

LKS | In Focus

FARM TO FOOD: KEY TRENDS AND REGULATORY OUTLOOK IN AGRITECH

FEATURE

1. Farm Acts and Agritech: Is the time ripe for the agri sector to bloom?



FEATURE

Farm Acts and Agritech: Is the time ripe for the agri sector to bloom?

L. Badri Narayanan, Kunal Arora and Sarang Dublish

Vivek runs an agritech start-up out of Bangalore. Set up in 2014, the start-up is a fresh food aggregator that seeks to combine precision agriculture, predictive analytics and a seed to plate platform that allows fresh foods to be sold quickly and directly with minimal wastage. In 2020, Vivek raised funds from venture capital firms including a Japanese investor. He has a clear thesis for the US\$ 250 billion (bn) fresh food market in India and how it needs to be transformed. His start-up represents one of several agritech firms seeking to innovate and disrupt the oldest industry in India - farming.

It was not all smooth sailing for Vivek. In 2011, Vivek graduated from Indian Institute of Technology (IIT), the prestigious Indian engineering college. Like so many of his friends, he had an offer from a reputable FMCG (Fast Moving Consumer Goods) company. However, his heart lay in agriculture since Vivek's grandfather was a successful farmer having grown from a small landholding to several hectares of farms in Kerala. As with so many farmer families, his parents moved away from farming to become professionals and the link with farming was lost. But Vivek was determined to give farming a try and with a small contribution from his parents, he decided to run his agri-business on some of his ancestral farm land. Quickly, he realised that farming is not an easy business in India. He struggled with getting seeds, had issues with pesticides, hardly had access to markets, if he grew something he found it hard to store the produce and these were just some of these problems. Within a year he was forced back to his FMCG career, but the agri-bug kept on pushing him to try things again. After multiple attempts and failures, he finally came up with a model that finally started clicking for him. He focused on horticulture - it was unregulated by the State agricultural produce marketing laws, offered higher margins and was increasing in demand as urban Indians moved to a more health-conscious life style. He understood the importance of data and analytics to connect supply and consumption and built a platform that allowed farmers with small landholding to sell their fresh produce to consumers. His start-up represents a new wave of start-ups that are tackling the problems that have plagued agriculture with new and innovative solutions.

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The key challenges faced by the Indian agriculture industry are small farm holdings, low penetration of farmer producer organisations, lack of agri-data and low price realisation by the farmer.

The regulated market model (mandi system) has also posed challenges such as shortage of mandis, poor state of infrastructure, high transaction costs as well as lack of transparency in arriving at the pricing.

In June 2020, the Central Government moved three ordinances to reform the agri sector. These ordinances were followed by the introduction of three farm bills, which were passed by the legislature in September 2020.

More and more farmers are now making the digital leap to be more connected and use technology owing to greater digital penetration as well as the lockdown imposed last year.

With the agricultural ecosystem witnessing a more market-oriented and liberalised approach, it has created an opportunity for the agritech start-ups to invent innovative and tech-enabled solutions to historical problems across various stages of the agri value chain.

Key problems plaguing the agriculture sector in India

Small farm holdings

India is a land of small farmers. In 1970, the average farm holding was 2.3 hectares (Ha) and that number stands at ~1 Ha in 2017.¹ Farms have consistently been fragmenting and this is one of the fundamental causes for farm issues. With small land holdings, such farmers never achieve the economies of scale required in this industry.² Most small farmers are unable to afford mechanised tools for their farms, make poor cropping choices, have little or no access to good quality seeds, raw materials or services and, as a result, suffer severe credit and financing issues.

