

AN EMPIRICAL STUDY ON ASSAYING AND GRADING UNDER E-MARKET; TUR COMMODITY IN KARNATAKA

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Abstract

The assaying and grading plays an important role to identify the quality standard of the commodity. After the introduction of e-market in agriculture assaying plays an important role for the traders to trade online instead of physically go and check the commodity by hand picking method. In this study efforts are made to identify to understand the parameters of assaying under e- market, to check whether the assaying is done by the trader or by third party and to assess the role of Grading to determine the price for tur commodity. The study based on both primary and secondary method in which filed survey was conducted for the selected areas and also information is collected through secondary sources such as KSAMB (Karnataka State of Agriculture Marketing Board), UMP (Unified Marketing Platform), etc. The results shows that in Bidar market 33% goes for assaying by hand pick method and 67% goes for assaying by scientific method, in Gulbarga market only 8% goes for assaying by hand picking method and 92% goes for scientific assaying and in Sedam market 40% goes for assaying by hand pick method and 60% goes for scientific assaying. On the basis of average bids received the Raichur market is considered to be the major market for tur but for Bengal gram Gadag market is considered to be the major market. The regression results shows that the null hypothesis which is traders do not go for assaying is rejected and accept the alternative hypothesis which is traders goes for assaying.

Keywords: Assaying, Grading, e-Market, Tur, Bengal gram, Average bids, Competitiveness

I. Introduction

Assaying is a scientific method to measure the quality parameters of a commodity. The process of assaying is done by the third party who is hired by the APMC (Agriculture Product Market Committee). This third party gets the commodity, of which the quality is to be assessed in a lab provided by the APMC itself. The results of assaying are provided by both eNAM and ReMS. These are online trading platforms for traders as well as farmers providing all the information of the product such as product quality, price, grade, etc.

Grading refers to assigning grades to the product based on its quality, size, weight, etc. The process of grading the product starts from the farmers and end to the consumers. In the case of tur farmers, the grading of the produce is done on their farm itself. The scales for grading are high, medium and low quality. Based on this scale of grading, the traders charge different prices for the produce. Once the trader buys the produce, then they segregate the produce based on its quality. The grading is done based on this segregation, based on which, yields the maximum price for their product.

Therefore based on this difference between assaying and grading, the traders decide whichever way is convenient for them to purchase the produce from.

In the year 2013, the Government of Karnataka constituted an Agricultural Marketing Reforms Committee with a mandate to develop a comprehensive roadmap for reforms along with identification of necessary interventions in Agricultural Marketing. The recommendations were well accepted by the Government and ushered in the Agricultural Marketing Policy of the state during September 2013. To make the policy more effective, the Government made necessary amendments to KAPM (Karnataka Agriculture Produce Marketing) Act and Rules which provided Single trader license, warehouse-based sales, encouragement to private markets and direct purchase centers, waiver with market fee for perishables, exemptions for FPOs (Fruits Products Order) and simplifying contract farming arrangements, notifying online trading and online payment in markets, online dispute resolution mechanism and assaying. Entire eco-system that facilitates efficiency, transparency and simplicity in the market operations and addresses problems plaguing in the primary agricultural markets such as fragmented markets, opaque bidding process, cartelization, limited market access, restricted free-flow of agricultural produce, limited competition, indifference to quality, information asymmetry and inefficient settlement system.

UMP (Unified Market Platform) enables automated price discovery mechanisms and post auction processes (weighing, invoicing, market fee collection, accounting, payment of sale directly to farmers, e permit generation) to the agricultural markets. The platform also facilitates assaying, warehouse-based sale of produce and supports commodity funding to benefit all stakeholders. Karnataka agri-market ecosystem has more than 52 lakh farmers registered, 34,000 traders and 17,000 commission agents. These are the three main pillars of the system. The state has 92 notified commodities which include food crops, pulses, oil seeds, fruits, vegetables, spices etc. Total of 160 markets spread across 29 districts have been brought under the Unified Market Platform. About 118 lakh lots, value of Rs. 1 lakh crores, with a total quantity of 482 Lakh metric tons have been transacted on the platform.

Through this study, the mechanism of the Market wise and commodity wise monthly average bids received per lot and average number of bids received per lot for each category of lot size will be known. Hence, we will get to know the level of competition for each commodity in their major markets.

