*Original Research Article*

# Factors constraining Farmer's adoption of the E-National Agriculture Market (eNAM) in Sultanpur District of Uttar Pradesh


## Abstract

The eNAM (electronic National Agricultural Market) is a pan-India e-trading platform that networks the traditional APMC mandis to create a unified national market for agricultural commodities. The main aim of this study is to analyze the constraints faced by the farmers and traders in the adoption of eNAM in the Sultanpur district of Uttar Pradesh. The study is based on a personal interview with 90 farmers and 30 traders in the district. Garrett's ranking technique was employed to find out the constraints faced by the farmers and traders in the adoption of eNAM were explained in terms of ranks and total mean (score). This study finds that the major constraints faced by the farmers in the adoption eNAM were they need cash payment to meet immediate expenses(I), strong trust in physical presence for selling(II), problems regarding receiving payments for produce, and lack of faith on the online transaction(III), difficulties in the online payment process(IV), Farmers were uncomfortable using technology/computers(V), digital payments were a barrier in repayment of informal loans taken(VI), etc. in case of traders the major constraints faced by them in the adoption of eNAM i.e. high transportation cost(I), management problems of produce unsold(II), complaints settlement(III), fear of invasion by large traders(IV), insufficient number of computer operators(V), difficulty in getting a license(VI), etc. were the major constraints which had a great impact in adoption of e-NAM among farmers and traders. This study reveals that farmers have numerous challenges in adopting eNAM, such as a lack of faith in online payments, a preference for cash currency, a lack of storage space, and so on. and traders also face high transportation costs, awkward feel complaints about the settlement, etc. these are the main constraints which affect the willingness to adopt eNAM by traders and farmers



**Keywords**: eNAM, APMC, pan-India, e-trading, digital payment, garret ranking technique



UNDER PEER REVIEW

## INTRODUCTION

India has 1.3 billion inhabitants and produces the second-most agricultural output globally. There is no doubt that the Indian economy's most significant industry is agriculture. The Indian agriculture industry contributes 18% of the country's GDP (Gross Domestic Product) and employs 50% of its workforce. Net sown area still makes up over 47% of the total area under cultivation in India, a country with a large agricultural economy (approximately 49% of the population is dependent on agriculture). About 35% of our country's income comes from the production of pulses, rice, wheat, spices, and spice goods, all of which are produced in India. Both human food and animal feed are provided by it. India has a variety of industries to pick from, including dairy, meat, poultry, fishery, and food grains, among others. The world's second-largest producer of fruits and vegetables is now India. (**Sharma *et al.*, 2019**)

The agriculture, forestry, and fishing sector accounted for 16.4% of the gross value added (GVA) in 2021. In contrast, the sector is serving as a primary source of livelihood for more than 50% of the country's population. Low and stagnant income across these sectors remains a focal point of policy debate in India. These sectors account for the majority of the poor in the country. Recent estimates show that about 220 million people are poor in India. One of the most prominent pathways to enhance farmers' income is the adoption of improved agricultural technologies (**Joshi and Varshney 2022**). Development in the agricultural sector is one of the exclusive tools to end extreme poverty, boost shared success and feed an expected 9.7 billion people by 2050 (**Jatana and Goswami 2021**).

India is among one of the top producers of agricultural commodities, the farmers face uncertain marketing facilities, lack of infrastructure, transportation problems, and interference of middlemen (**Saxena *et al.*, 2017**) Marketing of agricultural produce serves as a link between the farm sector on the one hand and other sectors on the other hand. An efficient marketing system helps in the optimization of resource use, output management, increase in farm incomes, widening of markets, growth of agro-based industry and addition to national income through value addition and employment creation **(Acharya and Agrawal 2004)**. The current agricultural marketing system in the country is the outcome of several years of Government interventions. The system has undergone several changes during the last sixty years owing to the increased marketed surplus; increase in urbanization and income levels and consequent changes in the

UNDER PEER REVIEW

pattern of demand for marketing services, increase in linkages with distant and overseas markets; and changes in the form and degree of government interventions (**Kalamkar *et al*., 2019**).

The Government of India recognizes the importance of effective agricultural produce marketing for the sector's growth to address the above-stated problems, including developing and upgrading the country's agricultural marketing mechanism. The most significant intervention has been developing controlled markets to ensure public scrutiny of the entire marketing system. The APMC bill was primarily based on a Model APMC Act (2003), to resolve problems with the traditional marketing system by creating processes for proper produce sale, weighing, assaying, grading, and standardization, proportional to the services provided, timely payment without unjustified deductions, and so on. The Union Government took the initiative to encourage farmers of other states and UTs' of India to market their agricultural produce through an electronic platform for agriculture marketing i.e., e-NAM, which is the replica of Karnataka Model; ReMS (Rashtriya e-Marketing Services). E-NAM aims to recreate a similar model for trade in agricultural marketing to support farmers and traders (**Singh and Alagawadi 2021**).

