



MARKETING

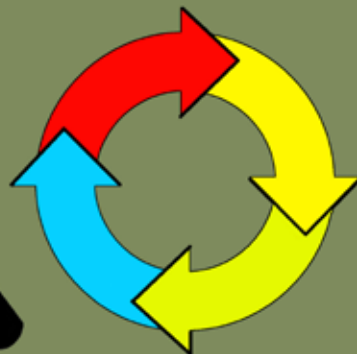
Adding Value..





AGRICULTURE INFRASTRUCTURE FUND

Weaving the thread of Marketing, connecting every step from Farm to Plate



Bimbadhar

CLICK an AIF Loan Today

www.agriinfra.dac.gov.in



Recognized by DPIIT, Ministry of Commerce & Industry | UGC recognized 2 years MBA program in Delhi NCR

100% PLACEMENT RECORD

MBA-FOOD & AGRIBUSINESS MANAGEMENT

MBA-MICROFINANCE & RURAL MANAGEMENT

PGP-AGRI ENTREPRENEURSHIP & FAMILY BUSINESS

SPECIAL FEATURES OF ISAB

- 100% PLACEMENT RECORD WITH AVG. 6 LPA CTC
- 3+ INTERNSHIP OPTIONS IN OFFLINE + VIRTUAL MODE
- FACULTIES FROM IIM, IRMA, MANAGE ALUMNI BASE
- 200 HRS CLASSES ON SPOKEN ENGLISH, BUSINESS ANALYTICS
- FOREIGN VISIT AT ISRAEL, SINGAPORE, DUBAI ETC.*
- 80+ EXPERT TALKS & EXPOSURE VISITS

FINANCIAL SUPPORT BY ISAB

- INR 2.0 LAKH* FAME SCHOLARSHIP ON MERIT & DEFENCE
- INR 7.5 LAKH EDUCATION LOAN SUPPORT WITH PSU BANKS

*T&C APPLY - AS PER ELIGIBILITY MATRIX



DEEPIKA BHARTI
(MBA FABM 2023-25)

ADMISSION OPEN FOR MBA-FABM, MBA-MFRM, PGP-AEFB 2024

Imperial School of Agri Business (ISAB) www.isab.org.in

CONTACT: 7440977485,8319400485 CAMPUS: 30/7, Knowledge Park III, Greater Noida, Uttar Pradesh 201308

◆ ISAB RECEIVED "INDIA AGRIBUSINESS AWARD 2022" AT 5TH INDIA AGRIBUSINESS SUMMIT 2022 ◆

PAST RECRUITERS



ISAB HAS SECURED 8TH RANK AMONG TOP AGRIBUSINESS COLLEGES IN INDIA



Founder & Editor-in-Chief	MC Dominic
Managing Director	Shiny Dominic
Group Editor & CEO	Mamta Jain
Executive Editor	Rajni Shaleen Chopra
Sr. Vice President Corporate Comm. & PR	P.S. Saini
GM - Business Development	Megha Sharma
GM - Events	Harsh Kapoor
Special Initiatives	Anika Bassi Parikshit Tyagi
Circulation	Abdus Samad
Sr. Graphic Designer	Md. Nasim Ansari

Printed and Published by :
MC Dominic
60/9, 3rd Floor, Yusuf Sarai Market, Near Green Park Metro Station, New Delhi-110016

Printed at :
Pushpak Press Pvt. Ltd.
Shed No. 203, 204, DSIDC Complex Indl. Area, Okhla Phase-I, New Delhi-110020

All rights reserved.
Copyright @ Krishi Jagran Media Group. Agriculture World is published by Krishi Jagran Media Group.
Editor in Chief: MC Dominic

Content Disclaimer
Please note that the information in this magazine, does not make any claims. Agriculture World has made a constant care to make sure that the content is accurate. and the views expressed in the articles reflect the author(s) opinions.

CONTENT

08	Dr Faiz Ahmed Kidwai
12	Dr Ramesh Mittal
16	Dr. J. S. Yadav
20	Dr Tanweer Alam
22	Dr KC Bansal
24	Dr Amrit Sagar Mittal
26	Mr. Sanjay Kumar Agarwal
30	Dr. Ajay Ranka
32	Mr Mahendra Singh Sawanni
34	Mr BS Chalal
36	HIMACHAL PRADESH
42	Mr Shrikant Kuwalekar
44	Mr Suri Sehgal and Mr Jan Leemans
48	Mr Ajay Bhartiya
52	Dr. Prafull Gadge
54	Mr Agnishwar Jayaprakash
56	COSAMB
60	Maize Cultivation
62	Tackling Low Agricultural Productivity
66	Mr Hanurmant Yadav
70	Mr. Haresh Karamchandani
72	Mr Chandan Bhalla
76	Dr. J. S. Yadav
80	Mr Sumit Sharma
82	Shailesh Chitre
84	Dr. Jolly Masih
86	Mr Shailendra Singh
88	Dr. Lisa Mariam Varkey

TELEVISION

Vital Role of Media in Connecting Farmers with Markets



M C Dominic
Founder & Editor-in-Chief

In the agriculture sector, media's role transcends mere communication. The media serves as a conduit. It is the bridge that spans the vast chasm separating farmers from markets. Through various mediums such as television, radio, newspapers, and increasingly, digital platforms, media plays a multifaceted role in connecting farmers with markets. In this way, the media fosters a symbiotic relationship that is indispensable for agricultural prosperity.

First and foremost, media acts as an information hub, disseminating crucial market insights to farmers. Through market reports, price trends, and commodity analyses, media equips farmers with the knowledge needed to make informed decisions regarding crop selection, timing of harvest, and pricing strategies. This access to timely and relevant information empowers farmers, enabling them to optimize their yields and negotiate better deals in the marketplace.

Media serves as a platform for market linkage initiatives, facilitating direct interaction between farmers and potential buyers. Agri-based programs, agricultural fairs, and digital marketplaces promoted through media channels provide farmers with avenues to showcase their produce to a wider audience, thereby expanding their market reach beyond local boundaries. Additionally, media platforms often feature success stories of farmers who have leveraged these opportunities, inspiring others and fostering a culture of innovation and entrepreneurship within the agricultural community.

In rural areas where internet penetration may be limited, traditional media such as radio and television remain indispensable tools for market connectivity. Radio broadcasts featuring live market updates, agricultural advisories, and interviews with industry experts serve as lifelines for farmers, keeping them abreast of market dynamics even in remote corners of the country.

Similarly, agricultural programs televised on regional channels not only educate farmers but also serve as platforms for market linkages, connecting them with buyers, suppliers, and government agencies.

Media plays a pivotal role in advocacy and policy formulation aimed at strengthening market infrastructure and enhancing farmers' access to markets. Through investigative journalism, documentaries, features, articles and opinion pieces, media highlights the challenges faced by farmers in accessing markets, amplifying their voices and galvanizing support for policy reforms. By fostering dialogue between stakeholders, media catalyzes the development of innovative solutions, such as the establishment of farmer producer organizations, creation of market information systems, and implementation of supportive policies that facilitate market access and fair pricing for farmers.

The role of media in connecting farmers with markets cannot be overstated. From disseminating market information to facilitating direct market linkages and advocating for policy reforms, media serves as a catalyst for agricultural development, nurturing a symbiotic relationship between farmers and markets that is essential for the sustenance and growth of rural economies.

"Farmer The Brand" Initiative



Krishi Jagran, the leading global agri-media house, has embarked on an innovative journey with its "Farmer The Brand" initiative.

This path-breaking initiative of the KJ Group revolutionizes the way farmers perceive themselves and are perceived by society.

This pioneering initiative seeks to elevate farmers from mere producers to recognized brands, celebrating their expertise, resilience, and contributions to society.

At the heart of the Farmer The Brand initiative lies a profound recognition of the inherent dignity and value of farming as a profession.

By spotlighting individual farmers and their success stories, Krishi Jagran aims to debunk stereotypes and challenge the prevailing narrative surrounding agriculture. Through compelling narratives, multimedia features, and interactive platforms, the initiative showcases the diversity and ingenuity of farmers across the country, shedding light on their innovative practices, sustainable approaches, and entrepreneurial ventures.

One of the key objectives of the initiative is to instill a sense of pride and ownership among farmers, empowering them to embrace their identity as brands.

By highlighting the unique selling points of each farmer – be it their organic farming methods, niche crop varieties, or value-added products – Krishi Jagran seeks to position them as market leaders and influencers in their respective domains. Through workshops, training programs, and networking events, the initiative equips farmers with the skills and knowledge needed to leverage their brand identity for business growth and market expansion.

'Farmer The Brand' initiative serves as a platform for collaboration and partnership between farmers, agribusinesses, and other stakeholders. By fostering connections and facilitating knowledge exchange, Krishi Jagran catalyzes the emergence of a vibrant agricultural ecosystem characterized by innovation, inclusivity, and sustainability.

In essence, the Farmer The Brand initiative represents a paradigm shift in how farmers are perceived and engaged with, transcending traditional notions of agriculture as a subsistence livelihood. By celebrating the entrepreneurial spirit and creative prowess of farmers, Krishi Jagran not only honours their contributions but also paves the way for a more prosperous and resilient agricultural future. As the initiative continues to gain momentum, it holds the promise of transforming the agricultural landscape, one farmer brand at a time.

Shiny Dominic
Managing Director

MARKETING - The Magic Mantra



Marketing plays an important role, not only in stimulating production and consumption, but also in accelerating the pace of economic development. However, due to lack of professional selling calibre, good prices continue to be illusive for FARMERS in India. Why?

Forced sales due to exploitation, middlemen pocketing most of the profit margin, lack of storage facilities, monopoly of traders & money lenders... The list is long! Farmers suffer more in marketing their products than during the production process.

Some key aspects of Agriculture Marketing would be:

- **Distribution Channels:** Agriculture marketing establishes the pathways through which agricultural products move from farms to consumers. This involves various intermediaries such as wholesalers, retailers, and distributors who help in transporting, storing, and selling agricultural products.
- **Price Discovery:** It helps in determining fair prices for agricultural products based on supply and demand dynamics.

- **Market Access:** It opens up opportunities for farmers to access domestic and international markets beyond their local regions.
- **Value Addition:** Agriculture marketing encourages value addition to agricultural products through processing, packaging, branding, and other activities. This adds value to the products and allows farmers to capture a larger share of the consumer spending.
- **Risk Management:** It helps in managing risks associated with agricultural marketing such as price volatility, seasonality, and market uncertainties. This can involve hedging strategies, futures contracts, and other risk management tools to stabilize income for farmers.

Overall, agriculture marketing plays a vital role in ensuring the efficiency, profitability, and sustainability of agricultural production systems by facilitating the exchange of goods and services between producers and consumers.

This edition of Agriculture World attempts to decode & deliberate upon these complexities and aspects of Agricultural Marketing with experts brainstorming on Initiatives & Policy Interventions to Extend Marketing Support to Farmers of India.

Mamta Jain
Group Editor & CEO

Changing Paradigm of Agriculture Marketing in India

Macroeconomic Overview

“FPDs are being promoted on end-to-end value chain-based concept with focus on value addition, processing, marketing and export

ABOUT THE AUTHOR
Dr Faiz Ahmed Kidwai,
 IAS, is Additional Secretary (Marketing), Ministry of Agriculture & Farmers Welfare, GOI and Director General, CCS NIAM



Agriculture is important for a country like India. More than 47 percent of our nation's population depends on agriculture. According to estimates, agriculture, livestock, forestry & fishing contributed to 48.09 lakh crores to gross value added during the financial year 2023-24 (1st advance estimates at Current Prices, FY 2023-24-NSO). Though, contribution of agriculture in Gross Domestic Product of the Country has come down over years, it is still the primary source of livelihood for majority of the Indian working population.

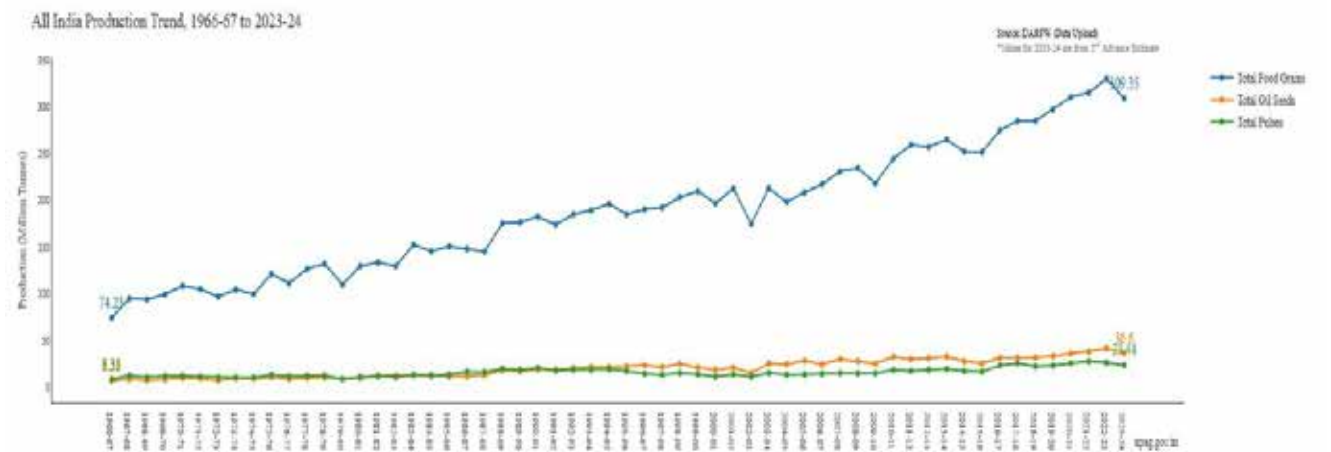
In this context, it is important to say that an effective and efficient agricultural marketing eco-system has potential to facilitate farmers to realize a remunerative prices at micro level on one hand and to accelerate for significant contribution to Gross Domestic Product (GDP) at macro level on the other. Considering present status of the agriculture balance sheet, the supply side support / initiatives have been well taken care of and the demand side initiatives is still lacking to capture marketable surplus causing disequilibrium to get fair prices for the agriculture and allied produce. Keeping this in view, the Central government in association with state governments is working on a multi-facet strategy for strengthening and developing robust agri-market ecosystem to increase the net incomes and socio-economic development of the farming community and also to protect the interest of the consumers too.

Agricultural marketing has over the years witnessed different growth-phases right from deficit production to surplus production, correspondingly evolving from barter system to mandi system and now to neo-tech based competitive and transparent marketing through e Market Platforms and ONDC

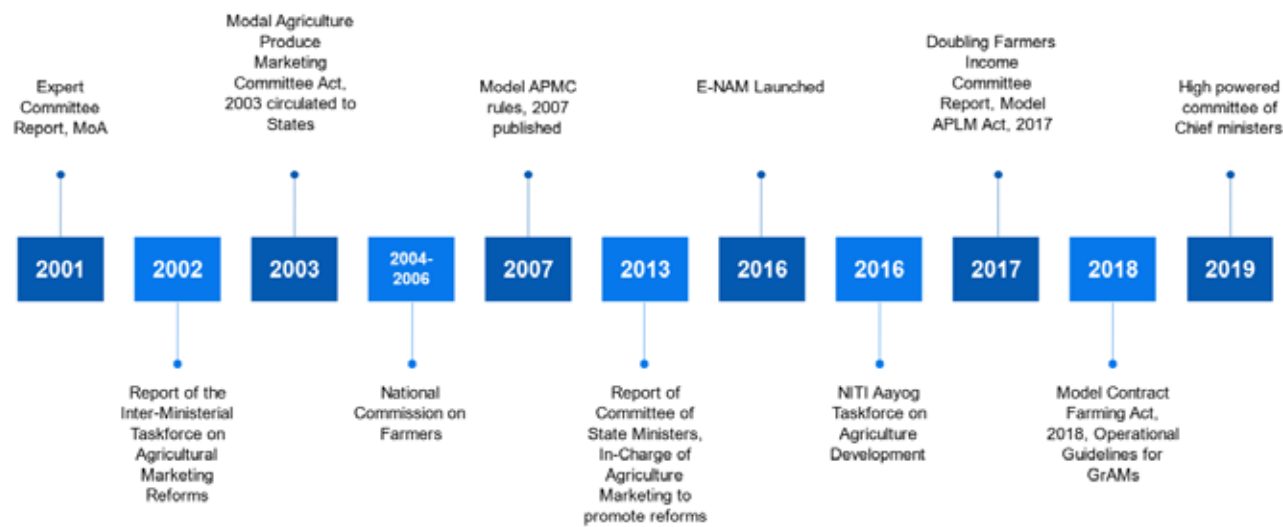
Focus on supply side Initiatives and scaling of production

Adoption of cutting-edge technologies, tireless efforts of the farming community round the clock propelled by farmers' friendly, pro-active policies and initiatives of the government have alarmingly transformed the Indian agriculture from the state of deficit production to not surplus production and to net exporter also. When we look at the supply side performance of agriculture in terms of buoyant foodgrain production, it has increased significantly from 74.23 million MT in 1966-67 to 329.68 million MT in 2022-23 with pulse production from 8.35 MT to 26.06 MT.

Oilseeds production has during the period increased from 6.50 MT in 1966-67 to 41.35 million MT in 2022-23 (source: Final estimates of production released by DA&FW on 18th October, 2023). The horticulture production has outperformed the food grain production by touching 355.48 million MT (Source: final estimate for 2022-23 as released by DA&FW on 7th March, 2024. But, the marketing still remains a challenge as income improvement to the farmers has not been able to keep pace with the production. Therefore, Government's focus is more on demand side (marketing side) and production dynamics is also linked with the market- demand. A chart depicting the production is given below-



Chronology of Agricultural marketing reforms



Focus on Demand Side Initiatives and Strengthening of Agri-Market Eco-system

On the cost of repetition, it is reiterated that despite remarkable progress in supply side in scaling up the production and productivity level, we have so far been struggling to bring about a corresponding improvement in the standard of living of the vast majority of farm households, who depended on the agricultural sector for their livelihood security. It is also true that the country has made discernible strides to progress on the demand front. Historically, we have progressed from primitive barter system of marketing to village merchants dependent marketing to mandi system and now to the paradigm shift of agricultural marketing. The ideal market and marketing of today what the Government is intending to put in place is as follows.

Farmers' collectives as Farmer Producer Organisations (FPOs):

Realizing the truth of fragmented land holdings and small size of surplus produce to bargain with the buyers and economically transport to sell in the markets offering remunerative prices, Government is promoting Farmer Producer Organisations (FPOs) through its policies, programs and schemes.

FPOs are being promoted on end-to-end value chain-based concept with focus on value addition, processing, marketing and export. In the country, there may be around 27,000 FPOs, of course exact data in this regard may not be available. These FPOs, apart from ensuring cost efficient production and productivity, will be instrumental in providing the marketing facility to its farmer-

members and other farmers. FPOs are engaged in export, trading their produce through NCDEX, eNAM and ONDC. This is one of the paradigm shifts of agricultural marketing.

Ease of Doing Agritrade through adoption of Reforms in Marketing Laws And Policies

The organised wholesale marketing of agricultural produce is undertaken through the network of APMC markets administered under States' APMC Acts. While APMCs brought in a great improvement from the preceding village trader- dominated exploitative system, but they failed to serve the full objective of better price discovery in transparent manner.

To push the agricultural marketing system in the country to the next level of development through transparency, competition, market efficiency, participation of private players and to take advantage of changing trade environment world over, Government with the States initiated the process of reforms since 1999-2000 and now we are actively engaged to promote ease of doing agritrade through adoption of reforms. From academic point of view, efforts of the Government are given in chronology below:

Agriculture Market Infrastructure/ Facilities

Agricultural marketing infrastructures and facilities tend to improve marketing efficiency reduce transactional losses and improve the ease of doing agri-trade also with the overall benefits to the farmers to realize better value from their produce. The government, realizing the need, has been implementing various schemes like RKVY, MIDH, AIF and AMI and so on to create

Farmers' accessible a competitive market with adequate infrastructure/facility wherein well informed farmer has the choice of bargaining and transparently discover the best price. Farmers' collectives, digitization of marketing, ease of doing agri-trade and linking the primary market with value addition are critical components.

marketing infrastructure. To improve infrastructure specifically in APMC markets, assistance under AMI sub-scheme is being provided and a process of infrastructure indexing has also been started of States with a view to create healthy competition among them for more infrastructure.

Digital Marketing

GOI formally launched a virtual market platform as eNAM platform in April, 2016 as new paradigm in agriculture marketing with the objective to ensure farmers to get best discovered price in transparent manner. Under the project entire flow line right from entry of produce to registration of farmers, generation of lot, testing of lot and finally exit has been digitized. The scheme was piloted with integration of few mandis with eNAM portal to now nearly reaching to milestone of 2,000 mandis. Now, the Government has been actively working move beyond APMC mandis through operationalization of ONDC, iMandi and MNIP. This is a paradigm shift in agriculture marketing.

Empowering farmers with market information: Market information is needed by farmers in planning production and marketing of their produce. Availability and dissemination of complete and accurate marketing information is key to achieving both operational and pricing efficiency in the marketing system. Advancement in Information and Communication Technology (ICT) has made the world a smaller place and a larger market at one go.

To fully utilize the new emerging marketing opportunities for the benefit of farming community, establishment of an ICT based

"Agricultural Marketing Information Network" in the country has become inevitable. Ministry of Agriculture had launched the ICT based Central Sector Scheme of Agricultural Marketing Information Network (AGMARKNET), in March 2000, to link important agricultural produce markets spread all over the country and the State Agriculture Marketing Boards and Directorates.

At present about 3849 markets nodes have been integrated to AGMARKNET nodes and reporting price information of 323 commodities. Several steps have been taken by the Government to improve the AGMARKNET from time to time to capture the market related information and effective dissemination of this information to various stakeholders including farmers to enable farmers to take better market linked production and marketing decision for better price realization.

Promotion of Quality through Grading and Standardization of Agriculture and Allied Produce

The practice of grading agricultural commodities ensures the farmers to adopt the quality specifications for their products, which in turn avoid them being exploited from the traders and obtaining good price for the produce. The Agricultural Produce (Grading and Marking) Act, 1937 provides for framing of grade standards and their certification. At present the grade standards of 245 commodities have been notified under the provisions of the Act. Furthermore, tradeable parameters are also notified for use at eNAM platform.

Agriculture Marketing in India

The Changing Paradigm

ABOUT THE AUTHOR

Dr Ramesh Mittal is Director(C), CCS National Institute of Agricultural Marketing, Jaipur

“*The concept of farmers’ market has been experimented in various states with different names*”

Agricultural marketing in India has undergone a sea change over the last 70 years owing to increase in the production and marketable surplus of major agricultural commodities, better income levels and urbanization and thereby changes in the pattern of demand of farm products, slow and steady increase in linkages with the overseas markets and changes in the form and degree of government intervention in agricultural markets. An efficient marketing system minimizes costs and maximizes benefits of different players participating in the food supply chain. It is facilitating to farmers in realization of remunerative prices and make good quality food available at reasonable prices to the consumers. It is also ensuring optimum margins for different players participating in the supply chain to allow them to continue in the business.

In India, agricultural marketing has made significant progress since independence in spite of many challenges. A dynamic and vibrant marketing system with adequate supply chain infrastructure

has been felt necessary to keep pace with the changing agricultural production and growing marketable surplus. The basic objective of setting up of network of physical markets has been to ensure reasonable gain to the farmers by creating environment in markets for fair play of supply and demand forces, regulate market practices and attain transparency in transactions. At present, Agricultural Produce Market Committee (APMC) Act is supported agriculture marketing by most of the states in India.

Initiatives to Extend Marketing Support to Farmers

Types of linkage can be categorized in various ways.

- Farmer to domestic trader;
- Farmer to retailer;
- Linkages through a leading farmer;
- Linkages through cooperatives;
- Farmer to agro processor;
- Farmer to exporter;

- Contract farming.
- E.NAM;
- FPOs/FPCs Etc.

These categories do not, of course, represent the whole range of market opportunities available to farmers. In some states government marketing boards continue to playing an important role. Procurement by government institutions, such as the military and hospitals, can be an important market and several states implement school-lunch programmes (Mid-day meal) that provide direct-sale opportunities for rural agri producer farmers.

Spot markets such as wholesale markets, commodity exchanges and auctions, are not a characteristic of linked markets and are largely absent from the examples. Nevertheless, it should be noted that simple activities to link farmers with traders supplying spot markets, e.g. through bulking-up production for sale, can be very effective. Farmer to domestic trader. Traders have traditionally interacted with farmers on a one to-one basis, either buying from them at local markets or at the farm gate.

Purchases at local markets can be relatively efficient if they enable the trader to buy sufficient quantity to achieve economies of scale with subsequent transport, which is usually the main marketing cost. On the other hand, purchases at village level can often be extremely inefficient and this can contribute to the high marketing costs that often lead to allegations of exploitation of farmers by traders.

Such costs can be reduced if farmers can work together to assemble all their products at one location, for purchase by one or more traders. An arrangement such as this rarely develops without an external catalyst.

Vital Linkages

It should not be forgotten that many traders experience significant cash flow constraints and while they may well have considered the idea of working more closely with farmers, the time taken to discuss and decide with them is often a transaction cost they cannot absorb. Farmer to retailer. Large supermarket chains will not usually want to work with individual farmers on a long-term basis. Here FOPs/FPCs are providing an example of where this does happen, may well represent more of a transitional arrangement.