1.2 Objectives

- 1) To understand the parameters of assaying under e- market.
- 2) To check whether the assaying is done by the trader or by third party and
- 3) To assess the role of Grading to determine the price for tur commodity.

II. Research Methodology

Data collection: The data is collected with the help of primary study and secondary source.

Sources of data: Field Survey, UMP, KSAMB and WDRA

Area of study: This study is conducted in the following areas: -

Table 1.0 Market for Tur

Markets	No. of Traders	Population	Location	Area	Language
Bidar	12	2,16,021	Bidar District	43 km ²	Kannada
Gulbarga	28	5,33,588	Gulbarga District	192 km ²	Kannada
Sedam	10	39,341	Taluk	5.5 km ²	Kannada
Total	50	7,88,951			

These markets are the major market for tur traders where they most of the traders are registered with the APMCs. So on the basis of major market of tur this area has been selected for the study.

Statistical tool: The data is analyzed with help of descriptive statistics and in tabular form in Ms Excel.

Regression equation:

Null Hypothesis (H₀): Traders do not go for assaying.

Alternative Hypothesis (H₁): Traders goes for assaying.

Total number of trader goes for assaying(Y) = No. of traders goes for assaying in Bidar market(X₁) + No. of traders goes for assaying in Gulbarga market(X₂) + No. of traders goes for assaying in Sedam market (X₃).

III. Literature Review

Government of India under the Ministry of Agriculture and Farmer's welfare has written in the report of **“Operational Guidelines for Central Sector Scheme for Promotion of National Agriculture Market (NAM) through Agri-Tech Infrastructure Fund (ATIF)”, September, 2016** that to ensure the application including its entire functionality as per the criteria is required to implement the e-platform for the agriculture sector which will meet the required facility for the traders and as well as the farmers.

The Directorate of Marketing and inspection (DMI) under the Department of Agriculture, Government of India has mentioned in its report **“Assaying Laboratories at Mandis under e-Nam”, 2017** to integrate the market first at the state level and then country as a whole and it provides the better market opportunity for both the farmers and traders.

In the paper published on **“A Manual of Rice Seed Health Testing”** by **T.W. Mew and J.K Misra**, gives the detailed study about the methods of producing the crops like tur, paddy and Bengal gram. This paper focuses on the farm, laboratory testing and assaying of the commodities.

Under the paper of **“A Traditional Marketing without Broker Intervention”, 2016** by **Sharda K.S. and Vijay Patil** has mentioned that how the role of traditional market has changed after the intervention of the e-Market in agriculture sector. They have mentioned that the role of e-market which made the market very effective.

Report of Agriculture Marketing Reforms Committee 2013, Govt. of Karnataka, Dept. of Cooperation it suggest that how e-market performs under the system of e-platform and provides all the necessary information to the market participants.

IV. Analysis

Assaying Parameters:

Commodity = Tur
Assaying Parameters = AP

Table 1.0 Assaying Parameters for Tur Commodity

Grades	AP1	AP2		AP3	AP4	AP5
	Moisture (%)	Foreign Matter (%)		Admixture (%)	Damaged Pulses (%)	Weevilled Pulses (%)
		Organic	Inorganic			
Special	10	0.1	Nil	0.5	0.5	3
Standard	12	0.5	0.1	2	2	6
General	16	0.75	0.25	4	5	10

The above table 1.0 explains the minimum criteria to determine in which category commodity will fall. As, **AP1** (Moisture content) is the first criteria which decides how much amount of moisture can be tolerated in commodity. For special grade it is 10%, for standard grade 12% and for the general grade 16%. In **AP2** (Foreign Matter), it is divided into two category organic and inorganic, for special grade organic is 0.1% and inorganic is nil foreign matter, for standard grade organic is 0.5% and inorganic is 0.1% foreign matter, for general grade organic is 0.75% and inorganic is 0.25% foreign matter. In an admixture the special grade requires 0.5%, standard grade requires 2% and general grade require 4%. The damage pulses for the special grade must be 0.5%, for standard grade is 2% and for general grade is 5%. The Weevilled pulses for special grade is 3%, for standard grade is 6% and for general grade is 10%.

AP1 – Moisture:

- Dry the sample in hot air oven at 130°C - 133° for about two hours.
- Weigh an appropriate amount of sample in a pre-weighted metal dish (W_0).
- Cool the dish in desiccators and weigh the dish (W_1).
- The percent difference between the weights of the sample is as calculated as per IS 4333:2002 as $W = \{(W_0 - W_1)/W_0\}$, which is the moisture content of the lot.

