

NURTURING AN AGRICULTURE FRIENDLY COMMODITY DERIVATIVES MARKETING IN INDIA

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Abstract

Commodity derivatives have a crucial role in developing agriculture dominated economies. However, their types and commodities have been restricted in India. A review of the institutional and policy constraints facing this market demands more focused and pragmatic approach from government, regulators and exchanges for making it a vibrant segment for agriculture supply chain. Recent decline in the participation and volume of operations in commodity exchanges calls for an integration and development of a trustworthy inter-relationship among the market participants, especially at the grass root level. Market is the barometer to identify the status of reforms and to set a standard of achievements. In a broader perspective, the commodity derivatives market should not be limited only to facilitate price discovery and price risk management but also play a much larger role against the socio-institutional backdrop of a liberalized economic regime. A policy intervention for smooth and transparent functioning of the commodity exchanges and integrating them with the spot markets (at regional and state level) will meet the expectations. The study proposes to reshape the future market by adopting a producer centric sustainable growth model to compete in an international supply chain dynamics. The paper recommends a new trading platform to work in autopilot mode of integrated commodity market of international repute. To lead the economy towards inclusive growth an agriculture friendly commodity derivative market with PPP and ICT adoption to win the trust of participants should be evolved through a total transformation in the process, governance, legislation and regulation system.

Keywords: Commodity Market, Commodity Exchange, Derivatives/ Futures Market, Agriculture Policy, Integrated Exchange

Commodity Market in India has emerged very strongly in recent decades. Its status and role in the national development is yet to be fixed up. Although there is already a comprehensive economic reforms package in the offing involving structural adjustments and modifications under liberalization process since 1991. An important milestone in such progress is the liberalization of agricultural commodity markets. Economic consolidation has been guiding to a gradual withdrawal of government interventions in the agricultural commodity sector, the outcome of which is leading to a market driven price acceptability and enriching inclusive growth in the agriculture sector (Siddiqui 2012). Jha and Srinivasan (2000) have argued that such liberalisation is required for achieving allocative efficiency and long-term growth in agriculture. Moreover, minimising government interventions in internal and external trade in

agricultural commodities and maintaining derivatives market's role in price stabilisation can yield positive welfare benefits.

1. Enhanced relevance of Derivative Market

There are strong grounds to believe that Commodity futures could have existed in India for thousands of years. References to the existence of market operations similar to the modern day futures market are found in Kautilya's 'Arthashastra' (Kevin 2010). Other factors which support such a belief is the existence of words like "teji", 'mandi', 'gali', 'phatak' etc., for centuries (Chatnani 2010). India has a long history of trade in commodity derivatives and after the ban of futures trade all the exchanges went out of business and many traders started resorting to unofficial and informal trade in futures. The liberalization of economy culminates to the re-introduction of futures trading in commodities. With a view to protect farmers, traders and exporters from price fluctuations of commodities and to serve as an efficient 'Price Discovery' mechanism, Government of India took the landmark decision in April 1999 to remove all the commodities from the restrictive list for futures trading and introduction of National Agricultural Policy 2000. Government also allowed setting up of new, modern, demutualised, nation-wide multi-commodity exchanges with investment support from public and private institutions (Habibullah 2003).

In a global context, India is among the top producers of most of the commodities in the world, in addition to being a major consumer of bullion and energy products. Agriculture contributes about 13.7% to the GDP of the Indian economy in 2012-2013 (Times 2013). It employs around 52% of the labor force on a total of around 159.18 million hectares of land (GOI 2012). Agriculture is an important sector in achieving a GDP of double digit growth. India has an enormous potential to be one of the leaders in the trading of commodity derivatives. It is unfortunate that the policies of Forward Markets Commission (FMC) during the most part of 1950s to 1980s suppressed the very markets it was supposed to encourage and nurture to grow with times (Srivastava 2012). The participation of this market is still mere speculative in nature by not aligning with regional farmers and supply chain intermediaries. There are two important apprehensions, namely possibility of adverse price changes in future and liquidity in the hands of producing community. The adverse price change impacts further production interest of farmers and causes quality and quantity shrinkage in production with the passage of time. The liquidity crunch causes urbanization. It is true that insurance is the only hope with again many limitations to shape the sector. It is evident that prices of commodities, metals, shares and currencies fluctuate over time.