The linkages between one supermarket and a number of farmers is interesting but may not prove to be a replicable model to elsewhere, given its dependence on the individual initiative of a supermarket owner. One of the important issues highlighted is the difficulty faced by many farmers in meeting quality specifications, even when in receipt of technical assistance/support from the company.

Linkages Through A Leading Farmer. The coordinating role of these farmers may not be entirely altruistic; increasing quantities available for sale may open up market opportunities that would not otherwise exist.

Linkages through cooperatives: Around the country there are notable examples of well-functioning marketing cooperatives.

The success of this relatively limited number of cooperatives is often used to justify further investment to try to replicate that success elsewhere. Unfortunately, with these honourable exceptions, Earlier the track record of cooperative development has often been disappointing now it gearing up due to new policy and efforts.

Farmer to agro processor. One of the challenges that processors face is that investment in buildings and equipment necessitates full utilization of that capacity. Processing is therefore not necessarily viable for crops that have a limited growing season, unless they can be stored for a considerable time.

Farmer to exporter. As such, they exhibit many of the characteristics of linkages between farmers and domestic traders. Otherwise, have made contact. Exports to more sophisticated

markets than those described can involve farmers in considerable complexity and risk. The high quality, safety and logistical standards demanded by importers (e.g. for organic certification, for EurepGAP or for the purposes of traceability) can be expensive and difficult, although not impossible, to achieve by smallholders.

Contract farming. As a form of agricultural production contract farming has been practised for many years. There are many advantages with this mode of production for companies. Linking with small farmers enables them to overcome land constraints that would be present if they attempted to produce everything themselves. It is often more efficient than plantation agriculture and certainly more politically acceptable.

Offsetting this is the ever-present risk, for many crops, of extra-contractual marketing by farmers. There are also complications associated with ensuring that production is to the required standard, and in organizing the supply of inputs to farmers and the collection of outputs. In some cases contract farming companies have approached NGOs to organize farmer groups to receive inputs and collect outputs for supply to the factory.

Recent Developments And Strategies

Government has realized the importance of an efficient agricultural marketing system in helping farmers not only in realizing the best possible price but also to diversify towards other crops and enterprises and avail the benefits of international market. Accordingly, some of the leading developments in marketing of farm produce are listed below – Improving the performance of wholesale markets – There are 7000+ regulated wholesale markets operating in the country.

In order to strengthen the marketing system at wholesale level, More than 16 states have introduced provision of direct marketing and markets under private/ cooperative sectors. As an outcome of these initiatives, more than 50 private markets have been established/ licenses issued. Unified license is also in important initiative to improve trade activities in regulated wholesale markets.

A total of 72260 unified licenses have been issued by more than 20 states/UTs. Deregulation/ Delisting and Exemption of Market Fee on Fruits and Vegetables – In order to promote marketing of perishables and encouraging emergence of alternative marketing channels for fruits and vegetables, various states have deregulated/ delisted and exempted Market Fee on Fruits & Vegetables. States like Assam, Odisha, Meghalaya, Gujarat, West Bengal, Madhya Pradesh, Delhi, Nagaland, Karnataka, Himachal Pradesh, Haryana, Chhattisgarh and Maharashtra have supported this initiative in different form to encourage the marketing of perishables in their state.



Acting as intermediaries between farmers and various stakeholders, including the private sector and government, FPOs serve a strategic function

Strengthening Of Farmers' Markets

The concept of farmers' market has been experimented in various states with different names like Apni Mandis in Punjab and Haryana. The concept, with certain modifications, has been popularized in Telangana and Andhra Pradesh through Rythu Bazars, Raitha Santhe in Karnataka and in Tamil Nadu as Uzhavar Santhai. About 488 such farmers' markets are operating in different States of the country.

However, these markets mainly provide a platform for direct transaction between producer and consumer for supply of locally grown fresh produce unlike western concept where the platform is utilized for education and extension in addition to marketing.

Creation of infrastructure – Availability of infrastructure in markets play an important role in proper handling and reducing the post-harvest losses. The covered and open auction platforms exist in regulated markets, while markets have common drying yards. Cold storage units exist as per requirement, markets and grading facilities are also available. Electronic weigh-bridges are also available in markets.

Government has introduced various schemes like Integrated Scheme for Agricultural Marketing (ISAM) and Agricultural Infrastructure Fund to support creation of market related infrastructure. The provision has been made to strengthen Rural Haats / RPMs into Grameen 21 Agricultural Market (GrAMs) Envisaging online trading – The concept of e-NAM was launched by the Government on pilot basis in in the country. At present, a total of 1389 markets have been integrated with the electronic portal from 21 States/UTs with registered traders of 2,56,846.

The platform has been made comprehensive and more user friendly for the participation of FPOs. Creating local outlets at each village – The creation of local outlets where the farmers can sell their crops directly to the consumers or authorized buyers would be very beneficial. For farmers to reap the benefits of this network, government intervention is essential.

The Role of FPOs

Given their critical role, collaborating closely with Farmer Producer Organizations (FPOs) has become imperative. Acting as intermediaries between farmers and various stakeholders, including the private sector and government, FPOs serve a strategic function. They offer farmers access to lucrative business prospects and enhanced market connections. Moreover, FPOs provide valuable insights into output pricing, access to major buyers, and financial assistance. Acknowledging their capacity to foster a more inclusive and climate-resilient agriculture sector is paramount. This recognition marks the initial stride toward elevating the earning potential of farmers, facilitating seamless communication among stakeholders, and ultimately enhancing agricultural outcomes.

FPOs typically facilitate activities such as collective marketing, input procurement, value addition, and accessing financial services. By pooling resources and leveraging economies of scale, FPOs enable smallholder farmers to overcome individual constraints and achieve better prices for their produce. Additionally, FPOs often play a vital role in capacity building, knowledge dissemination, and fostering sustainable agricultural practices within their communities. Overall, FPOs serve as catalysts for rural development and empowerment, contributing to the socio-economic upliftment of farmers and rural communities.

Uncover how effective farm management can optimize productivity and sustainability for your agricultural operations.

Essential Goals Of Farm Management.

The main purpose of an FPO is to maximize farmers' income and to do so, they provide services and activities which help cater to such needs.

- Supply of quality production inputs like seeds, fertilizers, pesticides, etc at wholesale rate.
- Provides value addition facilities like cleaning, grading packing, storage and logistics at less cost.
- Machinery and infrastructural facilities like sprinklers, cultivators, harvesters, etc are given for rent and purchase.
- Facilitate market information on produce, demands, trends, price fluctuations, Government regulations, etc are shared with the members.
- Help reach bigger markets and export options with the help of pooling produce from its members.
- Bigger and better credit options are available compared to unregistered organizations.
- An FPO can accept deposits from members in the form of fixed or recurring deposits and disperse them as loans at a reasonable rate of interest.

Agricultural Marketing Reforms in the World Lessons for Indian Wholesale Markets

“There are no regulatory parameters followed for packaging, labelling, food safety and hygiene of products in Indian markets



Agricultural market reforms are designed to reduce or eliminate irregularities in the agriculture marketing sector and to enable market forces to operate more efficiently and effectively. In principle, reforms should allow agriculture commodities to receive prices commensurate to those prevailing in world markets. The types of reforms undertaken are generally of varied kinds, including that of the removal of trade restrictions, the devolution or dissolution of parastatal agencies, etc. and so on.

These reforms may be classified, based on areas of intervention in the agricultural marketing sector like prices, quantities, institutions, issues of governance and performance etc. Reforms must also take into consideration the fact that each market requires a customized analysis and unique and special intervention as there are no two equal markets, no two equal countries, no two equal groups and no two identical governing authorities.

In 2003, India brought pioneering initiatives on reforms in Agriculture Marketing by forming Model APMC Act (Agricultural Produce Market Committee Act) encompassing the old APMR Act. Amendments were further made to the Act in 2017, after sensing the need for more elaborated and updated provisions. But even after doing this, there is still significant disparity on coverage and direction with the world legislations for the wholesale market and the Indian Model Act-2017.

COSAMB has been engaged ever since its inception in conducting functional research studies on contemporary issues of Agricultural Marketing. The “Status and Pattern of Legislative Reforms in the World and its Effect on the Wholesale Market” is the latest and probably pioneering effort of COSAMB in the field. The main purpose of this study is to draw the attention of the Indian Government and Stakeholders of State Agricultural Marketing Boards of India towards an urgent need to forego redundant and unnecessary regulations and to match the International Market Standards towards building a unified single market and harness maximum benefits of globalization in agriculture sector.

Primary data for this study was collected in 2020.

Market Reforms

The coverage with respect to Market reforms consists of identified 39 regulatory parameters which are categorized under, Regulatory Functions (Price discovery/auction, Payments settlement system, Weighment of products, Packaging and labelling, Farmers’ protection and unauthorized deduction, Retrenchment); Types of Markets (Wholesale public market, Wholesale private

“India needs modern hygiene integrated wholesale markets for fruit and vegetables with all facilities of quarantine, quality, exports, modern labs, etc.

ABOUT THE AUTHOR

Dr. J. S. Yadav is Managing Director, National Council of State Agricultural Marketing Boards (COSAMB), New Delhi. He is also a Director in the World Union of Wholesale Market (WUWM), The Netherlands and has wide exposure in Agricultural Marketing

market, Consumer market, Farmer market, Seasonal commodity market); Permissions required for setting up of different types of markets (Wholesale public market, Wholesale private market, Consumer market, Farmer market, Seasonal commodity market); Types of Operators present in the market (Commissioned agent, Trader/Buyer, Retailer, Processor, Exporter); Licenses for the Operators in the market (Single License, Direct Marketing License); Licenses for the Operators trading in the market (Commissioned agent, Trader/Buyer, Retailer, Processor, Exporter); Regulation of Market Charges (Market fee, Marketing charges, Tax, License Fee, Fines, Rentals, Levy, License Fee for Market); Jurisdiction of market area; Notification of product mix; and Regulatory Mechanism for monitoring Logistic Services in the market. 21 major wholesale markets of the world covering 16 major identical countries like, Belgium, Denmark, France, Portugal, Spain, United Kingdom, Poland, Ukraine, Italy, The Netherlands, Germany, Serbia, Vietnam, Republic of South Korea, Argentina, Mexico, Australia, India, USA, Australia, Turkey, etc. were studied.

The Regulatory Function involves five parameters which are Price Discovery/Auction, Payment Settlement System, Weighment of Product, Packaging and Labelling, Farmers’ Protection, unauthorized deductions, and Retrenchment from sale proceeds, etc.

In the study, it was found that in the regulatory parameters of Regulatory Function, South Korea followed 79% of the parameters while Vietnam followed 62%; Argentina and Ukraine followed 59%. The highest response under regulatory functions was found for packaging, labelling, food safety and hygiene that was followed by 43% of surveyed markets. 29% markets also followed weighment

of products and 24% markets followed farmers’ protection, price discovery/auction and the payment settlement system parameters of regulation.

Types Of Markets

The reforms parameters were also classified according to the type of markets which can be Wholesale Public Market, Wholesale Private Market, Consumer Market, Farmers Market and Seasonal Commodity Markets, etc. In the findings, it was found that out of the 21 markets of 16 countries, 71% of the countries own public markets, 38% countries also contain private markets while 62% countries have farmers market with 48% countries with consumer markets. USA is an exception of having four different types of markets which are wholesale public markets, consumer market, farmers market and seasonal commodity markets.

or the establishment of a new market, permission required varies country to country and type of market. Out of the different types of markets studied, it was found that permission is required for establishments of all types of markets. The results indicate that 67% markets were public markets and farmer markets. In countries like USA, Poland, Australia and Vietnam, no permission is required in establishing the above said type of markets whereas in India, Spain, Germany, Netherlands, South Korea, Ukraine, etc., one is required to seek prior permission for establishment of all types of markets.

A market consists of different types of operators operating such as, Commission Agent, Trader/Buyer, Retailer, Processor and Exporter. In the study it was found that 90% of sampled markets had traders/buyers as the main operators, of whom 62% were



processors. 57% of markets require retailers, 52% markets register exporters, and only 48% of markets require commission agents.

USA, Argentina and Vietnam have three types of operators which are commission agent, trader/buyer and retailer whereas India has only two types of operators which are commissioned agent and trader/buyer.

Market Needs

To operate in a market, Operators require license and market reforms with respect to requirement of licenses for the operators in the market varies from country to country. The study highlights that requirement of license for different operators in the surveyed markets differ drastically. 52% markets required license for traders/buyers, 38% of markets need license for exporters while 33% of the markets need license for retailers and processors, as against of only 29% of markets requirement for commission agents. USA markets require license for every operator except commission agent whereas India have mandatory license for all operator except retailers.

To trade in a market, two other types of licenses are required i.e. Single License and Direct Marketing License (DML). Single License operator can obtain the said license from the respective market committee for trading in the commodities in any other authorized market. Direct Marketing License (DML) operator can directly purchase from farmers. The results reveal that 48% of markets responded with the necessity of requirement of single unified license for the operators, while 10% markets responded in favour of direct marketing license. USA, South Korea and Vietnam

have single license policy for the operators whereas in India, all types of licenses including that of DML and single unified License, are necessary to operate in a market.

Market reforms with respect to regulation of market Charges involves the enforcement of public controls and restrictions on Market Fees, License Fees, Market Charges, Fines, Levies, Rentals, Tax, License Fees for the markets. It was found that under the category of parameters of market charges, 81% of the sampled markets followed the concept of regulation of taxes. USA regulates three types of market charges that are tax, license fees for the establishment of the market and levy; whereas in India, regulation of all market charges are enforced except rentals. Rentals are found to be the biggest source of revenue for markets in almost all countries except India. In lieu of market fee, rentals are almost equal in returns to meet out operative expenses.

Global Systems

Market Reforms with respect to Jurisdiction involves Regulation of Jurisdiction, Legislation/Regulatory Mechanism for Monitoring Logistic Services and Market Trades only in Notified Commodities. The results of the study indicates that 81% of the sampled markets followed the concept of regulation of jurisdiction across countries. USA, Spain, Germany, France, Belgium, Ukraine and Australia follow the concept of regulation of jurisdiction in the market area only whereas India follows all except legislation/regulatory mechanism for monitoring logistic services separately in market for notified commodities.

Lessons to Learn

From the study, it has been found that there are no regulatory parameters followed for packaging, labelling, food safety and hygiene of products in Indian markets while it is the main function enforced in most of the sampled markets of different countries. Most of the countries regulate this part through concerned agencies like FSSAI in India. Market Yard should be declared a Food Premises and FSSAI should regulate. Market operators like commission agents and traders/buyers dominate the Indian market while retailers, processors and exporters are not given exclusive rights to procure from the market while eliminating/reducing the number of Commission Agents. For trading across markets, Indian operator needs single unified license and direct marketing license while the markets of the sampled countries offer single license. Similarly, Indian markets do not have regulations for rental charges, whereas it is the highest revenue source as most regulated market charge in the sampled countries.

India also lacks in legislation/regulatory mechanisms for monitoring logistic services including third party service providers, like, quality, credit insurance, delivery, traceability, food safety, procurement, sales and payments, etc., separately in the market, which is common practice in other countries. With regard to the payment settlement system, the Indian government needs to be more innovative, creative, flexible, in coping with liberal systems followed by other countries. In view of the above mentioned disparities, it can be deduced that there is a gap in the regulatory functions of the Indian market and all the other markets of different countries of the world.

With the advancement of technologies and the incredible possibilities thrown up by the Internet, market integration (vertically and horizontally) envisages the world coming together to become one international unified market. To harness the maximum benefits of world trade, the Indian market needs to keep pace with the speed of development taking place globally. For this, the changes in the Indian Model Act can be initiated.

The Government of India should regulate only the limited regulatory functions in context of the WTO, to gain maximum market access with or without a single unified global market. There is a need for examining the suitability and acceptability of actually needed regulatory functions. Also, simultaneously, the concept of modern hygiene integrated wholesale markets for fruit and vegetables needs to be implemented with all facilities of quarantine, quality, exports, modern labs, etc. in the country.

The Country Level Action Plan has identified 35 such potential locations in India which can be developed as Global Green Hub (GGH) with the help of World Bank/ADB/Multilateral Agencies/ECB/FII etc. on the pattern of IIHM, Ganaur and Koheda Global Green Market, Hyderabad. This would enhance exports and improve farmers reach ensuring quality. A mapping of cardinal links and such identified markets can be done immediately with the help of COSAMB.

By following an isolated approach of reforms, Indian markets will never achieve its target of matching the standards of the world markets.

Effective Agriculture Marketing

Crucial Role Of Packaging

“ *Allowing the customers to view the goods through or on the package significantly influences their purchasing decisions* ”

Packaging plays a pivotal role in agricultural marketing, with multifaceted impact on consumer behaviour, product integrity, and market accessibility. Packaging serves as a crucial tool for differentiation, logistics management, and food safety, thereby enhancing market accessibility and influencing consumer perceptions. Innovations such as active and intelligent packaging further improve food quality and meet consumer preferences for sustainable materials. Various studies underscore the significant influence of package design elements on consumer opinions and purchase decisions, showing packaging's vital role in agricultural product success and overall economic growth.

Packaging and Its Major Elements

The major elements of packaging include marketing, logistics, food technology and environmental impact.

Marketing: A well-designed box draws in customers and serves as a tool for differentiation. It can also function as a successful communication and marketing channel. Other marketing elements of packaging include comfort of use and durability, background image and form, graphics, colour, colour contrast and size.

Logistics Management: Packaging is a vital component of logistics and supply chain management, supporting food supply chain activities and ensuring product traceability, involving producers, manufacturers, carriers, and retailers.

Food technology: Packaging plays a crucial role in food technology, ensuring food safety and integrity by preventing physical damage and environmental contamination. It also preserves food's sensory characteristics and nutritional value, preventing 10% of fruit and vegetable discarded due to quality issues. Packaging also informs customers about the product and its handling, ensuring they understand how to use the product.

Environmental Impact: It is primarily intended to lessen the energy used, the environmental effect, and the knowledge of the opportunity to recycle or reuse the packaging, among other things.

Innovations in Packaging

The development of novel packaging methods is aided by contemporary retail practices and evolving consumer preferences, all while maintaining food safety and quality standards. The growing popularity of packaged foods, microwaveable meals, and smaller food containers is thought to be the reason behind the

novel packaging industry's explosive expansion. Developments in packaging technology, including active and intelligent packaging, have led to the creation of numerous niche markets and a greater impact on food marketing.

Active packaging is a renewable resource-based material that aims to satisfy demand from customers for packaging materials that are recyclable, natural, and biodegradable. By changing the conditions of food, it increases food safety and extends its shelf life. Active packaging, which uses polymer substances with antimicrobial qualities, is utilised in place of traditional food processing methods. Because of their toxicity, synthetic antioxidants such as thioester, butylated hydroxytoluene, and organophosphate chemicals are rarely used. Alternatively, widely accepted safe alternatives such as essential oils, organic extracts, tocopherol, and botanical extracts are utilised to support the chemical stability of foods that are sensitive to oxygen (Majid et al., 2018).

Intelligent packaging is a function that automatically switches on and off based on environmental conditions, providing information about the product's status to customers (Zahra et al., 2016). Intelligent packaging improves food quality and safety by integrating food with its packaging or surroundings using Radio frequency indicators, biosensors, ripeness monitors, and time-temperature regulators to monitor food properties and environment, directly assessing product quality within the package (Majid et al., 2018).

Bio-based materials, derived from renewable resources like starch and cellulose, are being used for packaging due to their durability, environmental resistance, and shelf life (Zahra et al., 2016).

Packaging As A Tool For Marketing

According to the study conducted by Simmonds and Spence, (2016). Because of this, how well product pictures and/or transparency are used in packaging design greatly affects how well-received products are in the marketplace.

A study conducted by Waheed et al., (2018) found that font style and packaging colour significantly influence consumer purchase intentions. The study suggests that packaging is not just about wrapping a product; all elements play a critical role in promoting purchase intentions.

Based on the study conducted by Wilfred and Onyeakusiobi, (2017), the way that agricultural products are packaged directly influences the products that consumers pick. Likewise, there is a favourable correlation between the perceived quality of agricultural products and their packaging, and the characteristics of the packaging influence customers' perceptions of agricultural products.

Conclusion

In conclusion, packaging holds paramount importance in effective agriculture marketing, serving as a multifaceted tool that influences consumer behaviour, ensures product integrity, and facilitates market accessibility. Agriculture, being a significant contributor to a country's GDP, relies heavily on well-functioning markets for sustained growth and economic prosperity. Packaging is crucial for product differentiation, logistics management, and food safety. It enhances market accessibility, influences consumer behaviour, and communicates vital product information effectively. Innovations like active and intelligent packaging further improve food quality and meet consumer preferences for sustainable materials. Research underscores the significant impact of package design components' effects on consumer opinions and order decisions, highlighting its pivotal role in agricultural product success. Overall, strategic packaging plays a vital role in driving economic growth, fostering rural development, and ensuring the viability of the agricultural sector.

ABOUT THE AUTHORS

Dr Tanweer Alam is Additional Director & Regional Officer - Indian Institute of Packaging (IIP), Delhi and In-charge - IIP, Lucknow

Dr Meenakshi Garg is Associate Professor, Bhaskaracharya College of Applied Sciences (BCAS), University of Delhi

Ms Ayushi Jindal is Research Scholar, BCAS



Invest in Genome Editing as a Technology of Choice



Strap

For timely developing crops with enhanced productivity, nutritional quality and climate resilience

Science-driven innovations have the potential to revolutionize agriculture, making it highly productive, more remunerative and sustainable in the wake of a fast-changing climate. Genome Editing is one such powerful and innovative technology that has already demonstrated its potential globally in developing crops with desired traits in a short span of time. India has shown promise in utilizing this technology, with network projects on crops funded by ICAR and DBT currently in progress.

Mega GOI Project

Recently, a mega-project has been initiated by the Government across various crops, also encompassing animal and fisheries sectors, and granted funds to the tune of Rs 500 crores.

However, additional investment is warranted not only in research but also on developing infrastructure and training the desired manpower. Building a team of committed researchers with expertise in genome editing is of paramount importance to address the challenges faced by Indian agriculture in a timely manner. Thus, a substantial enhancement in R&D investment is needed to fully harness the potential of genome editing in a mission-oriented approach.

Investment in Basic Sciences

After the successful soft landing on the moon, now is the time for India to invest in basic sciences R&D more than ever before with a focus on agricultural sciences. As we know, the translation of basic scientific concepts and principles into agricultural practices and technologies plays a key role in feeding the world. Hence, investment in basic sciences is as essential for generating fundamental knowledge as it is for finding solutions to specific problems.

According to DST, India currently spends a mere 0.64% of its gross domestic product (GDP) on R&D (2020–21). This figure needs to be at least doubled. For the sake of comparison, China is already investing 2.4% of its GDP in R&D. Thus, despite steps already taken by the Government of India, such as establishing the Anusandhan National Research Foundation (ANRF) Act, more investment is essential to bridge the gap between basic research and product development in the agricultural biotechnology space.

I suggest the following research areas where the money could be spent to achieve tangible gains by deploying genome editing on a large scale as a possible solution to raising crop productivity, building climate resilience and increasing farmers' profitability with lesser input costs.

Cutting Edge Research

Importance of basic sciences should be recognized and given preference for investment to facilitate the development of innovative, IP-free biotechnologies for Indian agriculture and allied sectors.

More focus and funds are needed to undertake research on phenotypic and molecular characterization of biological resources, crop genomics and pan-genomics for the identification of novel CRISPR systems, target genes, and alleles linked to climate resilience, disease resistance and other agronomic traits fundamental for enhancing productivity in different crops. Currently, the availability of crop-specific target genes is a bottleneck for the desired traits in almost all crops important for Indian agriculture (Bansal, KC et al 2022*).

Prioritize and utilize suitable CRISPR-based genome editing techniques across crops to accelerate their genetic improvement, for achieving the following goals:

- Reducing the burden of using large quantities of fertilizers by farmers
- Improving nutrient and water use efficiency of crops
- Reducing greenhouse gas emissions from crops, such as rice
- Enhancing adaptation of crops to multiple abiotic stress factors
- Durable resistance of crops to pests and diseases
- Increasing crop productivity by altering plant types

Innovate and develop microbial strains to harvest nitrogen from the air, and enriching soils.

Additional investment in capacity building and training of research personnel in national and international

laboratories is essential for developing expertise to fast-track the development of genome-edited crops. Availability of a critical mass of researchers will hasten the process and help harness the full benefit of this powerful technology.