AP2 – Foreign Matter:

- Weigh of total sample and note down the weigh (W_0).
- Pour the sample on a white enamel plate.
- Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
- Collect all the dust, stones, lumps of earth, chaff, stem, straw or any other impurity in a Petri dish and weigh (W_1).
- The percentage of foreign matter is $(W_1/W_0)*100$.

AP3 – Admixture:

- Take the above sample (W_0)
- Separate the pulses other than principal pulses.
- Weigh the pulses other than the principal pulses (W_2).
- The percentage of admixture present is $(W_2/W_0)*100$.

AP4 – Damaged Pulses:

- Take the above sample (W_0).
- Separate the pulses that are internally damaged or discolored to such an extent that the damage or discoloration materially affects the quality of the pulses by hand picking.
- Weigh the damage pulses (W_3).
- The percentage of damage pulses is $(W_3/W_0)*100$.

AP5 – Weevilled Pulses:

- Take the above sample (W_0).
- Separate the pulses that are partially or wholly bored eaten by weevil or any other insect.
- Weigh the Weevilled pulses (W_4).
- The percent of Weevilled pulses present is $(W_4/W_0)*100$.

Assaying in Different Markets:

Table 2.0 Assaying by Traders in different markets

Test the Commodity				
Markets	No. Of Traders	Assayed by own (Hand Picking)	Assayed by Third Party (APMC)	Traders Register with APMC
Bidar	12	4	8	10
Gulbarga	28	2	26	25
Sedam	10	6	4	5
Total	50	12	38	40

The above table 2.0 shows that in different market traders are doing assaying by their own or through third party which is APMC. As total of fifty traders were surveyed and results shows that only 12 out of 50 traders does assaying by their own with hand picking method and rest 38 traders assaying through third party which is hired by APMC where traders register their self and get the benefit of assaying to check the parameters of the commodity.

Methods of Assaying:

Table 3.0 Different Methods of Assaying

Method of Assaying adopted by Traders		
Markets	By Own (%)	BY Third Party (APMC) (%)
Bidar	33	67
Gulbarga	8	92
Sedam	40	60

The above table 3.0 shows that the different method adopted by traders in different markets which are Bidar, Gulbarga and Sedam. In Bidar market, 33% of trader are assaying by their own with the help of hand picking method while 67% traders adopts the third party for assaying which is APMC, in Gulbarga market only 8% of traders are assaying by their own and 92% of trader hires the third party for assaying and in case of Sedam 40% of traders are assaying by their own and 60% of traders hires third party for assaying.

Grading of Commodity:

Table 4.0 Grading of Tur by Traders

Scale	Grade	Price
Excellent quality	1	High
Very good quality	2	Medium
Good quality	3	Average

The above table 4.0 shows the scale on which the traders grade tur. The excellent quality is assigned the first grade and charges the high price for it, Very good quality scale is assigned second grade and charge medium price for this and good quality scale is assigned third grade and charge the average price for it. The result shows that the price of commodity depends on grade of commodity.

Competitiveness of Tur in E- Market:

Table 5.0 Average bids received in four major market

Market	Bidar	Talikote	Raichur	Yadgir
Average Bids/ Lot	4.2	2.4	5.5	2.6

Redgram/ Tur is a major commodity grown in districts like Gulberga, Bidar and some other northern districts of Karnataka. In the year 2017-18, the arrivals of tur in major markets with highest lot numbers are shown in the table. The highest quantity of arrival is considered for the selection of markets analysed. Accordingly, Bidar market shows highest quantity of arrivals and highest no of lots arrived with 26485 lots. Raichur market shows highest average bids per lot i.e. 5.5. Highest average modal price was quoted in Yadgir market that is 4238 per quintal of Tur.

