



## **An Analysis of Funding of Agri-Tech Start-ups in India**

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**Abstract:** Agriculture has long been the backbone of the Indian economy. However, the contribution of the agricultural sector to the overall economy has witnessed a significant decline, even though a majority of the population is directly or indirectly involved in agriculture and its allied sectors. This decline can be attributed to the numerous challenges faced by these sectors. In response to these challenges, several startups have emerged, aiming to address the issues and improve the state of agriculture. Concurrently, these startups have garnered substantial funding, which is the focus of analysis in this paper. The influx of funding reflects the growing recognition of the potential impact and viability of these startups in tackling the problems plaguing the agricultural sector. Through innovative solutions and the utilization of advanced technologies, these startups have the potential to revitalize the agricultural landscape and contribute to the overall growth and development of the Indian economy.

**Keywords:** Agri-Tech Startups, Funding, Venture Capitalist, Agriculture Sector

### **1. Introduction:**

**Agricultural Sector:** The importance of Agriculture in Indian Economy is widely known to everyone. More than 54% of rural household depends on agriculture for their livelihood directly or indirectly (Census2011). As per the data released by Ministry of Statistics and Program Implementation, the share of Gross Value Added of Agriculture and Allied Sectors in total economy stood at 18.3% at current prices. Indian grocery market is expected to grow to \$852 billion dollar in the year 2025 from \$573 billion dollar in 2020. India currently has second largest agriculture land which provides livelihood to around 60% rural population of the country.

At the same time, agriculture is considered a very risky sector due to unexpected circumstances like bad weather condition, fluctuating market prices and uneven topography. The Government and other institutions are giving much needed support to reduce the risk involved and revive the agriculture sector. New age and latest technology can be a boon to solve the agricultural problem and this provides the immense opportunity for new entrepreneur to set up an Agri-tech Startup.

**Agricultural Problems:** In spite of the fact that India has 2<sup>nd</sup> largest agricultural in the world, per acre yield is very low and the reason for this is the problems faced by agriculture sector. Some of the problems are highlighted here:



- Non-availability of good quality seeds to majority of farmers
- Absence of sound agricultural marketing system
- Fragmented and small land holding
- Inadequate irrigation in two third of crop area
- Soil Erosion in large fertile land due to wind and water
- Inadequate transport and storage facility
- Lack of finance facility to farmers
- Middlemen and agents controlling supply chain and produce price
- Insufficient supply of Fertilizers, Manures and Biocides in most part of the country

**Agri-Tech Startups:** Agriculture Technology may be defined as the use of technology to improve farming and agriculture. There are number of technology such as **Automated Irrigation, Drones, Satellite Sensors and Photography, Weather Forecasting, Internet of Things (IoT) based Sensor Networking**, which can be used to solve major agricultural problems of India. Currently, there are number of startups which are exploiting these technologies to disrupt the agriculture sector of India. As per Startup India 2021, there are 1,485 Agri-tech startups out of which majority are involved in food processing activities and others are working in organic agriculture, horticulture, animal husbandry, dairying and fishing. Geographically, Maharashtra consist highest number of Agri-tech Startups followed by Karnataka, Andhra Pradesh and Delhi-NCR. The detail geographical split is as follows:

**Table-1**

State	No. of Startups	State	No. of Startups	State	No. of Startups
Maharashtra	291	Madhya Pradesh	43	Uttarakhand	5
Karnataka	209	Punjab	37	Himachal Pradesh	3
Andhra Pradesh	153	West Bengal	35	Goa	2
NCT	138	Rajasthan	26	Jharkhand	2
Tamil Nadu	130	Chandigarh	13	Daman and Diu	1
Gujarat	128	Odisha	12	Manipur	1
Haryana	71	Bihar	8	Telangana	1
Uttar Pradesh	64	Chhattisgarh	6	UT of Puducherry	1
Kerala	44	Assam	5		

Source: Tracxn

**2. Objective of the study:-** The research conducted aims to achieve the following objectives:

- Identify the leading Agri-tech startups that have successfully raised funds.
- Identify the prominent Venture Capitalist firms that have provided funding to these startups.
- Analyze the funding patterns of the selected startups, including the amounts raised and the timing of the investments.
- Determine the significance of the funding received by these startups and its impact on their growth and development.