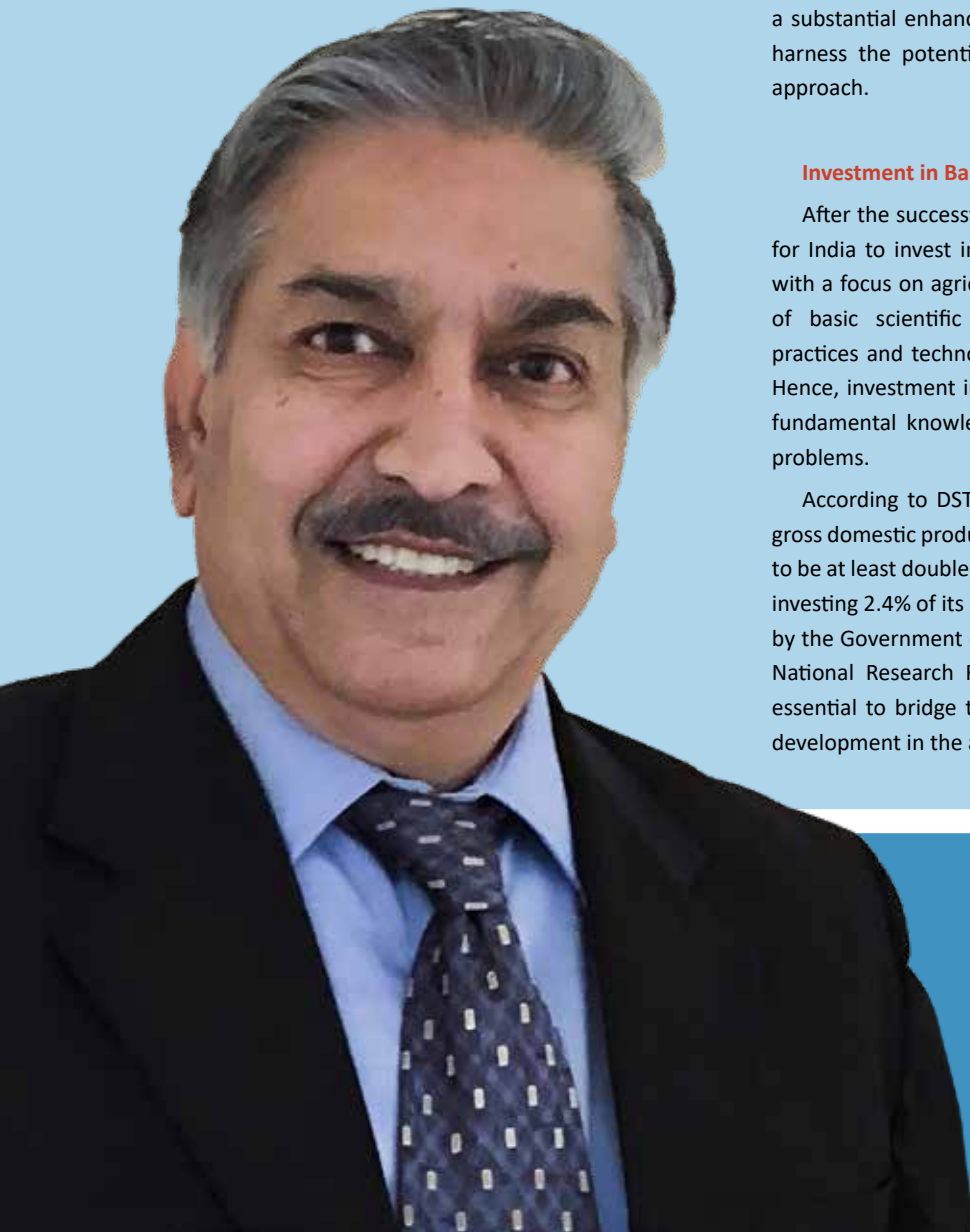
The Road Ahead

Immediate steps need to be taken to maximize the positive impact of genome editing as a technology of choice for boosting indigenous production of oilseeds and pulses. This is much-needed for achieving reduced import dependency and saving foreign exchange. India currently spends about Rs.1,50,000 crores annually on edible oil imports alone.

In addition to enhancing the allotment of funds for basic R&D, applied research, and capacity building on genome editing of crops, it is also important for the next government to pay sufficient attention to enhance the ease of doing business, with minimal governance, and to facilitate the timely regulatory clearance and release of GM crops.

In summary, substantially increasing investment in basic sciences R&D, as well as applied research, including building committed teams of experts focused on fully realizing the potential of genome editing for accelerating crop improvement deserves significant attention and is the need of the hour. Comparing the R&D efforts by different countries on genome editing, China and the USA are much ahead of other countries, including India. Agriculture being the prime pulse of the Indian economy and livelihood, we need to make strides and enhance our efforts with more R&D for timely developing crops with enhanced productivity, nutritional quality and climate resilience using genome editing. This will help address the challenges of Indian agriculture in a timely manner and contribute to the economic development of the country. Furthermore, facilitating the timely release of the GM crops that are in the regulatory pipeline, will be a boon for researchers and farmers of the country.

(*Bansal, K. C., Molla, Kutubuddin A. and Chinnusamy, Viswanathan (2022). Genome editing: a boon for plant biologists, breeders and farmers. Current Science, 123: 15-19)



*If agriculture succeeds,
the nation succeeds*

- Prof KC Bansal

ABOUT THE AUTHOR

Dr KC Bansal

Adjunct Professor, Murdoch University, Perth, Australia

Former Secretary, National Academy of Agricultural Sciences, New Delhi

Former Director, National Bureau of Plant Genetic Resources (ICAR), New Delhi

Farmer Prosperity

Need For Wholesome Mechanization

“The benefits of Farm Machinery Banks and other welfare initiatives of the state have not reached the gram panchayat level”

ABOUT THE AUTHOR

Dr Amrit Sagar Mittal is Vice-Chairman of Sonalika ITL Group; Vice-Chairman (Cabinet Minister rank) of Punjab Economic Policy and Planning Board; President of Tractor and Mechanization Association (TMA); Chairman of ASSOCHAM Northern Region Development Council. Views expressed are strictly personal



India, despite accounting for only 2.4% of the world’s geographical area and 4% of its water resources, supports 17% of the global population and 15% of the livestock through its farming sector. This sector also contributes 20% to the nation’s GDP and employs around 65% of the population. However, to enhance productivity and profitability, there is a need to increase mechanization, especially among small and marginal farmers and in low mechanization areas. This will help revitalize Indian agriculture and boost farmers’ incomes.

The latest report of the Parliamentary Standing Committee on Agriculture, Animal Husbandry, and Food Processing emphasizes the urgent need for increased mechanization of farms for small and marginal farmers in India. The report stresses that wholesome mechanization is not only essential but crucial in overcoming the multifaceted crises faced by the farming sector, which plays a pivotal role in the country’s economy.

Status of Mechanization

Our country’s agriculture mechanization level is below 40%, which is lower than that of developing nations such as China (60%) and Brazil (75%). It is worth noting that agrarian states like Punjab and Haryana, which had led the green revolution, have mechanization levels around 40%, while in other areas such as the northeastern states of India, it is almost negligible.

The Parliamentary Standing Committee has pointed out that 86% of the total land holdings belong to small and marginal size groups, which require special efforts for their mechanization. They have emphasized that small farmers face significant difficulties in purchasing machinery unless machines appropriate for small holdings are made available or farmland consolidation takes place. It is expected to take another 25 years to reach the level of 75% farm mechanization in India.

Future Landscape for Farm Machinery

The agriculture and allied sectors like livestock farming demand continuous modernization. The diversity in farming, whether large-scale or small-scale and rural labour scarcity necessitates a broad spectrum of agricultural equipment. From basic tractors to sophisticated combine harvesters, the sector requires a nuanced understanding of the equipment’s specific applications and requirements, spanning feeding equipment, poultry tools, corral systems for cattle and more attributed to the Indian agricultural machinery market is estimated to be worth a whopping US\$16.73 billion in 2024 and is projected to reach an impressive level of US\$25.15 billion by 2029.

A Catalyst for Agriculture Growth

The imperative role of farm mechanization is instrumental in reducing cultivation costs and enhancing productivity through efficient resource utilization. Experts and various researchers have highlighted that agricultural mechanization in India contributes to making judicious and cost-effective use of inputs, leading to savings in seeds by 15-20%, in fertilizers, an improvement in

germination rate by 7-25%, savings in time by 20-30%, in weed by 20-40%, in labour by 20-30%, an increase in cropping intensity by 5-20%, and an increase in crop yield by 13-23%. This also helps in the conservation of natural resources like water, soil nutrients, etc.

Steps To Propel Farm Mechanization

Establishment of the Directorate of Agricultural Engineering

The Parliamentary Standing Committee recommends that to monitor and implement the government’s mechanization policy effectively, a Directorate of Agricultural Engineering is needed in each state. Currently, it only exists in Madhya Pradesh and Tamil Nadu, but the Indian Council for Agricultural Research (ICAR) is working towards establishing it in all the states. Agricultural Engineers are also needed at Block and District Levels as there is no engineering manpower to demonstrate, train, help in repairs/maintenance and guide farmers at their farm gates.

Farm Machinery Banks

Farm machinery is often expensive, making it difficult for small farmers to purchase. To address this issue, the government has introduced custom hiring centres and farm machinery banks in almost all states. These banks allow farmers to share machines and benefit from them. However, the benefits of these schemes have not reached the gram panchayat level. To enhance the penetration of farm mechanization among small and marginal farmers and in low mechanization areas, panchayats can play a vital role.

Full-fledged Scheme Needed

In September 2022, the Sub-Mission on Agricultural Mechanization was merged with Rashtriya Krishi Vikas Yojana(RKVY), which diluted its mandate. Therefore, the government should establish a full-fledged Agriculture mechanism scheme to speed up the process.

Funding for R&D

The budget allocation for the Research and Development (R&D) of the Farm Mechanization Scheme has been declining steadily over the past four years, with a significant decrease of 30% from 2019–20 to 2023–24.

GST and Duty Incentives

To support small and marginal farmers as well as orchard growers who mostly use low horsepower tractors, the tractor and its components are currently subjected to a 12% GST. This implies that the farmers have to pay Rs 60-84 thousand as GST for a small tractor that costs around Rs 5-7 lakh. To make these tractors more affordable for small farmers, the GST can be reduced to nil or 5%. Furthermore, tax and duty incentives are crucial to support manufacturing units in areas with low mechanization. In addition, special rail freight from dry ports to seaports is needed for the northern region’s agri-implement manufacturing clusters. I sincerely hope that the new government will take farm mechanization to the next level to boost the income of small and marginal farmers.

Empowering Farmers

Initiatives and Policy Interventions to Extend Marketing Support to Farmers

When we talk on agriculture, priority goes to production, productivity and sustainability without a doubt. But marketing plays a vital role in enhancing the economic viability and sustainability of farming practices as well. The market serves as the lifeblood of agriculture, embodying a pivotal nexus where farmers and consumers intersect. Its importance lies in its multifaceted roles in agriculture sector which includes providing farmers with a platform to sell their produce, ensuring economic sustainability; facilitating price discovery, enabling farmers to gauge the value of their crops; grants access to wider consumer bases, expanding market opportunities; offers risk management tools, shielding farmers from price volatility; fosters innovation and technology adoption, driving agricultural progress; fuels rural development by creating jobs and stimulating economic growth; and bolsters food security by ensuring a steady supply of nutritious produce. In essence, the market is not just a transactional space but a centre of agricultural prosperity, sustainability, and societal well-being.

Challenges for farmers

Marketing of the agri produce has not been without challenges for the farmers of our country and, the key challenges are discussed below:

Limited market access is a significant challenge faced by many farmers, particularly smallholders, due to a combination of factors such as inadequate infrastructure, poor transportation facilities, and geographical remoteness. These constraints severely restrict farmers' ability to sell their products beyond local markets, limiting their market reach and potential for profitability. Additionally, farmers often encounter exploitation, as they rely on intermediaries like middlemen and commission agents who may offer unfairly low prices for their produce, diminishing their profits.

Moreover, the volatility of agricultural markets in India, characterized by price fluctuations driven by seasonal variations, weather conditions, and changes in demand-supply dynamics, poses additional hurdles for farmers, impacting their income stability. Furthermore, the lack of timely and accurate market information, coupled with inadequate storage and processing facilities, contributes to post-harvest losses, diminishing the quality and market value of agricultural produce. Meeting quality standards and compliance requirements, navigating marketing illiteracy, and addressing policy and regulatory constraints further compound the challenges faced by farmers in efficiently marketing their products. These multifaceted issues highlight the urgent need for comprehensive strategies and interventions to enhance market access and support the sustainable livelihoods of farmers.

Challenges faced by farmers in marketing their produce



The volatility of agricultural markets in India, characterized by price fluctuations driven by seasonal variations, weather conditions, and changes in demand-supply dynamics, poses additional hurdles for farmers, impacting their income stability



ABOUT THE AUTHOR

Mr. Sanjay Kumar Agarwal is the 2002 batch IAS with the Government of Bihar. He is presently handling two major portfolios as Secretary, Department of Agriculture and Department of Transport in the Government of Bihar and is also serving as the Enquiry Commissioner in General Administration Department, Bihar. Shri Agrawal's stellar contributions in public administration have led him to numerous accolades including appreciation by the President of India. As the Secretary of Department of Agriculture, Government of Bihar he is overseeing the critical task of formulation, launch and implementation of the State's 4th Krishi Road Map 2023-28

Initiatives and policy interventions for enhancing farmers reach to markets

Recognizing the pivotal role of agriculture in ensuring food security and poverty alleviation, governments and organizations worldwide have been implementing various initiatives and policy interventions aimed at extending marketing support to farmers. Various strategies are vital for bolstering agricultural marketing and empowering farmers within the agricultural sector. Market Information Systems (MIS) serve as a cornerstone, furnishing farmers with timely and precise insights into market prices, demand trends, and supply chain dynamics through robust platforms. Utilizing technologies like mobile apps, SMS services, and online portals, governments and organizations disseminate market information directly to farmers, exemplified by India's eNAM (National Agriculture Market). Furthermore, infrastructure development, including roads, storage facilities, and market yards, is essential for mitigating post-harvest losses and enhancing market accessibility. Empowering farmers within value chains through cooperatives and fairtrade certification schemes ensures equitable trade relationships and promotes sustainable agricultural practices. Facilitating market linkages and networking, providing financial inclusion, implementing supportive policies, conducting capacity building and training, and harnessing innovative technologies further strengthen agricultural marketing, fostering a conducive environment for farmers' success and the growth of the agricultural sector as a whole.

Transforming Agri-marketing in Bihar

Bihar's fertile Indo-Gangetic plains boast versatile crop mixes, yet face challenges of low land holdings and inadequate agri-infrastructure. With small land holdings and majority of farmers falling into the small-marginal category, the marketable surplus per person remains economically minimal and operationally challenging.

Bihar - Spearheading and Inspiring Agricultural Marketing Reforms

In response to the numerous challenges in agricultural marketing within the state, the Bihar Government took action by repealing the APMC Act in 2006, resulting in immediate impacts: (a) Elimination of the APMC yard as the sole transaction zone; (b) Establishment of the entire state as the market, eliminating the concept of specific market areas; (c) Removal of the requirement for registration or licensing for trading agricultural products; and (d) Dissolution of all posts and positions within the marketing yard and board. Bihar's decision to revoke the Agricultural Produce Market Committee (APMC) Act in 2006 represented a significant departure from the conventional agricultural marketing structure. This decision empowered farmers to sell their produce directly to buyers outside the confines of regulated mandis, fostering a more direct relationship between farmers and buyers.

Endeavour for long-term agri-marketing reforms

Examining the long-term effects of agricultural marketing reforms revealed an unintended consequence: the depletion of both soft and hard agricultural marketing infrastructure within the state. The absence of a safeguard mechanism for the previous market infrastructure led to a deterioration in Market Intelligence and information collection mechanisms during the evolution process. However, in 2020, the state took steps to address this issue by establishing the Bihar Agricultural Produce Value Addition System (BAVAS) division to fill the institutional gap as objectives of this institution includes (a) developing the agricultural marketing ecosystem, (b) promoting the comprehensive development of agricultural marketing yards, (c) driving agricultural reforms to stimulate transformative agricultural growth, (d) ensuring the collection and dissemination of agricultural market information, (e) streamlining marketing activities within the state and across state borders, and (f) establishing pricing benchmarks based on grades and standards while facilitating the determination of price premiums for agricultural produce.



Agri Market Yard, Musallahpur, Patna, Bihar



One to one buyer seller interaction for makhana

“*concerted efforts from governments, organizations, and stakeholders are essential to ensure the widespread adoption and effectiveness of such initiatives, thereby fostering a more equitable and prosperous agricultural sector.*”

Several key initiatives led by the Department of Agriculture, Bihar, include the refurbishment of 54 market yards statewide, incorporating necessary upgrades and technology enhancements. Additionally, the e-NAM platform facilitates trading for farmers, capturing daily quantities and selling prices from 100 markets. Bihar's 4th Agriculture Road Map (2023-28) outlines plans to establish 100 rural markets across the state, fostering proximity to farm gates. To broaden farmers' market access, the Department facilitates direct transactions between buyers and sellers, bypassing middlemen barriers. Efforts are underway to formulate supportive policies for marketing agricultural produce in both domestic and international markets. More recently, the Department is advocating for the cluster development (of min. 25 acres in a revenue village) of key crops, aiming to benefit small and marginal farmers through economies of scale, improved input, technical support, and guidance, while also fostering opportunities for the development of post-harvest management (PHM) infrastructure in the region, thereby creating employment prospects.

In Bihar, there is a significant focus on public-private partnerships (PPPs) and technology integration, including the adoption of Digital Public Infrastructure, to enhance agricultural marketing. Additionally, the sharing of cold chain and warehouse infrastructure for marketing purposes, along with leveraging mobile technology to extend the reach of agricultural marketing information to farmers, are key priority areas in the agricultural marketing sector.

Bihar serves as a valuable example of the significance of agricultural marketing reforms. While the state has already witnessed some benefits from these reforms, the full advantages will only be realized by farmers when complemented by private investments aimed at establishing the necessary physical infrastructure and institutional mechanisms. Moving forward, concerted efforts from governments, organizations, and stakeholders are essential to ensure the widespread adoption and effectiveness of such initiatives, thereby fostering a more equitable and prosperous agricultural sector.

ABOUT THE AUTHORS

Dr. Ajay Ranka, CMD, Zydex Group and Dr Shailendra Singh, COO, Agro Solutions, Zydex Industries Pvt Ltd.



Agriculture marketing is no longer just about selling commodities or Inputs; there's a growing trend towards value-added products and branding

In recent years, there has been a considerable shift in the paradigm of agriculture marketing due to technological breakthroughs in communication, agricultural inputs, shifting consumer preferences, environmental concerns, and changes in the dynamics of global farm produce economics.

Innovation and diversification are presenting the industry with new possibilities. In order to meet the changing and varied needs and preferences of its customers, agribusinesses are branching out into new product categories and marketplaces. Additionally, they are spending money on R&D to produce innovative goods and services to provide greater value, uniqueness, and convenience.

Through consumer segmentation, market research, and the creation of strong branding and positioning strategies, marketing strategy of these companies need to stay on top of these changes.

The digital transformation, which is opening up new avenues for agricultural value chain management, monitoring, and optimization, is the main trend in agribusiness and marketing. Artificial intelligence, blockchain, the Internet of Things, and cloud computing are examples of data-driven technologies that are revolutionizing the way agribusinesses which gather, process, and disseminate information about their operations, inputs, outputs, and markets.

Agribusinesses

Agribusinesses can increase their profitability, quality, traceability, productivity, and client loyalty with the use of these technologies. Using these tools, agribusiness companies will be able to provide their customers more personalized and interesting experiences by providing suggestions, comments, and incentives based on their likes, needs and actions.

The advent of digital platforms and e-commerce has revolutionized agriculture marketing. Farmers can now access markets beyond their local regions, connect directly with consumers through online platforms, and streamline the distribution of their outputs. This has reduced the dependency on traditional middlemen and opened up new avenues for agricultural trade.

Modern agriculture marketing relies heavily on data analytics and technology to optimize production, distribution, and pricing. Farmers are using precision agriculture techniques, IoT devices, and satellite imagery to monitor crops, predict market trends, and make informed decisions about planting, harvesting, and selling their produce.

The partnership and collaboration is promoting more robust and inclusive systems. Agribusinesses are realizing more and more advantages of collaborating with other industry participants, including farmers, suppliers, processors, retailers, non-governmental organizations, governments, and customers. They can address shared issues and objectives, such as enhancing food security, quality, safety, and affordability, by working together and sharing resources, expertise, risks, and opportunities. By adding value for their partners and consumers and enhancing their reputation and trust, marketers may also gain from teamwork and cooperation.



Sustainable And Organic Inputs

Sustainable and organic inputs are becoming more and more important in view of changing demand from consumers. As a result, markets and specialty shops appealing to environmentally concerned customers have grown in popularity. There is a great demand for organic produce in foreign markets, giving farmers who implement sustainable farming methods and get organic certificates a competitive advantage in these markets.

With the growth of farm-to-table initiatives, farmers' markets, and community-supported agriculture (CSA) programs, many farmers are selling directly to customers instead of through traditional distribution channels. This promotes stronger ties between producers and consumers in addition to giving farmers a bigger cut of the retail price. For a successful direct to customer model of farm produce, it is critical to have transparency and traceability to build trust among consumers.

The growing demand for sustainable practices that minimize the environmental and social impacts of agriculture. Consumers are increasingly aware of the issues such as climate change, biodiversity loss, water scarcity, and violations that affect the food system, and they are willing to pay more for products that are certified as organic, fair trade, or carbon neutral. Agribusinesses and marketers have to adapt to these preferences by adopting more efficient and responsible methods of production, processing, and packaging, as well as communicating their sustainability credentials to their customers.

Agriculture marketing is no longer just about selling commodities or Inputs; there's a growing trend towards value-added products and branding. Farmers are diversifying their product offerings. Effective branding and marketing strategies help differentiate these products in a crowded marketplace. Government policies and regulations play a significant role in shaping agriculture marketing practices. Subsidies, tariffs, quotas, and safety standards all impact the dynamics of agricultural trade. Changes in policy priorities, such as promoting sustainable agriculture or supporting small-scale farmers, can have far-reaching effects on market structures and supply chains.

Overall, the changing paradigm of agriculture marketing reflects broader trends towards sustainability, digitization, and consumer empowerment. Successful farmers and agribusinesses will need to adapt to these evolving dynamics by embracing technology, diversifying their product offerings, and cultivating transparent and direct relationships with consumers.

Changing Paradigm of Agriculture Marketing

Agriculture Marketing

in Chhattisgarh



With a view to upgrade the rural haat markets, necessary facilities and infrastructure have been created in the 227 Haat Bazar by the Mandi Board

The economy of the state is agricultural and the livelihood of most of the population is based on agriculture. There are more than 77 percent small and marginal farmers in the state, they mainly grow paddy, maize, soybean, gram, sugarcane and horticulture crops mainly tomato, brinjal, bitter gourd, chilli, capsicum, ladyfinger, banana, papaya and dragon fruit is cultivated. In Bastar, Surguja region and some parts of Bilaspur region, forest produce is available in abundance, which is collected by the residents there and Mahua, tamarind, mango (amchur) and custard apple are mainly sold in the Haat Bazar.

Proper Marketing Of Agricultural Produce

The success of agricultural production largely depends on proper marketing of agricultural produce and not allowing any kind of exploitation, therefore, to regulate the marketing of agricultural produce efficiently, the state government has notified 69 mandis and 121 markets in the state. Apart from the sub-markets, all the primary cooperative agricultural credit societies have been declared as sub-market yard and 1250 haat Bazar of the state are also sub-market yard as per the provisions of the Mandi Act. Paddy is being purchased at support price in primary cooperative agricultural credit societies. The state government has also been declared support price for forest produce and minor cereal crops, which are being purchased by the Minor Forest Produce Association at support price.

Durg division has become a hub of fruit-vegetable producers in the state, where thousands of quintals of fruits and vegetables are marketed/exported every day by the farmers. For marketing of fruits and vegetables, well- equipped fruit-vegetable markets

are being operated in Rajnandgaon, Durg, Dhamdha, Dhamtari, Bilaspur, Pathalgaon and Raigarh. Apart from this, necessary infrastructure is being developed for fruit-vegetable sub-market premises in Kusmi, Gandai and Kunkuri also.

Farmer-Consumer Sub-Markets

With the objective of establishing direct contact between farmers and consumers, eliminating the middleman system, providing fair prices to farmers for their produce without any deduction, and providing fresh fruits and vegetables to consumers at reasonable rates, nine farmer-consumer sub-markets have been started in the state.

To make the marketing of agricultural produce easier, bring transparency in pricing, provide professional competitive market to the farmers and make the existing market system in the interest of the farmers to provide better prices to the farmers. Agricultural Produce Market Act 1972 provides for single registration, e-trading, direct purchase, terminal market complex, contract farming, Farmer Producer Organization (FPO), special commodity market area, farmer consumer sub-market area, single point market fee and Provisions have been made for private market yard/private sub-market yard/private farmer consumer yard.

One Country-One Market

National Agricultural Market Portal has been developed by the Honorable Prime Minister under One Country-One Market. Through this portal, farmers of the country and the state can sell their agricultural produce online to the buyers and traders of the country and the state, so that While the seller will get a higher price for his produce, the buyer will be able to get the notified agricultural produce as per his requirement. 20 markets of the state are connected to the National Agricultural Market, through which 3469 traders have purchased 10014411.54 quintals of notified agricultural produce at the price of 2027.94 from 135862 farmers.

Many works are being done by the Mandi Board and Mandi Committees in the interest of farmers and for agricultural marketing,

especially for the safe storage of farmers grains/food donors, 114 warehouses of 1.48 lakh tone storage capacity, Infrastructure like 200 mt. warehouse, open platform, sheds have been developed in 1298 primary cooperative agricultural credit societies and Kishan Kuttir have been built for the facilities of farmers in 587 primary cooperative agricultural credit societies. Roads, Pul-puliya have been constructed by Mandi Board for farmers can bring notified agricultural produce to the market premises for sale.

Villagers/farmers sell their produce to consumers/small traders in the local market (Haat Bazaar), Haat Bazaar plays an important role in meeting the daily needs of the villagers. Due

to lack of adequate infrastructure in market places, villagers face a lot of problems in buying and selling their produced/collected agricultural produce. With a view to upgrade the rural haat markets, necessary facilities and infrastructure have been created in the 227 Haat Bazar by the Mandi Board.