Table 6.0Bidar Market

Average bids/ Lot										
Month	Lot size (in qtls)									
	0-1	1-2	2-3	3-4	4-5	5-10	10-15	15-20	20-25	25<
April	0.0	2.1	2.4	3.0	3.2	4.1	4.4	4.8	4.8	4.7
May	0.0	2.4	3.0	3.4	3.5	3.9	4.5	4.6	4.7	4.8
June	0.0	2.9	3.6	4.1	4.3	4.9	5.2	5.4	5.4	5.7
July	0.0	3.7	4.2	5.3	5.4	5.9	6.5	6.4	6.4	6.3
August	0.0	2.6	3.1	3.8	4.3	4.6	5.2	5.1	5.1	5.3
September	0.0	2.4	2.7	2.6	3.2	3.6	3.7	4.3	4.3	4.0
October	0.0	1.5	1.5	1.8	1.8	1.7	1.9	2.1	2.0	1.7
November	0.0	2.0	1.9	2.6	1.5	2.3	2.6	4.3	4.3	4.2
December	0.0	2.2	2.1	2.0	3.3	3.6	3.2	3.5	2.0	3.9
January	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
February	0.0	2.8	3.2	3.9	3.9	4.4	4.5	4.6	4.5	3.9
March	0.0	2.5	3.0	3.6	3.7	4.3	4.6	5.0	4.7	5.0

The month wise average bids/lot has been analysed in Bidar market. Lot size is divided into the interval of one quintal class interval for lot sizes up to 5 quintals and the further lot sizes up to 25 quintals and above has been classified at an interval of 5 quintals. The highest average bids are shown in the month of July. Therefore, July is considered to be the highest competitive in terms of its arrival of lot and average bids quoted for the same lot where it shows the average bid 6.5 for the lot size 10-15 quintals. The highest modal price of the Red gram/Tur shows in the month of February which is 4423 for the lot size 15-20 quintals.

Table 7.0 Market Talikote

Average bids/ Lot										
Month	Lot size (in qtls)									
	0-1	1-2	2-3	3-4	4-5	5-10	10-15	15-20	20-25	25<
April	1.8	2.0	2.6	2.8	2.7	3.0	3.5	3.5	3.8	3.6
May	1.0	2.5	2.9	3.1	3.5	3.1	3.0	3.0	2.6	1.9
June	2.5	4.3	3.0	3.6	2.8	3.5	3.4	2.8	2.2	2.4
July	1.8	2.7	2.1	2.9	2.8	2.6	2.5	2.8	2.4	1.9
August	2.5	3.1	3.0	2.9	2.0	3.5	2.3	3.3	2.6	2.2
September	2.5	3.0	3.9	2.5	3.5	3.5	4.0	3.4	3.2	2.6
October	1.9	1.5	2.1	1.5	2.6	1.6	1.6	2.1	1.2	1.3
November	1.5	1.6	1.6	1.9	1.8	1.8	1.8	1.9	2.0	1.9
December	0.0	2.0	0.0	1.0	1.0	1.0	1.2	1.2	1.0	1.1
January	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
February	1.7	2.2	2.4	2.4	2.3	2.5	2.4	2.5	2.1	2.1
March	1.2	2.1	1.9	1.9	2.0	2.1	1.9	1.9	2.0	1.5

Talikote is one of the major markets for Red gram/Tur on the basis of its arrival. The highest average bids/lot shows in the month of June, where average bids is 4.3 for lot size 1-2 quintals and higher frequency in the month of September. Hence, June is considered to be the competitive month for Talikote market. For Talikote market, the highest modal price shows in the month of April as 4483 for lot size 20-25 quintals. The highest frequency is in the month of April.

Table 8.0 Average bids in Raichur Market

Average bids/ Lot										
Month	Lot size (in qtls)									
	0-1	1-2	2-3	3-4	4-5	5-10	10-15	15-20	20-25	25<
April	4.1	4.9	5.5	5.9	6.3	6.2	6.3	6.1	6.7	0.0
May	3.8	4.1	4.7	4.8	5.2	5.3	5.5	5.3	6.1	5.5
June	3.1	3.9	4.2	4.5	4.4	4.7	5.1	4.8	4.5	5.4
July	3.6	3.9	4.6	4.8	4.5	5.1	4.9	4.6	5.1	5.1
August	2.7	3.9	3.9	4.8	4.4	4.8	4.5	4.1	5.3	4.6
September	3.4	4.0	4.1	4.5	4.8	4.7	5.3	4.7	4.3	4.7
October	2.8	3.2	3.3	3.3	3.4	3.8	3.2	3.2	4.3	6.5
November	1.5	2.4	2.4	3.3	2.8	2.8	2.6	3.1	3.0	3.0
December	2.4	4.6	5.6	5.9	6.3	6.0	5.7	3.3	5.0	0.0
January	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
February	4.6	5.6	6.3	6.7	6.9	7.0	6.9	7.1	7.8	6.7
March	3.0	3.8	4.5	5.0	5.3	5.7	6.0	6.2	6.3	6.2

