

FINTECH IN AGRICULTURE SECTOR

We have reviewed the Agritech sector closely and present our main takeaways below. The note captures:

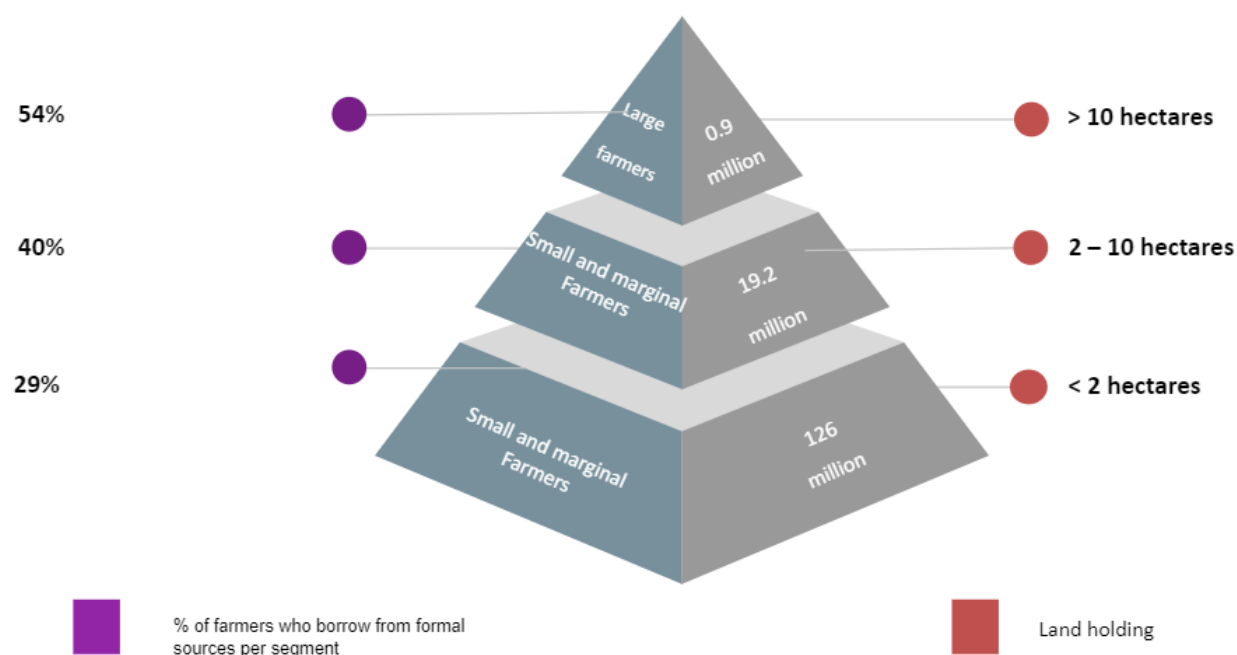
1. The gaps in a traditional yet key sector in India along with critical challenges faced by companies solving for the said gaps
2. Critical success factors required to succeed
3. New age solutions by startups
4. Competitive Landscape in Agri financing

Gaps in a traditional yet key sector in India along with critical challenges faced by companies solving for the said gaps

Current Scenario

- The agri and allied sector contributes USD 368 billion to the economy and has around 55% of the population depending on it for livelihood/ employment.
- Only **30% of all farmers borrow from formal sources**, while ~50% of small and marginal farmers are unable to borrow from any source
- Banks provided agriculture credit worth USD 168 billion in FY18-19; however, **50% of the credit was offered to medium and large farmers**
- NPA % in Agri and allied sector is around 7-9%
- The short and long-term credit gap for farmers in developing countries is estimated at about \$170 billion per year (ISF, 2019). Smallholder farmers are often at the bottom of the economic pyramid, yet they are most likely to need access to financial services

Breakup of Types of Farmers



Challenges in offering credit to small and marginal farmers

High cost of servicing and risks involved	<ul style="list-style-type: none"> ▪ Difficult-to-reach <i>remote areas</i> ▪ <i>High acquisition and servicing cost</i> for small and marginal farmers ▪ Perceived high <i>risk of default</i>
Difficult to verify reliable information	<ul style="list-style-type: none"> ▪ Difficult and uneconomical to gather and verify farm-level and farmer-level data ▪ Limited visibility on financial information like cash flows and credit history ▪ Limited expertise to verify or estimate or do both on the income from alternate sources
Risks related to policy and environment	<ul style="list-style-type: none"> ▪ Farm loan waiver by state governments* affects the culture of credit among farmers ▪ Perception of higher NPA under PSL, particularly agriculture

Critical Success Factors required to Succeed

Proximity - Fintech would explore getting banking to the doorstep and finger tips (ibanking).

