



## An Integrated Approach to Agriculture Marketing and Financing

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An integrated approach, in which efficient systems of e-spot trading, grading and quality certification, scientific warehousing and collateral management, crop/weather insurance, and futures-benchmarked OTC offered forward contracting can exploit complementarities between agricultural marketing and financing, will help solve current problems in these functions.

Agriculture sector development in India is very critical today than ever before as the sector still supports nearly two-thirds of the country's population even though its share in national gross domestic product is less than one-fifth, which creates a situation where a large number of households have too small an income to sustain their life. In addition, there are also serious questions raised about food security in the country. Any effort to improve rural conditions on a sustainable basis hinges to a large extent on how agriculture income can be increased. These efforts will have to be in the form of policy instruments in the area of technology, markets, infrastructure and institutions. India has had a very successful technology development in the past in agricultural production in general and particularly in crops such as cotton, maize and vegetables recently. Even now, a number of technology options seem to be available at the laboratory level waiting for appropriate market, infrastructure and institutional conditions for effective adoption. Institutional conditions perform an important function of providing easier financing to the agricultural sector through creating appropriate processes. All these factors are interrelated and unless changes in them are made in an integrated manner, they will not help in creating an enabling environment for faster growth. India has certainly lagged behind in terms of bringing appropriate changes in markets, infrastructure and institutions in order to leapfrog development of the agriculture sector.

### Agricultural Marketing and Financing in India

During the Green Revolution, a major reform was initiated when almost all the states brought in legislation the Agriculture Produce Market Committee (APMC) Act to ensure an efficient system of trading

agricultural commodities. This Act helped in establishing nearly 7,500 regulated markets throughout the country and stipulating how agricultural trade should take place. The APMCs, set up in major production and arrival centres across the country, perform the crucial function of organising agriculture trade and providing a meeting point for buyers and sellers. However, during the past 50 years, no significant improvement has taken place in the functioning of agricultural markets. Though the APMCs were set up to protect farmers from exploitation of intermediaries and traders, as well as ensure better prices and timely payment for their produce, these markets have become inefficient over a period of time.

Agriculture sector financing has so far mainly concentrated on production financing, leaving behind equally important marketing finance. During the Green Revolution, cooperative institutions played a major role in providing production financing in many parts of India. However, over the years, various policies of the government weakened the performance of these institutions creating a major vacuum in financing agriculture. This has enormously affected agriculture sector growth in the country. While considerable efforts have been made in recent years to improve agriculture financing through measures such as loan wavers, reduction in interest rates, mandating banks to increase the share of loans to the sector, and Kisan Credit Cards, among others, a large gap still remains between provisioning and the requirement, forcing farmers to fall back on the informal sector. The world over agricultural marketing and financing developed together as complementary to each other. However, in India, they are dealt separately ignoring this attribute of complementariness.

In recent years, liberalisation of agriculture trade in India as part of the globalization process has created enormous pressure to reform the agricultural marketing system to be in tune with the rest of the world both in terms of quality and efficient handling of agricultural produce. And this challenge has been accentuated because there has hardly been any worthwhile reform undertaken in the country's agricultural marketing for a long time now, while elsewhere technology development, especially that of information and communication, has been effectively used for improving the agricultural marketing system. In addition to technology development, several process improvements need to be brought in to reduce the cost of transaction, which will help increase the price realised by the grower and decrease the price paid by the consumer. Lower prices at the consumer level increases demand and higher prices at the farm level increases supply, and these two changes together result in large volumes of production and consumption, benefiting both consumers and producers and, thus, contributing significantly to the economy.

### New System for Agricultural Marketing and Finance

Complementarities between agricultural marketing and financing help evolve an integrated approach to address the current problems in these functions. A good marketing system facilitates easier financing and a good financing system improves efficiency in marketing. The ultimate objective is to develop marketing and financing systems where price discovery takes place in an efficient manner, cost of marketing reduces, quality of produce improves, farmers are able to receive payments as well as production and marketing credit in time, transaction cost is reduced, and also risks are reduced. For the development of such marketing and financing systems, the following requirements have to be met:

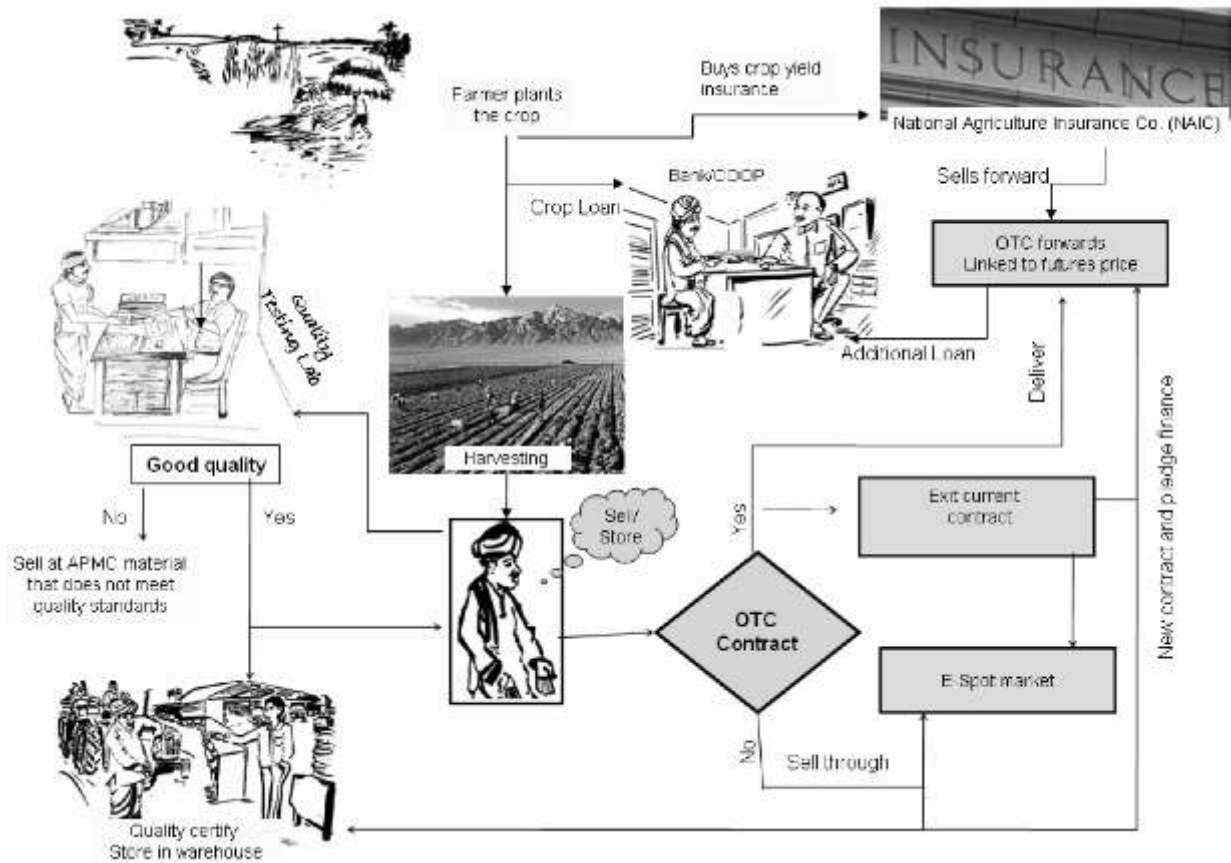
- An efficient spot trading system
- An efficient grading system
- An efficient forward market
- An efficient insurance market
- An efficient warehouse receipt system
- An efficient Government support system

With these systems in place, a farmer will be able to get both production and marketing credit as well as sell his produce efficiently. At the time of planting, once the farmer takes his decision on the crop and acreage, he should be able to avail of crop loan and crop yield insurance. With the crop-acreage decision, he has an estimate of crop yield that he should be able to sell forward through a forward contracting arrangement to be established at an APMC. In fact, the farmer can make

the crop-acreage and forward contracting decisions simultaneously based on the prices offered in the forward contracting arrangement. The forward contracting system will be tagged on to the futures market, with the contract price derived from futures prices. Farmers should be able to sell the crop to the extent of insured quantity. These forward contracts are the over-the-counter (OTC) transactions available at APMCs, organised by private players and are based on the prevailing futures prices. This will be essentially retailing futures contracts to farmers. A farmer can use the forward contracting facility at any time during the crop production period. Based on the forward contract and yield insurance, the farmer should be able to take additional loans if he intends to do so. The forward contract buyer may have reinsurance arrangement to meet the financial obligations in the event of a crop loss which should not be recovered from the claim of the farmers from the agency that had provided them with crop insurance. This insurance may be given by the same agency as the crop yield insurance which may facilitate faster processing. The Food Corporation of India should buy the contract in case farmers are prepared to sell at the announced minimum support prices. This futures contract, along with the crop yield insurance, enables farmers to get bank credit in addition to the crop loan. Once the harvest is done, the farmers can check the quantity and quality of the produce. And they will have the following options (see flowchart):