Raichur is also considered to be the major market for the Red gram/Tur. The average bids/lot are given month wise. Highest average bids are shown in the month of February, where highest average bid is 7.8 for the lot size of 20-25 quintals. Higher frequency shows in the same month i.e. February. Average modal price for Red gram/Tur in Raichur market is given month wise. The highest average modal price is given in the month of April, where average modal price is 4468 for the lot size 10-15 quintals. Higher frequency of average modal price is shown in the month.

Table 9.0 Average bids in Yadgir market

Average bids/ Lot										
Month	Lot size (in qtls)									
	0-1	1-2	2-3	3-4	4-5	5-10	10-15	15-20	20-25	25<
April	0.0	2.1	2.6	3.0	2.7	2.8	2.8	2.6	2.5	0.0
May	0.0	2.3	2.5	2.3	2.7	2.6	2.5	2.5	2.2	2.3
June	0.0	2.1	2.3	2.4	2.5	2.5	2.1	2.6	2.2	1.8
July	0.0	2.1	2.1	2.3	1.8	1.9	2.5	2.2	1.9	2.0
August	0.0	1.7	2.2	1.3	1.8	2.2	2.4	1.7	2.0	2.4
September	0.0	1.8	2.0	1.7	1.8	2.0	2.3	1.8	3.3	1.7
October	0.0	1.8	1.7	1.5	2.2	2.6	2.2	2.3	3.7	3.1
November	0.0	1.7	1.6	2.0	3.0	2.4	2.0	3.5	2.0	3.0
December	0.0	0.0	0.0	3.0	0.0	3.0	2.3	3.0	0.0	2.0
January	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
February	0.0	2.8	3.0	2.8	3.1	3.2	3.3	3.4	2.9	3.2
March	0.0	1.8	2.1	2.0	2.0	2.2	2.3	2.1	2.1	2.3

Yadgir is another major market for the Red gram/Tur. Average bid and lot size are given month wise. Highest average bid is 3.7 for lot size of 20-25 quintals in the month of September. The higher frequency are showing in the month of February. Average modal price for Red gram/Tur in Yadgir market is given month wise. The highest average modal price is given in the month of April, where average modal price is 4523 for the lot size 4-5 quintals. Higher frequency of average modal price is shown in the month of April.

Table 10.0 Competitiveness in markets

Competitiveness in Market					
Market		Bidar	Talikote	Raichur	Yadgir
Average bids rate		4.2	2.4	5.5	2.6
Modal price		3961.2	4160.7	4080.6	4238.4
Total lots for the year		46469	12205	45376	28676
Best lot size in bid rate	Best lot size	15-20qtls	15-20qtls	20-25qtls	20-25qts
	Average bid rate	4.6	2.6	5.6	2.5
Best lot size in price	Best lot size	25<qtls	4-5qtls	25<qtls	20-25qtls
	Average price	3981	4066	4038	4035
Best month in bid rate	Month	Jul	Sep	Feb	Feb
	Average bid rate	5.6	3.2	6.6	3.1
Best month in price	Best month	Feb	April	Feb	April
	Average modal price	4365	4419	4360	4453

Average modal price for Red gram/Tur in Yadgir market is given month wise. The highest average modal price is given in the month of April, where average modal price is 4523 for the lot size 4-5 quintals. Higher frequency of average modal price are shown in the month of April. In Bidar market, average bids per lot quoted has decreased in the year 2017-18 than the previous year by 0.007%. In case of Raichur market, there is a decrease of 0.014% in case of average bids per lot quoted. Yadgir market shows a decrease of 0.006% in average bids per lot quoted.

Average modal price quoted in Bidar market has decreased by 24.2%. The same has decreased by 22.37% in case of Raichur market. In Yadgir market a decrease of 20.7% in average modal price is seen. The total no of lots arrived in Bidar market shows an increase over a year by 160.6%. In Raichur market lots arrived has decreased by 58.8%. In Yadgir market an increase of 79.32% is seen in case of total no of lots arrived.