Derivatives are used to reduce or eliminate price risk arising from unforeseen price changes and bring liquidity in the agriculture market. Commodity derivatives provide a platform to suit various requirements of the stakeholders. It helps in price discovery, hedging, liquidity, arbitration etc. The future prices will hopefully move Indian farmers out from current "cobweb" effect.

The existing contribution of 6 national exchanges and 11 regional exchanges is shown in Graph 1. The participation trend shows that the availability of commodity and derivative market is not being utilized properly. Although national exchanges are not yet penetrated, and most of the allowed commodities are not yet fancy for the agricultural community. Indian commodity market, presently in a state of turmoil, is struggling for its survival. Many of the stakeholders are inflicted with distress and the whole setup lacks a direction in offering any growth to agriculture. It appears as if something has of late gone wrong with this sector and we need to take some drastic steps.

2. Problem Statement

The liberalized regime has no doubt opened up the derivatives market for many commodities but the benefits are neither visible nor accessible to agricultural communities. The paper attempts to identify the managerial, regulatory and institutional arrangements to make the derivatives market agriculture friendly to achieve the national objectives. The specific objectives desired in this study are as under:

- a) To find means of integrating rural as well as urban spot and futures markets by facilitating a national level single window trading platform.
- b) To explore modes of linking future market with warehouse receipt based settlements and clearances.
- c) To develop an alternative zero level marketing channel from producer to consumer through these markets.
- d) Capacity building of pan-India rural markets and enabling the agricultural communities to actively participate in market operations.
- e) To empower central regulatory body right from exchanges, mandis to farmers.

3. Virtual Market _ The Autopilot Commodity Market

To nurture the agriculture sector and to improve dependency of farmers or investors on middlemen, there is a need to develop a much informed, transparent, accurate and easy mode of market operation for all the stakeholders. Virtual markets can deliver through an electronic transaction platform for commodities where buyers and sellers carry out trade in anonymous manner through ICT (Information and communication technology) applications.

Virtual markets, in the context of agriculture marketing, may be defined as, “an electronic market, which enables producers and buyers in the supply chain to access each other spread across the country, with a view to transact at the most efficient and transparent prices, thereby reducing the cost of intermediation, improving marketing efficiency and producers’ realization coupled with reduction in consumer paid price.”

3.1 *Virtual Market – An Integrated Exchange Platform*

As shown in Diagram 1, integration in the exchange platform will bring it closer to the grass root level of agriculture. The farmers need to link with the spot market and they can view and trade in commodities on the integrated exchanges terminal. It is a platform which consists of the whole range of institutions and agencies as shown in the diagram. Their brief description and role follows.

3.2 *SPOT Market*

It is a point where physical commodity changes into digital commodity. The spot market will enable the product identification through standardization, grading and quality labeling for both perishable and non perishable items. The quality parameters are broadly displayed in the spot market. The market issues a digital mandi holding receipt to the farmer containing the product quantity and quality specified. These receipts can act like assets in their portfolio, which they can sell on ‘as and when’ basis on electronic trading platform.

3.3 *Futures Market*

The warehouse based wholesale market needs to trade electronically and logistics based door to door delivery mechanism. The multi level marketing is here shifted into single screen based delivery marketing i.e. exchange. The transportation charges are fixed like pre paid booking. The logistics, packaging or processing companies can be the part of the process.

The digital mandi holding receipt automatically shifts into warehouse holding receipt.

3.4 MIS

The ICT based MIS integrates the spot market, future market, warehouses, settlement and clearing agencies with bank through a trading user ID based window. The surveillance of this MIS will be through a regulating agency to make the system in place. All research institutes can get an idea of the prospective supply chain members through the available MIS. Banks and the settlement agencies are the composite part of this MIS.

3.3.1 Bank: Bank gives resolution of banking transactions to the rural centers through NEFT or RTGS. The bank can give secured loan to farmer on the basis of their portfolio holdings. They can pledge and lock portfolios to trade in case of default.

3.3.2 Settlement & Clearing Agencies: The independent government organization will do settlement and clearing activity. These agencies will work as facilitator to settle all transactions held at spot market, futures market and exchanges. All holdings will be available in demat form with these agencies.

3.5 Integrated Exchanges

The exchanges can be integrated with national and regional units on a common electronic platform. The exchanges can expand for their penetration by introducing new products and prices. All the spot and futures market transactions should be governed through one common platform. There should be kiosks or booths based transaction in all the mandis /APMC's.