1. Deliver the contracted amount to the forward contract seller and sell the remaining amount in one of the following ways:
  - a. Wait for the better prices in the future: if the current prices are not attractive and the farmer expects the prices to go up in the coming weeks/months, he keeps the produce in a warehouse, gets a warehouse receipt, may or may not go for a pledge loan from the bank counter, sells at a later date and realises the remaining value.
  - b. Sell it in the forward market: The farmer feels that one or more forward prices are attractive. He keeps the produce in the warehouse, gets a warehouse receipt and forward sells it using the forward market and delivers on the contract maturity.
  - c. If the current prices are attractive, sells in the spot market.
2. The farmer buys back the contracts he has sold during the planting time and uses any one of the above three options — keeps in the storage for a sale at a later date, sells using the forward market, sells in the current spot market.

A NOVEL AGRICULTURAL PLEDGE FINANCING MODEL



This integrated system will provide the following advantages to the farmer:

**Easy financing of crop production and marketing:** Farmers can get crop production credit and marketing credit through insurance, forward selling and warehousing. At present, crop production loan is available, but credit limits are low. Farmers will still have the option of going for crop loan in the existing arrangements, without going for forward contracting. However, farmers should be able to get more credit through forward contracting.

**Risks are covered:** Farmers can cover the yield risk through crop yield insurance and the market risk through forward contracting. Thus, this provides comprehensive revenue insurance to farmers.

**Low transaction costs:** As systems develop and reach a steady state, the transaction costs in this mechanism are likely to be low. A large volume of handling in grading, warehousing, forward transaction and insurance will facilitate transactions at a lower rate.

**Price stability:** With the forward contracting arrangements, there will be a better estimate of the supply of commodities that would be used in the futures market as forward contract sellers hedge in the futures market to cover their risks. The additional information flow into the system will lead to stability in the prices.

This integrated system will work well if each one of its components is made to work efficiently. And this will require participation of both the public and private players as well as government support.

**Efficient Spot Trading System**

In the current marketing system, APMCs play a pivotal role in spot trading. However, these primary markets have not kept pace with the developments taking place in the international markets. Some of the deficiencies in the existing agricultural marketing system are:

Absence of a good quality assessment system: This often result in lower price realization for the seller (farmer), while the buyer takes advantage of the state of affairs to offer lower prices to the farmers.

Absence of a good grading system: This makes farmers unaware of the quality requirement of agricultural produce at the user end, making farmers neglect the quality aspect of their produce.

No post-harvest guidance system: Absence of any extended system to guide farmers on post-harvest care results in substantial losses of value of the agricultural produce.

Poor handling of agriculture produce: This practice in the market yard results in large losses of the farm produce. Poor handling also results in substantial loss in quality during marketing of the produce, putting it far below international standards.

Poor knowledge of packing and scientific storage: This leads to losses in the supply chain, which gets built up at the consumer end.

Lack of price information: Price information about other markets is not available on right time, which makes farmers rely mainly on the prices quoted by local traders.

No access to warehouse receipt financing: This pushes farmers to distress sales and lower price realizations. • Limitation of selling options: The system of marketing through APMCs with only a few registered traders who often buy in collusion among themselves, farmers have restricted selling options.

Lack of effective information transmission: This leaves very high information arbitrage possibilities among the markets.

Therefore, APMCs need to redefine their role in the context of present era of Information and Communication Technology (ICT) and globalization. In recent years, certain policy changes have been announced to improve the agricultural marketing system and they are:

- Encouraging procurement of agricultural commodities directly from farmers' field
- Removing all restrictions on production, supply, storage, and movement of produce
- Permitting the establishment of 'private market yards', 'direct purchase centres', 'farmers markets' for direct sales
- Promoting PPP (public-private partnership) in the management and development of agricultural markets in the country

- Setting up 'special markets' for perishable commodities such as onions, fruits, vegetables, and flowers.
- Encouraging alternative marketing systems such as contract farming, direct marketing, and farmers markets
- Promoting grading, standardization, and quality certification of agricultural produce, which would

While many of these initiatives are yet to be implemented, a significant initiative that can be taken up immediately is the setting up of and enabling of "electronic spot trading" (e-spot trading) for agricultural produce.

