

## Awareness of e-Tendering and e-Trading among the Farmers and Market Functionaries in the Agricultural Produce Market Committees (APMCs) of Karnataka

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### ABSTRACT

*The world has witnessed the digitalisation in all the sectors. In recent years in agriculture the digitalisation has introduced in the form precision farming, forecasting prices, demand and supply of the agriculture commodities. Indian agriculture market characterized with many loopholes. In many of the regulated market reform has brought through introduction information technology in the form electronic tendering and electronic trading and electronic payment system to overcome these loopholes. The present study has been conducted in various APMCs of Karnataka to study the awareness of e-trading and e-tendering among the farmers and market functionaries. The market functionaries mainly considered were traders, commission agents and market officials. The result obtained observed that the awareness among the market officials was higher and medium among farmers and other market functionaries. To enhance the medium level of awareness among the functionaries they have to be encouraged to participate actively in operations by providing necessary facilities an assistance in the difficult faces of the system operation.*

**Key words:** Awareness, Digitalisation, e-Trading, e-Tendering, Market,

### INTRODUCTION

The world has witnessed a transformational change with the onset of digital age. Digitalization in agriculture is seen in varied area such as in land levelling, precision farming, identification of diseases and pests, forecasting of rainfall and so on. In recent years more application was started in Agricultural marketing in general and particularly in assessing and analysing the demand, supply, price of the agricultural commodities in different markets. Agriculture

is a strength of India, empowering 49% of rural India and contributing about 17% to the Indian GDP. Production, processing and marketing are the three pillars of the agriculture development. Marketing is very much critical for better performance in agriculture as farming itself. Indian agricultural markets are marked by many loopholes like presence of excessive middlemen, frequent price manipulations, fragmentation, inefficiency and poor competitiveness.

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The electronic trading portal in agricultural market is an attempt to use digital technology to reform the existing agricultural marketing system. Information Technology (IT) in the form of introduction of e-tender, e-trading and e-payment system in the selected APMCs of Karnataka<sup>1</sup> has been aimed to improve the marketing efficiency through competitive and transparent bidding mechanism and reduce the manipulations in trading practices by middlemen<sup>2</sup>. This reform expected to help farmer to obtain remunerative return for their produce without exploitation. In this context, the present research has been undertaken to study the perception and awareness level of e-tendering and e-trading among the farmers and market functionaries in the APMCs of Karnataka.

### MATERIAL AND METHODS

To study the awareness level of e-tendering and e-trading among the farmers and market functionaries totally 10 markets considered for

e-tender study and 3 markets for e-trading have been selected. The markets are selected based on the highest arrivals of commodity in the market for e-tendering performance assessment and randomly among the e-trading practiced markets for e-trading study. Totally 13 markets have been selected for the research study. APMC officials, traders, commission agents and farmers were selected as respondents for the research study. From each market 3 market officials, 5 traders, 5 commission agents and 5 farmers were personally interviewed with pre tested schedule. Hence, totally 39 market officials, 65 traders, 65 commission agents and 65 farmers were selected for the research study. To analyse the collected data different statistical tools such as multiple regression, dummy variable and other descriptive statistical tools were used. The analysed results are presented in tabular form for better understanding of the results below.

**Table 1. Awareness of e-tendering among market officials**

**N=39**

Sl. No.	Particulars	Number of Respondents					
		Aware	Percentage to total	Partially aware	Percentage to total	Not aware	Percentage to total
1	In e-tender the bidders physically present in the trading place	39	100.00	0	0.00	0	0.00
2	In e-tender there is physical examination of the produce by functionaries	36	92.31	3	7.69	0	0.00
3	Farmers need not to register themselves as seller to participate in the e-tendering	39	100.00	0	0.00	0	0.00
4	Traders, CAs, Processors, Exporters, importers and other stake holders need to register themselves to take part in the e-tendering	39	100.00	0	0.00	0	0.00
5	e-tendering can be applied for all the commodities traded in APMC	39	100.00	0	0.00	0	0.00

### RESULTS AND DISCUSSION

Market officials have been interviewed to know their awareness and perception on e-trading and e-tendering. The table 1 revealed the awareness of market officials on e-tendering. The results depicted that all the market officials were completely agreed with the statements such as, aware of the physical presence of bidders at the trading place in e-tendering, e-tendering can be applied for all

the commodities traded in APMC and in e-tendering farmers need not to register themselves as seller to participate in the e-tendering but traders commission agents, processors, exporters, importers and other stake holders have to register themselves to take part in the e-tendering. Most of the respondents opined that in e-tender there is physical examination of the produce by functionaries.