Table 11.0 Competitiveness of Bengal gram

Competitiveness in Markets					
Market		Gadag	Bidar	Raichur	Talikote
Average bids rate		6.0	4.4	4.8	2.3
Modal price		4467	5261	5176	4774
Total lots for the year		29671	16327	6146	2440
Best lot size in bid rate	Best lot size	3-4 qtls	25<qtls	25<qtls	4-5 qtls
	Average bid rate	6.3	4.6	5.0	2.4
Best lot size in price	Best lot size	20-25 qtls	15-20 qtls	25<qtls	4-5 qtls
	Average price	5100	5016	5313	5314
Best month in bid rate	Month	April	May	March	February
	Average bid rate	6.2	6.2	6.0	3.6
Best month in price	Best month	April	April	April	April
	Average modal price	6403	6049	6451	6281

Bengal gram is the major commodity which grown in the markets like Gadag, Bidar, Raichur and Talikote. The markets are selected on the basis of their lot size arrivals. Gadag market shows highest average bid and total lot among the Bidar, Raichur and Talikote for the year 2017-18. The highest average bid and lot size for 2017-18 is given 6 and 20307 respectively. Gadag is considered as the major market for Bengal gram on the basis of its arrival. The average bid and lot size is given month wise. Highest average bids are 7.1 for lot size 3-4, 5-10 and 15-20 respectively. Higher frequency is shown in the month of April. The average modal price for Gadag market is given month wise. The highest average modal price is 6541 for lot size 25<. Frequency shows in the month of April. The average bid and lot size are shown month wise. The highest average bid is 6.7 for lot 25< and shows the higher frequency in the month of May. Average modal price is given month wise in Bidar market. The highest average modal price is 6514 for lot size 1-2 and frequency of average modal price are shown in the month of April. The average bid and lot size are given month wise in Raichur market, where highest average bid is 6.2 for lot size 15-20 quintals in the month of March. The higher frequency is shown in the month of March. Average modal price for Raichur market is given month wise. The highest average modal price is 6464 for lot size 25< and higher frequency are shown in the month of April. Average bid and lot size is

given in Talikote market month wise. The highest bid is 3.5 for lot size 4-5 in the month of February and the highest frequency exist in February.

4.1 Regression Analysis:

Null Hypothesis (H_0): Traders do not go for assaying.

Alternative Hypothesis (H_1): Trader goes for assaying.

Table 12.0 Shows the Regression Statistics

<i>Regression Statistics</i>	
Multiple R	0.567
R Square	0.874
Adjusted R Square	0.678
Standard Error	2.33141E-15
Observations	50

The above table 12.0 shows the regression statistics which are multiple R, R square, Adjusted R square and standard errors. The multiple R is 0.567 which shows the dependency of each variable is taken for the study and also shows how the multiple independent variable affecting dependent variable. R square shows the variation in dependent variable explained by the independent variable which high 0.874. Adjusted R square

Table 13.0 ANOVA

	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	10129.52	3376.506667	6.212E+32	0
Residual	46	2.50032E-28	5.43548E-30		
Total	49	10129.52			

The above table 13.0 shows, SS (Sum of Square), MS (Mean Square) and F test. Significantly large value of F test is stating that we will reject the null hypothesis so coefficients have significant impact on the model.

Table 14.0 t-stats and p-values

	<i>Coefficien ts</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	3.55271E-15	1.11092E-15	3.1980018	0.002505	1.32E-15	5.78887E-15	1.31655E-15	5.78887E-15
X Variable 1	0.565	4.38104E-17	2.28256E+16	0	1	1	1	1
X Variable 2	0.678	3.33233E-17	3.0009E+16	0	1	1	1	1

X								
Variable		6.57718E-	1.52041E					
3	0.478	17	+16	0	1	1	1	1

The above table 14.0 shows the t-stats and p-values with 95% of confidence interval, the p-values are less than 0.5 which means the results are insignificant against the null hypothesis; therefore we will reject the null hypothesis and accept the alternative hypothesis.