### E-Spot Trading

The developments in ICT that have already taken place can facilitate agricultural marketing functions and processes, including buying and selling, payment, and transportation and logistics. This will connect local markets nationally and will effectively do away with information arbitrage that exists in today's APMC markets. ICT can also play a pivotal role in disseminating and using trade information. Adoption of ICTs for agricultural trade, in the form of electronic spot trading, will benefit farmers enormously. Thus, the e-spot exchange is a marketplace where local farmers and traders can sell farm produce, while upcountry buyers, processors, exporters, and end-users can buy electronically through competitive bidding.

E-spot trading is an effective method which enables farmers to sell their produce to anybody, anywhere, anytime in a transparent way. This can not only reduce transaction costs and make intermediation in commodity markets cost-effective but can also effectively mitigate problems of lengthy supply chain through the elimination of middlemen connecting farmers through the shortest possible value chain, which in turn helps farmers realize a better share of consumers' rupee. Price realization by sellers will also be faster. Further, the anonymous nature of the system will ensure pricing transparency and reduce possibilities of speculation.

This screen-based trading will help small and marginal farmers participate as it will be possible to do trading in small quantities, without any dependence on middlemen to sell their small marketable surpluses. The e-trading will also remove the problem of information asymmetry, as price information will be available instantaneously in any terminal and quality assessment will be done before the transaction. The trading will help the producer get the best possible price for his commodity/produce. Potential participants/traders on the exchange platform can be farmers, farmers' associations/co-operatives, corporate, wholesalers, exporters, importers, processors, the government, etc.

### Requirements for successful implementation of e-spot trading:

- Amendment of the APMC Act that gives recognition to these electronic spot exchanges.
- Good warehousing facilities, coupled with grading facilities at market yards where farmers' produce can be graded and stored, as well as be able to pledge produce for warehouse receipts. This will enable farmers to get easy financing.
- Setting up grading laboratories at market yards for establishment of uniform grading/quality standards. APMCs stand guarantee to the quality specified in the auctioned lots.
- Arrangement with transporters who can ensure delivery of the goods sold.
- Removal of restrictions on interstate movement of agricultural produce.
- Setting up of trader work stations, leased lines, internet facilities, power backups, etc
- Establishment of contract specifications that include particulars such as opening of contracts, unit of trade, base value, price quote, maximum order quantity, delivery specifications (delivery unit and centre) and quality specifications (grades, standards, tolerance limits, etc).

### APMCs and spot trading – the PPP model of transformation

Though the e-spot trading is a good alternative to traditional marketing, the investment needed to set up national-level electronic spot exchanges (NESE) by every APMC is likely to be a deterrent. The infrastructure and quality of manpower needed are also deterrents to setting up of an e-trading platform in agriculture. Therefore, a viable model is to have a PPP with NESEs. This can be done at the state level by organizations like State Marketing Boards, which will link each APMC with the existing NESE.

### Synergy between APMCs and NESEs

Synergy in this PPP is feasible due to the complementary nature of the two entities — APMC and NESE. APMCs have physical infrastructure, knowledge and catchment of commodities, while electronic spot exchanges have pan-India reach with a robust delivery and payment mechanism, which can create an effective combination to transform agriculture marketing. NESE is neither a buyer nor a seller nor a commission agent. It is a facilitator that undertakes delivery and payment responsibility and, thus, functions like a national-level APMC facilitating trade between the buyer and the seller. While APMCs provide a backward integration, linking farmers to market yards, NESEs provide a forward integration linking processors, exporters, end-users and upcountry

buyers to local delivery points. Hence, the synergy between APMCs and NESEs will complete the chain and make it most efficient.

NESE is a new distribution channel with trade guarantee that offers advantages to the overall marketing system. It allows desktop monitoring of trade, offers efficient warehousing and logistics support, guarantees quality, functions as a complementary market to derivative traders, facilitates timely disbursement of commodities and funds while ensuring transparency in transaction and settlement. More importantly, being online and accessible to traders located across the nation, it prevents information arbitrage from getting added to consumers' rupee. This model of marketing of produce has advantages for farmers, APMCs, traders and exporters. Farmers will have better price realization, lower transaction cost, easy access to credit, clarity on quality requirements and quicker transaction. APMCs will have better realization of market fees, greater outreach and timely transaction. Traders will have a big and liquid market, where they can sell a large quantity, with the elimination of counterparty risk, credit risk, rejection at the buyer's godown at the time of delivery and easier access to bank finance against warehouse receipts. With the grading system in place, they can effectively use the futures market for managing their risk. With operational ease, availability of finance and absence of counterparty risk under the NESE system, they can expand their activities to multiple commodities. Exporters can buy certified quality material through a secured platform. Hassles relating to procurement of material in physical markets can completely be avoided. Exporters can save brokerage or commission payable to procurement agents. Using the price available at NESE, they can make export commitment and cover themselves immediately by buying at NESE.