In this way the C.G. State Agricultural Marketing Board is playing an important role in marketing of the agricultural produce of the farmers through its own resources and market committees and as per requirement providing the necessary facilities and infrastructure by Mandi Board.



Uttarakhand Agricultural Produce Marketing Board

For effective regulation of marketing system of agricultural produce and establishment and development of appropriate and modern market system for them and promotion of agricultural processing and agricultural export in the state of Uttarakhand, Uttarakhand Agricultural Produce Marketing Board and Agricultural Produce Market Committee has been established.

The Board and Committee dispose its duties under the provisions available in Uttarakhand Agricultural Produce Market (Development and Regulation) Act, 2011. Uttarakhand Agricultural Produce Marketing Board and Agricultural Produce marketing committees effectively implement agricultural marketing system, ensure fair price to the farmers for their produce, prevent unauthorized deductions, check weighing irregularities, provide free weighing, storage facilities, price information and dispute settlements in the market yards and in the notified areas.

Development Of Agriculture Marketing

Since the establishment of Uttarakhand Agricultural Produce Marketing Board on 27 December 2000, the Marketing Board and 27 markets (24 market yards and 38 sub-markets) have been continuously making efforts for the development of agriculture marketing in the state. The market committee ensures that the farmers are not exploited by middlemen and they get a fair price for their produce. The auction of the produce brought by the farmer to the market premises is conducted as per the available guidelines so that the farmer gets a fair price for their produce.

In the financial year 2022-23, a total of 542.976 lakh quintals of agricultural produce have been traded in the mandis of Uttarakhand state and Rs 7346.11 lakh mandi fee and Rs 1732.48 lakh development cess have been levied from traders. Market yards are being constructed as per the requirement of the market area so that the farmers get the facility to sell or store its agricultural produce.

To facilitate the farmers in bringing their produce to the nearest market yard, communication roads are constructed in the notified market area and hand pumps are installed in the villages to provide drinking water to the farmers. Proper arrangements are made for resting place, parking facility, sorting-grading, cold store, collection center, shop, toilet, tube well etc. for the farmers coming to the market premises.

In the financial year 2022-23, construction work of 15.576 km CC road, 5.700 km link road, 22.540 inner road of market yard, 02 collection centre, 02 market place, 01 toilet, 13 warehouse, 01 tube well, 03 mini mast etc. has been done. Since inception more than 1300 km of link roads, more than 4000 hand pumps, 10 ropeways, 21 collection centers, 07 Farmer-consumer markets have been constructed. Every year, saplings and gunny bags are being distributed to the farmers on subsidy.

Welfare schemes like Scholarship Scheme, Farmer Crop Damage Assistance Scheme and Farmer Personal Accident Assistance Scheme have been implemented by the Marketing Board for the welfare of farmers and agricultural labor. In the financial year 2022-23, scholarship has been provided to 108 students, crop compensation to 09 farmers and accident assistance to 06 farmers. Under personal accident scheme, a compensation of Rs 2.50 lakh has been prescribed in the case of death of a farmer while doing agricultural work and there is also a provision for compensation of rupees three thousand to one lakh in case of dismemberment. For



ABOUT THE AUTHOR

Mr BS Chalal

Managing Director of Uttarakhand Agriculture Produce Marketing Board

Agricultural produce market committees have been computerized officially

the development of agriculture marketing, a provision of contract farming in the section 79 and private market in the section 83 of mandi act has been made.

Electronic National Agricultural Market Scheme

In the new era, under the process of making mandis online, Electronic National Agricultural Market Scheme (eNAM) is being implemented in 20 mandis of Uttarakhand state i.e. 83 percent of the mandis of the state are online mandis, which is the highest in the country. Since inception 91197 farmers, 6122 traders, 244 FPOs, 95 service providers have been registered on the e-NAM portal. Payment of agricultural produce worth more than Rs 134 crore has been made to the farmers through e-payment.

Under the schemes funded by the Central Government, Uttarakhand Agricultural Produce Marketing Board has constructed flower selling center in Rudrapur, banana ripening center in Haridwar, fish market in Mangalore.

Uttarakhand Agricultural Produce Marketing Board pioneered the Millet Purchase Scheme, Mandwa, Jhingora, Chaulai etc. are being purchased from the farmers of hilly districts (Chamoli, Rudrapur, Almora, Pauri etc.) near their villages.

In the financial year 2022-23, 227.81 quintals of millet product has been purchased and since inception year 2019, 4719.60 quintals of millet product has been purchased. For processing of millet products, 01 multigrain processing unit of 04 tonne per hour capacity, in an area of 02 acres, is being operated in Rudrapur city of Udham Singh Nagar district so that the millet product can be processed and sold at a competitive price in the national and international markets.

Facilities For Farmers

Uttarakhand Agricultural Produce Marketing Board makes all necessary arrangements of moisture meter, sieves, fans, drinking water system, awnings etc. for the convenience of farmers at wheat and paddy purchasing centers and pots are being distributed free of cost to the farmers visiting the purchasing centers.

Agricultural produce market committees have been computerized officially. Agricultural produce purchase receipts, gate pass etc. are being issued online by traders. Arrangements for internet, CCTV cameras and display boards have been made in the market premises.

The daily prices of the market are being made available to the farmers on the website of the Marketing Board (www.ukapmb.org) and the website of Agmarknet (agmarknet.gov.in). Free weighbridge facility has also been provided in every mandi. Uttarakhand Agricultural Produce Marketing Board and Mandi Committees are continuously making efforts for the development of marketing of agricultural produce.



Districts of Uttarakhand

HIMACHAL PRADESH

State Agricultural Marketing Board

&

Agricultural Produce Market Committees (APMCs)

“At present there are 10 APMCs functioning in 12 geographical districts of Himachal Pradesh. Adequate representation to farmers, growers and traders is also ensured in the formation of Market Committees



Agriculture is the main occupation of the people of Himachal Pradesh and has an important place in the economy of the State. Himachal Pradesh is the only State in the country where 89.96 per cent of the population (Census 2011) lives in rural areas. Agriculture/ Horticulture provide direct employment to about 70 per cent of population of the State.

Agriculture is an important source of State Income (GSDP). About 13.62 per cent of the total GSDP comes from agriculture and its allied sectors. Out of the total geographical area of State (55.67 lakh hectare) the area of operational holdings is about 9.44 lakh hectares and is cultivated by 9.97 lakh farmers with an average holding size of about 0.95 hectare. In Himachal Pradesh 88.86 per cent of the total holdings belong to small and marginal farmers. About 10.84 per cent of holdings are owned by semi medium and medium farmers and only 0.30 per cent by large farmers.

To provide efficient market for marketable surplus of farmer's produce within the state for remunerative prices, Himachal Pradesh State Agricultural Marketing Board and APMCs have been established under the Himachal Pradesh Agricultural and Horticultural Produce Marketing (Development and Regulation) Act, 2005.

HPSAMB and APMCs

Himachal Pradesh State Agricultural Marketing Board (HPSAMB) is a premier institution in State to facilitate marketing of agricultural and allied activities and providing marketing infrastructure and market intelligence. It plays an important role in development of efficient marketing system, promotion of agri. processing, establishment and proper administration of agricultural markets in Himachal Pradesh.

It ensures level playing field for competitive markets to operate through setting of minimum standards for facilities, procedures and systems, thereby promoting the establishment of well administered and efficient infrastructure. The main objective of its constitution is to improve and provide better facilities for sale, purchase, storage & processing of Agricultural Produce of Himachal Pradesh. HPSAMB's goal is to provide transparent, efficient, hassle free, sale, purchase, storage & processing of agricultural produce thus enhancing the State Gross Domestic Product (SGDP) which accounts for approx. 13%.

Himachal Pradesh Marketing Board was constituted in 1972 under the H.P. Agricultural Produce Markets Act, 1969. Later on, the aforesaid Act was repealed and replaced with revised legislation namely, "The Himachal Pradesh Agricultural and Horticultural Produce Marketing (Regulation and Development), Act, 2005"

So far HPSAMB and Agricultural Produce Market Committees, have established a broad network of 73 Market yards (10 Principal market, which are located at District Headquarters where, APMCs offices also exist and 63 Sub Market yards) across the State. Apart from these, 35 collection centers have also been established to facilitate agricultural marketing at potential areas of production. HP State Agricultural Marketing Board entrusted with the duty for development of markets and facilitation and functions as a facilitator in the agricultural marketing sector through its district level Agricultural Produce Market Committee(s) APMCs. At present there are 10 APMCs functioning in 12 geographical districts of Himachal Pradesh. Adequate representation to farmers, growers and traders is also ensured in the formation of Market Committees.

As a matter of fact, there was scarcity of requisite market infrastructure to cater the need for wholesale trading of agricultural/ horticultural produce prior to year 2000 in Himachal Pradesh and major markets came up after this period. Farmers with surplus and marketable fruits and vegetables were forced to sell their produce outside the State particularly in Chandigarh, Delhi and Punjab Markets. Thereafter considerable amount of investment was made by APMCs for expansion and development of markets and now a chain of markets has been set up throughout the State. The basic objective of setting up of network of physical markets was to ensure proper price discovery in a transparent manner and remunerative price to the farmers' produce with proper regulatory control. It has created a conducive environment for promotion of trade with fair play and smoothening of the supply chain. Thereby number of farmers are benefitted and their economy have improved tremendously. These markets have motivated and mobilized the farmers to cultivate diversified high valued cash crops especially vegetables and fruits and area under production has also increased. This brought financial security to thousands of farmer families throughout the state. APMCs markets have succeeded to capture large amount of surplus produce and played a significant role for upliftment of small and marginal farmers.



farmers and other stakeholders through various farmer awareness camps. Information of latest technology is disseminated through Television shows, chats, interviews and advertisement campaigns on radio and social media.

- Market information about arrival and prices of different commodities is provided through www.agmarknet.gov.in portal and HPSAMB web portal www.hpsamb.org. Latest prices and arrival are uploaded from 41 Market Yards of APMCs on daily basis.
- 26 Market yards are connected with Electronic National Agriculture Market (e-NAM). e-NAM Solan was adjudged as best e-NAM market in 2017 and 2019 among hilly states.
- HPSAMB and APMC Shimla and Kinnaur are constructing one integrated cold chain project at Parala and Kharapathar. Under this project one CA store of 5600 MT capacity, grading line of 10 MT/ hr capacity, individually quick freezing line of 1MT/hr capacity, freezing chambers of 1500 MT, pre-cooling chambers of 60 MT will be constructed. 5 reefer vehicles will also be purchased under this project in phased manner.
- HPSAMB and APMCs facilitated all the growers, traders, buyers and other stakeholders during the lockdown period.
- Market yards of APMCs are providing direct and indirect employment to thousands of families in Himachal Pradesh.

Marketing Activities

Procurement of foodgrains on MSP

Food grains are the important crops of Himachal Pradesh. The farmers of District Kangra, Una, Solan, Sirmaur and Bilaspur primarily grow paddy and wheat in their fields. The production of food grain in Himachal is around 16 Lakh MT which includes Paddy, Wheat and Maize. In past there was no procurement arrangement for food grains in Himachal. The farmers had to go



Operational Model of Organization:

Current operational model of HPSAMB include construction of market yards through Agricultural Produce Market Committees. The infrastructure so created is rented out to the licensees with due procedure further to allow them to operate as registered commission agents/ traders in the markets. All basis amenities and marketing facilities are arranged into markets. Since HPSAMB and APMCs focused mainly on construction of market yards for fruits and vegetables. A few market yards have been constructed for food grains. Board and APMCs has delivered very good results in their area of operations and benefitted the farmers, businessmen and general public at large.

Considering the requirement of market and challenges posed by various internal and external factors, HPSAMB has increased the sphere of its operations. Till now HPSAMB and APMCs focused mostly on construction of market yards and their management, but now board and committees have ventured in post-harvest handling like sorting, grading and packing through creation of infrastructure like, sorting line, grading lines, packing lines, storage structures like Controlled Atmospheric Storages (CA), Modified Atmospheric Storages (MA), Cold Storages (CS), freezing Chambers commodity handing structures like integrated pack houses, primary processing units like pre-cooling chambers, hydro cooling facilities, Individual Quick Freezing (IQF) lines, logistic structures and facilities like, reefer vans, mechanized loading and unloading facilities etc.

Achievements:

- 73 Market yards functioning under 10 Agricultural Produce Market Committees in Himachal.
- HPSAMB has established fruits, vegetables and food grain markets.
- Procurement of food grain stated in 10 procurement centres in 5 districts on MSP.
- HPSAMB and APMCs are creating awareness among

“ 26 Market yards are connected with Electronic National Agriculture Market (e-NAM). e-NAM Solan was adjudged as best e-NAM market in 2017 and 2019 among hilly states

the neighbouring states like Punjab and Haryana to market their produce. These states have a well-developed market infrastructure for procurement of grains. Farmers of Himachal had to bear the transportation charges, various incidental charges and many inconveniences.

Understanding this problem, the procurement of food grain started at limited scale at Paonta Sahib in Sirmaur District. Due to allocated procurement targets of Punjab and Haryana, the produce of Himachal was denied to be procured by the procurement agencies as they first prefer to buy the produce of local farmers. The farmers of Himachal were forced to sell the produce at rate below the MSP to middlemen of these states.

Himachal Government took up the matter with Central Government and decided to procure the foodgrain within the state. The major procurement started in the state in the year 2020-21 with Rabi Marketing season. 8 No. purchase centres were opened in different wheat growing areas and total 13039 MT wheat was procured by FCI with Assistance of Department of food, civil supply and consumer affairs and APMCs.

Integrated Cold Chain Project

HP State Agricultural Marketing Board and APMC Shimla and Kinnaur are establishing an Integrated cold chain infrastructure for preservation and value addition at Parala and Kharapathar. Total Project cost is Rs. 60.93 Crores, which includes a CA store having highest capacity in Government Sector (in state) i.e. 5600 MT Capacity, Freezing Chamber of 1500 MT Capacity, Grading sorting line of 10 MT /Hr Capacity, Individually Quick freezing line of 1MT per hour capacity. It also includes farm level infrastructure at Kharapathar having 60 MT precooling chambers and 5 reefer vans of 15 MT Capacity.

Market Development through HP Horticultural Development Project (funded by World Bank) and HP Crop Diversification Project (funded by JICA)

HPSAMB is upgrading its market infrastructure and constructing new state of art markets with financial assistance from HP Horticultural Development Project (funded by World bank). Under

this project 3 New markets are being constructed and 6 are being upgraded. Under JICA funded HP Crop Diversification Project 13 Market yards are being upgraded.

Electronic National Agriculture Market (e-NAM)

Himachal Pradesh State Agricultural Marketing Board is implementing e-NAM scheme. Under this scheme 26 Markets of state are connected with national digital platform called e-NAM. This digital platform provides an alternative channel for marketing of agricultural/horticultural produce. Solan Market of Himachal Pradesh was adjudged best performing market among hilly regions and awarded Prime Minister Award twice in 2017 and 2019.

HPSAMB way forward

- Catalyze private investment in setting up of agri-business projects for extending assured market to farmers for





Uttam Fasal Uttam Enaam

NATIONAL AGRICULTURE MARKET



Sub Market Yard Palampur



Sub Market Yard Kangni, Mandi



Sub Market Yard Bandrol, Kullu



their produce and increasing rural income and generating employment.

- Public private partnership will be encouraged.
- Big industrial houses will be facilitated to come forward to serve the poorest strata of the society by establishing food park and processing units etc.
- The technical knowledge partners will be engaged with departments / boards and FPOs.
- Convergence of different departments, regions and sectors will be made for the growth and development of agriculture sector and nation.
- Higher amount of assistance will be sourced through various central sector schemes for projects in Himachal Pradesh.
- Standardization & grading of agricultural commodities will be promoted
- HPSAMB will develop cold chain and farm level infrastructure to ensure better marketability of fruits & vegetables

SEEDS OF SUCCESS

SOMANI SEEDZ™

HYBRID KRANTI HYBRID BITTER GOURD - SKS 2543

HYBRID MAHIMA HYBRID BITTER GOURD - SKS 2425

Save Soil मिट्टी बचाओ

Farmers First Choice

Produced, Packed & Marketed by :
SOMANI KANAK SEEDZ PVT LTD
 Registered Office : C-91/7, 2nd Floor, Wazirpur Industrial Area, New Delhi - 110052.
 Processing Plant : Plot No. 1663, HSIIDC, RAI - 131 029 (HR), Consumer Care No. : +91 98109 84150.
 website : www.somaniseedz.com email : contact@somaniseedz.com

DERIVATIVES IMBROGLIO SHADOWING FOOD SECURITY



ABOUT THE AUTHOR

Mr Shrikant Kuwalekar has been a senior financial Journalist, having pioneered the commodity derivatives market coverage with a focus on the farm sector for over two-decades

“*India must do away with its conservative approach towards agri-markets and develop a robust agri-derivatives market*”

In a post-pandemic world, India is steadily, but surely, gaining recognition as one of the world’s potential food hubs in the years to come. As the world is witnessing a transformation in global food economics, key agricultural commodities, such as wheat, rice, maize and oilseeds and pulses to a large extent are increasingly being looked at as an asset class, leading to a massive dollar flow by the investment community including top global hedge funds.

Thus, quite obviously, the agricultural commodities market is witnessing a heightened volatility and increased volumes across global markets. We have seen in the past couple of years record prices of wheat, soybean, rice and maize now spilling-over to coffee and cocoa to name a few. While rising geopolitical tensions fueling the volatility and hence the food inflation, climate change is not far behind in creating occasional and regional food crises.

Risk Management Environment

Historically, we can expect reasonably good performance on policy front when it comes to production, procurement and internal trade. However, the country is far behind its global peers and developed nations when it comes to price risk management policies for domestic as well as international trade in agricultural commodities despite the country being a major importer of edible oils and pulses and exporter of rice-wheat-sugar until a year ago. This has been a big drag on sustainability across value chains in agri-businesses in the farm-to-plate journey of food. As such India is ranked at the bottom in providing risk management mechanisms via a robust agricultural derivatives market, which is a key to success achieving national food security and dominance in the international commodities market.

Take an example of China, which has opened up its commodity derivatives market almost simultaneously with India earlier this century. However, twenty years down the line, our agri-derivatives market is 10% of what it was in 2009-10, while the Chinese market has grown thousands of times during the same period, making it the world’s second largest economy dominating the agri-food prices. Our policies should aim at trimming this huge gap, if it can’t be substantially reduced. For this, the country must do away with its conservative approach towards agri-markets and develop a robust agri-derivatives market that can provide a seamless risk-management platform to farmers, trade and commerce, and not the least for government itself in procurement-resale operations aimed at compliance of food security law.

The History Of Agri-Derivatives Market

We need not go into ancient history to find out who invented the concept of derivatives market, though the world has accepted that the concept of agri-derivatives is very own, invented by Chanakya during the Mourya dynasty to provide a price risk mechanism to farmers. However, after a closure of unorganized futures trade in the past century due to frequent manipulations,

India has re-launched a completely transparent, electronic-only national derivatives platform in 2003. It proved revolutionary as the world had to adopt this model in the next decade by shutting down their pit-trading platforms.

In the first five-six years, national commodity exchanges registered a CAGR in three digits in line with the explosion in global commodity volumes. However, frequent government intentions and regulatory actions in the agri-derivatives segment since 2011, wrongly labelling such exchanges as a major cause of food inflation, took a heavy toll on agri-derivatives market bringing down by a whopping 90% from its peak in 2009. Who were the victims? Well, the whole value chains—the farmer, the trader, importer, exporter and government itself—which had to spend Trillions of Rupees in the last 10-12 years in subsidizing losses in procurement-storage-distribution of key agri commodities.

Contradiction in Derivatives Policy Framework

While we saw regressive approach in agri-derivatives market following frequent suspensions – almost seven times and 15 contracts in the last 12 years – in agri derivatives markets, the regulators and government have been pursuing contradictory steps by promoting and allocating huge financial resources on capacity building and training programmes in commodity derivatives segment. Educational and big management institutions are scrambling to offer a number of degree and diploma courses in Agricultural Commodity space.

The biggest contradiction came a few months ago, when the finance ministry—through its regulatory arm SEBI (the Securities and Exchange Board of India)—allowed 13 more agri-commodities through a notification for derivatives trading. It is a contradiction, because out of over 75 commodities notified a couple of decades ago, only 30 odd commodities were allowed for futures trade. Only half of these could generate good volumes in the wake of fears of regulatory interventions.

It is a contradiction also due to edible oil and oilseeds futures not allowed for almost three years now despite our import bill touching 150,000 crore rupees. Pulses futures remain suspended despite imports rebounding back close to 50 lakh tones in the just concluded financial year. Sugar is unavailable for almost a decade despite India becoming the world’s top producer or exporter in recent times. Hence, the latest move to allow 13 commodities is a big contradiction when policymakers suspended 13 running contracts in agricultural commodities where India has a major role to play in domestic and international markets.

With the country entering the Amrit Kaal, seen as 25-glorious years of our economic development, the policy makers need to revisit its agricultural marketing and risk management policies to ensure a seamless transformation of its agricultural sector and protect the food security of the nation.

Biotech Traits and Seed Industry Restructuring

The introduction of two genetically modified traits, herbicide tolerance and insect resistance, into corn and soybeans in the 1980s and 1990s led to an oligopoly of three multinational companies dominating the seed industry in the USA, and some other countries. This raises concern and prompts us to alert policymakers of the risk to food security and the livelihoods of resource-poor farmers if the same rules and practices are enacted by them in the developing countries.

The application of heterosis (hybrid vigor) in plant breeding to develop hybrid seeds marked the beginning of an organized private sector seed industry in the US. Since hybrid corn constitutes the bulk of the seed sales and profits of the private sector seed industry, this article will primarily focus on the hybrid corn industry. In the US, it has gone through three phases.

Growth Of Seed Industry

The first phase began in the 1930s when approximately 150 companies were established by the private sector. The second phase began in 1970s with the enactment of the Plant Variety Protection Act (PVPA). During this period, multinational companies (MNCs) acquired more than fifty companies. This was the beginning of the consolidation of the seed industry. The third phase began when patent-protected genetically modified (GM) traits were introduced in 1980s and 1990s. The patent holders were primarily MNCs. To develop a GM trait, one needed freedom to operate with the patented intellectual property used in the development of a product. This led to the acquisition of biotech companies that held patents on the enabling technologies.



About the Authors

Mr Suri Sehgal and Mr Jan Leemans are Board Members, Hytech Seed India Pvt Ltd



Since seed is the delivery vehicle for biotech traits, this realization by MNCs triggered the mass acquisition of seed businesses by MNCs. Between 1980 and 2014, Monsanto (now Bayer) alone bought sixty independent seed and biotech companies. Overall, more than two hundred seed companies were either acquired or went out of business during the 1990s and 2000s, and unfortunately over a third of public plant-breeding programs were discontinued or saw their funding decimated. The consolidation of the industry went to such an extreme that it resulted in the demise of most small seed businesses.

Fiercely Competitive Market

The key acquisition in this period was that of Holden's Foundation Seed Company in 1997 by Monsanto. Holden's hybrids covered about 35–40 percent of the corn acreage. Holden's supplied foundation seed increased from public breeding, independent private breeders, and from its own breeding program to hundreds of small and midsize companies. As a result, the market was fiercely competitive and the pricing for the farmer was reasonable.

As of 2024, just three firms—Bayer, Corteva and ChemChina's Syngenta Group—dominate the corn seed market. Corteva and Bayer account for about 72 percent of US corn seed sales per industry estimates, and the seed pricing to the farmer has doubled or gone even higher. The same has happened in South Africa, Brazil, and Argentina.

The question one may rightly ask is: will the Indian seed industry face the same fate as in the US, and later also elsewhere, with the introduction of genetically engineered traits? How then will it be possible to get the engineered traits to the smallholder farmers in India without creating MNC monopolies?

Patents and Transgenic Crops (GM)

Transgenic crops have been grown by the farmers in the US, Canada, Brazil, and Argentina for the past twenty-five years without adverse effects. The commercialization of genetically engineered traits for herbicide tolerance and resistance to certain insect pests has significantly reduced pesticide use and boosted crop yields. Patented intellectual property and restrictive licensing have been used by MNCs to maintain tight control over GM traits and the seed products that carry them.

The patent is generally issued for 20 years and after its expiration, the invention falls into the public domain. However, in the case of off-patent biotechnology traits, the plant breeders have not gained access to the traits. One must ask, why?

Regulatory Hurdles

As a precaution, stringent regulations govern the GM crops. National frameworks require a pre-market risk assessment leading in most cases to conditional approval. The regulatory submissions and data for each trait event are the proprietary regulatory property



The future of GM crops hinges on the accessibility of regulatory data packages and the deregulation of GM traits with a proven track record of safety

(PRP) of the data holders. The PRP data holder maintains regulatory approval in the countries in which GM traits are released, as well as in countries to which GM crop-derived products are exported. The lack of access to the regulatory data is a major barrier for new entrants who might want to commercialize off-patent events.

If a biotech event, after decades of safe commercialization in a crop, is not declared as a “part of the crop’s genome,” this constraint will continue. As a result, the market opportunities for GM crops are reduced to only a few companies holding PRP on crop/trait combinations.