In the digital era, the government of India started digital agriculture marketing by providing an Electronic National Agriculture Market portal which creates the link between the existing APMC mandis/ market to create a unified national market for agricultural commodities based on a virtual network. Electronic National Agriculture Market (e-NAM) is a nation-wide trading portal which connects the existing APMC mandis electronically (web portal) creating a unified national market for agricultural commodities. It provides a single window service for all APMC-related information and services such as commodity arrivals & prices, buys & sell trade offers, and provision to respond to trade offers, among other services. The agriculture produce would continue to flow through the markets, while the online platform market helps in reducing the transaction costs and information asymmetry (**Subash *et al*., 2018**).

National Agricultural Market (NAM), the most needed e-platform for the integration of agricultural markets across India is considered as an appropriate solution to overcome the challenges and problems faced by the present stakeholders of the Agri-marketing system. Related issues like states fragmentation into multiple market areas monitored by APMCs, different and numerous levy structures, multiple licenses requirements for trading across

UNDER PEER REVIEW

different mandis, interventions of high net worth bidders in price-fixing, inadequate infrastructural facilities in reaching mandis, and non-usage of e-bidding technology, problems of information dissemination causing asymmetry, lack transparency in price discovery, high market charges, movement controls between state to state, etc are to be addressed on priority basis in order to benefit the farmers and other stakeholders of the agri-marketing industry. The need for an effective unified system across the country combining all agri-marketing platforms both at the State and National level is the need of the day and has been well understood by our Prime Minister of India, Sri Narendra Modi, and his team. The initiative is taken to have a sustainable environment through National Agricultural Market, which was launched on April 14, 2016. This enables a better price for farmers on their produce & improves the efficiency of the supply chain. Sustainable development is one that meets the needs of the present without compromising the ability of future generations to meet their needs (**Prasad and Rao 2014**).

## MATERIAL AND METHODS

The present investigation was conducted in Sultanpur district of Uttar Pradesh during 2021-22 Amhat Mandi was chosen on purpose since he was the only Mandi who was integrated with the e-NAM system. The survey included 90 farmers and 30 traders from Amhat Mandi. The respondent for the study was operationally defined as the farmers who registered and traded with e-NAM in Amhat Mandi of Sultanpur. The primary data were collected personally with the help of Survey schedules; the interviews were conducted in farmer's fields or in their homes through face-to-face contact. and Secondary data were collected from the official website of eNAM, and the market head office of Amhat Mandi.

To find out the constraints faced by the farmers and traders in adopting of eNAM in Sultanpur district of U.P, Garret's ranking technique was used to rank the constraints faced by them. The respondents were asked to rank the problems faced by them in adopting eNAM. Then, the ranks given to a constraint by the respondents changed into percent positions by using the following formula:

UNDER PEER REVIEW

$$\text{Percent position} = \frac{100(R_{ij} - 0.50)}{N_j}$$

Where, Rij is rank given for ith item by jth individual and

Nj is the number of items ranked by jth individual.

The percentage position of each rank is converted into scores by referring table given by Garret. Then for each constraint, the scores of individual respondents are added together and divided by the total number of respondents for whom scores are added. Thus, the mean score for each constraint is ranked by arranging them in descending order (**Raghav and Sen 2014**).

## RESULTS AND DISCUSSION

### Constraints perceived in adoption of e-NAM by farmers

Constraints perceived in adoption of e-NAM by farmers were presented in Table No. 1 It was evident from the results that the farmers need cash payment to meet immediate expenses, strong trust in physical presence for selling, and problems regarding receiving payments for produce and lack of faith on online transaction, difficulties in online payment process, Farmers were uncomfortable using technology/computers, digital payments were barrier in repayment of informal loans taken, management of perishable produce, especially storage in mandi, lack of basic infrastructure for cleaning, weighing etc, no proper assaying laboratory, insufficient number of computer operator, sale process was complicated, e- auction takes much longer than conventional process, lack of proper information transmission, were the major constraints which had impact in adoption of e-NAM among farmers with a Garret's score of 59.48, 56.94, 56.32, 53.27, 51.56, 51.08, 50.18, 50.23, 49.21, 48.74, 48.52, 46.17, 45.72 and 42.63 respectively. Price realization was difficult also perceived as an important constraint with Garret's score of 41.00.

**Table No.1 Constraints perceived in the adoption of e-NAM by farmers**

| Constraints | Sum of Garret Value | Mean | Rank |
|---|---|---|---|
| Lack of proper information transmission. | 3837 | 42.63 | **XIV** |
| e- auction takes much longer than conventional | 4115 | 45.72 | **XIII** |

UNDER PEER REVIEW

| | | | |
|---|---|---|---|
| process | | | |
| Bidding may be not satisfactory and problems regarding unsold lots | 4794 | 53.27 | **IV** |
| Insufficient number of computer operator | 4367 | 48.52 | **XI** |
| Strong trust in physical presence for selling | 5125 | 56.94 | **II** |
| Management of perishable produce, especially storage in mandi | 4516 | 50.23 | **VIII** |
| Digital payments were barrier in repayment of informal loans taken | 4516 | 50.18 | **VII** |
| No proper assaying laboratory | 4387 | 48.74 | **X** |
| Farmers were uncomfortable using technology/computers | 4597 | 51.08 | **VI** |
| Problems regarding receiving payments for produce and lack of faith on online transaction | 5069 | 56.32 | **III** |
| Difficulties in online payment process | 4640 | 51.56 | **V** |
| Lack of basic infrastructure for cleaning, weighing etc. | 4429 | 49.21 | **IX** |
| Sale process was complicated | 4155 | 46.17 | **XII** |
| Price realization was difficult | 3690 | 41.00 | **XV** |
| Farmers need cash payment to meet immediate expenses | 5353 | 59.48 | **I** |