Low penetration of FPO model

The Government has recognised the issues with small farm holdings and has encouraged growth of 'Farmer Producer Organisations' (FPO). Under the FPO

model, farm producers come together to form a legal entity in the form of a cooperative or member association, for sharing profits and benefits among the members. FPO provide benefits that are achieved through scale to small farmers by procuring inputs in bulk and making sales in a consolidated manner. In the area of milk, the FPO model has been very successful. NABARD and other government institutions are promoting FPO model in rural India. However, we understand basis our conversation with industry experts, one of the challenges that FPOs face in India is lack of available talent in rural India to manage and run such member associations. This has kept the number of successful FPOs to a relatively low number.³

Lack of agri-data

The other issue that farmers and agri-supply chains suffer from is the lack of agri-data. Information relating to agriculture can be divided into two broad buckets: (a) demand-side data and (b) supply-side data. Over the years, demand-side data is stable and relatively well understood. For example, by now, it is known how many tonnes of vegetables will be consumed in Delhi on any particular day. Traders have experience of what produce is likely to be in demand in which time period during a year - such as dry fruits in winter, citrus fruits in summer and so forth.⁴

On the other hand, supply-side data can still be spotty. Unlike consumption, which is a daily phenomenon, supply of agricultural produce comes in spurts in short periods of time. Different crops have different harvest times and most of the produce gets sold immediately on harvest. With lack of data about what other producers are growing and harvesting, poor storage facilities and anecdotal information about what is being sold in the markets, both

farmers and traders suffer from unreliable supply side data. Even the farmers do not receive relevant information about weather and rain patterns, have few updates about projected river flows (including dam related information) and water supplies, or do not know about cold-chain and storage facilities that can help them get better pricing in the markets. The agricultural produce also suffers from poor quality and traceability data as the goods move through an opaque supply chain. All this leads to inconsistent supply leading to spurts in prices of agricultural produce in the market.⁵

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Lack of agri-credit

Agri-finance and credit is another issue that Indian farmers suffer from immensely. Nearly 60% of the small farmers still do not have access to institutional credit.⁶ With unorganised financing and no security to offer, the interest on loans provided to farmers can be as high as 40%. At such rates, farming for a lot of the farmers tends to be high risk. This is one of the reasons that modernisation at farm levels continues to lag behind as investment costs tend to be very high. The Government then is required to support the farmers through subsidy and farm loan waiver schemes to keep the sector going.⁷

Low price realisation by farmers

The fundamental problem that Indian farmers face is low price realisation. For instance, on an average, an Indian farmer realises only 8-10% (with respect to processed food items) of the final price of the produce that reaches the end consumer. This is far below the price realisation of farmers in developed markets which is upwards of 30%.⁸ This typically means that the Indian farmer has to work with much lesser amounts as compared to farmers in other countries. This low price realisation impacts various choices that the farmer ends up making. The Indian farmer is not able to procure quality seed of high yield varieties and modern agro-chemicals. Similarly, the Indian farmer has limited access to agri-services and data and instead makes decisions based on his or her experience and perspective.⁹

The potential cause behind depression of farmer price realisation is the costs pertaining to selling of agricultural produce. Agricultural produce markets are regulated by respective State laws that provide for creation of regulated market yards where farmers can bring their produce to make sales. But the associated costs with such market yards can be substantial for most farmers. This has been one of the key reasons for a significant amount of transactions (~40% of sales) happening outside the regulated markets maintained by

the States. The problem of low price realisation by the farmers is discussed in detail in the ensuing section - "Current problems with the APMR Model".

The first instances of regulating agricultural produce markets were in the 1880s when the British wanted to procure cotton from India for their mills in Manchester.

History of agricultural produce marketing in India

There has been a growing call to make changes to the State laws regulating agricultural marketing and the most significant reforms have been the three Farm Acts that have been passed by the Centre recently. These

reforms are expected to have a significant impact on agricultural produce marketing in the future⁹. However, before we discuss the Farm Acts, it may be worthwhile to take a step back for a historical context on regulation of agricultural produce markets.

The first instances of regulating agricultural produce markets were in the 1880s when the British wanted to procure cotton from India for their mills in Manchester. While India was able to grow cotton and other fibre crops, the quality of the produce was inconsistent. This was mainly due to mixing of different produces of varying standards, poor market environment and lack of knowledge among the Indian farm producers. This led to the establishment of the first regulated market in India at Karanja under the Hyderabad Residency Order, 1886. The first legislation was the Berar Cotton and Grain Market Act, 1887 that allowed for declaration of a place in a district to be a market for purchase and sale of agricultural produce overseen by a market committee. The principal produce that was regulated through these markets was cotton.

