A Study on Level of Awareness About Agricultural Commodity Derivatives Among Farmers in Karnataka

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Abstract

Financial derivatives have attracted the attention of scholars and academicians. As a result, various studies have been carried out with respect to price discovery, liquidity, and investor awareness. However, there is still an absence of substantial research in the area of Indian commodity derivatives. Hence, we undertook the problem of lack of awareness of agricultural commodity derivatives among farmers for the current study. The level of awareness about agricultural commodity derivatives among farmers was assessed by administering a questionnaire to 460 farmers randomly selected across the state of Karnataka. Several studies have shown that the participation of farmers in agricultural derivatives has been very negligible. The lack of higher level of education among farmers, prevalence of excessive speculation, and lower liquidity are some of the reasons for non involvement of farmers in commodity derivatives. Despite commodity derivatives having been present for many years, their benefit has not reached the farming community. If the government undertakes necessary steps based on the suggestions/recommendations given by the researchers/ committees, the awareness of farmers about agri commodity derivatives can be improved.

Keywords : **commodity derivatives, commodity futures, APMC, brokers, forward market commission, Security Exchange Board of India**

JEL Classification : D53, G1, G32, & Q13

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Commodity derivative is a contract whose payoff structure is determined by the value of an underlying commodity. Thus, a derivative instrument derives its value from some underlying assets. There are two systems of trading in commodity markets - outcry and online trading system. In the outcry system of trading, the exchange has a trading pit, in which the exchange members and their representatives assemble during a fixed trading period and execute transactions. In the online trading system, the exchange provides its members with real-time access to information online and also allows them to execute their orders.

All the commodity exchanges have electronic trading and settlement systems and have a national presence. The exchanges have both - cash and physical delivery mechanisms. Choice is given by the trader. If the trader wants to settle through physical delivery, the trader needs to have the required warehouse receipt. The exchange has a clearing house which monitors and performs all activities related to delivery, fund settlement, margining (collecting margin from the members), and managing the settlement guarantee funds. Commodity derivative trading is regulated by the Forward Market Commission (FMC) which was established in 1953 with its headquarters in Mumbai, under the provisions of the Forward Contracts (Regulation) Act, 1952. It is overseen by the Ministry of Consumer Affairs and Public Distribution (Pavaskar, 2007).

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In September 2009, The FMC was brought under the control of the Ministry of Finance from the Ministry of Consumer Affair and Public Distribution (Parsai, 2013). This decision was taken by the Central Government in the wake of alleged scam in National Spot Exchange Limited (NSEL) (Sinha, 2013).

In the Union Budget 2015, the Hon'ble Union Finance Minister proposed the merger of FMC with SEBI to reap the benefits of economies of scope and scale and the merger was effected on September 28, 2015. The new commodity regulator SEBI is expected to bring the best technology and risk management practices to regulate commodity markets. SEBI performs various functions such as supervision, surveillance, enforcement, liquidity, and investor protection to govern the commodity market. SEBI has also created a separate department known as Commodity Derivatives Market Regulation Department for the regulation of commodity derivatives including exchange administration, market policies, risk management, and handling of inspections and complaints. Additional divisions for intermediary registration, surveillance, investigation, enforcement, regulatory assistance, and research of commodity markets have been created within existing departments of SEBI which will aid the convergence of securities and commodity markets and will build capacity. In a major move towards better integration between securities and commodity markets, the SEBI amended various regulations such as Securities Contracts (Regulations) ; (Stock Exchanges and Clearing Corporations) Regulations, 2012 ; SEBI (Stock Broker and Sub-Broker) Regulations, 1992 ; and SEBI (Regulatory Fee on Stock Exchanges) (SEBI, 2015) on September 9, 2015.

Origin and Growth of Commodity Derivatives in India

Derivatives trading in agricultural commodities in India have a long history of more than a century. India is the third country in the world to start derivatives trading in commodities after United States (U.S.) and United Kingdom (UK). After the outbreak of the American Civil War in 1860, the U.S. supply of cotton to Great Britain stopped. As a result, India was the major supplier of cotton to Great Britain. Bombay was the largest trading centre for cotton in the country. To regulate the trading in cotton, the exporters of cotton formed an association called The Bombay Cotton Trade Association Ltd. in 1875. The Association provided futures contracts in three varieties of cotton such as Good Staple, Medium Staple, and Belatee. Being dissatisfied with the functioning of the Bombay Cotton Trade Association, Indian cotton merchants and cotton mill owners set up the Bombay Exchange in 1873. From 1893 to 1918, the forwards and futures were traded only by these two bodies. During this period, the cotton merchants in India invented and introduced 'Options on futures' *(*i.e. *teji-mandi)* contract which was a gift from India as an effective risk management tool to the commodity derivatives market all over the world (Pavaskar, 2007).