### Efficient Grading System

Formal grading of agricultural commodities is very rarely done for internal transaction in India. This has caused the 'lemon problem' in agricultural markets where bad quality produce drive away good quality produce in the market as there is no price incentive for farmers to supply better quality produce. This also has led to a larger gap between the quality of domestically traded produce and internationally traded produce, making exports of agricultural produce difficult. In addition, imports of good quality produce are taking place to meet the needs of the emerging quality-conscious section of Indian population. Reversing this trend necessitates development of a value chain that is conscious of quality. This can be effectively facilitated by introducing grading at the primary wholesale market level.

Although Agmark standards and labelling has been in existence for nearly half a century, its reputation has not helped produce quality crop in India. Also, for commodities, grading is hardly practised in the country. But then the pressing need for a good system of grading to bring in quality consciousness among various participants in the agricultural value chain can hardly be overstated.

A good grading system ought to have unquestionable integrity and standards in line with the requirement of trade, continuous upgrading of standards and harmonising with international standards. This could be achieved effectively with participation of both the public and private sectors. While the government should set standards and continuously undertake research to upgrade and harmonise, the private sector can develop a system to implement it effectively. While steps should be taken to update Agmark standards to reflect consumer preferences and technical needs of processors, a few national-level companies can be accredited for grading and certification of agricultural produce. These companies can have franchises so as to create enough facilities for grading and certification at all APMCs. This will help in facilitating e-spot trading, warehousing, financing and forward contracting. The commodities futures exchanges already have already a grading system in place, but a robust grading system can be set up only when the government too pays adequate attention to the development of standards and grading systems.

### Efficient Warehouse Receipt System

An efficient warehousing receipt system can go a long way in helping reduce transaction costs in the supply chain and facilitate financing of agricultural commodities. A scientific method of storage, which prevents deterioration in quality and quantity during storage, will give financial institutions the confidence to extend easy financing. The extent of finance that the market participants can obtain through pledging will also increase. This will also make transactions over long distances easier. There are private sector companies which are already providing scientific warehousing facilities including collateral management. With appropriate backup of legislation, the warehouse receipt system will become easier to implement.

With the warehouse system available at the APMC level, a farmer can either sell his quality certified/graded produce immediately through an e-spot exchange or defer the sale. In case of deferment he may go to pledge financing to meet immediate financial requirements. This protects farmers from distress sales.

### Efficient Forward Market

With the futures market, grading and warehousing system in place, private companies can offer retailing of commodity futures contracts at the APMC level. A formula can be established to retail futures contracts to farmers in the form of forward contracts. Since there is a problem of uncertainty about the amount of yield, forward price contract may require a yield insurance to be obtained as a prerequisite. Once the decision on planting certain acres of a particular crop is made, he can obtain insurance and then forward sell at an APMC. In case there is a shortfall of yield, the insurance can be used to make up the losses. As more and more agencies come up to retail forward contracts, a much needed healthy competition to provide this service will be created at the APMC yard. With yield insurance and forward contracting, farmers can effectively address both yield and price risk, which will enable the farmer to obtain credit easily.

### Efficient Insurance Market

Yield insurance has been existence in India for more than three decades for crops such as rice and wheat. However, they are offered on an area basis, as there are no effective ways of dealing with moral hazard and adverse selection problems. Nevertheless, with increasing sophistication in the data collection methodology, individual assessment-based insurance will become a reality. Such an insurance system will address the risk management needs of farmers effectively. With a good insurance market, financing at the farm level and, thus, credit access to farmers becomes easier.

### Conclusions

An integrated approach, in which efficient systems of e-spot trading, grading and quality certification, scientific warehousing and collateral management, crop/weather insurance, and futures-benchmarked OTC offered forward contracting could exploit complementarities between agricultural marketing and financing, will help address current problems in these functions. The ultimate objective is to develop marketing and financing systems wherein price discovery takes place in an efficient manner, cost of marketing reduces, quality of produce improves, farmers are able to get their payment in time, farmers get both production and marketing credit in time, transaction costs are reduced and risks are minimised.