TELA maize project and the biotech traits

TELA Maize Project is a public-private partnership led by the African Agricultural Technology Foundation (AATF) with six partner countries from the Africa. Its objective is to make drought-tolerant and insect-protected maize varieties available to the farmers in Sub-Saharan Africa. CIMMYT (The International Maize and Wheat Improvement Center) from Mexico is the lead breeder and contributes germplasm; Bayer Crop Science contributes biotech



traits for drought tolerance and insect protection and related information, royalty free. The Bill and Melinda Gates Foundation and USAID primarily provide the funding. The project partners support the establishment of legal frameworks to regulate the commercial use of GM crops and pursue regulatory approvals of the GM events in the target countries.

Once a regulatory framework is in place, AATF, as the lead partner, grants seed companies of the partner countries and their national research systems the right to produce and sell hybrids containing the traits under their own seed brand. The Project involves a Foundation Seed Company, Qualibasic Seed, which is patterned after the US foundation seed company like Holden’s. The licensees must access a transgenic line from Qualibasic or one of its designated basic seed companies. No multiplication of the line or further breeding in the line is allowed by the partners.

Since the seed industry in AATF countries, except South Africa, is in the early stages of development, the partner country agricultural research systems and regulatory bodies are the key beneficiaries in this model.

Once the regulatory framework is in place, nothing stops MNCs from introducing their proprietary hybrids with superior stacked biotech traits supported by PRP data packages up to a standard that local initiatives will find hard to meet. The risk is that a well-intentioned project to bring GM benefits to small African farmers paves the way for the MNC domination in a GM market that has been opened through the national agricultural research systems. Whether the benefits outweigh the consequences of reduced competition and higher prices for the farmers is something for the policy makers to consider.

Is the TELA model applicable to India?

India has a robust private sector seed industry that has flourished since deregulation in the 1990s. Except for Bt cotton, no other crop with a biotech trait has been deregulated so far even though these have perfect safety record for years in other countries.

A model somewhat like TELA offers an opportunity to introduce crops like Bt corn in India that have been deregulated elsewhere and have proven safety record. If considered, then, it must be amended by provisions to prevent monopolies, ensure active participation of established seed companies with proprietary germplasm, and eliminate constraints on trait incorporation and parental line sourcing.

The future of GM crops hinges on the accessibility of regulatory data packages and the deregulation of GM traits with a proven track record of safety. Until then, policymakers must weigh the trade-offs between nurturing a vibrant seed industry and mitigating the risks of monopolistic control associated with GM crops.

Region-specific Sanatan Agriculture is the Shout



“
Agriculture can play a vital role in making India the third largest economy in the world”

ABOUT THE AUTHOR

Mr Ajay Bhartiya is an astute fertilizer expert, having the honour of introducing specialty fertilizers in India with inclusion and modifications in the FCO. He firmly believes that Sanatan Agriculture is Sustainable Agriculture

Sanatan Agriculture integrates all regional economic activities in harmony with nature. Indian agriculture needs consolidation and integration of various schemes for the economic development of a region. The requirements of a farmer in the Northeast are entirely different than a farmer in Kerala or UP.

Any Agriculture Policy involves various stakeholders and the ‘supposedly’ beneficiary - a farmer is often neglected and another major stakeholder Mother Earth is an orphan. The other players are the government, industry and scientific community. Arguably, the scientific community in India is also a part of the government.

Agriculture Needs A Holistic Approach

Agriculture (read as a farmer) is fragmented into various ministries, centre vs state, industry vs government, scientific community vs industry and so forth. A farmer is something like a patient going to a corporate hospital for treatment of stomachache and is being attended by a cardiologist, pulmonologist, gastro-intestinal, and diabetologist who will surely be there.

That is Western template; specialization and division, never a holistic approach. The beneficiary of agriculture, the farmer is crying and at the same time, the Government of India is also profusely bleeding on the part of expenditure on the agriculture sector despite that the economic condition of a farmer is not improving.

A centre or a state-level scheme won’t be successful without an economically viable regional plan based on local resources and requirements. For the economic development of rural areas, all ministries should be aligned for the success of the Regional Plan designed for the locally viable economic model in sync with the ecosystem.

‘Influencer Ministries’ Involved With Agriculture

Major Ministries involved with Agriculture	
Ministry of Agriculture & FW	Regulations of Fertilizers, Pesticides & Seeds
	Agriculture research (ICAR, KVKs etc.) and recommendations of Agri practices.
	Procurement on MSP (APMC etc.)
Ministry of Fertilizers	Defining fertilizers & implementing FCO (Fertilizer Control Order)
	Fertilizers are state subject; both Central & State governments are involved.
	Manufacturing and distribution of fertilizers through govt., coops & private trade
Ministry of Commerce	Export of agri-products (APEDA)
Ministry of Food Processing	They make independent decisions, nothing to do with regional requirements.
Ministry of Railways	A significant component of fertilizer cost.
Ministry of Fisheries, AH & Dairying	Huge impact on farmer’s income
Ministry of Finance	NABARD & other schemes by banks

Too Many Cooks Spoil The Broth

Huge budget for these ministries but lacks the direction for the regional development. You can’t count the number of various government schemes for the welfare of farmers, the list is endless and glossy brochures can be obtained from every department or implementing agency. There is no cohesivity in the schemes of various ministries for the coordinated development of a region. Therefore, no perceptible impact on the beneficiaries of agriculture. i.e., an unfortunate farmer.

In a regional plan, select a few crops not based on state-wise demarcations and provide supply-chain for the development of value-added products up to the export. It’s not rocket science.

Regional Agriculture Plan

The advantages of a Regional Agriculture Plan are (i) Allocation of resources as per the requirement and goals for the region (ii) The government can control the production of various commodities to avoid imports like Palm Oil and (iii) Maintaining regional flora & fauna.

To be an agriculturally advanced country and to prove a sustainable way of life is the Sanatan. The Abrahamic way was imposed on us by colonial rule when they introduced chemicals in agriculture to increase production by disturbing the ecosystem and disassociating plants from the soil. The basis of Sanatan and Abrahamic concepts is the continuity of life and one-life-concept respectively. One life motivates you to utilize resources as much as you can, it’s based on rights. On the contrary, Sanatan means responsibility and duty towards your family, community, society and country. In Sanatan belief, we believe in the theory of karma, hence we always regard and worship all the available resources, let them be rivers, mountains, soil, rain etc. Sanatan is a way to live with nature and to maintain continuity of life by balancing ecosystems.

Need For Synergy

The development of society started with agriculture, we have to go back and search for our roots. We have to design a region-specific consolidated economic model to take care of all the requirements by various ministries. The departments must be in sync to achieve goals. Minimum governance – maximum governance.

The agri-input industry has different segments with clear demarcations, having their nuances to maintain the supply chain. The business guidelines for fertilizer, seeds, agrochemicals, drip irrigation etc. are set by different authorities and various licenses are required. Therefore, the supply chain of Industry is divided into fertilisers, seeds, machinery & agrochemicals which are further divided into chemical fertilizers, bio-stimulants, organic fertilisers, specialty fertilizers, micro-nutrients etc.

Do we think that Indian farmer is educated enough to understand when to apply different inputs in various crops? There is no advisory. The industry or scientific community evaluates any new product based on the value of nutrients in chemical terms and CBR without considering the long-term impact on the soil and environment or the diminishing returns of chemicals. This is Abrahamic theory.

The responsibility of the government is not only to make fertilizer available and implement FCO but the bigger role is to set the direction for the fertilizer industry and farmers. With all the paraphernalia of agriculture, horticulture, fertilisers, seeds, agrochemicals, animal health, APEDA, NABARD etc. The agricultural practices adopted by the farmers need correction and proper direction. Particularly when new technologies like AI, drones, remote sensing etc. are also knocking on the doors of Indian Agriculture, we may get glossy brochures of government and industry, an addition to the list of schemes for farmers.

Need To Understand

- Farmers are not aware that the balanced use of fertilizers along with microbes and organic content, gives optimal production without disturbing the ecosystem.
- NPK consumption is highly skewed. High use of Urea is causing underground water pollution without any increase in productivity.
- Carbon content and Microbes in the soil have come to alarming levels, which is the reason for the diminishing returns of chemical fertilizer.
- The basics of plant nutrition and soil health have to be taught to farmers.
- Soil Health card will reduce the pilferage of subsidized fertilizers.

The Sanatan concept is ever-evolving, it is not based on

commandments. Indian agriculture is resilient enough to show the world how Sanatan Agriculture is the saviour of humanity and Mother Earth.

In terms of generating more revenue for the farmer without taxing consumers, the export of value-added agri products has to be of prime importance. For illustration, India is one of the big exporters of shrimp, but without value-addition. Supply chains should be ready to sell country-specific breads rather than exporting cereals.

APEDA should not be a regulatory body. It has to be commercialised. They have to provide support to the industry not only in terms of regulations but the procurement of orders for the industry in coordination with various embassies. Our MEA is very accessible these days.

- An easy and quick way to enhance farmer's income without hitting urban consumers.
- Like the GCMMF brand (Amul – The Taste of India), there should be a national brand of all the agri-produces to increase visibility in foreign malls. Let it be pineapple and turmeric from NE, Mango and potatoes from UP & Gujarat or chillies from AP.
- APEDA has become a regulatory body rather they should be in contact with Indian embassies to generate businesses for industry.
- APEDA can mark up some percentage from exporters and can aggressively promote a "National Brand" in the global market.
- APEDA should be given commodity-wise targets for exports with commercial professionals. Can be in PPP mode.
- Organic certification by authorities has to be relooked. China's more than 30% arable land is under organic certification – to skim the organic markets in Europe & US.
- The National Brand may be "SANATAN", western templets gave us chemicals, we can give agriculture which is in harmony with nature.
- ICAR & Agriculture Universities should recommend region-specific combinations of organic & chemical fertilizers to the industry.

India has the largest arable land of any country at 1,656,780 km square (50.4% of the total land) compared with 1,084,261 km square (11.3% of the total land) of China. Agriculture can play a vital role in making India the third largest economy in the world without any threat of slow-down in business because it is a basic need of human beings without which no one can be humane.



Set to Transform Farming in India with the Launch of SEVEN Revolutionary Lightweight 4WD Tractors



Built Tough in India... for India & the World

Agrochemical Industry

The Road Ahead



“

*Farmers' interests
need to be protected
by stringent
quality control
requirements*

ABOUT THE AUTHOR

Dr. Prafull Gadge is Scientist, influencer in Regenerative Agriculture, conducting nationwide Agrochemicals Literacy Training programs for farmers.

The Indian economy, which is among the fastest expanding in the globe. It is heavily relying on agriculture, which employs over 50% of the workforce and adds roughly 18% to the GDP overall. Thus, the agrochemical sector plays a vital role in the nation's economic growth, ensuring both food safety and production.

The agrochemical industry is divided into four categories based on application and manufacturing: chemical fertilizers, organic and biofertilizers, chemical pesticides, and biopesticides. Large multinational corporations, national businesses, and regional businesses dominate the chemical fertilizers and pesticides market; in contrast, the bulk of regional and small businesses are involved in the organic fertilizers, biofertilizers, and biopesticides segments. Every market has enormous unrealized potential, but the present and future regulatory environments significantly impede the advancement, expansion, and promotion of safer and more sophisticated inputs. Rules safeguard the safety of the environment and the interests of farmers. In order to maintain tight quality control, they also remove inferior and counterfeit goods from the market. Registration of molecules is the first step in regulations.

Obstacles

The agrochemical industries face numerous obstacles, one of which is the present registration process for biological crop protectants -biopesticides. It's an expensive, time-consuming, and complicated process. This makes it possible for only larger businesses with robust R&D infrastructure and financials to go through this process. It keeps those molecules out of the fields of small and marginal farmers and drives up their market price. This results in the usage of relatively cheap, harmful generic agrochemicals that are also more resistant to pests, which is another factor contributing to their low quality and production. Many agrochemical startups are developing novel compounds, microbial strains and formulations that are cost-effective, environmentally benign, and efficient; however, they are forced to stop where they are because of registration costs.

One of the best illustrations for this circumstance is the recently enacted Biostimulants rules. For over 25 years, potassium humate-fulvate, seaweed extracts, and protein hydrolysates have been utilized as crucial inputs to minimize abiotic stress and restore soil conditioning. Like biofertilizers, these inputs with set quality specifications should be used in accordance with BIS certification standards; however, registration of these inputs requires the completion of costly bio-efficacy and toxicity studies. In addition to raising the cost of those inputs, this will cause many small-scale manufacturing operations to close, creating jobs and a monopoly for a select few. Indirectly, the government's ambitious ambition to double farmers' income is significantly hampered by the intricate and costly pesticide registration process for biological inputs.

In addition to being effective in export quality, residue-free farming that ensures food safety and health, biopesticides are also

crucial in organic and natural agricultural practices. In contrast to the government's encouragement of organic and natural farming, the procedure of registering biopesticide strains for manufacturing is more costly and time-consuming than it is for chemical pesticides. Since biopesticides are environmentally benign, granting manufacturing permits for products like biofertilizers will encourage entrepreneurship in the field of biopesticide manufacture and application. Molecular identification procedures for sampling should be implemented by regulatory agencies in place of strict registration criteria to efficiently monitor the quality and falsification of these living items.

Farmers are using and favoring organic and biofertilizers more and more these days. Because they lower production costs, apply fewer chemical fertilizers, and improve soil health. Local businesses, the majority of which were founded by graduates in agriculture, dominate this market. Single window manufacturing and sale licenses will expand the production, promotion, and applicability of these inputs in light of the demand for application and job creation chances. The government's drive for organic and natural farming will inevitably be supported by the segment's promotion of rural business.

Policy Initiatives

The government's dedication to improving farmers' livelihoods by doubling their income is exemplified by several policy-based, technological, and developmental initiatives. As research and development as well as product registration are costly endeavors, policy ought to include specific funding schemes. To lessen the burden of registering novel compounds on agrochemical startups and established enterprises, well-designed financial and technical support is vital. In order to protect the health and safety of their food, farmers will benefit from this development of more affordable, environmentally friendly, and safer inputs.

Rules governing agrochemicals ensure the safety of people and the environment. However, they won't function unless the end user is fully aware of their use. Farmers are frequently encouraged or sold additional inputs or agrochemicals above what is necessary because of agronomic and agrochemical illiteracy. This raises farmers' production costs without producing the desired results and is dangerous for our health and the environment. Effectiveness is typically demonstrated by applying pesticides at the appropriate times, in the appropriate amounts, and in the appropriate locations. Public-private partnerships should be promoted or established at institutional levels, such as ICAR research centers, agriculture universities, and KVVKs, in order to make this happen. Farmers should be required to participate in mandatory extension programs on label claim, maximum residue level (MRL), pre-harvest interval (PHI), harvesting season, etc. for relevant inputs.

In conclusion, farmers' interests need to be protected by stringent quality control requirements. The development and registration of biological inputs must be aided by expedited procedures as well as financial and technical help provided by special schemes. Extension on agrochemicals literacy will guarantee everyone's health, food safety, and productivity.

Boosting Drone Applications in Agriculture

Expectations from the New Government

In the dynamic landscape of Indian agriculture, the integration of drone technology proves to be a beacon of innovation and progress. With the agricultural drone market projected to witness exponential growth in the coming years, the expectations from the new government to further catalyse this momentum are paramount. There are several key areas where government intervention could significantly bolster the adoption of drones in Indian agriculture.

Government Schemes Driving Progress

Over the past years, the government has demonstrated a proactive stance in promoting the use of drones in agriculture. Initiatives such as the Kisan Drone Scheme, spearheaded by the Hon'ble Prime Minister, have played a pivotal role in raising awareness and providing essential support to farmers. By leveraging drones for tasks like spraying and monitoring, these schemes have not only enhanced productivity but have also alleviated the burden on farmers, thereby contributing to improved livelihoods and agricultural sustainability. Such consistent and advanced steps will gear up the process thereby giving a boost to drone applications in agricultural activities.

Empowering through Training and Inclusivity

A key driver of growth in the agricultural sector is the government's strong emphasis on inclusive growth and skill development. Programs like the Namo Drone Didi initiative, designed to train rural women as drone pilots, exemplify the commitment to gender equality and empowerment. By equipping women with the skills to operate drones for agricultural purposes, the government is not only fostering inclusivity but also tapping into a vast pool of talent that was previously underutilized. Such initiatives not only contribute to economic empowerment but also promote social equity and diversity in the agricultural sector.

Financial Support and Incentives

Financial incentives have been instrumental in driving the uptake of drone technology among farmers and agricultural institutions. Subsidies provided through schemes like the Kisan Drone Subsidy Programme have significantly reduced the barrier to entry for adopting drones. Furthermore, eased regulations and support for domestic drone production have created an environment conducive to innovation and entrepreneurship in the sector.

However, there is still a need for targeted interventions to address the specific challenges faced by smallholder farmers,

particularly in terms of access to finance and capacity building. The new government can further enhance existing subsidy programs and explore avenues for financing drone technology through partnerships with financial institutions and private sector stakeholders.

Anticipated Government Actions

Looking ahead, there are several areas where the new government can further promote drone adoption in Indian agriculture. Establishing Custom Hiring Centres, for instance, could facilitate access to drone services for farmers who may not have the resources to invest in their own equipment.

This would not only democratize access to this transformative technology but also reduce the financial burden on individual farmers. Additionally, increasing funding for agricultural research and development, with a focus on drone technology, could spur innovation and adaptation to local farming conditions. Moreover, streamlining regulatory processes and enhancing awareness through extension services will be crucial for ensuring widespread adoption and effective utilization of drone technology across diverse agricultural landscapes in India.

Infrastructure Development

Investing in the development of infrastructure to support drone operations is essential. This includes establishing drone testing facilities, airspace management systems, and regulatory frameworks to ensure safe and efficient drone operations in agricultural landscapes.

Research and Development

Increasing funding for research and development in drone technology tailored to the needs of Indian agriculture is critical. This includes developing drones optimized for various farming activities, enhancing data analytics capabilities, and exploring advanced imaging technologies for crop monitoring and assessment.

The transformative potential of drones in enhancing productivity, sustainability, and livelihoods in the agricultural sector cannot be overstated. By leveraging strategic initiatives, financial incentives, and capacity-building efforts, the new government has the opportunity to position India as a global leader in agricultural drone technology. As stakeholders across the agricultural value chain collaborate towards this common goal, the future of Indian agriculture looks promising with drones at the forefront of innovation and progress.

“*The transformative potential of drones in enhancing productivity, sustainability, and livelihoods in the agricultural sector cannot be overstated*”

ABOUT THE AUTHOR

Mr Agnishwar Jayaprakash
is Founder and CEO,
Garuda Aerospace



Challenges of Agricultural Wholesale Produce Markets

Future and Way Forward

The subject of Agricultural Marketing is passing through a transition phase and most of the countries are putting all-out-efforts to increase access to markets to harness potential of global trade. Indian markets are also not exception to the situation. Being a peculiar farmer-oriented market system, India has its own unique challenges. The major challenges include challenges of Market Processes; Market Structure; Market Operations; Logistic Issues; Supply Chain; Govt. Policies and Initiatives; etc.

These agricultural marketing challenges include many smaller challenges such as, as per existing structure of APMC the wholesale markets impose substantial fee on buyers, in addition to commissions taken by middlemen. The APMCs typically provide inadequate service in areas such as food safety, hygiene, price discovery, grading, storage etc.

Key impact of existing regulation is the inability of private sector, processors and retailers to integrate their enterprises directly with farmers or other sellers, eliminating middlemen in the process. Existing structure of market of fruits and vegetables does not address the problems of farmer as has low marketing efficiency, high post-harvest losses and also does not foster competitiveness.

Market Challenges

As per the study conducted by Directorate of Marketing and Inspection, Govt. of India, the land use pattern in wholesale markets in India is just contrary to that of recommended by FAO/ UN which indicates that the markets are not well planned and do not provide adequate facilities to the stakeholders.

The operational space available for trading and other ancillary activities are absolutely inadequate and had no relationship with the volume of throughput, the number of traders, sellers operating and traffic generated in these markets.

Markets are found to be below cleaning and sanitation standards because of lack of garbage disposal facilities, insufficient number of toilets and water points etc. Markets largely suffer from innumerable operational deficiencies and are found to be highly congested which give rise to other resultant problems. Commodities are handled many times manually from harvesting place via distribution process before it reaches consumer for consumption which multiplies handling of commodity like loading & unloading, placement into storage, movement during storage, removal from storage and loading onto transport etc.

Supplies of perishables call for special attention and efficient

marketing operations/functions to reduce marketing cost and transaction time. The system of sale is not transparent and farmers happen to bear the maximum burn. Unorganized supply chain with fragmented long marketing channels intermediaries eat up major margins of the farmers.

Agricultural Marketing

Agricultural marketing faces several challenges including that of stemming from the complexity of the agricultural supply chain, market dynamics, and external factors. Some of the key challenges are discussed below.

Fluctuating Prices: Agricultural markets are highly susceptible to price volatility due to factors such as weather conditions, seasonal variations, geopolitical events, and changes in supply and demand dynamics. Fluctuating prices can create uncertainty for both producers and consumers.

Market Access: Access to markets, especially for smallholder farmers in rural areas, can be limited due to small lots, poor infrastructure, inadequate transportation facilities, and lack of information about market opportunities. This hampers the ability of farmers to reach broader markets and obtain fair prices for their produce.

Quality and Standards: Meeting quality standards and complying with regulations is crucial for accessing domestic and international markets. However, small-scale farmers often struggle to meet these standards due to limited resources, technical know-how, and infrastructure. This can result in lower prices or market exclusion.

Supply Chain Issues: Agricultural supply chains are often long and complex, involving multiple intermediaries such as commission agents, traders, mashakhors, wholesalers, retailers, and processors. Issues such as inefficiencies, lack of transparency, and asymmetrical power dynamics can lead to unfair pricing, delays, and quality degradation along the supply chain.

Information Asymmetry: Information asymmetry between buyers and sellers can lead to market inefficiencies and unfair pricing. Farmers may lack access to accurate market information, resulting

in suboptimal decision-making regarding what to produce, when to sell, and at what price.

Market Concentration: A small number of large agribusiness firms dominate the market, giving them significant market power. This leads to unfair pricing practices, reduced competition, and limited choices for both producers and consumers.

In addition to above, there are other multiple challenges of wholesale markets including that of climate change, environment, trade barriers, traceability, food safety, business process, operation management of modern markets, etc.

Climate change poses significant challenges to agricultural markets, affecting crop yields, production patterns, and input costs.

Extreme weather events, water scarcity, and soil degradation can disrupt supply chains, leading to price fluctuations and market instability, skewing the zone of influence of commodities and resultantly less realizations.

Government policies, trade regulations, tariffs, and subsidies can impact agricultural markets significantly. Trade barriers and protectionist measures can distort market prices and limit access to international markets, affecting the competitiveness of agricultural producers.

Risk Management Strategies

Farmers also face various risks, including production risks (e.g., pests, diseases), price risks (e.g., quality deterioration because of price volatility), and financial risks (e.g., access to credit). Therefore, effective risk management strategies such as insurance, hedging, and diversification, are essential to mitigate these risks and ensure the resilience of agricultural markets.

To address challenges, various steps and initiatives are required to be taken up by the government starting right at the stage of designing and planning a wholesale market. This should involve initiatives and components of modernization of a wholesale market. This should resolve key issues such as infrastructure deficiencies, information asymmetry, fragmented supply chains, post-harvest losses, limited access to finance, quality & standard compliance, market volatility & price fluctuations, limited market access, environmental sustainability, policy and regulatory constraints.

One of the most important aspect of physical markets in India is architectural conceptualization. These architectural solutions must include building or upgrade infrastructure such as roads, storage facilities, cold chains, marketplaces; developing digital platforms or information systems to provide market information, prices, weather forecast and best practices to farmers and traders for enhancing transparency and efficiency in decision making.

Designing integrated supply chain systems that connect farmers directly with consumers or processors which involve establishing cooperatives, agro-processing hubs, or contract farming/ FPO arrangements to streamline production and distribution. Constructing post-harvest infrastructure such as warehouses, drying facilities, and packaging centres to reduce losses due to spoilage and improve the quality of produce reaching the market is equally important.

Creating financial architectures such as microcredit schemes, agricultural insurance, or investment funds tailored to the needs of wholesale markets and agribusinesses premises which can help overcome barriers to accessing capital for investment and growth is of paramount importance.



Establishing quality control mechanisms and certification standards for agricultural products which may include building inspection and certification facilities or implementing traceability systems to ensure compliance with international standards are the need of hour.

Risk Management Frameworks

Developing risk management frameworks such as futures markets, commodity exchanges, or price stabilization programs which help mitigate risks associated with price volatility and provide farmers and traders are tools to manage market uncertainties. Designing market linkages and distribution networks to connect rural producers with urban markets or export markets which involve building transportation infrastructure, establishing wholesale trading hubs, or facilitating trade agreements to expand market opportunities are essential for development of agricultural marketing.

Integrating sustainable practices into architectural designs by promoting eco-friendly infrastructure, renewable energy solutions, and resource-efficient technologies which ensures that wholesale markets operate in harmony with the environment and contribute to long-term sustainability.

The facilities must be designed suiting to the handling protocol of the commodity concerned. Advocating for policy reforms and regulatory frameworks that support the development of efficient and inclusive agricultural markets which may involve lobbying for trade liberalization, market deregulation, or investment incentives to foster a conducive business environment with sustainability is necessary.

Agricultural Marketing Infrastructure

The architectural design of agricultural marketing infrastructure should be integrated with green building principles and achieve a GREHA (Green Rating for Integrated Habitat Assessment) rating which can significantly contribute to sustainability and environmental conservation. This will help in reducing energy consumption, water conservation, reduce carbon footprints, waste reduction and recycle, reduce reliance on fossil fuel-powered vehicles.