Accessibility - Knowing the fact that the unbanked population could also be uneducated and mostly use *thumb impressions*. Biometric technology like fingerprint and iris scanner are making banking services accessible to many first-time users.

Alternative Credit Underwriting - Unbiased lending decisions based on facts and data. Credit underwriting model which analyses over *50-100 alternate data points* to determine the creditworthiness of a farmer as no financial records are available.

Use of Funds - Leveraging technology by *providing wallets or cards* that can only be used to directly pay for inputs or other resources related to agriculture only.

Financial Literacy - Financial literacy programs to ensure that individuals are aware of new FinTech options, able to interact with systems and compare prices.

Local Language Support - Rural population usually communicate in local language, Application and services available in *local language and use of AI for voice banking*.

Financial Products - Unlike traditional lenders who tend to focus on crop loans or agricultural input loans, startups focus on smallholder farmer needs and design appropriate financial products that are not collateralised.

Timely Credit - Technological disruption, including the delivery of credit and micro-credit to people in rural regions using a large network of business correspondents, to try and make sure that the time taken for the delivery is as less as it gets and is done straight to their account.

Influencers Network - Working closely with input providers which have existing relationships with local farmers and are trusted by them.

Collection Process - Digital + Physical collection process with flexibility for monthly payments and lump sum payment at the time of sales of output. Working closely with farmer organisations to ease the collection. Use of an AI collection algorithm capable of predicting repayment behavior of clients several weeks in advance

Additional Services:

1. **Market Linkage** - Building better market connection – leveraging market ties to find the best price.
2. **Aggregate** - Help Farmer Producer Organisations source inputs in bulk and at lower costs.
3. **Financial Identity** - Promote use of digital wallets to record financial data that will help farmers in the credit process. The digitisation also brings efficiencies into the system by delivering data similarities, which can make financing for banks more efficient and accessible.
4. **Post-Harvest Services** - post-harvest services across the agricultural value chain, including warehousing, warehouse receipt financing, rural storage discovery, collateral management, etc.
5. **Risk assessment** - using satellite image processing and machine learning enable lenders to forecast what the farmer’s yield would be and the potential risks involved, along with examining the various risk mitigation options for both the banker and the farmer.
6. **Higher equilibrium for complete value chain**
7. **Budget Planning** - Helping farmers to make better financial decisions

New Age Solutions by Startups

<p>Focus on cash flows that accrue to the farmer</p>	<ul style="list-style-type: none"> ▪ Partnering with institutional buyers and large distributors ensures visibility of cash flows and thereby of recovery
<p>Digitization</p>	<ul style="list-style-type: none"> ▪ Allow data analytics on transactions over time, leading to better credit score and finance products
<p>End-to-end support to the farmer</p>	<ul style="list-style-type: none"> ▪ Farmers receive handholding support from input players and startups to ensure quality and standardization of the end output
<p>Warehouse financing</p>	<ul style="list-style-type: none"> ▪ Partnership with local entrepreneurs to develop a warehouse that will allow farmers to store produce and receive finance based on the quality of their output

Credit underwriting model	<ul style="list-style-type: none"> Analyze multiple alternate data points to include income, social and output data points to determine the creditworthiness of the farmer.
No cash disbursement to the farmer	<ul style="list-style-type: none"> Credit that the farmer receives is essentially cashless, as the financier settles the payments due to the retailers directly
Market linkage	<ul style="list-style-type: none"> Working with the buyer leads to a higher earning potential for farmers as middlemen are eliminated

Competitive Landscape in Agri Financing

farMart

Company Overview	<ul style="list-style-type: none"> The farMart platform supports smallholder farmers in getting access to low-cost digital loans to allow them to purchase products at the point of sale. Farmers receive a virtual credit card, through which they can buy high-quality seeds, fertilizer and other agricultural inputs on credit through farMart's network offline retail channel partners
Our Takeaway	<ul style="list-style-type: none"> They partner with local level retailers who sell farm inputs and on-board them on the platform. These retailers work like farMart's point of sale on-ground network. 87% of their customers are first time borrowers with small ticket size It has its own proprietary credit underwriting model which analyses over 50 data points about the farmers. The company claims less than 1% in NPA and operating in UP Revenue and hence, monetization remains low at INR 20 lakhs in FY19