Commodity derivatives trading has witnessed unprecedented growth in India from the beginning of the last decade. The investment in commodities is becoming most sought out investment destination of the investors in recent days. Though the commodity market is not developed at par with that of the capital market in India, it has succeeded in attracting the attention of the investing community.

After the World War - I, the Government of Bombay enacted the Bombay Cotton Contracts Act, 1919 and formed a Cotton Contracts Control Board under the Act. The Board established a cotton exchange known as the East India Cotton Association (EICA) under the Bombay Cotton Contracts Act, 1922 to regulate and control futures contracts in cotton. Subsequently, futures started in oilseeds with the establishment of *Gujarat Vyapari Mandali* in Bombay in 1900 to organize trading in oilseeds. The same was renamed as Seed Traders Association Ltd. in 1926 and it carried on futures trading in groundnut, castor seeds, and cotton seeds. Later, during 1918 - 1939, several futures markets came into existence in Gujarat, Punjab, Hyderabad, and Cochin. The Ahmedabad Seeds Merchants Association was launched in 1919 for trading in castor seeds. In the same year, the Kolkata Hessian Exchange Ltd. was established and it was the first to regulate forwards and futures trading in Hessian (jute product). Later, in 1927, the East India Jute Association was set up in Kolkata to organize jute futures.

Kolkata Hessian Exchange Ltd. and The East India Jute Association were amalgamated in 1945 and created the East India Jute and Hessian Exchange Ltd. to carry out trading in jute derivatives. Futures trading in wheat and other food grains started in India with the establishment of various grain exchanges in Punjab, Uttar Pradesh, Mumbai, and Kolkata. In the beginning of the 20th century, the Chamber of Commerce at Hapur started wheat futures in 1913. During World War II, many exchanges started to trade in other agriculture commodities like pepper, turmeric, potato, guar, and sugar. Futures and forwards trading in bullion started with the establishment of The Bombay Bullion Association in 1920 for trading in gold and silver. Later, several other bullion markets and exchanges were established in Rajkot, Jamnagar, Jaipur, Kanpur, Kolkata, and Delhi (Pavskar, 2010).

Futures trading in commodities has seen an unprecedented growth in recent past. This fast growth is as a result of establishment of various commodity exchanges and also the Indian Government's policy reforms to encourage derivative trading in commodities. Before World War II, there were about 300 futures markets in the country trading in around 30 different commodities (Pavskar, 2010).

At present, India has six national level commodity exchanges and 16 regional commodity exchanges trading nearly 113 commodities. As on June 30, 2016, out of the six national level commodity exchanges, three exchanges were operational and out of 16 regional exchanges, six regional exchanges were operational (Ministry of Finance, Dept. of Economic Affairs, 2015).

The national level commodity exchanges in India are: MCX Mumbai, NCDEX Mumbai, NMCEIL Ahmedabad, Indian Commodity Exchange Ltd. New Delhi, Ace Derivatives, and Commodity Exchange Ltd. Mumbai. Among these, MCX is the biggest commodity exchange in India.

The Commodities Traded in Commodity Exchanges are :

- **Bullions :** Gold, Gold Guinea, Gold M, Gold Petal, Gold Petal (New Delhi), Platinum, Silver, Silver M, and Silver Micro.
- **Plantations :** Rubber.
- **Metals :** Aluminium, Aluminium Mini, Copper, Copper Mini, Iron ore, Lead, Lead Mini, Mild Steel Ingot, Billets, Nickel, Nickel Mini, Tin, Zinc, and Zinc Mini.
- **Energy:** ATF, Brent Crude Oil, Crude oil, Electricity Monthly & Weekly, Gasoline, Heating oil, Imported Thermal Coal, Natural gas.
- **Weather :** Carbon (CER), and Carbon (CFI).
- **Oil & Oil Seeds :** Crude Oil, Kapasia Khalli, Refined soya Oil, and Soya bean.
- **Cereals :** Barley, Wheat, and Maize-Feed/Industrial Grade.
- **Fiber:** Kapas, Cotton (29mm).
- **Spices :** Cardamon, Coriander, and Turmeric.
- **Pulses :** Chana.
- **Others :** Almond, Gaur Seed, Melted Menthol Flakes, Metha Oil, Potato (Agra), Potato (Tarkeshwar), and Sugar M.