4. Crises and Control

The challenges and issues in the commodity market in India are multi-dimensional. The issues may also differ if seen from different perspectives. We confine our discussion with a perspective of agriculture sector. The farmers and the rural traders, processors and entrepreneurs, especially the marginal and small ones are of prime importance in view of national objective of inclusive growth. The challenges, problems and the remedial measures have been presented below for different aspects of commodity markets of India.

4.1 Supply Chain, Spot Market and Future Market Integration

There are two types of risks associated with farmers in India, yield risk and the price risk. It is evident that price discovery is being offered by derivative markets of agricultural commodities. Risk transfer and price discovery are two of the major contributions of futures markets to the organization of economic activity (Working 1962, Evans 1978 & Silber 1981). Risk transfer refers to hedgers utilizing futures contract to transfer price risk to others. Price discovery refers to the use of futures prices for pricing cash market transactions (Working 1948, Wiese 1978 & Lake 1978). This price discovery function of futures markets hinges on whether price changes in futures markets lead price changes in cash markets more often than the reverse. We find that, in general, futures markets dominate cash markets (Garbade & Silber 1983).

Further, a study by Global AgriSystem of Fruit & Vegetable supply chain reflects huge wastages of 15-25%, producer receives 20-25 %, wholesaler enjoy 30-35 % and total mark up 60-75% is caused due to multiple handling by different intermediaries in the supply chain (Patnaik 2011). In the given circumstances integration in these markets is the only solution to these inefficiencies.

4.2 Commodity Options / Index Future / Index Option

India has banned the trade in commodity option since 1952. It is an incomplete market in the absence of option contract. Option Contract is the integral part of commodity market. The option contract gives the privilege to the market participants to hedge against downside price movements and upside price movement at the same time. Option contract requires minimum leverage in comparison to futures and spot market. There is a need of necessary legal and regulatory changes to introduce commodity options trading in the exchanges. Index trading is also suffering with the same crisis. The risk mitigation through index future and option is much more acceptable. In the equity market index are in trading with top volumes i.e. in NIFTY. Our policy makers should give a serious thought to this issue.

4.3 The Warehousing, Transportation and Standardization

There are three agencies in the public sector, which are engaged in building large scale storage/ warehousing capacity namely Food Corporation of India (FCI), Central Warehousing Corporation (CWC) and 17 State Warehousing Corporations (SWCs). The combined capacity of the cold storage facilities is 23.66 million metric tonnes. India can store less than 11% of what is produced here. Most of the infrastructure used in the cold chain sector is outdated in technology. Warehouses need to be qualitatively sound and conveniently located at strategic locations.

The Habibullah (2003) task force admitted, “A sophisticated warehousing industry has yet to come about”. Along with, independent labs or quality testing centers should be set up in each mandi/ APMC to certify the quality, grading and labeling of commodities to save the consumer. When compared with world standards for cargo movement through warehouses/ storage/ cold chain, India is still far behind. The percentage of movement of fruits and vegetables through cold chain in US is around 80 to 85%, Thailand has 30 to 40% and India has negligible. India has an acute shortage of cold chain facilities and infrastructure for storage and movement of perishable produce (with the exception of milk). Although there are currently more than 25000 vehicles and 250 operators involved in refrigerated transport, 80% of this capacity is dedicated to transporting milk. (Arihant 2013)

4.4 Warehouse Receipt based and Cash Versus Physical Settlement

The inefficiencies of the present warehousing/ storage, transportation and standardization system discourage the commodity derivatives trade in the country to settle in physical delivery. The farmers are unable to use the futures derivative market in the form of price safety against the physical stocks availability. Hence the warehousing/ storage, standardization and transportation problem has to be handled on a war footing, as a good delivery oriented system is the backbone of any commodity market. Another problem in cash settlement of commodity derivative contracts is that, at present, under the Forward Contracts (Regulation) Act 1952, cash settlement of outstanding contracts at maturity is not allowed. Therefore, all outstanding contracts at maturity should be settled by squaring off the position before or on expiry of the contract. The modification of practice or law will give an edge and focus on the real market participants and widely spread the market usability.

4.5 The Regulator and Market Turnover

The existing policies and workings are in total doldrums after the volume dropped in the commodity derivative and spot market. Total value of trading at the Commodity Exchanges during the fortnight, 1st January, 2014 to 15th January, 2014 was Rs 2,82,002.28 crore. The cumulative value of trade from 1st April, 2013 upto 15th January, 2014 during the financial year 2013-14 was Rs 85,28,863.77 crore. The corresponding figures for the previous year were Rs 6, 89,542.16 crore and Rs 136, 51,989.78 crore respectively (FMC 2014).

