Original Research Article

Analysis of the Constraints faced by the Farmers in adoption of Electronic National Agriculture Platform (E NAM) in Himachal Pradesh

ABSTRACT

PURPOSE: The purpose of the study was to identify and analyse the constraints faced by the farmers in the state of Himachal Pradesh consists of 38 APMCs in the state out of which 19 are connected to E NAM (Electronic National Agriculture Market).

METHOD: Based on the transaction value, the listed APMCs were divided into three strata, by employing stratified random sampling and Fruit Mandi Solan, Bandrol Kullu, and Kangni Mandi were selected. The information was gathered from 333 sampled farmers of the selected APMCs. Analysis has been performed through Kendall's Coefficient of Concordance at an overall basis.

RESULTS: The study revealed that lack of awareness and technical illiteracy with the mean score of (11.86 per cent) followed by improper dissemination of information (10.56 per cent), complicated sale process (8.71 per cent), quality parameters are too stringent were the major obstacles faced by farmers in the adoption of E NAM.

CONCLUSIONS: It is proposed that increasing farmers' knowledge and awareness of E NAM can encourage and strengthen their usage of this platform for produce marketing.

Keywords: Agriculture Marketing, E NAM, Digital Marketing, Electronic National Agriculture Market, Kendall's W

1. INTRODUCTION

Agriculture continues to employ nearly sixty per cent of the working population in the nation, despite the fact that its contribution to GDP has decreased from approximately thirty per cent in the 1990–1991 fiscal year to less than fifteen per cent in the 2011–2012 fiscal year (Prabhakara 2022). This is because more than seventy per cent of the population of India still lives in rural areas. Agriculture in this day and age needs to be more market-driven, cost-effective, competitive, imaginative, and open to uses of high technology and information technology (Kumar 2018, Shinde 2021). A lack of competitiveness, fragmentation, inefficiency, an abundance of middlemen, and frequent price manipulation are some of the characteristics that define the agricultural markets. (Dutta and Chand, 2016) The electronic trading site of the national agricultural market is an effort to transform the agricultural marketing system by utilising modern technologies. This effort is being made. The Union Budget 2014-15 put forth the concept of a unified common market platform to tackle the intricate regulatory mechanisms and constraints. This concept materialised on April 14, 2016, in the form of the National Agricultural Market, a Pan-India electronic trading portal that links the existing APMC markets into a unified national market for agricultural commodities. E NAM will contribute to the

government's "ONE NATION, ONE MARKET" objective. The E NAM Portal provides access to all APMC-related data and services through a single-window interface. This includes commodity prices and arrivals, the capability to respond to purchase and sell trade offers, and commodity arrivals and prices (Kumar and Pant, 2020). The implementation of E NAM is predicted to be an important milestone in agricultural trading, providing a variety of direct and indirect benefits to the agricultural industry and economy. The establishment of E NAM is a watershed moment that will undoubtedly help to develop the agricultural marketing sector and increase farmers' incomes (Meena and Burak et al., 2019). E NAM fosters price discovery by facilitating e-auctions based on actual demand and supply, as well as providing farmers with access to a countrywide market. It manages continuous material flow in the online market while lowering transaction costs and information asymmetry. Elimination of market fragmentation within the same state, which impedes the free flow of commodities from one market to another; also, it enhances commodity supply chains and minimises waste. Provide farmers, traders, buyers, exporters, and processors with a unified platform for exchanging commodities (Roshini et al., 2018). The current study is a conceptual article aimed at analysing the obstacles farmers encounter when adopting E NAM.

2. MATERIALS AND METHOD

For the present study Himachal Pradesh state has been chosen consists of total 38 APMCs out of which 19 are linked with E NAM (Electronic National Agriculture Market). At first stage, the listed APMCs have been divided into three strata's based on value of transaction and from each stratum one APMC has been selected namely, Fruit Mandi Solan, Bandrol Kullu, Kangni Mandi by using stratified random sampling. Secondly, the corresponding sample size of 333 farmers was calculated through proportional allocation method (Stephen and Lanre, 2018, Agarwal 2022) constituting 293 from Fruit Mandi Solan, 30 from Bandrol, Kullu and 10 from district Mandi. The information for the research has been collected through personal interview, pre-tested and structured schedule, focus group discussion and open ended questionnaire which reveals the major constraints farmers face while trading through E NAM platform.