Literature Review

We conducted a survey of literature on the topic of the study. A few studies are highlighted below:

Kabra (2007) observed that currently, the market largely favors speculators than real hedgers. Based on the findings, the author suggested that the futures market has to bring many changes to make it an effective instrument of risk management and price discovery for the benefit of the growers, traders, processors, and other stakeholders. Iyer (2008) found that speculators abound in the futures market, while real farmer hedgers and corporate hedgers are few. The author observed that the markets have little depth since banks, mutual funds, and other institutions are prohibited from trading in commodity derivatives. Hence, the researcher suggested that banks, mutual funds, and other financial institutions must be allowed to trade directly to add depth to the commodity futures market.

Rajput and Handa (2010) in their study opined that the integration of commodity market for the benefit of small and marginal farmers is essential. Further, it was stated that an efficient commodity derivatives market has an immense potential for bringing price stability. Rastogi and Srivastava (2010) revealed that information dissemination is crucial for an efficient market. The stock market rapidly adjusts to the new information but not the commodity market. Inefficiency leads to bad price discovery and malpractices in the commodity market. The author emphasized that every market requires a large number of investor's participation to come to the optimum price. This implies that informational efficient market requires some minimum amount of trading and more trading by numerous competing investors resulting into faster price adjustment, making the market more efficient.

Chakraborty and Sarkar (2010) made an attempt to study the characteristics of the Indian commodity markets and to know whether efficient functioning of the market depended on pricing of commodities. They tested the efficiency of the Indian commodity market using cointegration analysis. They also focused on the information flow for selected commodities such as rice, potato, wheat, and masoor grain. They revealed that the price of different qualities of rice depended upon the recent news and not on old news. The researchers found that the commodity spot market indices and the futures market indices were co-integrated with each other. Sehgal, Rajput, and Florent (2013) carried out co-integration analysis, which indicated how two markets (such as futures and spot commodity markets) revealed pricing information identified through the price difference between the respective markets. The implication of co-integration is that the commodities in two separate markets responded disproportionately to pricing information in the short run, but they converged to equilibrium in the long run under the condition that both markets are innovative and efficient. The paper revealed the existence of long run equilibrium relationship in eight out of 12 commodities and three out of four indices using Johansen co-integration procedure.

Maravi (2015) noted that the Indian economy has become promising in a tiny way with the introduction of futures commodities since 2003. The paper clearly stated that farmers in rural areas are not able to utilize the benefits of commodity futures market. The reasons highlighted were ineffective growth of commodity futures market and the lack of modern infrastructural facilities.

Objectives of the Study

In the light of the literature review carried out, we have made an attempt to assess the level of awareness about agricultural commodity derivatives among farmers in Karnataka and set the following objectives :

- To assess the level of awareness about agricultural commodity derivatives among farmers in Karnataka.
- To identify the reasons for lack of awareness about commodity futures.
- To suggest measures for the improvement of awareness.

Methodology

The level of awareness about agricultural commodity derivatives among farmers was assessed by administering a

questionnaire to the farmers randomly selected across Karnataka state. For the purpose of study, 460 farmers across Karnataka participated in the study. We thought that the sample size chosen for the study was reasonable for a larger -population. Sample size was in conformity with the model given by Robert V. Krejcie and Daryle W. Morgan, which says that any sample size in excess of 384 provides realistic research results. The data was collected during the first half of the year 2016.

Data Analysis and Interpretation

The data collected by administering the questionnaire was analyzed for measuring the level of awareness about agricultural commodity derivatives among farmers and finding the reasons for lack of awareness. The data was analyzed and is presented in tabular form and is also shown in graphic presentation for easier understanding.

The Figure 1 and Table 1 show that 96.65% of the respondents were unaware of agricultural commodity futures trading, and only 4.35% of the respondents were aware about commodity futures trading. The analysis reveals that the level of awareness about agricultural commodity futures among farmers was quite negligible.