Table 1: National Exchanges Turnover - A Competitive Analysis (in Crore Rs.)

EXCHANGES	Apr-Dec 12-13	Apr-Dec 13-14	Change (%)
NMCE	222,204	214,655	3.40
ICEX	91,034	63,579	30.16
NCDEX	1,306,411	848,315	35.07
MCX	133,826	34,673	74.09
ACE	133,826	34,673	74.09
Total	12,949,836	8,287,559	36.00

Source: websites of respective exchanges

The commodity market definitely needs a strong regulatory authority with power to handle mandi's / APMC's, warehouses, transportation, clearing and settlement agencies, exchanges and investors. There is a need to make regulatory body an independent authority unlike the present status of Forwards Markets Commission (FMC) which was under the Department of Consumer Affairs (Ministry of Consumer Affairs, Food and Public Distribution). Its shift from 9 September 2013 to Department of Economic Affairs, Ministry of Finance is a welcome step. FMC needs to play a pro-active role to revitalize the commodity market.

4.6 *Economy of Scale and Participating Commodities*

There are 6 national level and 16 regional commodity exchanges in India. Though as per notification under section 15 of FCRA over 110 commodities are allowed for derivatives trading, a few commodities are only practically traded. There is very small transaction in most of the exchanges for approximately 41 commodities trades between 1st Jan to 15th Jan 2014 (FMC 2014). All this split down volumes, less participation, lack of integration and duplicity are making some of the exchanges unviable.

4.7 *Linking small farms to markets*

India has over 28,000 small and large mandis across the rural hinterland of which as many as 7,557 (principal 2,428; sub-markets 5,129) are regulated under the respective State APMC Acts (Kaul 2013). The local mandis can easily involve farmers with their environment to attract and facilitate linkage to markets. There is lack of proximity to markets, access to technology, poor transportation and connectivity, vested interest of middlemen, poor knowledge sharing initiatives, and inadequate market infrastructure causing poor access to market. Integrated platform will not only help target investment and productivity, but may also guide the researchers and policy makers to carve out a future course of actions.

4.8 *Tax, Licensing and Legal bottlenecks*

The current marketing system contains multiple taxes and multiple licensing. Some common taxes in the state APMC's are market fees, Dami /Arhatia Commission, commission to societies, octroi, entry tax, sales tax/ VAT, interest charges, weighment charges, mandi labour charges, handling charges, loading and unloading, purchase tax, cost of new bags, administration charges, rural development cess etc. In some of the states as per official data, the total market charges on transaction of food grains are highest at around 15% (Jha 2014).

There are different tax structures across States. The other problem is licensing procedure and separate license with validity period requirement for separate mandis. Even license is not just limited to farmers but for market support functionaries like weighmen, palledars etc. Most of the State Agriculture Marketing Boards have made it a pre-condition that the licensee must own a shop or warehouse in the Mandi (Subramani 2011). Further the return filing procedure

of mandi / APMC is not uniform across the States. An integrated virtual commodity market will do away with these archaic laws.

5. Conclusion

The analysis and discussion leads to a number of recommendations which may be consolidated under the following heads:

- a) **Improvise Governance:** The creation of a new ‘institutional design’ exclusively for governing, monitoring and regulating the spot, futures and derivatives markets in agricultural commodities. Central Government may pass an “Inter-State Agriculture Produce Trade and Commerce Regulation Act” under entry 42 “Inter-State Trade and Commerce” of agriculture produce at national level. Government of India should empower spot exchanges to function on pan-India basis through integrated single window. It need not be limited to State APMC Laws. There should be uniformity in the State-level tax/ fee structure on agricultural commodities with an agreed ceiling limit. There is a need to implement Goods and Services Tax (GST).
- b) **Revamp Marketing Process and System:** Abolish Licensing and introduce single point registration through KYC on a non-discretionary basis. The producers/ farmers have trading cum demat account linked with respective bank account to hold portfolio of commodity. Fruits, Vegetables, Milk, Fish and other perishable commodities should be dealt with spot exchanges (mandi or APMC) without any market fee or charges, turnover charges, warehouse charges, cold storage charges except brokerage. Shift responsibility on brokers to give handholding to the farmer through Private Public Partnership. Quality certification, standardization and benchmark certification, grading need to be the constitutive part of mandi or APMC.
- c) **Empower Farmers:** The management of market should be in the hands of professionals who should be appointed from open market. There should be capacity building initiatives for targeted farmers and their organizations through agricultural research institutes or NGOs’ to facilitate market demand based agricultural production. The selection is to be on the basis of professionals’ suggestion from the existing APMC Markets.
- d) **Facilitate Private Public Partnership Models:** The expenditure burden will be shared with the help of PPP model. There will be a provision of disinvestment of under-performing, non-profitable APMC or outsourcing of operations and management of market through PPP.

