	52.50	V
Pre-registration process	05.83	VI
Registration fee	95.00	I
Process of entry gate registration	85.83	III
Creation of Unique lot ID	80.00	IV
Requisite documents	93.33	II
Quality assaying phase		
Optionality of quality assaying	50.83	IV
Tradable parameters of produce	37.50	VI
Quality assaying fee	96.67	I
Usage of Digital Moisture Meter	40.83	V
Weight of the sample	11.67	VIII
Quality enhancement practices	74.17	II
Curcuminoid content ranges in e-NAM	09.17	IX
Procedure of quality assaying	55.83	III
Categorization of produce	36.67	VII
e-bidding phase		
Time period of e-bidding	75.00	IV
Participants of e-bidding	31.67	VIII
Provision of choice to accept or reject bid	85.00	I
Generation of sale agreement	35.83	VII
Bid winner declaration process	84.17	II
Mandatory signatures in sale bill	41.67	VI
Creation of e-auction	78.33	III
Platform of bidding	73.33	V

The data further revealed that majority (85.00%) of the respondents were having knowledge about provision of choice to accept or reject bid followed by bid winner declaration process (84.17%), creation of e-auction (78.33%), time period of e-Auction (75.00%), Platform of bidding (73.33%), mandatory signatures in sale bill (41.67%) and generation of sale agreement (35.83%). Only 31.67 per cent respondents had knowledge about participants of e-bidding. The findings are accordance with the study reported by Sonawane et al., (2020); Reddy & Mehjabeen (2019); Prasad & Rao (2019).

Relationship and regression analysis between independent variables and knowledge of respondents on e-NAM

The observations of Table 3 reveals that variables such as education, extension contact, income orientation and market orientation had positive and significant relationship with the knowledge of respondents at 1 per cent level of significance. Social participation, mass media exposure and risk orientation had positive and significant relationship with the knowledge of respondents at 5 per cent level of significance. Remaining independent variables *viz*. landholding, telescopic faculty and economic motivation were positive but, non-significantly correlated with the knowledge level of respondents. Whereas, age was negatively correlated but, non-significant with knowledge level of respondents. These results are in agreement with the findings of Fathima (2019).

Education equips a person with necessary comprehension skills. Literate individuals are very keen to get information and use it. Extension functionaries are best and reliable sources of information and are instrumental in creation of awareness and knowledge of new potential marketing avenues to the farming community. The farmers with high market orientation have propensity towards gathering market information, market trend, prevailing infrastructure and various marketing means. Income oriented farmers have inclination towards acquiring more knowledge about anything and everything which has potential to hike their income levels. This attribute might have aroused their interest to know more about benefits and operational mechanism of e-NAM. The farmers with high risk taking ability tend to acquire more details about the functioning, operational procedure and benefits of the scheme before utilizing the marketing platform. Mass media plays an important role in providing awareness and creation of knowledge on recent market reforms, innovative marketing platforms and their functioning. Social participation provides an opportunity to interact with fellow farmers and members of different institutions. These factors might have facilitated the respondents to gain knowledge on e-NAM. Enhancements of knowledge of farmers through appropriate methods with description and explanation of process and casual relationship have the capacity to go a long way (Nain & Chandel, 2013).

The regression analysis was performed to find out the effect and extent of influence of each variable towards the level of knowledge on e-NAM. It is evident that the coefficient of determination 'R^2' value was significant. The 'R^2' value of 0.599 depicted that all the eleven variables of the profile put together

Table 3. Relationship between independent variables and knowledge and determinants of Knowledge on e-NAM

Correlates	Coefficient of correlation (r) Knowledge (Y1)	Regression Coefficient	Standard Error	't' Value
Age	-0.068^{NS}	0.685	1.895	-1.045^{NS}
Education	0.333**	-0.020	0.019	1.939*
Land Holding	0.139^{NS}	0.207	0.112	-0.125^{NS}
Social participation	0.190*	-0.004	0.036	0.920^{NS}
Mass Media exposure	0.193*	0.069	0.074	1.920*
Extension contact	0.420**	0.173	0.091	3.008**
Risk orientation	0.198*	0.208	0.069	0.419^{NS}
Market orientation	0.375**	0.026	0.061	2.614**
Income orientation	0.670**	0.169	0.065	7.985**
Telescopic faculty	0.025^{NS}	0.413	0.052	0.245^{NS}
Economic motivation	0.116^{NS}	0.015	0.061	1.506^{NS}
Intercept value = 68.48		R^2 = 0.599		F = 14.65

R^2= 0.599 NS = Non- Significant * Significant at 5% level of significance, **Significant at 1% level of significance

explained about 59.90 per cent variation in the knowledge of respondents. Remaining 40.10 per cent was due to extraneous factor effect. The findings also reveal that out of eleven variables, five variables *viz.* education ($p<0.05$), mass media exposure ($p<0.05$), extension contact ($p<0.01$), market orientation ($p<0.01$) and income orientation ($p<0.01$) were found to contribute to the knowledge of respondents to a greater extent.

CONCLUSION

The farmers were having minimal basic knowledge which is must for involving in trading operations. This knowledge also might have acquired through experience gained during the trading operations through e-NAM. On the other side, some of the enthusiastic e-NAM registered farmers might have gone through the e-NAM guidelines to facilitate their transactions in a better way. However, there is no full-fledged knowledge among the e-NAM registered farmers due to lack of access as well as lack of comprehension on National Agricultural Market guidelines. The National Agricultural Market (e-NAM) is undoubtedly a landmark initiative that may go a long way to ensure remunerative prices and transparent price discovery to farmers. However, success of this scheme will largely depend upon knowledge of farmers to utilize e-NAM more effectively and efficiently. Hence, there is requirement to develop a scientific method of sensitization and organization of training programmes to enhance understanding and popularize the e-NAM.

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