Table 2. Awareness of e-tendering among traders

N=65

Sl. No.	Particulars	Number of Respondents			
		Aware	Percentage to total	Not aware	Percentage to total
1	Aware of the new technology in bidding of the commodity that is e-tendering	65	100.00	0	0.00
2	There is a difference between e-trading and e-tendering and traditional method of bidding for the commodity	50	76.92	15	23.08
3	Participated in training on e-Tendering system and its operations	56	86.15	9	13.85
4	Accepted the new movement (e-tendering) in APMC trading procedure	65	100.00	0	0.00
5	Practicing the e-tendering process	65	100.00	0	0.00
6	It is difficult to practice this e-tendering system	3	4.62	62	95.38
7	Level of Participation –				
(i)	Full time	52	80.00	13	20.00
8	Participation mode –				
(i)	Self	38	58.00	27	42.00

The table 2 indicates the results obtained after interviewing the traders of the market for their awareness on e-tendering. All of the traders opined that they are aware of new technology, e-tendering in bidding of the commodity and they said they accepted this new movement and they are practicing that. Some per cent of the traders revealed that they have participated in training conducted on e-tendering system and its operations, found difference between e-trading and e-tendering and traditional method

of bidding. Only small per cent opined that they found difficulty in practicing this e-tendering system. Majority of the traders said they are involved in full time level of participation in e-tendering. Only fifty per cent of the traders found to participate in e-tendering by themselves without the assistance. Similar results were found in the study of Chengappa *et al.*<sup>2</sup> wherein most of the traders and stakeholders found to accept the new electronic system.

Table 3. Awareness of e-tendering among commission agents

N=65

Sl. No.	Particulars	Number of Respondents			
		Aware	Percentage to total	Not aware	Percentage to total
1	Aware of the new technology in bidding for the commodity that is e-tendering	65	100.00	0	0.00
2	There is difference between e-trading and e-tendering and traditional method of bidding for the commodity	40	61.50	25	38.50
3	Participated in training on e-Tendering	52	80.00	13	20.00
4	Accepted the new movement (e-tendering) in APMC trading procedure	65	100.00	0	0.00
5	Practicing the e-tendering process	65	100.00	0	0.00
6	It is difficult to practice this e-tendering system	8	12.30	57	87.70
7	Level of Participation –				
(i)	Full time	54	83.00	11	17.00
8	Mean of Participation -				
(i)	Self	23	35.00	42	65.00

The table 3 indicated the awareness of e-tendering among commission agents. Majority of the commission agents were accepted and agreed with the statements such as, they are aware of the new technology in bidding for the commodity that is e-tendering, accepted the new movement (e-tendering) in APMC trading

procedure and practicing the e-tendering process for full time by themselves without any assistance. Most of them were said they have participated in training on e-tendering system and its operations. About fifty per cent of the commission agents said they are aware about the difference between e-trading and e-

tendering and traditional method of bidding for the commodity. Only few per cent of the

respondents said it is difficult to practice this e-tendering system.

**Table 4. Awareness of e-tendering among farmers**

N=65

Sl. No.	Particulars	Number of Respondents					
		Aware	Percentage to total	Partially aware	Percentage to total	Not aware	Percentage to total
1	Aware of e-tendering	56	86.15	3	4.62	6	9.23
2	Source of information						
(a)	Friends	50	76.92	0	0.00	15	23.08
(b)	Market	47	72.31	0	0.00	18	27.69
(c)	Neighbours	39	60.00	0	0.00	26	40.00
3	Aware about electronic gate entry	49	75.38	0	0.00	16	24.62
4	Practicing the electronic gate entry registration	12	18.46	0	0.00	53	81.54
5	Providing necessary documents	12	18.46	0	0.00	53	81.54
(a)	Name and Address	12	18.46	0	0.00	53	81.54
(b)	Mobile No	12	18.46	0	0.00	53	81.54
(c)	Bank Account Details	12	18.46	0	0.00	53	81.54
(d)	Details of the produce	12	18.46	0	0.00	53	81.54
(e)	Other information such as Total quantity, Trader's/ commission agent's name, and Number of lots of particular about commodity	12	18.46	0	0.00	53	81.54
6	Aware of electronic payment service	51	78.46	9	13.85	5	7.69
7	Attended the awareness programme on the e-tendering	16	24.62	0	0.00	49	75.38

Awareness of e-tendering among the farmers has been presented in the table 4. Most of the farmers found to aware about the new technology e-tendering and source of information were friends, market source and neighbours. Only fifty per cent of the farmers said they are aware the electronic gate entry procedure. Only small per cent of the farmers were practicing the e-tendering system and found to provide the necessary documents like name and address, mobile number, bank account details, details of the produce, other

information such as total quantity, trader's/ commission agent's name, and number of lots of particular about commodity to the market officials at gate entry. Majority of the farmers found to have awareness about electronic payment service. Similar studies were found in the study of Chengappa *et al.*<sup>2</sup> where in it was found that the awareness about e-tender system was low among the farmers and gate entry procedure was not carried out in most of the markets.