PayAgri

Company Overview

- PayAgri Innovations Pvt Ltd is an agri-fintech organization that orchestrates the entire transaction in an Agri Value Chain and digitizes these transactions. The three principles on which the model functions are:
 - Remove the array of middlemen in the Agri Value Chain through direct linkages
 - Create a cashless ecosystem
 - Provide the benefits of large scale farming to smallholding farmers

Our Takeaway

- PayAgri's model provides forward and backward linkages to farmers by aggregating orders through Farmer Producer Organizations to enable bulk transactions with institutional buyers and agri input companies.
- They capture real-time transaction data owing to access to such linkages to build financial profiles for the farmers and meanwhile eliminating middlemen.
- A marketplace model which doesn't help in owning the customer to collect data and build a farmer score card for credit rating.

Arya Collaterals

Company Overview

- Arya provides post-harvest services across the agricultural value chain, including warehousing, warehouse receipt financing, rural storage discovery, collateral management and market linkages.
- Arya also offers warehouse receipt financing via Aryadhan, its wholly owned NBFC subsidiary. Aryadhan provides credit to farmers, FPOs and SME aggregators.

Arya Collaterals

Our Takeaway

- They partner with agri-corporations such as ITC Limited, Cargill, Louis-Dreyfus Commodities, SAB Miller India, and Britannia to sell the farm produce.
- Focused on collateralise financing which proves to be a challenge for a large base of farmers
- Claims to manage over 2.5 million MT of agri commodities at its 1,400 warehouses
- Only focused on post-harvest services

Bijak

Company Overview

- Bijak is an online B2B marketplace to trade agriculture commodities. It allows producers to sell their produce at real-time prices to wholesalers and retailers. It also provides loans for buyers and working capital for producers.
- Bijak takes a cut of every transaction it facilitates between buyers and sellers.
- It also earns a lead generation commission from farm financiers (rural banks, NBFCs, fintechs, etc.) who get access to Bijak's rich data pool of farmers and agri transactions.
- The platform takes a cut of every loan disbursed by farm lenders.

Our Takeaway

- Its core business is providing Agri commodity trading platform connecting producers to buyers, makes additional revenue through lead generation from financiers who uses bijak data for underwriting.
- The next big vertical focus for the company could be financing

Samunnati	
Company Overview	<ul style="list-style-type: none"> Samunnati, a non-banking financial company (NBFC), provides financial intermediation, market linkages, and advisory services pertaining to the agriculture value chain. Unlike traditional lenders who tend to focus on crop loans or agricultural input loans, Samunnati focuses on smallholder farmer needs and designs appropriate financial products that are not collateralised.
Our Takeaway	<ul style="list-style-type: none"> It has disbursed over Rs 1,600 crore since inception and has assets under management of over Rs 460 crore as on March 2019, present across 18 states. One of the most funded agri-finance companies (\$87M). Its value chain financing model includes smaller farmers into the formal financial system while optimising their costs by enabling agriculture value chains to operate at a higher equilibrium, contributing to increased productivity, enhanced earnings, and improved market reach. A NBFC with a similar approach to jai Kisan and higher ticket size.

AgriTech firms have a role to play in farmer financing

Origination	<ul style="list-style-type: none"> Income and cropping profile & Credit history profile
Underwriting/Credit assessment	<ul style="list-style-type: none"> Nature of land, Access to the mandi, type of crop sown, yield estimates, past performance, availability of input Movable assets or properties
Servicing and monitoring	<ul style="list-style-type: none"> Output profile, Current and historical cropping frequency
Collection	<ul style="list-style-type: none"> Visibility of crop harvest and prices Market linkages for farmers