Ensuring food safety is a crucial part at agricultural wholesale market level for protecting public health and maintaining consumer confidence in the food supply chain. These involve several challenges such as risk of contamination; inadequate regulation & enforcement; cross-contamination; limited consumer awareness; etc.

Traceability at agricultural wholesale market level is very necessary to track the movement of food products throughout the supply chain, from production to consumption. While traceability offers numerous benefits such as improved food safety, quality control and supply chain transparency.

Several challenges do exist in implementing effective traceability systems such as multiple model of supply chains, diverse stakeholders, data standardization, adoption of limited technology, cost & resource constraints, regulatory compliance, data privacy & security, consumer engagement, etc. Therefore, a robust system of traceability is necessary.

Investment Challenges

For operational and management of a wholesale market, there are various investment challenges which are due to high capital costs, long payback periods, market uncertainty, lack of financial access, policy & regulatory barriers, technology adoption barriers, licensing policy, etc.

Public-private partnerships (PPPs) in development of wholesale agricultural markets which can offer significant benefits by leveraging the strengths of both public and private sectors to



address challenges, improve efficiency, and promote sustainable development. However, several challenges exist in establishing and managing PPPs in wholesale markets such as private-public entities may have divergent objectives, priorities, and incentives, leading to conflicts of interest and challenges in aligning their goals within the partnership.

Complex regulatory frameworks, bureaucratic processes, and policy uncertainties further add to the problems. Sharing risks and responsibilities is another big issue to be agreed on mutual terms. Limited financial resources, technical capacity, institutional capabilities, asymmetry information, political and socioeconomic factors are also hindrances in attracting private investment.

Challenges of IT applications in agricultural wholesale markets can stem from various factors, including limited access to technology

to traders and market authorities, data management issues, users' habits, lack of technical expertise among stakeholders, etc. are bottle necks in its application. These challenges can be solved by expanding access to technology infrastructure such as internet connectivity, OFCs, hotspot hubs, computers, smart digital walls, improving electricity access and upgrading telecommunication networks, etc. are necessary at each marketplace. Implementing data management systems, capacity building initiatives, affordable/subsidized IT solutions, implementing robust cybersecurity measures are must for holistic IT planning at the initial level itself.

IT And Agricultural Marketing

Blockchain and machine learning technologies hold immense potential to transform agricultural marketing by enhancing transparency, efficiency, and trust within the value chain. Markets should be installed with IoT sensors, remote sensing technologies

and mobile application to gather real-time data. Market should be equipped with blockchain-based data management systems that provide immutable, transparent, and decentralized storage of agricultural marketing data, coupled with encryption, access controls, and identity management mechanisms, to safeguard data privacy and integrity.

GPS/GIS tagging in agricultural produce marketing involves the use of Geographic Information Systems (GIS) and Global Positioning System (GPS) technologies to track and manage agricultural products throughout the value chain. This approach offers several benefits, including improved traceability, inventory management, quality control, and market access.

The use of robotics in agricultural produce marketing focuses on enhancing efficiency, productivity, and quality throughout the agricultural value chain, from production to distribution. While robotics is more commonly associated with agricultural production activities such as planting, harvesting, and spraying, its applications in produce marketing also offer significant benefits such as automated packaging and sorting, quality inspection, labelling, grading, retail displaying, precision marketing, personalization, automatic delivery and distribution, data analytics and market insights, etc., which is necessary for future.

Drone delivery in agricultural produce marketing offers several advantages for efficiently transporting agricultural products from farms to markets, retailers, and consumers. Drones can be utilized for last mile delivery, timely delivery of perishable goods, access to remote markets, precision delivery, cost effective distribution, environment sustainability, real-time monitoring, and tracking, etc.

Implementing mini data centres in major wholesale markets of fruits and vegetables in India can significantly enhance the efficiency, transparency, and competitiveness of agricultural produce marketing operations. Mini data centres can serve as hubs for collecting, analysing, and disseminating market information and intelligence to market participants, including farmers, traders, wholesalers, retailers, and consumers. They can aggregate data on market prices, supply and demand dynamics, weather forecasts, and consumer preferences, providing valuable insights for decision-making and market planning.

Payments

The inclusion of a payment settlement system in agricultural marketing is essential for facilitating transparent, efficient, and secure transactions between buyers and sellers of agricultural produce. Introducing an electronic payment option such as credit/debit card payments, mobile money transfers, and digital wallets to provide convenient and secure payment methods for agricultural transactions could be a way forward.

This allows buyers and sellers to conduct transactions without the need for cash, reducing the risks associated with carrying large sums of money. Partnering with banks, financial institutions, and payment service providers to integrate payment settlement systems with existing banking infrastructure will enable seamless fund transfers, facilitates timely settlements, and ensures compliance with financial regulations and standards. Various other payment settlement systems can also be integrated such as online payment platforms, Point of Sale (PoS) system, etc.

In nutshell, it can be inferred that there are multiple challenges in existing system but at the same time, there are tremendous opportunities to modernize agricultural marketing system.

There are multiple ways to solve the problem and numerous benefits attached to each initiative. For the country like India, which occupies pioneering position in IT solutions, has great potential to take jumping lead in global trade of agriculture.

Maize Cultivation Revolutionizes Indian Agriculture:

A Decade of Growth and Prosperity

Over the last decade, Indian agriculture has witnessed a remarkable transformation, particularly in the cultivation of prime crops like maize, hailed globally as the 'queen of cereals'. Maize cultivation has surged across states like Bihar, Maharashtra, Tamil Nadu, West Bengal, Gujarat, and Telangana, showcasing the resilience and adaptability of Indian farmers and solidifying its position as a cornerstone of agricultural success. Notably, the expansion in both acreage and productivity of maize underscores the innovation of farmers in navigating challenges.

Maize stands out as a climate-resilient crop, demanding less water and boasting carbon efficiency, thus reducing its environmental impact. This quality renders it an appealing choice for farmers contending with shifting climates and soil conditions. Moreover, integrating maize into mixed cropping systems holds promise in strengthening soil health and improving pest management practices.

Considering these advantages, the Government of India has placed significant emphasis on maize production in recent years, recognizing its potential to contribute to food security, environmental sustainability, and the economic well-being of farmers. The Government of India has implemented various initiatives, such as the National Food Security Mission, aimed at increasing maize production sustainably through area expansion and productivity enhancement.

Moreover, experts such as Dr Hanuman Sahay Jat from the Indian Institute of Maize Research underscore the government's focus on maize cultivation, particularly driven by initiatives like the Ethanol Blended Petrol (EBP) programme, which aims to reduce CO2 emissions and pollution by blending ethanol with petrol and diesel. Maize also holds the predominant energy source in poultry



diets across many nations, owing to its exceptional energy content, palatability, and rich reserves of pigments and essential fatty acids. It's noteworthy that maize can be incorporated into poultry rations up to 70%.

Farmers like Madan Ahir from Chittorgarh, Rajasthan, are increasingly recognizing the profitability of maize cultivation over traditional crops like rice or wheat. He emphasizes the high productivity and water efficiency of maize, which has led to its growing popularity among farmers in the region. Similarly, Dipendra Kumar from Uttar Pradesh underscores the substantial contribution of maize yields to his family's income. He highlights the widespread adoption of maize cultivation in his village during the Kharif season, indicating a shift towards more lucrative agricultural practices.

With India exporting 3.45 million MT of maize valued at Rs 8,987 crores in 2022-23, it is evident that Indian farmers are not only meeting domestic demand but also contributing significantly

to the global market, showcasing their self-sufficiency and competitiveness in maize production.

Why Non-GM Maize

Non-GM maize holds its own appeal, particularly due to its flavor, nutritional content, and compatibility with local culinary



traditions. This preference for non-GM maize contributes substantially to food security at the local level, as it ensures access to culturally significant and nutritionally rich food sources.

Cultivating non-GM maize presents a promising direction to support farmers' economic prosperity while safeguarding the integrity of their seed sovereignty. With diverse industries heavily reliant on maize and its derivatives, farmers stand to gain significant profits while mitigating risks and reducing costs. By embracing non-GM varieties, farmers can maintain their income streams without compromising on environmental or economic sustainability. To support this, government should enact policies that prioritize the conservation and sustainable management of non-GM maize strains. This entails robust regulatory measures to curb the proliferation of GM maize and ensure the preservation of traditional seed varieties.

Conclusion

Indian maize production plays a pivotal role in the economic empowerment of farmers nationwide. From 22 million metric tons (MT) in 2014-2015, maize production has soared to an impressive 35 million MT, portraying a substantial increase in output. Simultaneously, the acreage dedicated to maize cultivation has expanded from 9.1 million hectares to 10.1 million hectares, showcasing a 35% yield increase over the same period. Amidst ongoing debates surrounding the adoption of GM maize, there is a pressing need to prioritize the conservation, promotion, and sustainable utilization of non-GM maize varieties. It is imperative to redouble efforts towards enhancing non-GM varieties while extending support to farmers in embracing modern technologies and sustainable farming practices, all while safeguarding genetic resources. Moreover, the exponential growth of maize cultivation in India over the past decade is a testament to the agricultural sector's resilience and adaptability in addressing evolving demands and challenges. With conducive government policies, technological advancements, and the steadfast dedication of farmers, maize has emerged as a symbol of success in Indian agriculture, indicating a future of sustainability and prosperity for both farmers and the nation at large.

Tackling Low Agricultural Productivity

“Agriculture will always remain a booming industry”



ABOUT THE AUTHORS

Dr. Anup Kalra, CEO Agriliv Research Foundation (formerly Ayurved Research Foundation). **Mr Mohan Ji Saxena** is former MD of Ayurved and currently Managing Trustee ARF. **Dr Aparajita Das** is Principal Scientist, Agriliv Research Foundation

Agriculture production in India for most of the food crops have been at center stage of debate and discussion. Our crop production for many commodities ranks number 1 or 2 but when it comes to productivity per hectare we slip into bottom of the ranking. India's ever increasing population growth along with degrading environmental factors and rapid urbanization are leading to decrease in arable land which in turn is intensifying the pressure on food production and productivity indices.

India is world's largest producer of milk, pulses and jute, and

ranks as the second largest producer of rice, wheat, sugarcane, groundnut, vegetables, fruit and cotton. But for our productivity indices the same is not true. It is also one of the leading producers of spices, fish, poultry, livestock and plantation crops where productivity is challenged (<https://www.fao.org/india/fao-in-india/india-at-a-glance>, visited on 17.4.24).

According to the FAO report, India has numerous growing concerns for agricultural production like being resource intensive, cereal centric and regionally biased. India's yield rates of major



cereals like rice and wheat are also way behind China and even some of the African countries like Egypt.

India's population consumes large quantities of rice and wheat. India's yield rates for rice and wheat i.e., the tonnes produced per hectare is much lower than many countries globally. When compared according to the data collected for year 2022 from <https://ourworldindata.org/grapher/rice-yields> visited on 16.4.2024, India's rice yield rate is only 4.23 tonnes per hectare as compared to China whose yield rate is 7.8 tonnes per hectare and Australia's yield rate is 11.05 tonnes per hectare. Yield rates of some of the African countries like Egypt and Kenya is 8.97 tonnes per hectare and 6.49 tonnes per hectare, respectively.

Similarly in the case of wheat also, according to the data collected for year 2022 from <https://ourworldindata.org/grapher/wheat-yields> visited on 16.4.24, India's yield rate for wheat is 3.54 tonnes per hectare. Other countries like New Zealand, Zambia, Egypt and China have yield rates 9.39 tonnes per hectare, 7 tonnes per hectare, 6.78 tonnes per hectare and 5.86 tonnes per hectare respectively.

Understanding Productivity Growth

If India's rice and wheat productivity was at Egypt's level, then India will be producing 2.12 times and 1.91 times more rice and wheat respectively what India is producing currently. With the increase in population, declining agricultural productivity growth could lead to consequences such as higher food prices. When productivity growth declines, agricultural producers will need more resources and inputs which could have been used in other sectors or purposes to ensure national growth in output.

It can be reallocation of resources like land, labor, capital etc. for agricultural sector that could slow down the growth in other sectors, including manufacturing and services which are equally important for national growth. Moreover, enhancement of agricultural land use and input intensification will have a negative impact of a larger environmental footprint of agriculture, including higher greenhouse gas emissions from agriculture.

Why the agriculture productivity is low in India?

Some of the reasons to be looked into are mentioned below:

Irrigation and water resources

Although India has extensive irrigation infrastructure but India's agriculture is severely dependent on monsoon rain, making it vulnerable due to inconsistent rainfall patterns, droughts and other weather shocks due to global climate change. Access to adequate irrigation facilities and water management are vital challenges, particularly in regions with limited water resources. India has approximately 195 m ha under cultivation of which some 63 percent are rainfed while 37 percent are irrigated. India's rainfed areas, if managed correctly, have the ability to contribute a bigger share in the overall production of food grains. India needs to double the irrigation infrastructure and bring more arable land under irrigation to enhance the productivity.

Soil Health

Soil health and productivity have a direct linkage on agricultural output. Soil devoid of appropriate nutrition yields lower crop harvest. The optimum use of fertilizer, abuse of fertilizer and over use of fertilizer often has a negative effect on environment and therefore soil health card-based cropping and fertilizer usage is recommended for optimum productivity. Indiscriminate applications of chemicals lead to reduction in soil fertility level and increase susceptibility to pests and diseases which in turn decreases agricultural productivity.

Quality Seeds

Good quality disease free seeds and planting materials are important component of crop production and vital for increasing agricultural productivity. Good quality seeds interact with the good environment around it and governs the health of the plant or crop. If the environment is favorable and the seed quality is poor then the production is likely to be less. The hybrid seeds should be developed keeping the objective of disease resistance, less water usage and high production are required to boost the productivity level.

Dealing With Crop Diseases

Crop diseases and herbicide resistant weeds are major threat to the productivity. According to a study by FAO, around 40% of global crop production is lost to pests annually. New diseases and pests arise because of large number of factors. Global climate change is considered as one of the major reasons for rapid growth and spread of pests worldwide. Some of the leading factors include new pathogens and more virulent strain moving within production systems, emergence of new vectors, excessive use of chemical pesticides leading to proliferation and development of pest varieties which are pesticide resistant (Mwangi et al., 2023).

R&D Outreach

Deficiency in suitable new technological breakthroughs to increase crop productivity is also another reason for low agricultural output. This may be because of insufficient investments in agricultural research and development programmes suitable for local farming systems. More robust, economical and easy to use agricultural technologies are required in the areas of crop yield forecasting, water conservation technologies, cold chain infrastructure, improved varieties against emerging biotic and abiotic stresses and other various areas of agriculture. Several new precision agriculture technologies require reliable satellite, cellular, and internet infrastructure that is lacking in many rural parts of India.

Tech Support

Slow and ineffective dissemination of improved agricultural technologies among farmers and stakeholders remains a central issue of concern. Many farmers remain ignorant to day-to-day changes in new agricultural technologies. Lack of well-developed appropriate agricultural extension systems, friendly governmental policies for all stakeholders, insecurity of land tenure and limited access to financial coupled with insurance services are some of major reasons that contribute to weak incentives for farmers to invest in new technologies.

Diverse Challenges

Knowledge gaps in field crops and post-harvest handling, poor resources management, market access blockades in international trade also hinder agricultural productivity growth. Poor infrastructure, high market transaction costs, inconsistent regulatory frameworks and tariffs often make it more expensive to acquire productivity-enhancing technologies and inputs and also limit opportunities for the transfer of technology (<https://www.ers.usda.gov/amber-waves/2021/december>, 17.4.24).

Small and medium-sized family farms continue to dominate Indian agriculture and land fragmentation is one of the chief constraints to efficient crop production and agricultural modernization. Moreover, small farmers may face challenges in accessing required services and markets that could improve their agricultural productivity and empower them to participate more fully in global agricultural value chains (Upadhyay M, 2021).

India's challenge of production can be addressed by adopting knowledge, science and technology base approach by connecting the disjoint of soil-seed-irrigation- disease free -plant growth to harvest-post harvest-storage and market. The current challenge before the agricultural scientists, technologists and farmers is to address the critical issue of productivity per acre or productivity per animal and benchmark India's productivity at par with global standards.

Humans and livestock will always be dependent on agricultural produce. Hence agriculture will always remain a booming industry. India being a nation of agriculture, a productive, competitive, diversified and sustainable agricultural sector is required at an accelerated pace to counteract the issues arising due to various challenges like excessive population growth, global climatic changes, water scarcity, and degradation in the form of depletion of soil fertility, erosion and water logging. Higher agricultural yield rates can drastically reduce the amount of land resource required to produce the same quantity of agricultural produce.



We provide

New-Age Premium Layer Feed Range



Formulated by mixing high quality protein and energy sources with necessary micronutrients



Ensures uniformity in the flock



Ensure decrease in early chick mortality, faster growth



Maintains peak production for longer period with excellent shell strength



CONTACT US TODAY!

www.noveltech.in

+91 40 30903600

Also find us at :

Market Infrastructure and Facilities in Wholesale Market

It's Viability and Returns on Investment

“A wholesale market can itself be an integrated Business Centre for various other commercial activities

Wholesale market is a unique place for buying and selling of Fruit and Vegetables which is generally located in central part of a city. This is the place where price of farmer's produce is determined and exchange of goods and services takes place. The main function of the wholesale market is to facilitate the breakup of the large quantities of perishables supplied to the city into assortments which meet the requirements of different retailers. But apart from this, a wholesale market can itself be an integrated Business Centre for various other commercial activities.

The marketing of fruits and vegetables is different from the marketing of other agricultural commodities like grains in the sense that it needs special provisions for packing, transportation, handling and ultimately timely disposal. In other words, time, form and spatial utilities have to be kept under consideration due to perishable nature and high seasonality in production and post-harvest management of these commodities.

It is common knowledge that about Rs. 50000 crore worth of fruits and vegetables are wasted yearly, due to poor efficiency in marketing as well as due to inadequate infrastructure. This results not only in poor or low return to the farmers, but also relatively higher prices for the consumers. That is to say, the proportion of share of the producer in the consumer's rupee remains smaller.

Value Chain

Food reaches the consumer by a complex network of activities involving production, assembly, sorting, grading, wholesaling, distribution, retail stages and many other related functions. In

the entire supply chain wholesale market is a key place which amalgamates many of these services.

It is said that there can be more than 70 different kind of facilities/activities/services in a wholesale market. Though the quality of these services in existing APMCs in India is not up to the mark, and adequate services are not being provided. At the same time, any private investor who would like to develop wholesale market would be interested in knowing the return from various facilities that have to be made available in the market as the extent of benefit of each facility in the market may differ from one to other.

So, to know which facility is more beneficial in comparison with the other, it is very important from the point of view of estimating financial feasibility of establishing that facility.

Holistic Approach

The facilities/activities/services are differentiated in physical and economic terms, keeping in mind the statutory requirements by the government like providing essential basic facilities like drinking water, cleaning, lighting and security for the market premises, providing market information, etc. for farmers, traders and stakeholders. Therefore, a comprehensive integrated master plan with a holistic approach and a smart market planning and designing is necessary to accommodate such facilities.

The facilities in a wholesale fruit and vegetables market are of three types, namely, Market Services, Non-Market Services and Essential Services.

Market services means the provision of the facilities and services at the wholesale market complex which include platforms for trading, electronic auctioning facility, cold storage facility, ripening chamber, pre-cooling unit, facility for sorting, grading, washing, waxing, labelling and packing lines, fueling facility, parking facility,

“It is important to invite private investment into the wholesale market, as the government alone cannot fulfil all the needs immediately

ABOUT THE AUTHOR

Mr Hanurmant Yadav is Manager, National Council of State Agricultural Marketing Boards, New Delhi

waste treatment facility, sanitary measures, weighment facility, price display, market information services, etc.

Non market services means the provision of the user facilities and services at the wholesale market complex which include business service centres, catering services, general retail shops, hotels and motels, locker rental, logistics centres, transporters shops, vehicle rental services, exporters shops, conference hall, library, laboratory, input shops, etc. Such facilities have larger responsibilities towards making the project viable and compensating for the load of free essential services.

Essential services means the provision of facilities and services at the wholesale market complex which includes waiting rooms, drinking water, cleaning, lighting of market area, emergency services like medical, fire station and police services, toilet facilities, etc.

Considering the phase wise implementation of facilities, the essential services needs to be considered while deciding the commencement of other facilities. The non-market services shall commence operation only after the commencement of operations of Marketing Services. The implementation of Marketing Services can be considered based on investments, area, profitability, seasons, etc. e.g. starting of platform can be done before the construction of storage/cold storage.

Facilities for sorting, grading, washing, packing, waxing, labelling and testing can be done before starting of a ripening chamber. It needs to make sure that whatever minimum facilities required for running the trade should be established in priority than the

other facilities. Identification and selection of profitable activity is another important aspect considering the space and money constraints.

Study of India's Five Major Markets

It is important to invite private investment into the wholesale market, as the government alone cannot fulfil all the needs immediately. Private investor intends to be doubly sure of the returns on investment. In order to make a practical and empirical evidence based assessment of return on investment on different agricultural market facilities, the National Council of State Agricultural Marketing Boards (COSAMB) conducted a study on "Market Facilities in Fruit & Vegetables Wholesale Markets in India with respect to their Investment and Returns" recently in which five major markets of India were studied namely, Azadpur Market, Nashik Market, Kolar Market, Hassan Market and Belgaum Market.

The main objectives of the study were to identify the level and extent of various essential, market and non-market services selected markets, to study the provision and utilization pattern of said services by the stakeholders of the market; to compare the identified services with respect to investment, space allocated/ utilized, turnover and profits; to propose an optimal mix of services for a market investors so as to maximize the returns and minimize the investments; to assess financial and economic feasibility for different investment/operational models for proposed services, etc. The results have indicated that most of services are not viable for investment point of view. Services and market wise details are given in foregoing paragraph.

At the time of study, the operation and management models for different services in the above said five markets were searched and it was found that these markets follows six type of models which are, Franchisee (Getting from others); Build own operate (BOO); Build own transfer (BOT); Lease (Taking lease for particular period); rent (Taking on rent basis); and Contract (Giving responsibility of a particular facility/activity for maintenance).

It was seen that drinking water, lighting, information desks/ MIS, parking facility, price display, platforms, administrative office complex, waiting/rest rooms, emergency services, library, conference hall are operated under BOO Model.

Diverse Market Models

Under BOT Model, toilet and waste treatment plant are operated. It was seen that under Contract Model, cleaning; security; and transportation of waste material operate. Logistic centre/transporter shop, banking service, cold storage, exporter's shop, providing plastic crates, input shops, porter service, manual carriage of produce, shops for commission agents, shopping complex and restaurants/refreshments are operated. Under Lease Model except in Hassan market, where restaurants/refreshments and shopping complex are operated. Under Rent Model and logistic centre/transporter shop, catering service, porter service, shops for commission agents are operated under Lease Model.

During the study, it was found that Azadpur Market contains the highest, 43.33% of the combined three types of services. In

other markets, even the level of 40% of availability of services were not achieved. It was also found that market services like Electronic auction facility, futures trading facility, storage facility, temperature controlled warehouse, ripening chamber, pre-cooling units, facilities for mechanical carriage of produce, transport services related to market (including cool chain/refer vans), cash and carry, facility for sorting, grading, washing and packing lines and facilities for waxing, labelling and quality testing are not found present in any of the surveyed markets.

In case of non-market services (hotels and motels services including reservation services, vehicle rental services, freight consolidators/forwarders or agent services, messenger services, vending services, portal services, general retail shop, business centre services, locker rentals, processing facilities, bulletin/printing unit and laboratory/research centre) are absent in all the surveyed markets. Few basic essential services like facilities for the disabled and other special needs people, information desks, cleaning, rain water harvesting and fire-fighting services were also not found present in the surveyed markets.

The results highlight that the percentage share of current market value of market services is more than the combined share of non-market services and essential services in Nashik and Azadpur Market (54.53% and 62.20%, respectively) whereas in Kolar, Hassan and Belgaum market, the current market value of essential services is greater than market and non-market services

(78.74%, 63.57% and 42.77%, respectively).

Market Dynamics

The current space allocation pattern was also studied and it was found that the percentage share of space allocation for market services is more than the combined allocation space for non-market services and essential services in Nashik Market, Azadpur Market, Hassan Market and Belgaum Market (88.30%, 78.30%, 73% and 74%, respectively) whereas in Kolar Market, non-market services space allocation (47%) is higher than market services and essential services.

Determining maintenance cost is a must to know the return on investment and is a major part of any financial study. The maintenance cost of non-market services is higher in Nashik Market, Kolar Market, Hassan Market and Belgaum Market whereas the maintenance cost of essential services is higher in Azadpur Market.

Comparison of market services with respect to the investment was also done in the study in which it was found that maximum investment has gone for market services in case of Azadpur and Nashik Market whereas, in case of Kolar, Hassan and Belgaum Markets, the maximum investment has gone for essential services.

The Internal Rate of Return (IRR) of the markets were also calculated to predict its condition and potential for growth, as higher the IRR values, better is the market condition and its potential for further growth. It was found that the Azadpur Market

has the highest IRR which is attributed to its huge cash inflow.