It is expected that these measures will lead the commodity derivatives market to support and strengthen the agriculture sector of India.

References

- Arihant Experts, (2013). Indian Economy for Civil Services. Arihant publications, 160
- Bahattin Buyuksahin, Michael S Haigh, Michel A Robe (2010). Commodities and Equities: Ever a “Market of One”? The Journal of Alternative Investments, Vol. 12, No. 3: pp. 76-95
- Basak, S., and Croitoru. B. (2006). On the Role of Arbitrageurs in Rational Markets. Journal of Financial Economics, Vol. 81, No. 1, pp. 143–173.
- Chatnani, N. N (2010).Commodity Market Operations instruments and Applications. 25
- Evans. E.B., (1978). Country Elevator Use of the Market. in A. Peck (ed.). Views from the Trade (Chicago: Board of Trade of the City of Chicago) [online] Available at

www.farmdoc.illinois.edu/irwin/archive/books/Views.../Section2_2.pdf

- FMC., (2014). Forward Market Commission, Mumbai. Highlight and Important Developments for the fortnight from 1.1.2014 to 15.1.2014. Market Report [online] Available at http://www.fmc.gov.in/show_file.aspx?linkid=1_1_14%20to%2015_1_14-168917509.pdf
- Garbade, K.D., Silber, W. L., (1983) Futures Contracts on Commodities with Multiple Varieties: An Analysis of Premiums and Discounts. *The Journal of Business*, the University of Chicago press Vol. 56, No. 3 249-272 [online] Available at www.jstor.org/stable/2352798
- GOI., (2012). Agricultural Census Division, Department of Agriculture & Cooperation 2010-2011 [online] Available at <http://agcensus.nic.in/document/agcensus2010/agcen2010rep.htm>
- Habibullah, W., (2003). Draft Report on the Committee of Convergence, NCDEX [online] Available at www.ncdex.com/Downloads/Download/PDF/DraftReportontheCommitteeofConvergence.pdf
- Jha, D. K., (2nd Jan 2014). Commexes Turnover Declines 36% in nine months. Business Standard, Mumbai. Compiled by BS Research Bureau and Exchanges [online] Available http://www.business-standard.com/article/markets/commexes-turnover-declines-36-in-nine-months-114010200625_1.html
- Jha, S., Srinivasan, P.V. (2000). Liberalized trade and domestic price stability. *Journal of Development Economics*, Vol. 65 Z2001. 417–441
- Kaul, S., (27th Oct 2013). From Farm Mandi to Bigger Things. The Hindu, Business Line Mumbai [online] Available www.thehindu.com/opinion/from-farm-mandi-to-bigger-things/article5278498.ece
- Kevin, S. (2010). Commodity and Financial Derivatives. Page 8 [Online] Available: (books.google.co.in/books?isbn=8120341627)
- Lake, F., (1978). The Miller's Use of the Commodity Exchange, in A. Peck (ed.). Views from the Trade (Chicago: Board of Trade of the City of Chicago)
- Margaret, E. S. and Henry, T., (2006) Commodity Spot Prices: An Exploratory Assessment of Market–Structure and Forward–Trading Effects, *The London School of Economics and Political Science: Economica* [online] May 2007: Available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0335.2006.00480>
- Patnaik, G., (2011). Policy Option and Investment Priorities for Accelerating Agriculture Productivity and Development in India. India International Centre, New Delhi [online] Available at <http://www.igidr.ac.in/newspdf/srijit/PP-069-11b.pdf>
- Pennings, J.M.E. (2003): Research in Agricultural Futures Markets: Integrating the Finance and Marketing Approach. *German Journal of Agricultural Economics*, Vol. 52 300-08
- Sahadevan, G.K., 2002. Derivatives and Price Risk Management: A Study of Agricultural Commodity Futures in India. *Economic and Political Weekly* Vol. XXXVII No. 30, 3153-60. <http://agriexchange.apeda.gov.in/>
- Sendhil, R. et al. (2013). Profile and growth of agricultural commodity futures in India: Socio Economic Voices, www.indiastat.com [online] Available at <http://www.indiastat.com/article/50/sendhil/full%20text.pdf>
- Siddiqui S. M., (16th Dec 2012). Drawing Lessons on Commodity Exchange. *The Financial*