AgriTech Startups Across Value Chain



Top Funded AgriTech Startups

Name of company/ Region/ Revenue	Total Funding	Problem Solving	USP
Agri Output Marketplace			
NinjaCart Metro Cities FY19 – 133 crs	\$163M	B2B model to create a seamless link between farmers' produce and retail stores. The goal is to ensure a fair price for everyone involved. Around 500 tonnes of vegetables and fruits are delivered to thousands of shops and retail stores across multiple cities in India in just two and a half hours, with a delivery accuracy rate of 99.88 percent all year-round	Deep market understanding, and innovative use of technology - tech-enabled supply chain, their own logistic teams, farm to home in 12 hours
WayCool Chennai FY19 – 191 crs	\$65.7M	Started with B2C and later chose to pivot to a farm-to-fork B2B model and now - four years later - makes almost 90 percent revenue from the B2B channel The fresh produce distribution platform sources fruits and vegetables from small-hold farmers	Ability to efficiently and effectively operate across all the three stages of farm-to-fork value chain: procurement at the farm level, supply chain, and logistics from farm to

Name of company/ Region/ Revenue	Total Funding	Problem Solving	USP
		and aggregators and sells through multiple distribution channels. It leverages innovative technology to operate its complex supply chain.	cities. And robust inter-city distribution network and mechanised material handling.
Bijak Maharashtra, UP, MP, Rajasthan, Punjab, Bihar	\$14.6M	Bijak is a B2B marketplace for agricultural commodities that connects millions of buyers, sellers, traders, wholesalers, food processors, retailers, and farmers. “Digitisation of physical mandis”	Bijak has a real-time trading platform that brings reliability and transparency and enables frictionless transactions.
Livestock Management			
Stellapps FY19 – 53.7 crs	\$19M	Stellapps, a farm-to-consumer dairy digitisation service provider that improves productivity, enhances quality, and ensures end-to-end traceability across the dairy supply chain.	Focuses on leveraging advanced analytics and artificial intelligence through its full-stack IoT platform to enable the dairy ecosystem to partner with financial and insurance institutions, veterinary services, cattle nutrition providers etc.
Agri Input Marketplace			
Agrevolution (DeHaat) Patna FY19 – 42.6 crs	\$16.5M	An online platform that connects small farmers with a network of micro entrepreneurs – suppliers of various farm input and equipment – who procure various inputs such as seeds, fertilisers, and even equipment, as well as offer crop advisory and market linkages.	DeHaat has a unique model and technology to provide end-to-end agri services to farmers Each DeHaat micro-entrepreneur caters to 600-800 farmers in a radius of 3-5 km.
Gramophone Indore FY19 – 4.9 crs	\$8.06M	Gramophone has built an intelligent farming platform that provides farmers crop advisory, agronomy advice, dynamic weather and price updates, learnings on crop diseases, and recommendations on agri inputs and machinery to help them plan their sowing and harvesting cycle better.	Internal engine determines parameters like soil, weather, crop type, and their interdependence. The insights are personalised to the farm level, and the platform can make human-like interventions in the crop cycle

Name of company/ Region/ Revenue	Total Funding	Problem Solving	USP
Farm Management and Data Analytics			
CropIn FY19 – 12.2 crs	\$15.6M	CropIn is a "Full-Stack AgTech" organization that provides SaaS solutions to agribusinesses globally. CropIn utilizes technologies like Big Data Analytics, Artificial Intelligence, Machine Language and Remote Sensing to enable its clients to analyse and interpret data to derive real-time actionable insights on standing crop.	With presence across 41 countries, they train their data on 0.2 trillion data points which is growing at 67 million data points a day
Agri Financing			
Samunnati High Ticket size Unsecured loan	\$86.5M	Samunnati is a specialised agri value chain solutions provider that offers customised financial, co-financial, and non-financial solutions to farmer producer organisations (FPOs) and agricultural enterprises across the value chain. Samunnati is working with many FPOs on the supply side and agri enterprises on the demand side across 19 states in India.	Designed to help FPOs aggregate inputs and output procurement in bulk

Source:

1. <https://inc42.com/buzz/50-of-small-and-marginal-farmers-in-india-are-financially-underserved/>
2. <https://www.microsave.net/wp-content/uploads/2020/06/The-role-of-tech-enabled-formal-financing-in-agriculture-in-India-2.pdf>
3. <https://inc42.com/startups/agrifintech-startup-farmart-brings-cashless-loans-to-farmers/>
4. <https://www.techinasia.com/10-fintech-startups-disruptive-tech>
5. <https://www.forbes.com/sites/forbesfinancecouncil/2017/05/24/fintech-tools-that-can-change-the-world-of-finance/?sh=42d5757f52ff>
6. <https://www.techinasia.com/10-fintech-startups-disruptive-tech>
7. <https://blogs.worldbank.org/psd/how-can-we-leverage-digital-technology-financial-inclusion>