After the success of the regulated markets in cotton, a significant development in agricultural marketing was the report of the Royal Commission on Agriculture, 1928 (Commission). The report made several observations about the state of Indian agriculture and various malpractices that occurred in the sale of agricultural produce. Some of the observations were as follows:¹¹

- farm produce was sold in the village itself leading to low returns to farmers;
- due to pressure from money lenders, the farmers were forced to sell at whatever price they get in order to pay their loans;
- lack of adequate storage facilities for produce;
- opacity of price information and trends in production of agricultural commodities;
- absence of grading and standardisation of produce;
- poor transportation facilities; and
- strong association of traders and market functionaries that hindered fair competition.

The Commission also examined the Berar Cotton and Grain Market Act, 1887 and the Bombay Cotton Market Act, 1927 and recommended that the regulated market should be overseen by the market committee for all agricultural produce across India. It proposed safeguards to protect the interests of the farmers. Some of the recommendations included:²

- establishment of regulated markets in all provinces and covering all types of agricultural produce;
- the market committee should be under a single provincial legislation with the municipalities and the district administration kept out of the management of the markets;
- the producers should be members of the committee as well;
- there should be mechanisms to settle disputes between parties;
- adequate storage facilities to be provided; and
- standardisation of weights and measures.



The Government of India prepared a model legislation in 1938 for various States to adopt. After independence and following the reorganisation of the States in the 1950s and 1960s and with the worsening food deficit problem in India, the States in India started adopting the Agricultural Produce Market Regulations (APMR) Acts in 1960s and 1970s. The primary wholesale markets were brought under the APMR Acts and the regulation of agricultural produce markets commenced in India through agricultural produce market committees (APMC).

Current problems with the Agricultural Produce Market Regulations (APMR) model

This model of agricultural produce marketing led to significant improvements for the farmers and transactions of agricultural produce. Over the years, the States kept increasing the number of regulated markets and provided a place for farmers to sell their produce in a reliable manner. However, with the success of the green revolution, improving agri-practices and better infrastructure, India moved from being a food deficit nation to a food surplus country over time. Simultaneously, the regulated market model posed several challenges. For instance, while the number of regulated markets in India is almost 7,000 (as in 2015),³ but for a country of the size of India, this still remains insufficient. An insufficient number of markets mean that farmers have to travel further

to sell their produce. The quality of infrastructure too varies drastically between the different markets. The cost of transacting at the regulated markets impacts the price of the agricultural produce significantly owing to high market fee (up to 6%), commission charges (up to 7%), loading and unloading charges, weighment charges, storage losses, lack of transparency in arriving at the pricing, lack of quality standardisation, etc. Many of the market areas and yards are compact, hence the number of licensed traders is limited. This creates quasi-monopoly (cartels) conditions for the existing licensed traders within the regulated markets.

Several governments and policymakers recognised the need to reform the established model of agricultural marketing. At various times, there have been recommendations on reforming the State APMR laws and adoption of model laws shared with the States which address many of these issues with the latest version being as recent as 2018.¹⁴ However, with the politicisation of the regulated markets and the committees, there was reluctance on the part of many States to make any meaningful reforms to these laws.

The development of horticulture foods - fruits and vegetables - really shows the potential for agricultural marketing beyond regulated markets. Traditionally, horticulture was not a specified foodstuff under the APMR laws. With horticulture being highly perishable and generally attracting higher price per kilogram, this produce remained 'unregulated'. Yet, horticulture in India continues to grow, is sold through alternative trade channels and has been the centre of innovation for agritech ventures. Initiatives pertaining to horticulture have been made to improve productivity of such produce through precision farming, better supply chain management, decentralised cold storage and farmer platforms. With the trend of reducing portions of grains (such as rice and wheat) and increasing portions of proteins (pulses), fruits and vegetables in our food plate coming into play, horticulture and modern foodstuff are going to play a vital role in agriculture in the future. At the same time, the success of such foods outside the APMR model shows that it is possible for other agricultural produce to grow beyond the regulated markets under the right policy and legal environment.