By fulfilling these objectives, the research aims to shed light on the landscape of funding in the Agri-tech sector, identify key players, understand the funding patterns, and assess the overall significance of the financial support received by these startups. This analysis will provide valuable insights into the



dynamics of funding within the Agri-tech industry and its implications for the growth and success of these innovative ventures.

### **3. Literature Review:**

Surliya & Beniwal (2021) emphasized the various schemes introduced by the Government of India to support startups in the agricultural sector. They highlighted schemes such as the Micro Irrigation Fund, Atal Incubation Centers, and the Gramin Bhandaran Yojana. These schemes serve as valuable sources of financial assistance for startups in the agricultural domain.

Srinivasrao & Kumar (2022) highlighted the funding trends of agri-startups, focusing on the period from the financial year 2016 to the financial year 2020. Their research highlighted the annual funding received by agri-startups during this time frame. Additionally, the study shed light on the impact of the COVID-19 pandemic on the funding landscape of agri-startups, revealing a significant drop in funding during the financial year 2020-21.

The Background paper titled "Promoting Startups in Agriculture" (2018), published by the Ministry of Agriculture & Farmers Welfare, Government of India, provided comprehensive insights into the Agri-Tech startups founded between 2007 and 2017. The paper detailed the funding amounts and the number of funding rounds secured by these startups during that period. It also highlighted some notable funding deals that occurred within the Agri-Tech startup ecosystem. Additionally, the paper focused on the schemes launched by the Indian Government to support farmers in doubling their income.

Jayan & Vaishnavi (2022), discuss the schemes to support agri-startups like ASPIRE, NewGenIEDC, Atal Innovation Mission, NIDHI, and RKVY-RAFTAA.

G. P. Meena, R. L. Meena, and Dinesh Kumar (2019) emphasized several financial challenges encountered by Agri-tech Startups. These challenges included issues related to operational finance, funding or capital deficiencies, cash flow management, and taxation. The research drew attention to the significant financial hurdles that Agri-Tech startups often face during their operations.

### **4. Research Methodology:**

The research will employ a descriptive research design to analyze the funding of Agri-Tech startups in India. Descriptive research aims to describe and analyze the characteristics, patterns, and trends of a particular phenomenon. In this case, the research will describe the funding patterns of Agri-Tech startups in India and analyze the factors influencing their funding.

### **5. Startup Capital:**

A Startup is a new company providing an innovative product or service which was not being offered earlier. Startup Capital is the financial support for the generation and growth of these startups. The entrepreneur has to prepare a detail and solid business plan to get the funding. Startup capital may be raised to begin a venture, expansion of existing entity or for office space, market research, inventory, product manufacturing etc. There can be two sources of funding: Formal and Informal Source. Self-funding and money received from relatives and love ones come under informal source. It is the fund which is arranged on personal links and contacts. In the second source of funding, entrepreneur



approached to other entity formally and it includes venture capitalists, angel investors, bank loans, government scheme etc.

Venture Capitalist may be an individual or an entity investing in a new business with high growth potential and at the same time ready to bear the high risk. Most of the Venture Capitalist are professionally managed firm which pools the money from various sources and invest in startups having higher growth potential in return of equity ownership in the company.

Angel Investors may be defined as successful business tycoon having high net worth investing in new startups or small businesses in exchange of equity ownership in the entity.

Bank Loan is the traditional way of finding a business enterprise. The biggest drawback of bank loan is that entrepreneur has to start paying interest as soon as the loan is received irrespective of beginning of the operation of the business.