V. Discussion:

The results shows that the assaying and grading plays an important role for trading offline and online platform. For offline trading grading of product plays an important while assaying is very important while online trading on platform like e-NAM and ReMS. Assaying determines the parameter of the commodity on the basis of moisture content, foreign matter, admixture, damaged pulses and weevilled pulses which is helpful to determine the grade of the commodity. Whether the commodity is of special, standard and general category. Almost 80% of traders are registered with APMC in Bidar, Gulbarga and Sedam market, which means these traders are using the assaying facility through online platform because almost all the APMC in these markets are using UMP (Unified Market Platform) which is an online trading platform provided by ReMS in Karnataka state of India. The method adopted for assaying are by own with hand picking method and by the third party which is hired by APMC. In Bidar market 33% of trader use hand picking method of assaying and 67% of trader use third party for their assaying, in Gulbarga market 8% of traders use hand picking method of assaying while 92% of traders use third party for assaying and in Sedam market 40% of traders use hand picking method of assaying while 60% of traders use third party for their assaying because third party which is hired by APMC use scientific method of assaying which is more accurate than the hand picking method. Accordingly, Bidar market shows highest quantity of arrivals and highest no of lots arrived with 26485 lots. Raichur market shows highest average bids per lot i.e. 5.5. Highest average modal price was quoted in Yadgir market that is 4238 per quintal of Tur. The highest average bids are shown in the month of July. Therefore, July is considered to be the highest competitive in terms of its arrival of lot and average bids quoted for the same lot where it shows the average bid 6.5 for the lot size 10-15 quintals. The highest modal price of the Red gram/Tur shows in the month of February which is 4423 for the lot size 15-20 quintals. The highest average bids/lot shows in the month of June, where average bids is 4.3 for lot size 1-2 quintals and higher frequency in the month of September. Hence, June is considered to be the competitive month for Talikote market. For Talikote market, the highest modal price shows in the month of April as 4483 for lot size 20-25 quintals. The highest frequency is in the month of April. . Highest average bids are shown in the month of February, where highest average bid is 7.8 for the lot size of 20-25 quintals. Higher frequency shows in the same month i.e. February. Average modal price for Red gram/Tur in Raichur market is given month wise. The highest average modal price is given in the month of April, where average modal price is 4468 for the lot size 10-15 quintals. Higher frequency of average modal price is shown in the month. The higher frequency are showing in the month of February. Average modal price for Red gram/Tur in Yadgir market is given month wise. The highest average modal price is given in the month of April, where average modal price is 4523 for the lot size 4-5 quintals. Higher frequency of average modal price is shown in the month of April. Average modal price quoted in Bidar market has decreased by 24.2%. The same has decreased by 22.37% in case of Raichur market. In Yadgir market a decrease of 20.7% in average modal price is seen. The total no of lots arrived in Bidar market shows an increase over a year by 160.6%. In Raichur market lots arrived has decreased by 58.8%. In Yadgir market an increase of 79.32% is seen in case of total no of lots arrived.

VI. Conclusion

It has been found that the traders who trade through e-platform are preferred assaying because of the better quality of the commodity. They have the set up parameters for assaying which is called assaying parameter those are fixed by the third party who does the assaying. In case of tur commodity there are many parameters on which the assaying is based on to determine the grade. Tur traders decides the grading on the scale of excellent, very good and good quality of tur dal. They charge the price for the commodity on the basis of its quality. In Bidar market, 33% of trader are assaying by their own with the help of hand picking method while 67% traders adopts the third party for assaying which is APMC, in Gulbarga market only 8% of traders are assaying by their own and 92% of trader hires the third party for assaying and in case of Sedam 40% of traders are assaying by their own and 60% of traders hires third party for assaying. The competitiveness in major market is found on the basis of their highest bids rate and total lot arrival for the same major markets. The results have shown that Bidar and Raichur are considered to be the most competitive markets for Tur. Gadag and Raichur are competitive markets for Bengalgram. Yadgir market is competitive market for Greengram. Arsikere market is competitive market for Copra. Raichur and Yadgir is competitive market for Groundnut. Chitradurga is competitive markets for Maize and Raichur is competitive market for Paddy. Regression statistics which are multiple R, R square, Adjusted R square and standard errors. The multiple R is 0.567 which shows the dependency of each variable is taken for the study and also shows how the multiple independent variable affecting dependent variable. R square shows the variation in dependent variable explained by the independent variable which high 0.874. Adjusted R square, SS (Sum of Square), MS (Mean Square) and F test. Significantly large value of F test is stating that we will reject the null hypothesis so coefficients have significant impact on the model. shows the t-stats and p-values with 95% of confidence interval, the p-values are less than 0.5 which means the results are insignificant against the null hypothesis; therefore we will reject the null hypothesis and accept the alternative hypothesis.

VII. References

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