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Three Farm Acts to kickstart agricultural reforms

In June 2020, the Central Government moved three ordinances to reform the agri sector. These ordinances were followed by the introduction of three farm bills, which were passed by the legislature in September 2020. These new Acts seek to fundamentally change the manner in which agriculture marketing is likely to evolve in India.

The most significant law is contained in the Farmer's Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 (Farmer's Produce Act). As its preamble suggests, the Farmer's Produce Act seeks to promote an efficient, transparent, barrier free inter-State and intra-State trade and commerce of farmers' produce outside the physical premises of the markets established by the States under the relevant State APMR laws.



The second Act is the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020 (Contract Farming Act). This Contract Farming Act provides for a framework for contract farming in India that allows protection to the farmers entering into contracts with agri-businesses, traders, processors, exporters, etc. The Government has been keen on regulating contract farming for many years. The proposed frameworks in the past have been designed to allow private players to contract with the farmers directly. The new Contract Farming Act requires a farming agreement to be entered between the farmer and the private player/sponsor prior to the production of farm produce of predetermined quality in which the private player/sponsor agrees to purchase such farm produce from the farmer. The farming agreement also allows the private player/sponsor to provide various farm services such as supply of seeds, inputs, machinery and technology to the farmer.

One of the key issues surrounding the farming agreement has been resolution of disputes. In the past, there have been disputes when there has been a mismatch between the expectations of the farmers and the sponsors. Where the farmers have got better price as against the agreed amounts under such contracts, farmers have sold the produce at higher price rather than sell it to the sponsor. On the other hand, where the sponsor wanted to default on the agreement, it has cited quality of the produce and other parameters as reasons to avoid taking delivery. Without a robust dispute resolution mechanism, these farming agreements have suffered from enforceability. The Contract Farming Act provides for a detailed dispute resolution process and has appointed the sub-divisional magistrate (being a local administrative official) as the authority to approach for disputes under such agreements. The legislation provides that the disputes are to be decided within 30 days in a summary manner after giving reasonable opportunity of being heard. It also contains provision for appeals and power for the Central Government to make guidelines for other matters as well. Nevertheless, the success of the Contract Farming Act is going to depend upon the first determination in a timely and fair manner and it will be interesting to see how this process functions in the future.

The final Act passed was the Essential Commodities (Amendment) Act, 2020 (EC Amendment Act). The Essential Commodities Act, 1955 was enacted to regulate the supply of commodities that are declared as essential to ensure a fair price for the consumers and to guard against hoarding or black marketing of such commodities. The repealed legislation is from an era when India faced severe food shortage and this law was used to regulate the supply of various foodstuffs such as cereals, pulses, oilseeds and potatoes. Over the years, the production of such goods has exceeded our domestic requirements and India is no longer a food deficit nation. The EC Amendment Act was enacted to de-regulate certain commodities from the ambit of this law. It restricts the Government from (a) regulating foodstuffs such as cereals, pulses and other commodities except in extraordinary circumstances; and (b) imposing of stock limit based on price rise except when the retail prices increase by 50% for non-perishables and 100% for horticulture.¹⁵ This is an important legislation as it brings these commodities into a free-market situation allowing market forces to determine the prices. This will in turn encourage production of varied agricultural commodities including those which were previously regulated by the erstwhile Act.

Presently, the Farm Acts have seen much resistance from a section of the farmers, who are apprehensive that the laws are too market-oriented and leave the farmers susceptible to exploitation by private sector entities. Post massive protests against their implementation and petitions challenging the constitutionality of the Farm Acts in the Supreme Court of India (Supreme Court), the Supreme Court stayed the implementation of the Farm Acts for the time being until further orders. The Central Government and protesting farmer unions have held several rounds of talks to arrive at a solution in relation to the new laws with the protesting unions being steadfast in their demand for the repeal of these laws.

Why is the Farmer's Produce Act so significant?