**Table 5. Categorisation of farmers and market functionaries according to frequency level of awareness on e-tendering**

Sl. No.	Frequency Level of Awareness	Market Officials		Traders		Commission Agent		Farmers	
		No of Respondents	Percent to Total	No of Respondents	Percent to Total	No of Respondents	Percent to Total	No of Respondents	Percent to Total
1	Low <{Mean – (0.425 X SD)}	10	25.64	18	27.69	14	21.54	19	29.23
2	Medium {Mean ± (0.425 X SD)}	10	25.64	33	50.77	24	36.92	34	52.31
3	High > {Mean + (0.425 X SD)}	19	48.72	14	21.54	27	41.54	12	18.46
	<b>Total</b>	<b>39</b>	<b>100.00</b>	<b>65</b>	<b>100.00</b>	<b>65</b>	<b>100.00</b>	<b>65</b>	<b>100.00</b>
	<b>Mean</b>	<b>9.31</b>		<b>9.00</b>		<b>10.00</b>		<b>18.98</b>	
	<b>Standard Deviation</b>	<b>1.36</b>		<b>2.64</b>		<b>1.09</b>		<b>6.59</b>	

**Table 6. Awareness about e-trading among market officials**

N=9

Sl. No.	Particulars	Number of Respondents					
		Aware	Percentage to total	Partially aware	Percentage to total	Not aware	Percentage to total
1	There is a difference in e-tendering and e-trading	9	100.00	0	0.00	0	0.00
2	e-Trade means the bidders need not physically present in the market yard	9	100.00	0	0.00	0	0.00
3	e-Trade means there is no physical examination of the produce	8	88.89	1	11.11	0	0.00
4	Farmers need not to register themselves with the APMC as seller to participate in the e-trade	9	100.00	0	0.00	0	0.00
5	Traders, CAs, Processors, Exports, imports and other stake holders need to register themselves to take part in the e-trading	9	100.00	0	0.00	0	0.00

The awareness of e-trading among market officials is presented in the table 6. Majority of the statements such as there is a difference in e-tendering and e-trading, e-Trade means the bidders need not physically present in the market yard, traders, CAs, Processors, Exports, imports and other stake holders need to register themselves to take part in the e-

trading and farmers need not to register themselves with the APMC as seller to participate in the e-trade were found completely agreed by the market officials. Most of the per cent of the officials agreed with the statement, e-Trade means there is no physical examination of the produce.

**Table 7. Awareness about e-trading among traders**

N=15

Sl. No.	Particulars	Number of Respondents					
		Aware	Percentage to total	Partially aware	Percentage to total	Not aware	Percentage to total
1	Awareness about e-trading programme introduced in the APMC	15	100.00	0	0.00	0	0.00
2	There is a difference between e-tendering and e-trading	10	66.67	0	0.00	5	33.33
3	e-Trade means the bidders need not physically present in the market yard	10	66.67	0	0.00	5	33.33
4	In e-trade the bidders will not physically examine the produce	8	53.33	0	0.00	7	46.67
5	In e-trade quality assaying of the commodity is mandatory	15	100.00	0	0.00	0	0.00
6	Attended the awareness training programme conducted by APMC	11	73.33	0	0.00	4	26.67
7	Practicing e-trading is easy	7	46.67	0	0.00	8	53.33

The awareness of e-trading among the market officials is presented in the table 7. Most of the market officials were completely agreed to the statements such as awareness about e-trading programme introduced in the APMC and in e-trade quality assaying of the commodity is mandatory, attended the awareness training programme conducted by

APMC, there is a difference between e-tendering and e-trading and e-Trade means the bidders need not physically present in the market yard, in e-trade the bidders will not physically examine the produce. Fifty per cent of the market officials were agreed to the statement that practicing the e-trading is easy statement and was agreed.