2.1 Kendall's coefficient of concordance

The Kendall's coefficient of concordance (W) is a significant non-parametric relationship statistic. It is employed to ascertain the extent of correlation between multiple (k) sets of rankings of N entities or persons. The Kendall's coefficient of concordance (W) is regarded as an appropriate measurement for examining the level of correlation between three or more ranking sets. In situations when there is no objective order for the objects, this descriptive measure of agreement has specific uses in offering a standard way to arrange objects based on consensus (Kwame et al., 2020, Kothari, 2004, Gearhart, 2013). For the present study, Kendall's coefficient of concordance has been used to assess agreement between farmers regarding the constraints faced by them in the adoption of E NAM. The Kendall's coefficient of concordance can be expressed as:

$$\frac{s}{\frac{1}{12}k^2\,(N^3 - N)}$$

Where,

$s = \sum (R_j - \bar{R}_j)^2$;

k = number of sets of rankings i.e., the number of judges;

N = number of constraints being ranked;

$\frac{1}{12}k^2\,(N^3 - N)$ = The sum (s) which would occur with perfect agreement among (k) rankings

The following hypotheses used to assess the constraints faced by the respondents are:

Null hypothesis: there is no agreement among the respondents (H_0: $W = 0$)

Alternative hypothesis: there is agreement among the respondents (H_0: $W \neq 0$)

3. RESULTS AND DISCUSSION

3.1 Constraints faced by the farmers in adoption of E NAM

Effective agricultural marketing promotes price discovery, supply chain efficiency, and value chain scalability. E NAM is a new paradigm shift in agriculture marketing which will see new roles of market functionaries (Gupta and Badal, 2018). The trading barriers in E NAM adoption were examined by recording the responses of 333 farmers and comprehending the interactions encountered in E NAM as revealed by fieldwork. Thus, the detail description of the constraints faced by the farmers in adoption of E NAM has been analysed and presented below in Table 1.

Table 1 Constraints faced by the farmers in adoption of E NAM

Constraints	Electronic National Agriculture Market (E NAM)	
	Mean Score	Rank

No guidance or helpdesk	7.26	VIII
Problem during registration	6.41	IX
No proper dissemination of information	10.56	II
Sale process is complicated	8.71	III
Lack of awareness and technical illiteracy	11.86	I
Dependence on commission agent for money	5.05	X
Marketing become late due to E NAM	4.31	XI
Quality parameters are too stringent	8.55	IV
Poor net connectivity	8.33	V
Bidding is not satisfactory	8.03	VI
No additional benefits	7.29	VII
No payment guarantee	3.65	XIII
Number of observations	**333**	
Kendall's W	**.645**	
Chi-square	**2577.072**	
df.	**12**	

An analysis of Table 1 revealed the various constraints faced by the farmers in adoption of E NAM in the selected APMCs which shows that the major impediment was lack of awareness and technical illiteracy with the mean score of (11.86 per cent) followed by improper dissemination of information (10.56 per cent), complicated sale process (8.71 per cent), quality parameters are too stringent (8.55 per cent), poor net connectivity (8.33), unsatisfactory bidding (8.03 per cent), no additional benefits (78.29 per cent), no guidance or helpdesk (7.26 per cent), problem during registration (6.41 per cent), dependence on commission agent for money (5.05 per cent) and marketing become late due to E NAM platform (4.31 per cent). The Kendall's W was found to be .645 which indicates that there was 64 per cent of agreement and is significant at .000 per cent. The null hypothesis was rejected in favour of alternate hypothesis, which indicated that the constraints involved in adoption of E NAM are in agreement. In contrast, prior studies have been conducted on E NAM by (Aggarwal 2016, Bisen and Kumar 2018, Singh *et al.* 2020) which reveals the same challenges such as technical literacy and lack of awareness, as the major challenges that farmers face in adoption of E NAM. Further, (Gautam and Supriya 2022) put forth that the major challenges were immediate cash payment, trust on physical selling, lack of faith on online portal and unsatisfactory bidding etc. Whereas, (Pawar and Walke 2023) revealed that the lot generation, quality assessment, e-auction, payment and settlement were also constraints. Kumar and Pant 2020 found that e-payment is not trust worthy as it longer time and farmers strongly desire the traditional practice of collecting tangible cash. The key restrains found by (Kaur *et al.* 2021) were delay in online payment, improper dissemination of information, inadequate assaying facility and lack of IT operators etc.

4. CONCLUSION

The findings of the study revealed that technological illiteracy and lack of awareness followed by inappropriate information transmission, a complicated sales process, and excessively strict quality standards were the major obstacles faced by the farmers in adoption of E NAM platform. However, it is suggested to sensitization and awareness of E NAM can strengthen and promote farmers to use this platform for the marketing of their produce.

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