Table 1. Awareness About Commodity Futures Among Farmers

Responses	No of Respondents	% of Respondents
Unaware	440	95.65
Aware	20	4.35
Total	**460**	**100.00**

Figure 1. Awareness About Commodity Futures Among Farmers

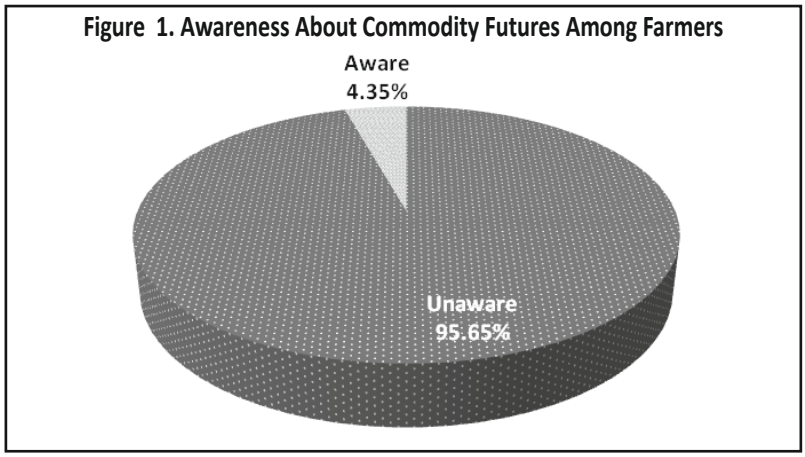


Table 2. Sources of Awareness About Commodity Futures

Source of awareness	No of Respondents	% of Respondents
Through commodity brokers	7	35
Attended awareness programme	4	20
Through middleman	3	15
Through friends	3	15
Attended capacity building programme of FMC	3	15
Total	**20**	**100**

The Figure 2 and Table 2 show that 35% of the farmers became aware about agricultural commodity futures through commodity brokers, 20% of the farmers became aware by attending awareness programmes, and 15% each became aware through middlemen, friends, and capacity building programmes conducted by the Forward Market Commission. Hence, it is inferred from the analysis that major means of creating awareness about agricultural commodity futures among farmers is through commodity brokers followed by awareness programmes. It is also inferred that capacity building programmes conducted by the FMC did not have a major impact on awareness.

It is clear from the Figure 3 and Table 3 that 60% of the farmers who were aware about futures commodities (i.e.

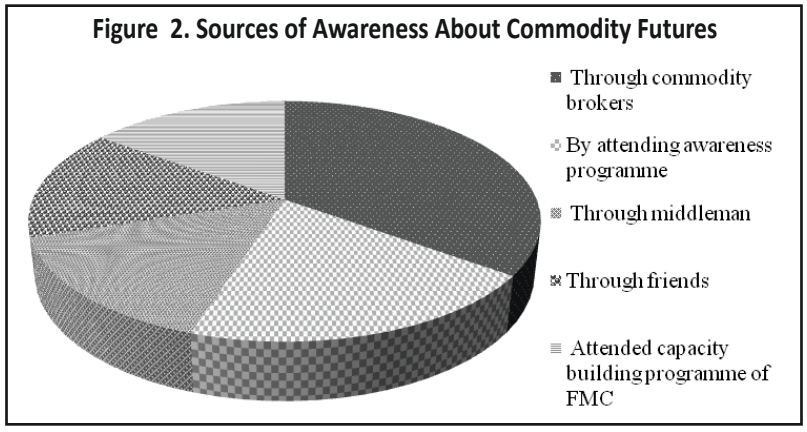
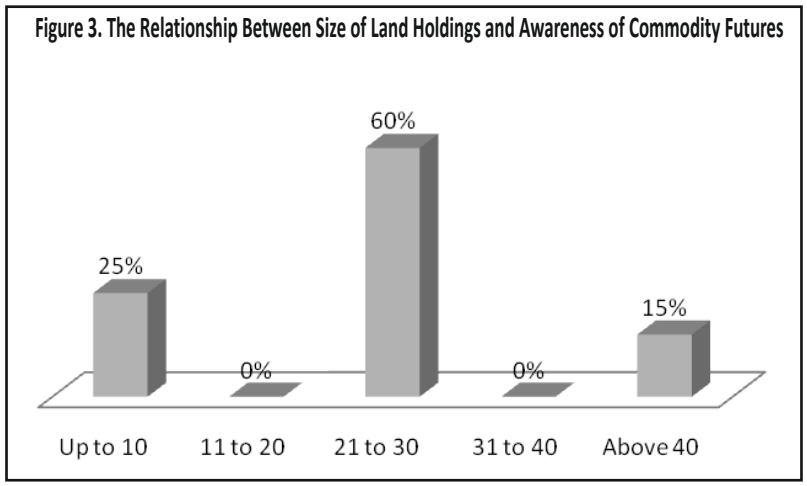