Infrastructure Support

The services provided in the market were prioritized according to Return on Investment (RoI) and it was found that among marketing services, facilities like bulk weightment; cold storage; manual carriage of produce; providing plastic crates; parking facility; banking services have positive RoI, whereas negative RoI was observed among platforms and price display/market information services. In non market services, it was found that restaurants/refreshments; logistic; centres/transporters shops; porter service; shopping complex; input shops show positive RoI whereas conference hall; library showed negative RoI.

In the essential services, it was seen that all essential services except toilet and waste treatment plant have negative RoI as these services are mainly meant for providing service to the users and there is no direct income coming from these services.

Results on Return on Investment (RoI) depicts that all the essential services has a negative RoI. The non-market services show a positive RoI as compared to that of market services which indicates that for sustainability of a market and making it viable, the contribution of non-market services is significant. Hence, to bring private investors to the market, it is necessary that the government should think of something better to offer to the private investors so as to encourage them for investment in the sector.



Sowing Seeds of Hope

Contract Farming is Transforming Rural India



A growing trend in contract farming is the establishment of long-term partnerships between brands and farmers

For generations, Indian agriculture has been the backbone of the nation. However, fragmented landholdings, volatile market prices, and a lack of access to resources have plagued smallholder farmers, hindering their potential and rural development. In recent years, contract farming has emerged as a ray of hope, offering a win-win situation for both farmers and processing companies.

Traditionally, Indian farmers have operated at the mercy of an unpredictable market. Fluctuating prices often leave them with meagre profits and sometimes losses, despite their hard work. According to a 2022 report by the National Institution for Transforming India (NITI Aayog), nearly half of India's farmers earn less than Rs. 10,000 per month. Additionally, fragmented landholdings, limited access to quality inputs like seeds and fertilizers, and inadequate technical knowledge further limit their productivity. This cycle of uncertainty discourages investment in new technologies and innovation, perpetuating a state of underdevelopment in rural India.

Let's dive in and explore how contract farming is reshaping agriculture in India, with a focus on the growing trend of long-term partnerships between brands and farmers.

Contract Farming: A Win-Win Model for Change

Contract farming offers a structured approach to address these challenges. Under this system, companies enter into formal agreements with farmers, specifying the type, quantity, and quality of produce required. The contract typically includes provisions for providing essential inputs like seeds, fertilizers, and technical

expertise. Most importantly, farmers are assured a pre-determined price for their produce, eliminating the fear of market fluctuations and vagaries of nature.

Benefits for Farmers

The advantages of contract farming for farmers are manifold. Firstly, it provides a guaranteed market for their produce, offering financial security and peace of mind. It also serves as an effective mechanism for mitigating the risk of wastage inherent in agricultural production, particularly concerning perishable commodities.

A 2018 study by the International Institute for Sustainable Development found that contract farming arrangements can lead to a 20-30% increase in farmer incomes. Secondly, access to high-quality inputs and technical guidance from companies leads to improved crop yields and better farm management practices. Thirdly, contract farming often creates employment opportunities within farming communities, particularly for women engaged in labour-intensive tasks.

We have several stories on the ground that have witnessed transformation of their livelihoods. Take the example of farmer Govindbhai Dajibhai Patel from MohanPur village in Taluka Talot, Sabarkantha district in Gujarat who is associated with HyFun for 6 years. Prior to the association, Govindbhai struggled to make his ends meet by doing a bank job and growing table variety of potato. His annual income back then was Rs 3 lacs per annum from farming in 6 acres of land. However, since joining a contract farming program with us, his life has transformed. The company provides him with high-quality seeds along with training in sustainable farming methods.

Govindbhai is now the owner of 13 acres of land with an income of Rs. 11 Lacs an annum only from the processed variety of potato grown through contract farming for HyFun. He is now a full-time farmer and has left his bank job after reaping lucrative benefits of farming as a business.

Benefits to Agro Processing Companies

While it is beneficial for farmers, processing companies also land up on the gaining side. They gain a reliable source of consistent quality produce, with quantities meeting specific market demands. Hence, they can in turn commit consistent supplies & pricing to their customers which helps especially in globally competitive international markets. Additionally, companies can

train farmers in adopting best practices, ensuring sustainable agricultural techniques and minimizing environmental impact. This collaborative approach fosters trust and strengthens the supply chain.

A growing trend in contract farming is the establishment of long-term partnerships between brands and farmers. This approach goes beyond a mere transactional relationship. Companies are investing in building strong relationships with farmer communities, providing not just financial security but also training in areas like soil health management, water conservation, and post-harvest handling.

For example, HyFun Foods connects with farmers directly, offering them not only a guaranteed market but also training in sustainable farming practices. This approach fosters a sense of ownership and empowers farmers to become integral partners in the agricultural value chain.

Looking ahead

While contract farming offers immense potential, there are challenges to be addressed. Ensuring fair contracts, timely payments, preventing exploitation of farmers and protecting them from misleading information by opportunists are crucial and have to be dealt with extreme caution. Additionally, government initiatives to promote contract farming, such as facilitating farmer aggregation and establishing robust dispute resolution mechanisms, are essential for its successful implementation.

Contract farming, particularly the model of long-term partnerships, holds immense promise for transforming rural India. By providing stability, resources, and knowledge to farmers, it empowers them to improve their livelihoods and contribute to India's agricultural growth. As companies and farmers work together, this innovative approach can pave the way for a more sustainable, equitable, and prosperous future for rural India.



ABOUT THE AUTHOR

Mr. Haresh Karamchandani is
Managing Director & Group
CEO, HyFun Foods

Institutional Support in Development of Wholesale Markets

Future Role of COSAMB

COSAMB has been linked with International Organizations as a member of World Union of Wholesale Market (WUWM) from the past 10 years. WUWM aim to facilitate access to healthy diets for everyone in the world by delivering more sustainable, inclusive, and high-quality fresh food supply systems.

It exchanges ideas, shares best practices and work with international organizations, governments, and consumers. It also raises awareness and education to help everyone eat better and contribute to a healthier, more resilient, and sustainable international food system. Approximately 220 Members are part of WUWM in which India is represented by Dr. J. S. Yadav, Managing Director COSAMB.

Advantage Farmers

COSAMB co-ordinates with various departments and organizations of Govt. of India and State Governments in the interest of farmers, traders and consumers in order to encourage healthy growth of agricultural marketing system and promote national and international exchange of information on agricultural marketing system and modern infrastructure for improving efficiency. COSAMB aims to bring about uniformity in the system of agricultural marketing all over the country with uniform adoption of the best of the proven practices picked up from various regions of the country.

COSAMB organizes seminars, workshops and exhibitions in order to analyse problems in the system of agricultural marketing and to provide new vision to promoters of agricultural marketing infrastructure. The main focus on organizing seminar, workshops, etc. is to provide update about the new schemes and policies of Govt. of India on Agricultural Marketing and to advice the agricultural marketing boards and farmers organization to adopt the economic subsidiary occupation related with agricultural and allied activities which can help in increasing the economic growth of farmers. COSAMB guide the marketing boards and farmer's organization about the alternative marketing channels, processing techniques to enhance the economic efficiency of the agricultural marketing sector.

COSAMB provides update to its members to aware farmers to work for organic farming under new agricultural policy, increase

productivity by utilizing rural resources e.g. land, labour, cattle, vegetation, forest land, fishery, horticulture, dairy farming, sericulture, etc. and provide help for development of wastelands, wetlands, mangroves, barren lands and steps for the restoration of ecologically degraded areas and to help find ways to use waste water and to develop water and soil conservations and develop social gardens, agriculture and kitchen gardens.

Empowering The Farmers

COSAMB guides and assist the farmer's organizations and agricultural marketing functionaries to pack and sell the produce in such a way that the producers should fetch the competitive price of the produce sold and the consumer get the best produce for which he has paid.

COSAMB focuses on creating a common resource library in order to mobilize the best of books and updated literature for the benefits of agricultural marketing boards. Various books have been published by COSAMB to fulfil its motives. Some of the books published by COSAMB are, Status and Pattern of Legislation Reforms for the Wholesale Markets in the World; Statistical Abstract of Agricultural Marketing – 2020 & 2018; e-Nam: Challenges & Opportunities; Study on Impact Assessment of Agricultural Marketing Reforms in India; Study on Market facilities in Fruits & Vegetable Wholesale Markets in India with respect to their investment & returns; and Guide to Good Hygiene Practices in Wholesale Market.

Support System

COSAMB undertakes professional, technical, managerial and infrastructural consultancy services on nomination basis for the benefits of agricultural marketing boards as declared as "Approved Source" by its General Body. COSAMB currently is engaged with Telangana Agricultural Marketing Department as it has receives a momentous assignment of providing its expert services which involves the preparation of a comprehensive "Institutional Consultancy" for development of a state-of-the-art modern wholesale market at Koheda, Hyderabad.

Under this turnkey project, COSAMB is responsible for creating detailed DPRs, Architectural and Structural Drawings and Project Management Consultancy (PMC) services. The proposed market is sprawling across an impressive area of 199.12 Acres which will be constructed in three phases between the years 2023 and 2025. The first two phases of this exceptional venture involves an estimated investment of approx. 350 Crores for Phase I and a staggering 1000 Crores for Phase II. The third phase is planned as a unique

Public-Private Partnership (PPP) enabling third-party investors and service providers to bring their own capital into the market.

COSAMB had seamlessly provided its highly skilled manpower services to the Govt. of Haryana by designing a visionary market which encompasses an exquisite air-conditioned commodity transactional hall, boasting a vast expense of- Acres of Land. The market offers brilliant amenities such as mezzanine floors, international pavilions, logistic plazas, primary processing facilities and state-of-the-art testing laboratories.

The market is equipped with modern handling equipment and offers total IT-enabled operations with a miniature data centre. Further, the market boasts extraordinary features such as labour quarters, solar systems on rooftops, a business tower, a tower of excellence and a wide range of support infrastructure such as sewage and waste recycling facilities, ample parking space and top-notch electrical and plumbing services.

COSAMB has recently reached out through Agricultural Marketing Department of Haryana, Sikkim and Andhra Pradesh also to provide its technical expertise in creating a modern infrastructure fruits and vegetable wholesale markets in their respective states for which note have been submitted to the concerned authority.

COSAMB takes pride to be responsible for designing, planning and execution of one of the largest and modern wholesale market at Ganaur in Sonipat, Haryana, popularly known as Indian International Horticulture Market (IIHM), Ganaur. Now, the market has seen the light of day when construction after stagnant period of 15 years has started.

COSAMB organizes various conferences throughout India on topics of latest schemes of Govt. of India in order to create awareness among the agricultural marketing boards so that every state come forward and reach out these schemes to farmers, farmers organizations of their respective states. COSAMB lay focus to provide its technical expertise to every region of the country but its main focus lies in the development of agricultural marketing system of the North Eastern States. COSAMB in July 2022 have conducted a training program on "Enhancing Production and Marketing of Organic Produce" in which COSAMB Think Tank brought together Marketing Stakeholders, FPOs, Officials of Govt. of Sikkim and Assam and Officials from different State Agricultural Marketing Boards of India. The combined expertise and short presentations by specialists, with structured discussion sessions on the challenges and opportunities on



ABOUT THE AUTHOR

Mr Chandan Bhalla is Assistant Director (Administration), National Council of State Agricultural Marketing Boards, New Delhi

“COSAMB takes pride to be responsible for designing, planning and execution of one of the largest and modern wholesale market at Ganaur in Sonipat, Haryana

COSAMB offers tremendous exclusive opportunities like “Study Tour/Foreign Visit; National/International Conference Participation; Asia Pacific Regional Group Membership Benefits; World Union of Wholesale Markets (WUWM) Membership benefits; Exchange of Information; Technology, Designs through COSAMB; Consultancy Services for Designing and Planning of Wholesale Markets; Preparation of State Master Plans for Marketing Development; Prospective Plan for Development of Haat Bazaars; Integrated Post Harvest Management; Infrastructure Development Plan; Training to the Farmers; Training to the Officers of SAMBs; Other State Engagements as per need; etc.

“COSAMB can play a catalytic role in bringing changes and addressing challenges of wholesale markets



production and marketing of organic produce in Sikkim and other North-Eastern States.

Brainstorming Sessions

COSAMB in its one of the latest activities have held a Brainstorming Session on “Promotion of Inter-State Trade and Sharing of Infrastructure between State Agricultural Marketing Boards” at Panchkula, Haryana in collaboration with Haryana State Agricultural Marketing Board (HSAMB) under the Chairmanship of Sh. Aditya Devi Lal Ji (Chairman, HSAMB). This session was attended by members of total 7 State Agricultural Marketing Boards of India (Haryana, Punjab, Rajasthan, Uttarakhand, Assam, Goa and Chandigarh).

COSAMB, previously have organized various conferences and training programmes on the various topics related to agricultural marketing sector such as, “e-NAM: Operational Difficulties &

Opportunities” in June 2023; “Millets – Potential & Opportunities” in April 2023; “Agricultural Marketing Infrastructure: Provisions & Opportunities” in September, 2021 & June, 2019; “Information Communication & Technology in Agricultural Marketing” in September 2019; “Model Contract Farming Act-2018: Suitability & Acceptability” in August 2018; “Model Act 2017: Regional Understanding” in May, 2018; “Wastage & Losses in Marketing of Agriculture produce” in February 2017; “Transforming Skill in Agricultural & Food Marketing” in November, 2016; and many others.

Keeping in view the past experience and futuristic view evolved while maintaining international linkages with world class institutions as well as modern and efficient wholesale markets over the world vis-à-vis competitive countries like China, Mexico, Brazil, Chile, etc.

It is worthwhile mention that COSAMB can play a catalytic role in bringing changes and addressing challenges of wholesale markets in some of the areas which are out of the coverage & purview of NIAM and DMI where COSAMB can play a better role. Major shift in systems of agricultural marketing is envisaged towards changing orientation from supply to distribution, enforcement of regulation to enforcement of Food Safety, Hygiene, Traceability, Online Inspection with Machine Learning, GPS Tagging, Drone Delivery Monitoring, Country Level Action Plan/Master Planning of Development of Wholesale Markets, Preparation of Operational Manual, etc. Similarly, developmental and promotional efficiencies w.r.t. architectural solutions because of environmental and climatic changes, green buildings, GRIHA rating, modularity, flexibility & efficient uses of space in wholesale markets are in the agenda of COSAMB which are equally important for its viability and modernity. Most of the wholesale markets need huge investment

and modern operational & management models in PPP Mode with strong IT applications, mini data centres, payment settlement systems and business processes in wholesale markets in which COSAMB has developed expertise over the years.

It is advisable that Govt. of India should adopt and recognise COSAMB as constituent body of the Ministry so that various State Political Leadership can be brought under one roof for discussion on topic of interest and schemes of Govt. of India on Agricultural Marketing. This can help in bringing uniformity among states and will also help increase number of training to the FPOs and Farmers’. COSAMB efficiently gels with multi-party governance, multi-region solutions, multi-management to common reforms and promotion, etc. which is its unique strength. This can equally be a considerable point if Ministry of Commerce & Trade takes over COSAMB on the pattern of China (where CAWA is under Ministry of Commerce).

Food Safety and Hygiene Practices in Agricultural Produce Wholesale

FSSAI Role and Initiatives

Food Safety is a growing concern across the world these days. The supply of hygienic food for the good health of human beings is a must.

Due to awareness and growing consumer demand these days regarding fresh produce in consumable and hygienic packs which is safe and of good quality, various steps should be taken on the implementation of good practices in fresh produce supply chains. It is imperative to implement good agricultural, post harvest, storage and distribution practices, which provide a structured methodology to harness the new technology without its adverse impact on environment, health and safety of people.

Meeting Global Standards

India's capacity to penetrate the world food markets greatly depends on its ability to match the world class benchmarks in the functioning of commodity handling protocols and standards of food markets especially Agricultural Produce Wholesale Markets. Since this area has largely been remained untouched in India, therefore to initiate the discussion on the topic and presenting this at the national platform to create national awareness over the issue of Food Hygiene and Safety in Indian Agriculture Wholesale Markets is paramount.

To sensitize the issue of good hygiene practices in Wholesale Markets of India, COSAMB has been putting its all-out efforts. COSAMB studied various markets and manuals of Hygiene of markets of different regions and then prepared guidelines for good hygienic practices in Wholesale Agricultural Produce Markets Management in India. COSAMB, as a member of WUWM prepared the said guidelines extracting relevant clauses from the published book of WUWM titled "Guide to Good Hygiene Practices for Wholesale Market Management in Europe".

Marketing of Agricultural Products

Marketing of Agricultural Products especially related to food articles require careful handling while on the path to reach the ultimate consumer. After the harvesting of produce, the process of marketing starts with the operations like grading, packing, storage, transportation, processing, distribution, labelling which contains information about the produce, etc. This is a system which requires

continuous updating about the quantum, quality, kind, source of availability, areas of consumption for the demand and supplies to be met.

The efficient marketing system is that which maintains the flow of products smoothly from the production areas to all the consuming corners as per requirement and taste, with the minimum costs and supply with quality.

All the persons involved in the process including production must get the competitive margins to remain in the supply chain and also to act competitively. Basically the process should be seen and managed from the last edge i.e. the consumption, so as to supply the required and in demand products for the quick disposal. Hence to achieve the object and make the system more efficient as well as scientific, the initiative must be towards the commercialization of the sector by making efforts for effective implementation, the modern techniques and technologies required to be inducted in the food supply chain to complete the global players.

Hazard Analysis Critical Control Points (HACCP)

The Hazard Analysis Critical Control Points (HACCP) is a systematic approach to identify specific hazards and measures to ensure the safety of food. When the food reaches the market, the wholesale market management and food business operators must implement international food safety management systems based on HACCP principles for total compliance of both State and Central Government statutory and regulatory requirements and consumer needs. These operators should work jointly on establishing internal and external communication for effective monitoring and updating the system to cope with the changing environment by reviewing the food safety policies to achieve objectives from time to time.

The latest technology should be used or replaced when it is required. There must be dedicated, trained and devoted workforce to effectively manage the market operations.

The basic module for implementation of HACCP system is based on a 12-step implementation enunciated by the Codex Alimentarius Commission. The preliminary steps include establishment of a multi-disciplinary team, product description, identification of intended use, construction of a process flow diagram and onsite verification of process flow diagram.

“COSAMB recommends that the Food Safety and Standards Authority of India (FSSAI) should become the regulator of Wholesale Agricultural Produce Markets



ABOUT THE AUTHOR

Dr. J. S. Yadav is Managing Director, National Council of State Agricultural Marketing Boards (COSAMB), New Delhi
He is also a Director in the **World Union of Wholesale Market (WUWM)**, The Netherlands and has wide exposure in Agricultural Marketing

Recommended International Code of Practice

The Codex Alimentarius Commission (established in 1963 by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) has adopted "Recommended International Code of Practice- General Principles of Food Hygiene – (CAC/RCP 1-1969, Rev 4 (2003) for the foods concerning food safety and consumer protection. These are internationally accepted and applicable to Agricultural Produce Wholesale Markets as well.

The Code identifies eight essential principles of food hygiene which includes Primary production, Establishment, design and facilities, Control of Operations, Establishment, maintenance and sanitation, Establishment of Personal Hygiene, Transportation, Product information and consumer awareness, and Training.

Food Safety and Hygiene

Food Safety and Hygiene is required to be addressed right at the stage of conceptualization of wholesale markets. Its designing and planning must match the needed facilities and handling protocol of individual commodities.

Primary production should be managed to ensure that food is safe and suitable for intended use. This includes avoiding use of areas where the environment poses a threat to food safety, controlling contaminants/diseases of animals/plants to safeguard food safety, and adopting practices to ensure food is produced under hygiene conditions.

It is now a proven fact that 85% of pathogens in human food are transmitted through birds and animals and therefore, in wholesale markets, trees and grasses are not allowed to be grown to discourage birds and avoid excreta etc. At the same time, Wholesale Markets are the most venerable for spread of pathogens as the World has seen during Covid-19 times.

Depending upon nature of operations, associated risks, premises, equipment and facilities should be located, designed and constructed to ensure contamination is minimized, surfaces and materials in contact with food are non-toxic and easy to maintain and clean, suitable facilities are available for temperature, humidity and other controls, effective protection against pest access and harborage.

Manufacture And Handling Of Specific Food Items

The design requirements for control of operations should be formulated with respect to raw materials. Composition, processing, distribution and consumer use to be met in the manufacture and handling of specific food items.

An effective establishment should be developed to ensure adequate and appropriate maintenance and cleaning, control pests, manage waste and monitor effectiveness of maintenance and sanitation procedures.

To ensure food does not get contaminated, personal hygiene should be established and taken care of.

Measures in transportation is necessary to protect food from

potential sources of contamination, protect food from damage, provide an environment which controls growth of pathogenic or spoilage micro-organisms.

Products should bear appropriate information to ensure that adequate and accessible information is available to the next person in the food chain to enable them to handle the product safely and correctly, the lot or batch can be easily identified and recalled.

Personnel who come in contact with food should be trained in food hygiene to a level appropriate to operations.

Policy Support

To ensure all these principles are followed, policies for management of Wholesale Agricultural Produce Markets come into place. Policies for management of various critical areas for efficient functioning of wholesale agricultural produce markets (primarily managed by Agricultural Produce Market Committees) needs to be promoted and implemented in their true spirit, so as to achieve a uniform set of standards across all the markets in the country (India being a single market at National level) and further on the Global platform.

The policies related to food safety, management of market visitors and management of personal hygiene needs to be implemented uniformly across all markets in the country and ensure standardization of management framework.

The market management food safety policy comprises of, Implementation of international food safety management systems based on HACCP principles in the wholesale market management, total compliance to both state and central government statutory & regulatory requirements and consumer needs, establishing internal and external communication for effective monitoring and updating the system to cope with the changing environment, reviewing the food safety policy and objectives from time to time to be tune with time and technology, continually developing dedicated, trained and devoted workforce to effectively manage the market operations.

The market management visitors policy ensures that entry of visitors is restricted into the food handling areas and it is to be observed that visitors suffering from any visible signs of illness will not be permitted, visitors will be requested to report, in case they are suffering from any serious illness such as diarrhoea, fever, jaundice, food borne illness, or any other communicable diseases. In such case they are not permitted to visit processing areas, all visitors will be required to fill up the mandatory medical/allergen /hygiene statement before entry, visitors are not allowed to wear watch, jewellery, or carry any other products (such as nuts, eatables or other known allergens) that can contaminate product, visitors are provided with clean coat, head cover and boots before entering processing areas, visitors are taken into the processing area via hand washfacility to wash and sanitize hands before entry, visitors with uncovered wounds/infection are not allowed to visit the processing area.

5 keys of Food Hygiene:

- 1 Keep clean** (Icon: Hands being washed)
- 2 Separate raw & cooked food** (Icon: Raw and cooked food separated)
- 3 Cook thoroughly** (Icon: Food cooking in a pot at 70°C)
- 4 Keep food at safe temperatures** (Icon: Thermometer showing a danger zone between 5°C and 60°C)
- 5 Use safe water & raw material** (Icon: Safe water and raw materials)

“India’s capacity to penetrate the world food markets greatly depends on its ability to match the world class benchmarks

Market Management Personnel Hygiene Policy

The market management personnel hygiene policy ensures that, every Person employed is medically examined by an authorized medical practitioner to ensure that he or she is medically fit to work in a food establishment, all employees should inform the management immediately in the event of their suffering from fever, vomiting, diarrhea, typhoid, dysentery, boils, cuts and sores, ulcers etc.,

No worker suspected of suffering from any of communicable disease is permitted to work inside food processing and handling areas, Employees shall keep their fingernails short and clean and wash their hands with soap solution and water before commencing work and after each absence, especially after using sanitary conveniences.

No worker shall allow his naked hands or any part of his body or clothing to come in contact with the product and any other food ingredient, No worker shall be allowed without headgears/ aprons/mask/gloves (where applicable) inside food handling areas, and Eating, spitting, nose cleaning or the use of tobacco in any form including smoking or chewing shall be prohibited within the processing, packing and storage area of the establishment.

Since till today, India has no policy on Wholesale Agricultural Produce Markets, therefore, COSAMB recommends that the Food Safety and Standards Authority of India (FSSAI) should become the regulator of Wholesale Agricultural Produce Markets by declaring it a food premises and make guidelines from the above policies to become mandatory to follow in a market.

This initiative will be a big step towards ensuring the food safety and hygiene practices in food and the next generation will be grateful of FSSAI for implementing these guidelines in their policies or act.

Harvesting Growth

Transforming Farming Communities with Gold Loans

“By promoting financial inclusion, agricultural gold loans empower farmers to participate more actively in the formal economy, driving overall economic growth and development”

In the heartlands of rural India, where every dawn heralds the promise of a new day in the fields, agriculture isn't just a livelihood—it's a way of life. Here, amidst the fields and bustling marketplaces, access to credit isn't just a necessity; it's the lifeline that sustains farming communities through seasons of abundance and adversity.

For instance, India's largest bank- SBI witnessed significant expansion in its agriculture gold loan portfolio during FY23, soaring to ₹83,000 crore by March 31, 2023, from ₹73,600 crore a year prior. Remarkably, the size of its agriculture gold loan portfolio surpassed that of its retail gold loan portfolio (amounting to ₹28,705 crore) by threefold as of March-end 2023.

Amidst the array of innovative financial solutions emerging to cater to the needs of farmers, agricultural gold loans shine as a potent instrument for empowerment and advancement.

Harvesting Opportunities

Agricultural gold loans offer farmers a unique opportunity to leverage their gold assets to secure financing for agricultural purposes. With gold often serving as a valuable asset passed down through generations, farmers can now unlock its potential to invest in their farms. Whether it's purchasing seeds, fertilizers, equipment, or even investing in modern farming techniques, agricultural gold loans provide the necessary liquidity to fuel agricultural activities.