## Constraints perceived in the adoption of e-NAM by Traders

Constraints perceived in adoption of e-NAM by traders were presented in Table 2 It was clear from the results that high transportation cost, management problems of produce unsold, complaints settlement, fear of invasion by large traders and insufficient number of computer operators, difficulty in getting license, technological illiteracy, effect on business of small traders badly, difficulty in price realization, inappropriate dissemination of information, complicated sale process were the major constraints which had a great impact in adoption of e-NAM among traders with Garret's score of 53.13, 52.60, 52.59, 52.57, 52.37, 51.47, 50.53, 50.13, 49.27, 46.60, 44.87 and 44.88 respectively, Difficult online payment process was also perceived as a chief constraint having Garret's score of 52.57 percent.

UNDER PEER REVIEW

**Table No.2 Constraints perceived in the adoption of e-NAM by Traders**

| Constraints | Sum of Garret Value | Mean | Rank |
|---|---|---|---|
| Technological illiteracy | 1516 | 50.53 | **VII** |
| Adverse Effect on business of small traders | 1504 | 50.13 | **VIII** |
| Insufficient number of computer operator | 1571 | 52.37 | **V** |
| Difficult Price realization | 1478 | 49.27 | **IX** |
| Sale process was complicated | 1346 | 44.87 | **XI** |
| Fear of invasion by large traders | 1577 | 52.57 | **IV** |
| Difficulty in getting license | 1544 | 51.47 | **VI** |
| High transportation cost | 1594 | 53.13 | **I** |
| Awkward complaints settlement | 1578 | 52.59 | **III** |
| Difficult online payment process | 1346 | 44.88 | **XII** |
| Inappropriate dissemination of information | 1398 | 46.60 | **X** |
| Management problems of produce unsold | 1578 | 52.60 | **II** |

## CONCLUSION

From the above discussion we highlight the fact that the constraints faced by farmer and trader in adoption of eNAM in which the most important problem identified by the farmers that they need cash payment to meet immediate expenses, strong trust in physical presence for selling, problems regarding receiving payments for the produce and lack of conviction on online transactions were the major constraints which had a great impact in adoption of e-NAM by the farmers. And the last major constraints of the farmers were thought to be unsatisfactory bidding and issues with unsold lots.

In case of traders' High transportation costs, Management problems of producing unsold, and awkward Complaints settlements were three major constraints that would have an impact on

UNDER PEER REVIEW

the adoption of e-NAM by the traders. The perception of huge traders invading was seen as another significant barrier.

## REFERENCE


Acharya, S. S. and N. Agarwal.2004. Agricultural Marketing in India, Oxford and IBH Publication, New Delhi.

Goswami, M. and Jatana, R., 2021. An analytical study on the functioning of eNAM (with special reference to Rajasthan). *International Journal of Research Culture Society*, 5.

Joshi, P.K. and Varshney, D., 2022. Agricultural Technologies in India: A Review.

Kalamkar, S.S., Ahir, K. and Bhaiya, S.R., 2019. Status of Implementation of Electronic National Agriculture Market (eNAM) in selected APMCs of Gujarat. *Progress*, p.112-121.

Prasad, A.P. and Rao, V.C., 2019. Excellence in Agri-Marketing through National Agricultural Market (NAM) for Sustainability of Indian Farming Sector. *Archives of Business Research*, 7(11), pp.91-103.

Raghav, S. and Sen, C., 2014. Constraints Faced by the Farmers in Cultivation of Major Crops: A Case Study of Udham Singh Nagar District of Uttarakhand. GALAXY *International Interdisciplinary Research Journal*, **2**(4), pp.11-17.

Saxena, R., Singh, N.P., Balaji, S.J., Ahuja, U.R. and Deepika, J., 2017. Strategy for doubling income of farmers in India. *Policy Paper-National Centre for Agricultural Economics and Policy Research*, (31).

Sharma, P. S., Prajapati, V. S. and Jadav, N. B. 2019. Agricultural Productivity and Marketing: Causes and Opportunities. *Progress*, p.127- 133.

Singh, N.K. and Alagawadi, M., 2021.Awareness of Farmers and Traders Towards Benefits of Electronic National Agriculture Market (E-Nam). ANGRAU, p.119.

Subash, S.P., Aditya, K.S. and Pavithra, K.S., 2018. Role of e-NAM in Realizing Remunerative Price to Farmers. *Compendium of Training on Strengthening Value Chain in Wheat and Barley for Doubling Farmer's Income.* Sept 18-25.


UNDER PEER REVIEW

UNDER PEER REVIEW