Table 3. The Relationship Between Size of Land Holdings and Awareness of Commodity Futures

Acres	No. of Respondents	% of Respondents
Up to 10	5	25.00
11 to 20	0	0.00
21 to 30	12	60.00
31 to 40	0	0.00
Above 40	3	15.00
Total	**20**	**100.00**

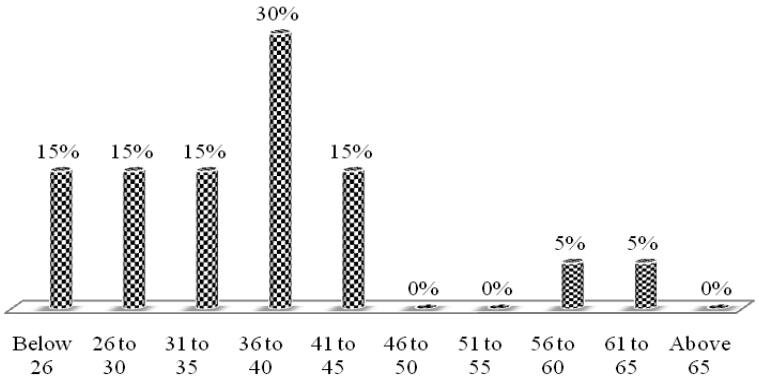


out of 200) belonged to the category of 21 to 30 acres of land holdings, 25% of the farmers belonged to the category of up to 10 acres of land holdings, and the remaining 15% of the farmers belonged to the category of above 40 acres of land holdings. It is inferred from the analysis that awareness about commodity futures was very less among small and marginal farmers. Only 25% of the farmers were aware about futures trading and they belonged to the category of upto 10 acres of land holdings. However, 75% of the farmers belonged to the category of possessing more than 20 acres of land holdings. It was found that selling through commodity futures for small and marginal farmers may not be feasible since they fall short of lot size.

Table 4. The Relationship Between Age and Awareness of Commodity Futures

Age (in years)	No. of Respondents	% of Respondents
Below 26	3	15.00
26 to 30	3	15.00
31 to 35	3	15.00
36 to 40	6	30.00
41 to 45	3	15.00
46 to 50	0	0.00
51 to 55	0	0.00
56 to 60	1	5.00
61 to 65	1	5.00
Above 65	0	0.00
Total	**20**	**100.00**

Figure 4. The Relationship Between Age and Awareness of Commodity Futures

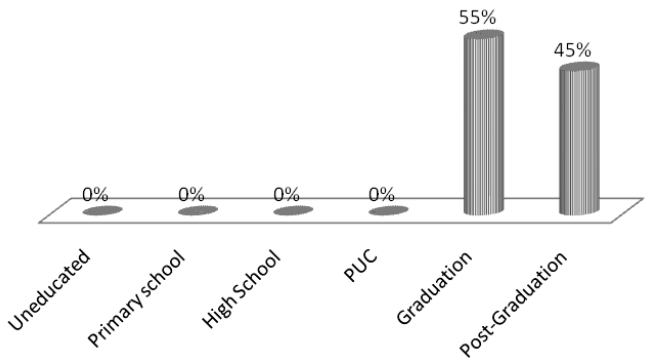


It is clear from the Figure 4 and Table 4 that 90% of the respondents, who were aware about commodity futures (i.e. out of 200), belonged to the age group of 45 years and below. Only 10% of the respondents belonged to the age group of 56 years and above. Hence, there is a significant relationship between age and awareness about commodity futures. The awareness about commodity futures was greater among the middle aged farmers as compared to those of aged farmers.