Accessibility and Flexibility

One of the primary strengths of agricultural gold loans lies in their accessibility and flexibility. Compared to traditional loans, the process of obtaining a gold loan is notably easier and faster. Farmers have the convenience of pledging their gold ornaments or assets as collateral, streamlining the loan approval process efficiently. Moreover, these loans provide flexible repayment terms, which are tailored to align with the seasonal cash flows inherent in agricultural activities.

Empowering Farmers

At its core, agricultural gold loans empower farmers to take control of their financial destiny. By providing access to timely and affordable credit, these loans enable farmers to make strategic investments in their farms, enhance productivity, and improve livelihoods. Moreover, the ability to leverage existing gold assets ensures that farmers can access credit without compromising their long-term financial security.

Promoting Financial Inclusion

In many rural areas, access to formal financial services remains limited, with banks and traditional lenders often inaccessible or unwilling to extend credit to farmers. Agricultural gold loans bridge this gap by providing a viable financing option tailored to the needs of rural communities. By promoting financial inclusion, these loans empower farmers to participate more actively in the formal economy, driving overall economic growth and development.

Transformative Financial Instrument

Agricultural gold loans represent a transformative financial instrument that holds immense potential for driving growth and prosperity in farming communities. By leveraging their gold assets, farmers can access the credit they need to invest in their farms, improve productivity, and secure their financial futures. As the sun sets on yet another day in rural India, the promise of tomorrow shines brighter than ever before.

Its NBFC's unwavering commitment to agricultural gold loans, farmers across the nation are empowered to chart their own course towards a brighter, more prosperous future. In the golden embrace of these innovative financial solutions, lies the key to unleash the full potential of rural India.



ABOUT THE AUTHOR

Mr Sumit Sharma is co-founder of Vector Finance and Radian. He has over 25 years of global experience in finance and leadership, and has held key roles at HSBC and DBS

Why We Need to Do Away With TDS on E-commerce Companies for Non-processed Agricultural Commodities

The latest provisions in the Finance Act, 2020 under Section 194O of the Income Tax (I-T) Act serve to widen and deepen tax coverage, track online trades and regulate tax compliance in the e-commerce industry. This is a very significant move on the part of CBDT and acknowledges the astronomical growth of online businesses in our country.

Earlier, e-commerce businesses were not in the ambit of the income tax structure applicable to other commercial entities. They were required to file individual income tax returns and could evade tax liabilities.

With e-commerce in India expected to grow at a Compound Annual Growth Rate (CAGR) of 27% to become a [163-billion-dollar industry by 2027](#), it was imperative to bring in regulations to track and tax online trade activities.

New Provisions Made in Finance Act 2020

By introducing Section 194O in the Income Tax Act of 1961 in the Union Budget of 2020, the Government was able to put in place the tax framework needed to ensure tax compliance from online sellers and effective tax administration.

The Section 194O TDS rules put the onus on e-commerce operators or online companies that facilitate online trade to deduct TCS at 1% at source from the gross amount received from the sale of products or services, or both, through their website, app or platform. There is no exemption granted either to agri-focused digital platforms or sellers of non-processed agricultural products trading on multiple platforms.

The TCS deduction is applicable to all online sellers irrespective of the nature of business, size or type.

TCS exemption is provided to Individual/HUF who furnishes PAN or Aadhaar number to the operator and has gross sales less than rupees 500,000 the previous financial year.

Impact on Various Stakeholders

E-commerce operators now have the added responsibility of deducting TCS, filing the returns and issuing Form 16A to participants (online sellers). The new rules have improved compliance from participants significantly as they must furnish PAN or Aadhaar details and allow tracking of transactions.

In the case of small and medium businesses, the 1% levy of TCS has had a major impact on their working capital and cash flow. They do not get the full payment from the operators and must manage operations on much tighter budget. This is very challenging to small players and agricultural e-commerce entities like FPO/ Proprietor/ partnerships organizations as many of them operate with low net profits after considering operating and admin expenses.

The Unique Case of Agricultural E-Commerce

Agriculture is an area where there is a sore need of robust, scalable and farmer-centric technological innovation.

The Government of India is deeply committed to the growth and development of successful agricultural technology ventures. There are several programs to ease use of technologies for information sharing and trade in the agricultural sector, which is plagued by extreme fragmentation in supply chain. Some of these initiatives include:

- **IDEA (AgriStack)**- India Digital Ecosystem of Agriculture (IDEA)1 framework lays down the architecture for a federated farmers' database to digitize farming data, where schemes governed by the Department have been integrated. It will serve as a foundation to build innovative agri-focused solutions leveraging emerging technologies, and enable effective E-governance through documentation, traceability, and transparency.
- Unified Farmer Service Platform (UFSP)
- Centralized Farmers Database – The goals of this initiative include:
 - » Develop nationwide database of farmers
 - » Unique farmer ID (FID) for each farmer
 - » Track benefits availed by a farmer under various schemes
 - » 360-degree view of farming activities
- **National e-Governance Plan in Agriculture (NeGP-A)** – Scheme from the Ministry of Agriculture's Department of Agriculture and Cooperation (DAC) to ensure timely access to agriculture-related information for farmers and to promote new and emerging technologies in agriculture.
- **National Agriculture Market (e-NAM)** – e-NAM² is a

pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities. It removes information asymmetry between buyers and sellers and promotes real time price discovery based on actual demand and supply. Key features include remote bidding, mobile payments and online transportation services.

- **PM-KISAN Mobile App**- The PM-KISAN mobile app serves as a simple and efficient extension to the PM-KISAN web portal. The PM-KISAN program is a scheme meant for members of the Small and Marginal Farmers (SMFs), granting them ₹6,000 per year in 3 instalments as minimum income support.

The Government has adopted and implemented several policies, reforms, developmental programs and schemes for achieving higher income for the farmers directly or indirectly under the DFI (Doubling of Farmers Income) initiative. Creation of startup ecosystem in agriculture and allied sectors, and improved exports are key to achieving the DFI goals. E-commerce holds immense potential in facilitating both.

Agri E-commerce provides an opportunity to streamline the agricultural value chain and reduce inefficiencies in the distribution of farm produce. It also increases farmers' access to new markets, transparency in the value chain, price discovery in respect to non-processed agricultural commodities and improved earnings for FPO/other parties.

Providing Relief from the Double Taxation Burden

The current overall 2% deduction / collection of tax (TDS + TCS) from seller's consideration has placed a heavy financial burden on FPOs and other parties who sell un-processed agricultural commodities on online platforms.

With margins as narrow as 5%-10% for suppliers, a 2% cumulative taxation results in almost 40% blockage of margin and working capital. This also pushes farmers towards offline trade

where TDS is as low as 0.1%, reducing online platforms to a mere price discovery tool.

If the TCS deduction u/s 194O in respect of non-processed agricultural goods is reduced from 1% to 0.1% for e-commerce platform operators, it would deliver multiple benefits like:

- encourage more buyers and sellers to trade online
- efficient capture of trade details in quarterly TDS returns filed by e-commerce companies
- growth of cashless economy
- timely payment to underprivileged sellers in remote areas
- reduction in working capital blockage for small group of farmers represented by FPO/ MSME
- parity with section 194 Q / Section 206 C (1h) in which offline trades attract only 0.1% TDS or TCS deduction



ABOUT THE AUTHOR

Shailesh Chitre

A highly proficient business professional with over 30 plus years of experience in the Indian technology BFSI market space with deep domain and CXO level connects along with relationship management of Sr.Govt. Officials. Currently working at NCDEX e Markets Limited (NeML) as Chief Business Officer: NCDEX e Markets Limited (NeML) is India's new age market place linking Buyer / Seller and Enablers across Govt., Commodities, Dairy, F&V, Non Ferrous Metals & e-Waste verticals.

Wings of Change



Namo Drone Didi is not only a technological advancement but also a beacon of hope for rural women across India

In a pioneering initiative aimed at revolutionizing the lives of rural women across India, the “Namo Drone Didi Initiative” has taken flight, offering newfound opportunities and empowerment to women in remote and rural areas. Spearheaded by the visionary leadership of Prime Minister Shri Narendra Modi, this initiative represents a significant leap towards leveraging smart agricultural technology for the betterment of society, particularly in rural sector.

During the inauguration of the Namo Drone Didi Initiative, PM Shri Modi emphasized the government’s commitment to empowering rural women and driving inclusive growth. He hailed the occasion as historic, highlighting the transformative impact of technology in bridging the rural-urban divide and fostering economic empowerment.

Paradigm Shift In Agricultural Practices And Rural Livelihoods

Under the Namo Drone Didi Initiative, thousands of women-

led Self-Help Groups (SHGs) are set to receive cutting-edge Namo drones, marking a paradigm shift in agricultural practices and rural livelihoods. These drones, equipped with state-of-the-art technology, are set to revolutionize traditional farming methods, addressing challenges such as crop monitoring, fertiliser spraying, seed sowing, pest detection, soil analysis and irrigation management. Top of Form

The launch of this initiative holds immense promise for rural women, who have long been the backbone of agricultural activities but often faced limitations due to lack of access to modern technology and resources. With the introduction of Namo drones, these women are not only gaining access to advanced tools but also stepping into new roles as drone pilots and technicians, thereby expanding their skill sets and economic opportunities.

The benefits of the Namo Drone Didi Initiative are multifaceted. Firstly, it offers employment opportunities for rural women,

Drone Didi Initiative Empowers Rural Women



ABOUT THE AUTHOR

Dr. Jolly Masih is Assistant Professor, School of Management, BML Munjal University, Gurugram, Haryana

allowing them to earn additional income by providing agricultural services to farmers in their communities. Secondly, the integration of Namo drones in farming practices is expected to enhance agricultural productivity and efficiency, leading to improved crop yields and livelihoods for farmers.

Furthermore, the initiative holds the potential to revolutionize last-mile delivery services in rural areas. Namo drones can be utilized to transport essential items such as medicines, groceries, and medical samples, overcoming logistical challenges and ensuring timely access to critical goods and services in remote villages.

Agricultural Nano Drones

In addition to the distribution of Namo drones, Government announced significant financial support for SHGs. Bank loans amounting to Rs. 8,000 crores were disbursed to SHGs at subsidized interest rates, along with Rs. 2,000 crores in Capitalization Support Funds, strengthening their financial stability and capacity to drive local development initiatives.

In the coming time, a valuable enhancement to consider for the Namo Drone Didi Program could be the provision of training on “Agricultural Nano Drones”. This training could elevate the efficiency of crop monitoring and surveillance at a micro level. Nano drones, renowned for their lightweight design (under 500 grams) and portability, offer a distinct advantage in promptly identifying insect infestations or disease outbreaks. Furthermore, they excel in

monitoring micro-irrigation systems and optimizing plant growth.

The suggestive integration of “Agricultural Nano Drones” into the “Namo Drone Didi Program” holds immense potential to significantly amplify its overall effectiveness and commercial viability. Through specialized training sessions on Agricultural Nano Drones, participants could grasp the techniques for leveraging these tools in precise crop monitoring, early detection of pest infestations or diseases, and efficient management of irrigation systems. Such targeted interventions would enable rural women to make well-informed decisions in real-time, thereby mitigating risks and maximizing crop yields.

Moreover, the integration of Agricultural Nano Drones would enhance the Namo Drone Didi Program’s commitment to embracing cutting-edge technologies for the betterment of rural communities. By harnessing the potential of these drones for agricultural applications, the program would not only tackle immediate challenges but would also lay the groundwork for future advancements in precision farming and sustainable agriculture.

As the Namo Drone Didi Initiative takes flight, it represents not only a technological advancement but also a beacon of hope for rural women across India. With access to cutting-edge technology and support from the government, these women are poised to chart new trajectories of success and empowerment, transforming their lives and communities for generations to come.

Agriculture Marketing Challenges and Opportunities



There is need for greater awareness and education among farmers about market trends, quality standards, and best practices in agriculture marketing



ABOUT THE AUTHOR
 Mr Shailendra Singh is CEO, Ascent Brand Communications Pvt. Ltd. He is Chief Strategist serving the rural marketing domain for the past 20 yrs, exercising strategies to help brands win rural heart share

Ideally, food producers should get fair market prices without worrying about negotiating for the same since food is a non-negotiable requirement for humanity. But in reality, that is often not the case.

With farmers getting just 53% of the final price of rice, to cite an example (the balance of 47% being wasted on marketing and middleman costs), we as a country must pay attention to the critical requirement of an ideal agricultural marketing system. Similarly, the middlemen's charge on vegetables and fruits is an outrageous 29.5% and 46.5% respectively. A loss-making proposition for farmers and consumers as a whole.

Agriculture marketing is a crucial aspect of the agriculture industry that plays a vital role in ensuring that farmers get the best value for their produce while consumers have access to fresh and high-quality agricultural products. In my experience working with rural communities and farmers across India, as part of clients' BTL and digital campaign implementation, I have seen firsthand the challenges and opportunities that exist in this space.

Challenges

I feel the biggest challenges facing agriculture marketing in India are the lack of infrastructure and supply chain management. Farmers in remote areas struggle to get their produce to the market on time due to poor road connectivity, lack of storage facilities, and inadequate transportation. Subsequent spoilage and wastage of produce, in turn, affects the farmers' income and livelihood.

Meeting the challenge requires greater investment in rural infrastructure, including roads, storage facilities, and cold chain logistics. Though The government has taken some steps in this direction, such as the creation of the Agriculture Infrastructure Fund, fixing MSPs etc, it's hardly adequate in reaching the grassroots level and benefiting small and marginal farmers. Distress sales by small farmers, strapped for cash and having no excess to credit negates the very objective of MSPs.

Precise and timely market information and price discovery mechanisms for rural farmers are another bottleneck in agriculture marketing. As a result, farmers get trapped with middlemen or traders to sell their goods. This means that farmers are unable to get the best price for their produce, while consumers end up paying higher prices due to the multiple layers of intermediaries involved in the supply chain.

Solutions

To address this issue, we need greater efficiency and knowledge dissemination in the agriculture marketing system. Technology platforms such as e-marketplaces and mobile apps connecting farmers directly with buyers are the need of the hour. For example, the e-NAM (National Agriculture Market) platform, launched by the government in 2016, aims to create a unified national market for agricultural commodities by integrating existing APMCs (Agricultural Produce Market Committees) across the country.

Even though technology is a great enabler, I believe the need is for greater awareness and education among farmers about market trends, quality standards, and best practices in agriculture marketing. This can be achieved through training programs, workshops, and extension services implemented jointly through Public-private partnerships.

Continuing on the discussion about private sector engagement with the farming sector, there has been an explosion of start-ups crafting solutions to make agriculture a bit easier and more rewarding. Whether it's precision farming, drone-assisted crop monitoring or ready-to-market integration, start-ups in India are revolutionizing agriculture.

Some Notable Examples

Digital marketplaces like NinjaKart are transforming agriculture marketing by connecting farmers directly to consumers and retail outlets allowing fresher produce to reach people faster at enhanced payout for the farmers.

Likewise, Reshmandi, a product of the agritech startup- Shapos Services Private Limited is innovating the silk supply chain by connecting sericulture farmers directly with silk reelers, fabric reelers and retailers. This has facilitated farmers in getting better prices for their silk while reducing time to market.

Another noteworthy mention is DeHaat, an Indian agritech company that operates as an online platform providing agricultural market linkage services, credit, and insurance solutions to farmers.

Branding and promotion are important value-creation aspects of agricultural marketing. Consumers today are willing to pay a premium for high-quality, organic, and locally sourced agricultural products. Several D2C brands like "Organic India" are already sourcing organic products directly from farmers, at enhanced prices even from marginal farmers. This is an opportunity which farmers have the option to tap.

Similarly, the "Darjeeling Tea" brand has become synonymous with exotic high-quality tea from the Darjeeling region of India, commanding premium prices and reflecting branding success.

Even major e-commerce players like Amazon Retail source directly from farmers in Gujrat, ensuring optimum quality at the right price.

Way Forward

- Invest in rural infrastructure to improve connectivity and reduce post-harvest losses
- Enhance the effectiveness of government initiatives like the Agriculture Infrastructure Fund & MSPs to support small farmers.
- Improve market information and price discovery for farmers and reduce their dependence on middlemen.
- Promote the adoption of digital agriculture platforms and marketplaces to connect farmers directly with buyers for better pricing.
- Provide training and extension services to enhance farmers' marketing knowledge.
- Encourage public-private partnerships for comprehensive solutions that address the diverse challenges in the agricultural marketing ecosystem.
- Promote branding and direct sourcing of high-quality organic, and locally sourced agricultural products.
- Adopt a holistic approach for sustainable and equitable agricultural marketing.

Thus, we see that even though deep-seated challenges exist in agriculture marketing in India, opportunities are many. The complex and multifaceted issues of agricultural marketing require a holistic approach to make it sustainable and beneficial for both farmers and consumers alike.

Empowering the Unsung Heroines in the Farms of Assam

Looking Beyond The Routine Counts



The efforts meant to empower women farmers in the state need to be based on detailed investigations considering cultural, social, and local contexts, capable of addressing gender realities.

ABOUT THE AUTHOR

Dr. Lisa Mariam Varkey is Senior Specialist Socio-Economics at International Rice Research Institute. Her areas of interest include climate change adaptation, adoption and impact assessment and gender equity

“There is no such thing as a woman who doesn’t work. There is only a woman who isn’t paid for her work.”:
— Caroline Criado-Perez.

As per Census 2011, agriculture and allied sectors, engaging 69.61 % of the female rural workers, remain the biggest employer of women in Assam. As cultivators and agricultural laborers, they constitute 28.41 % of the state agricultural workforce. United Nations (2015) reports that women generally are engaged in productive and reproductive work for longer hours than men, which is an average 50 minutes more per day in developing countries.

“How much time did you spend yesterday doing domestic work and caring for children/adults/elderly in the household?” For a 35-year-old Sangita Hazarika from Lakhimpur district of Assam, this was a perplexing query to which she coyly replied “Hodai kori thaka kamor, somoyor hisap moi kenekoi dim? (How can I keep account of time on something which I am always doing?).

Duties Of Farm And Home

A woman farmer, even as she manages the household, also doubles as a second hired hand to her husband carrying out 60-75 % of all farm related work. For her, keeping an account of the time and energy she spends carrying the deadweight of responsibilities at household as well as farm is a difficult task. Sangita is an archetype of an average woman farmer from Assam or more aptly a farm wife, a position to which she is conveniently relegated to in the absence of secure, documented land rights.

Although every farm wife is almost equally devoted to the farm as the male farmer, only 1.68 % of operational holdings in the state qualify as women operated holdings (Agricultural Census, 2015-16). A study by International Rice Research Institute (IRRI) and Assam Agricultural University in the state (2021) reported lack of ownership rights for at least 58% women in the land-owning households which invariably point towards wide gender gaps in property rights. Thus, as invisible warriors, these women relentlessly work on the land parcels they neither own nor get paid or due credit for.

Reaching, Empowering

These women might be running between home and field regardless of time, however the agency they hold in the actual management of farms, thus is somewhat dubious. This does not mean that they are incapable of making decisions or possess lower literacy. Yet for them, the negotiation of household relations to make farm-related decisions is a complex realm.

Many of these women can effortlessly transform into de facto farm managers when required, especially in cases where the primary male member has out-migrated.

IRRI’s work here with respect to rice also pointed to these intricate household dynamics at play. A good proportion of women respondents in our study, those who had attended skill development training and farm demonstrations, felt capable of exercising decision-making agency at various steps of the rice value chain. Nevertheless, they rarely get to do so because it is their spouses who primarily decide what is to be done.

It would not be illogical to say that the gendered interventions meant originally to empower women, in the absence of an opportunity to put them into good use, may act contrary, increasing time burden upon these women.

Reducing The Drudgery Of Farming

Similarly, given that there is towering involvement of females in the most arduous tasks in rice farming such as transplanting, weeding and harvesting, mechanization of these operations is expected to alleviate their burden and provide more leisure time. For example, in regions where the total cropped area is low and a higher proportion of female population derive income from agricultural labour (e.g. Chirang, Bongaigaon), impetuous promotion of these machines may not be desirable.

The acceptability would be much more in districts such as Lakhimpur, Cachar and Nagaon where more land is cropped, female labour supply is low, and the topography is favorable. Meanwhile, it is equally important to see if there are ample non-farm opportunities in these places to absorb the displaced labor. Additionally, sometimes women see these operations, however strenuous they might be, as social opportunities to bond over with their fellow beings. This was exactly how members of a women Self Help Group (SHG) from Morigaon district responded during one of the focus group discussions facilitated on promotion of mechanical transplanting in the region.

Thus, while promoting technologies and knowledge, it becomes equally important to weigh the preferences, priorities, opportunities, and constraints for women in the region, although the initiative inherently might be rewarding.

Also, it is equally important to see if the adoption of technology by the household, which brings in higher yields, strengthens the power of women over market transactions or control over proceeds from increased sales. Most often, it is observed that in agri-food systems women hold much higher say over decisions related to consumption than decisions related to sales. IRRRI's research also found that stereotypical gender roles ensure that women mostly remain oblivious to marketing engagements. While 81 % of men in the study marked paddy marketing as their forte, only 27 % women agreed to their involvement in this activity. In regions where tribal communities are predominant and women are more active, the market participation and bargaining power of women producers is better. But the trouble assumes a new form here in the form of limited percolation of technical know-hows and low marketable surplus. Thus, promotion of technology should go hand in hand with increasing women's agency at places where it matters and can bring definite impacts.

Empowering by addressing gender realities

If entrenched gender roles and lack of ownership rights are indeed restricting women from being decision makers in their current working environment, creation of better workplaces is important. This is where all women farmer collectives assume significance. Studies suggest that exclusive women FPOs are more helpful to each other than mixed gender FPOs.

While we have come across few successful women aggregates in the state such as Joyomati FPC (Sonitpur), Darrangi women FPC (Darrang), Bhuradia FPC (Nalbari), Yangli FPC (Morigaon), and Virangna FPC (Bongaigaon), there is no gender segregated state-wide data on women FPOs. While NRLM reports that 7.4 % of the women cultivators in the state are part of producer organizations, it's unclear how many of them are part of all women FPOs. Since

lakhs of women in the state are already part of the SHG movement, these pre-existing institutional frameworks should be used to build institutionally stronger FPOs.

The Social Dynamics

Although all women FPOs are desirable, mixed gender FPOs should also aim to ensure that women have significant (at least 30%) presence in shareholdership and in their governance structure.

Achieving gender equality in landownership is targeted under SDG 5, yet due to rigid social norms and long-standing practices, a shift from the current pattern of property ownership is still a long battle. It is reported that the earlier a woman acquires land in her lifecycle, the more likely it is to enhance her bargaining power within families. In the short-term, the gendered interventions may aim to target women who hold sole ownership rights or are widowed or are from migrant/women only households.

These women are assumed to hold more authority and say over the land they operate and are better placed to put into practice what they have been imparted with. To cite an example, the results from the 2021 survey in the state indicated that the input use efficiency in paddy polders operated by women who were part of training/demonstrations, was the highest where the women had sole ownership rights over land. Thus, better targeting of the initiatives on women with better decision-making powers should be the course taken on the march towards achieving gender parity in land rights.

Empirical evidence shows that projects that attempt to target women, whether individually or in groups, fail if they do not first secure support from the men in their households. Given that in most agricultural households' production happens jointly, and there is gender-related asymmetry in terms of access to information and markets, it is important to engage male members of the household through dialogue right from the start to increase participation of women in non-traditional roles. Given that in traditional patriarchal societies increased economic independence of women may result in intra household tensions as well, including men through the project cycle hence is highly important.

In short, the numbers reached should not define the final outcomes. It is highly significant that as extension agents or policy makers, we choose a poster of mutuality, see and hear what the actual situation demands, rather than feeding them what is there in hand. Rather than basing on gender myths, the efforts meant to empower women farmers in the state need to be based on detailed investigations considering cultural, social, and local contexts, capable of addressing gender realities. To quote Barack Obama "Things are better, but still not good enough."

STIHL UPKARAN, LAYE PARIVARTAN

ONE-STOP SOLUTION FOR VARIOUS AGRICULTURAL NEEDS



POWER WEEDER MH710



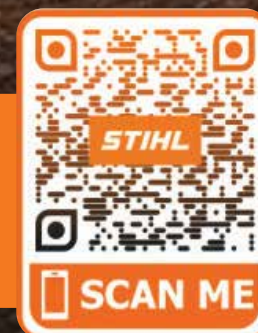
Engine
Euro 5



POWER
7.0 HP



Working Width
3 FT



Call or Whatsapp

9028411222

✉ info@stihl.in

🌐 www.stihl.in

German Quality and Innovation



mahindra ^{Rise}

mahindra
TRACTORS

TOUGH HARDUM



60 YEARS TRUST OF FARMERS



MAHINDRA TRACTORS

Mahindra & Mahindra Ltd., Farm Equipment Sector:
Farm Division, AFS Headquarters, Mahindra Towers, 1st Floor, Akurli Road, Kandivali (E), Mumbai - 400101, India.
www.mahindractor.com [facebook.com/MahindraTractorsIndia](https://www.facebook.com/MahindraTractorsIndia)
twitter.com/TractorMahindra [youtube.com/MahindraTractorsofficial](https://www.youtube.com/MahindraTractorsofficial) www.instagram.com/mahindractorofficial

CALL NOW 1800 425 6576