Express [online] Available at <http://www.scribd.com/doc/117672802/CommEX-Drawing-Lessons-on-Commodity-Exchange>

Silber, W., (1981). Innovation, Competition, and New Contract Design in Future Markets. *Journal of Future Markets* Vol. 1 No. 2 123-155

Srivastava, A.K. (2012). Commodity Derivatives in India. *Asian Journal of Research in Banking and Finance*, Vol. 2 145-153

Subramani, M.R., (6th Nov 2011). High Taxes by States Raise Foodgrain procurement Costs . The Hindu, Business Line Chennai [online] Available at <http://www.thehindubusinessline.com/industry-and-economy/agri-biz/high-taxes-by-states-raise-foodgrain-procurement-costs/article2604342.ece>

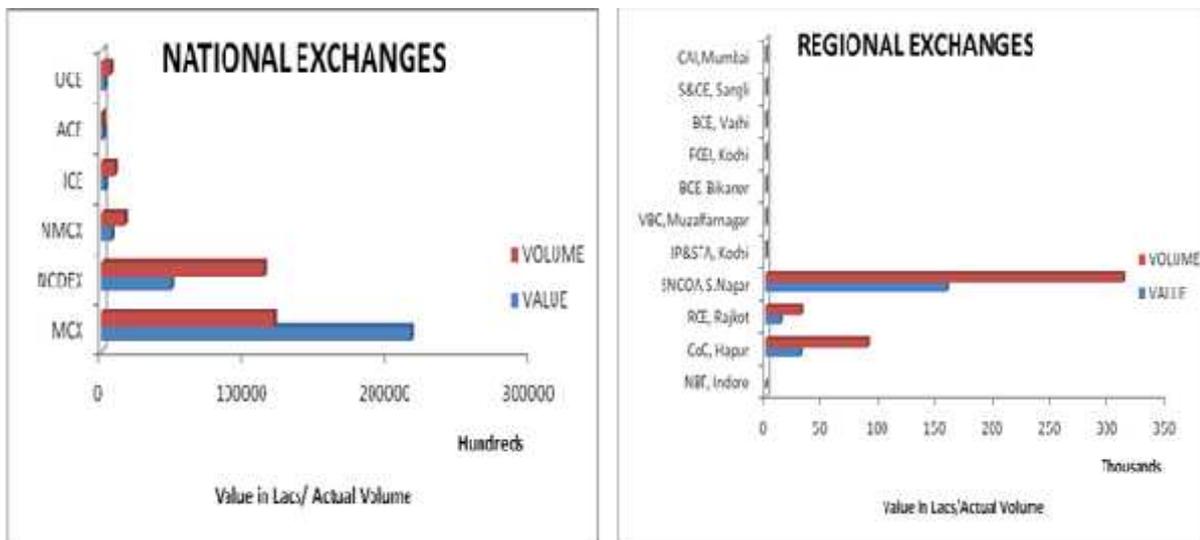
Times E.T., (30th Aug 2013). The Economic Times [online] Available at http://articles.economictimes.indiatimes.com/2013-08-30/news/41618996_1_gdp-foodgrains-allied-sectors

Wiese, V., (1978). Use of Commodity Exchanges by Local Grain Marketing Organizations, in A. Peck (ed.) *Views from the Trade* (Chicago: Board of Trade of the City of Chicago)

Working, H., (1962) New Concepts Concerning Future Market and Prices. *The American Economic Review*, Vol. 52 No. 3 431-459

Working, H., (1948) Theory of the Inverse Carrying Charge in Futures Markets. *Journal of Farm Economics*, Vol. 30 No. 1 1-28

GRAPH – 1: Volume and Value Contribution from 1st Jan to 15th Jan 2014



Source: <http://www.fmc.gov.in>

Diagram – 1: An Integrated Exchange Platform