Table 5. The Relationship Between Education and Awareness of Commodity Futures

Level of Education	No. of Respondents	% of Respondents
Uneducated	0	0.00
Primary school	0	0.00
High School	0	0.00
PUC	0	0.00
Graduation	11	55.00
Post-Graduation	9	45.00
Total	**20**	**100.00**

Figure 5. The Relationship Between Education and Awareness of Commodity Futures



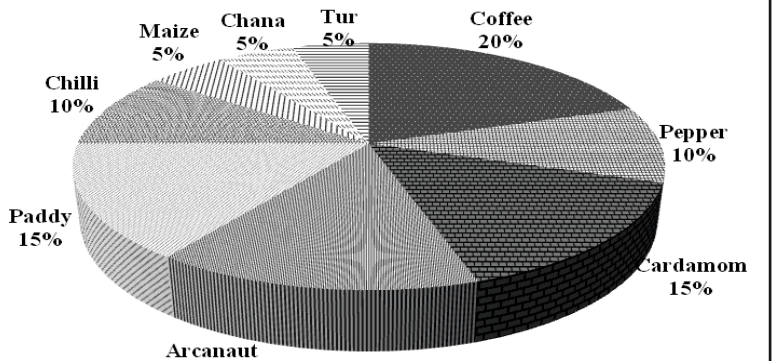
It can be observed from the Figure 5 and Table 5 that farmers belonging to the category of uneducated and educated below graduation category were unaware about commodity futures. Awareness about commodity futures was found among the graduate and post-graduate farmers ; 55% of the farmers who were aware about commodity futures were graduates and 45% were post-graduates. It can be inferred from the analysis that higher is the level of education, the greater is the awareness about commodity futures among the farmers.

From the Figure 6 and Table 6, one can understand that 60% of the farmers who were aware of commodity

Table 6. The Relationship Between Commodities Grown and Awareness About Commodity Futures

Commodities	No of Respondents	% of Respondents
Coffee	4	20
Pepper	2	10
Cardamom	3	15
Arecanut	3	15
Paddy	3	15
Chilli	2	10
Maize	1	5
Chana	1	5
Tur	1	5
Total	**20**	**100**

Figure 6. The Relationship Between Commodities Grown and Awareness About Commodity Futures



futures trading were the growers of plantations and spices and 40 % of the farmers were the growers of pulses and cereal growers. It is inferred from the analysis that the level of awareness about commodity futures was more among the growers of plantations and spices than the farmers growing pulses and cereals.

The Figure 7 and Table 7 clearly state that 50% of the farmers who were aware about commodity futures had the experience of trading in futures and the rest had not at all traded. Out of the total 460 respondents, only 10 (i.e. 2%) respondents had traded in commodity futures and 98% of the respondents had not traded. It is inferred from the analysis that the number of farmers having traded in commodity futures was negligible. It was found that the farmers were hesitant and scared about trading in commodity futures.

The Figure 8 and Table 8 reveal that out of 10 farmers, who had experience of trading in commodity futures, six farmers (i.e. 60%) had continued trading and four farmers (i.e. 40%) ha abandoned trading. It is inferred from the analysis that the farmers did not show much interest in commodity futures as very few traders were trading in

Table 7. Farmers Trading in Commodity Futures

Traded/ Non-traded	No of Respondents	% of Respondents
Traded	10	50.00
Non-traded	10	50.00
Total	**20**	**100.00**

Figure 7. Farmers Trading in Commodity Futures

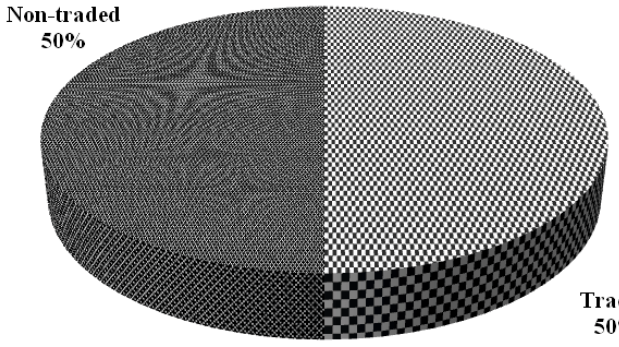
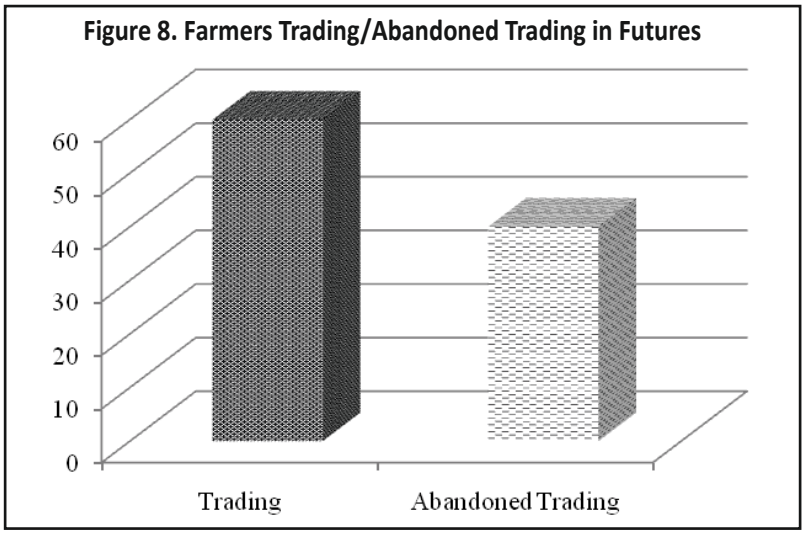