**Table 8. Awareness about e-trading among commission agents**

N=15

Sl. No.	Particulars	Number of Respondents					
		Aware	Percentage to total	Partially aware	Percentage to total	Not aware	Percentage to total
1	Awareness about e-trading programme introduced in the APMC	15	100.00	0	0.00	0	0.00
2	There is difference between e-tendering and e-trading	8	53.33	3	20.00	4	26.67
3	e-Trade means the bidders need not physically present in the market yard	9	60.00	4	26.67	2	13.33
4	In e-trade the bidders will not physically examine the produce	15	100.00	0	0.00	0	0.00
5	In e-trade quality assaying of the commodity is mandatory	15	100.00	0	0.00	0	0.00
6	Attended the awareness training programme conducted on e-trading by APMC	12	80.00	0	0.00	3	20.00
7	It is easy to practice this e-tendering system	0	0.00	3	20.00	12	80.00
8	Practicing e-trading	9	60.00	0	0.00	6	40.00

The awareness on e-trading among the commission agents is presented in the table 8. All most all the commission agents found to be aware and agreed completely with the statement such as, awareness about e-trading programme introduced in the APMC, in e-trade the bidders will not physically examine the produce and in e-trade quality assaying of the commodity is mandatory. Most of the

commission agents said they attended the awareness training programme conducted on e-trading by APMC and they knew about what e-trade means where the bidders need not physically present in the market yard. Most of them opined that there is difference between e-tendering and e-trading and agreed that e-tendering system is easy to practice.

**Table 9. Awareness about e-trading of among farmers**

N=15

Sl. No.	Particulars	Number of Respondents					
		Aware	Percentage to total	Partially aware	Percentage to total	Not aware	Percentage to total
1	Awareness about e-trading	11	73.33	0	0.00	4	26.67
2	Have knowledge on e-trading operation	2	13.33	2	13.33	11	73.33
3	Source of information on e-trading from						
(a)	Friends	0	0.00	15	100.00	0	0.00
(b)	Market functionaries	3	20.00	12	80.00	0	0.00
(c)	Neighbours	3	20.00	12	80.00	0	0.00

Farmer's awareness on e-trading is presented in the table 9. It was found that, majority of the farmers had awareness about e-trading. Most

of them said they knew partially about e-trading operation through different sources like friends, neighbours market functionaries.

**Table 10: Categorisation of farmers and market functionaries according to frequency level of e-trading awareness**

Sl. No.	Frequency Level of Awareness	Market Officials		Traders		Commission Agent		Farmers	
		No of Respondents	Percent to Total	No of Respondents	Percent to Total	No of Respondents	Percent to Total	No of Respondents	Percent to Total
1	Low <{Mean – (0.425 X SD)}	4	44.44	5	33.33	4	26.67	10	66.67
2	Medium {Mean ± (0.425 X SD)}	0	0.00	6	40.00	5	33.33	2	13.33
3	High > {Mean + (0.425 X SD)}	5	55.56	4	26.67	6	40.00	3	20.00
	<b>Total</b>	<b>9</b>	<b>100.00</b>	<b>15</b>	<b>100.00</b>	<b>15</b>	<b>100.00</b>	<b>15</b>	<b>100.00</b>
	<b>Mean</b>	<b>9.00</b>		<b>9.40</b>		<b>11.67</b>		<b>2.67</b>	
	<b>Standard Deviation</b>	<b>1.23</b>		<b>2.16</b>		<b>1.91</b>		<b>1.17</b>	

The results of the above analysis showed that there was a high awareness of e-tendering and e-trading among the market officials because they were the people implementing and practicing the trading practices. However it was medium awareness about e-tendering and e-trading with commission agents and traders. Similar study results were found in the study of Shalendra<sup>3</sup> who conducted his study to know the impact of e-tendering in APMCs of Karnataka. His results revealed that market officials of all the markets have expressed their satisfaction in achieving most of the benefits envisaged under the e-tendering system. From the present study it is also found that farmers had medium awareness with e-tendering and low awareness with e-trading. The farmer's participation is least in trading operation at the APMC, since the farmers hand over their produce to the commission agents who take the trade on behalf of farmers. Similar results are also found in the study of Athawale<sup>1</sup>, wherein he opined there is necessary to enhance the awareness among the farmers, traders and other stake holders based on his study's findings.

### CONCLUSION

Though there is a high awareness level found among the market functionaries, there is a need to enhance awareness of them by giving more and more exposure to them in new electronic tendering and electronic trading system by encouraging them to participate by facilitating measures in the difficult paces of trade. This intern will help to enhance the market efficiency and farmer's participation and producer's share in the market price.

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