The Farmer's Produce Act is a short Central Act. It does not seek to create infrastructure for agricultural produce marketing or regulate how the transactions of agricultural produce should take place. It does not seek to abolish regulated market yards (mandi(s)) set up by the State APMR laws. Instead it seeks to co-exist with the State APMR laws allowing the states to regulate their mandis and provide various services within the mandi and collecting its fee within it. Why then is this law significant? Its significance lies in encouraging free market forces to operate with ease outside the limits of the regulated State market yards.¹⁶

Section 6 of the Farmer's Produce Act provides that no market fee or cess or levy by the State APMR laws shall be levied for sale of specified agricultural produce in the trade area. Trade area is defined to include any area or location, place of production, collection or aggregation but excludes premises, enclosures and structures consisting of the principal market yard, sub-yards managed and run by the market committees formed under the individual State APMR laws and private yards notified as markets or deemed markets by the State APMR laws. Therefore, any transaction outside the market yard (or mandi) regulated by the State APMR laws of agricultural produce (including specified agricultural

produce under the State APMR laws) will not attract levy of any market fee.¹⁷ This will allow free trade of all agricultural produce outside the mandi areas.

The reason this is important is because over the years, the States were notifying entire districts or towns as market areas and not just the market yard. For example, the entire Howrah in West Bengal was declared to be a market area. This resulted in transactions outside the market yard or mandi but inside the district or town to be liable for various market fees and cess even though the produce never entered the market yard. Coupled with increasing number of commodities being specified for regulation under the State APMR laws, a larger number of transactions in agricultural produce attracted various levies. With the necessity of licensed traders to transact in such commodities, there were several fetters on freedom of transactions in specified goods in several States. The Farmer's Produce Act seeks to relieve this by allowing freedom of trade and commerce outside the market yard or mandi in each State. The legislation seeks to achieve this without dismantling the regulated mandis where transactions continue to take place for wholesale trade.¹⁸

Digital penetration brings farmers online

The Farmer's Produce Act has been introduced at a ripe time due to two important factors that have played their part recently. These are: (i) greater digital penetration in India, primarily with the introduction of Jio; and (ii) the lockdown announced following COVID-19 last year.

Both of these are very significant. A decade ago, digital penetration in rural India was very low and the mandis were the primary source of price and agriculture related information. With the non-functioning of mandis, price discovery became harder for the farmers. But with greater digital penetration, improved farm data and readier access to alternative supply chains and farmer platforms, price and agri information need not be dependent on the mandis.¹⁹

A greater impact has been COVID-19. While speaking to farmer organisations and associations, it became clear that while all the sectors went silent during lockdown, the agriculture sector was probably the only sector that continued during the pandemic uninterrupted. At the same time, lockdowns caused significant disruption in the supply chain and access to mandis for the farmers. Many of the farmer groups told us about having to adopt technology to continue to sell produce during these times. More farmers started using apps such as WhatsApp, Facebook, e-mails and other electronic messaging services to create trading groups for buyers and sellers to transact in farm produce and arrange



transportation, weighing and other services to ensure that supplies happened. Over these months, more and more farmers are making the digital leap to be more connected and use technology. All this means that it may be possible in the future to transact outside the mandis with freedom. Of course, there still needs to be significant investments that the Government needs to make in the physical and digital infrastructure for the reforms to be successful. In addition, the Farmer's Produce Act provides opportunities for various innovations by the private sector in the agri sector as well.²⁰

Conclusion

Unleashing of the agribusiness entrepreneurial spirit is at the core of Prime Minister Narendra Modi's recent clarion call for 'Atmanirbhar Bharat'. This ties to the fact that more than 50% of our country's population is heavily dependent on agriculture as a primary source of income.²¹ Indian agriculture has various stress points and it is still plagued by grave problems (some of which have been highlighted in this article).

That being said, the agricultural sector has also seen significant developments in the past few years - government reforms, issues created by climate change, major solutions offered by the onset and adoption of technology, post-COVID changes in consumer preferences and legal changes warranted by the new farm legislations.

With the agricultural ecosystem witnessing a more market-oriented and liberalised approach, it has created an opportunity for agritech start-ups to invent innovative and tech-enabled solutions across various stages of the agri value chain to address problems that have historically existed in the sector. |

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ENDNOTES

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