Table 8. Farmers Trading/Abandoned Trading in Futures

Trading/Abandoned trading	No of Respondents	% of Respondents
Trading	6	60.00
Abandoned trading	4	40.00
Total	**10**	**100.00**



agri-commodity futures, which resulted in lack of liquidity and depth in market. Hence, the farmers were compelled to withdraw themselves from trading. Prevalence of excessive speculation also forces farmers to get away from futures trading.

Findings and Suggestions

Based on the analysis of the data, we have compiled the major findings in connection with the level of awareness and have made an attempt to give suitable suggestions.

✦ The current study revealed that very few farmers (2.17% of the respondents) were aware of commodity futures. The reason for lack of awareness is illiteracy, small holdings, forced selling to commission agents/mill owners immediately after harvesting, financial problems, etc. Some farmers are scared about excessive speculation by large traders which badly affects small and marginal farmers. It is suggested to the regulator SEBI to frame regulations in such a way which will safeguard the interests of the small and marginal farmers.

✦ We found that the number of small and marginal farmers are more in Karnataka state, which is 39% of the total number of respondents. Selling through commodity futures for such farmers may not be feasible since they fall short of lot size. Hence, it is suggested to the regulator and agriculture ministry to form farmers' co-operatives or nodal agencies that can trade on behalf of the farmers ; also, SEBI is recommended to reduce the existing lot size substantially.

✦ The study revealed that there exists a positive relationship between level of education and awareness about commodity futures trading as the farmers who were aware of futures trading comprised of 55% graduates and

45% post - graduates. It is suggested to the regulator SEBI and commodity exchanges to initiate a programme of creating awareness about commodity derivatives, particularly in rural areas among uneducated farmers by outsourcing the service to rural unemployed graduates and NGOs.

✦ It is suggested to the Ministry of Agriculture and Ministry of Cooperatives to implement the price dissemination system in rural areas at *hobli* level through which the futures prices of various commodities with different maturities are made known to farmers. This will help the farmers to take informed decisions about timing of selling their farm produce.

✦ Since APMCs, friends, and commission agents are the major source through which farmers become aware of prevailing market prices, most of the time, information given by commission agents may be misleading. Hence, it suggested to involve Krishi Vikas Kendras and local bodies as a part of the price dissemination system.

Conclusion

Several studies have shown that the participation of farmers in agricultural derivatives has been very negligible. The lack of higher level of education among farmers, prevalence of excessive speculation, and lower liquidity are some of the reasons for non involvement of farmers in commodity derivatives. In spite of commodity derivatives having been present for many years, the benefit of the same has not reached the farming community. If the government undertakes necessary steps based on the suggestions/recommendations given by us/ committees, the awareness of farmers about agri-commodity derivatives can be improved.

Limitations of the Study and Scope for Further Research

The current study was restricted to Karnataka only and that too to a few districts. This is because most of the agriculture commodities grown by farmers are not being traded in the futures market. The study was limited to agricultural commodities only. It did not cover non-agricultural commodities.

Till now, various studies have been carried out with respect to price discovery, liquidity, and investors awareness. However, there is still an absence of substantial research in the area of Indian commodity derivatives. Hence, we feel that there is a huge scope for further research in the area of Indian commodity derivatives.

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