## **6. Stages of Funding:**

Raising fund for the smooth functioning of startups is a difficult, long and demoralizing process. If efforts are made strategically then startup will get the money needed for overall development. Startups may require funding at different stages which are follows:

- a) **Pre-Seed Funding:** - It is the earliest stage of funding. This is the money required at the time of generation of idea and development of proof of concept. The money required at Pre-Seed stage is mostly arranged by owners themselves and taken family, friends or an incubator.
- b) **Seed Funding:** - The very first money which is formally raised by an enterprise is Seed Funding. The fund raised at this stage is used by the company to take the startups from idea generation to idea implementation. At this this stage, money is used for market research and product development. A startup may raise the fund from different sources at this stage like friends, family, incubators, angel investors and venture capital firms. This is also the stage where most of the startups fail if they are not able to place their product and services well.
- c) **Series A Funding:** - After the implementation of idea into reality, a startup goes for scaling up the operation and sales of the product or service for which huge fund is required. In Series A funding startups go for raising fund mainly from Venture Capitalist. VCs are professionally managed fund interested in high growth startups and invests money in exchange of ownership. Series A funding also includes debt fund raising from Banks and NBFCs.
- d) **Series B, C, D & E Funding:** - At this stage, startups requires more fund to expand its market base and sales revenue. The main source may be Venture Capitalist and Private Equity. Startups may also go for public fund raising in the form of Initial Public Offering after different series fund raising.

## **7. Leading Agri-tech Startups:**

One of the biggest problems in Indian Agriculture sector is low productivity which results into low income for farmers. Thousands of farmers have committed suicide in India due low income and debt burden. There is huge pressure to increase agricultural productivity and farmer's income. Technology can play an astonishing role to solve these problems which is being witnessed by numbers of Agri-tech Startups coming up to solve major agricultural problems of India. The list of some of leading Agri-tech startups are as follows:





**Table-2**

Sr. No.	Name	Year of Inception
1.	NinjaCart	2015
2.	Bombay Hemp Company	2013
3.	Cropin	2010
4.	Crofarm	2016
5.	Agrostar	2013
6.	Stellapps	2011
7.	Aarav Unmanned Systems	2013
8.	Gramophone	2016
9.	EM3 Agri	2014
10.	Ugao	2015

### 8. Leading Funder during 2022-23:

Funding refers to amount of money required to establish and start an enterprise. A business may need money for many reasons like setting up of plant for manufacturing, product development, marketing, expansion, office spaces and inventory storage (Startup India). To fulfill the requirement of funding, a startup may raise the fund from different Venture Capitalist. The detail list of such VCs is as follows:

**Table:-3**

S. N.	Name	Location	Portfolio Highlight
1.	Omnivore	Mumbai, Maharashtra, India	BharatAgri, eFeed, Aquaconnect
2.	Ankur Capital	Mumbai, Maharashtra, India	MyoWorks, D-None, SanchiConnect
3.	Indigram Labs	New Delhi, Delhi, India	CMB, AgriVijay, Aggromalin
4.	Lightrock india (Aspada)	Bangalore, Karnataka, India	Arya Collateral Warehousing Services
5.	Rebright Partners	Tokyo, Japan	Aquaconnect
6.	Avaana Capital	Mumbai, Maharashtra, India	Intello Labs
7.	Aavishkaar Venture Capital	Mumbai, Maharashtra, India	AgroStar
8.	Nabventures	Mumbai, Maharashtra, India	TraceX Technologies, Eggoz , Vilcart
9.	Zephyr Peacock India	Bengaluru, Karnataka, India	ZippMat, Poshn , Aqgromalin
10.	India Quotient	Mumbai, Maharashtra, India	Lokal , Luru , BharatAgri
11.	Tracxn labs	Bangalore, Karnataka, India	Eggoz
12.	Titan Capital	Gurgaon, Haryana, India	Sorted
13.	AgFunder	San Francisco, California, United States	Tepbac , Future Fields
14.	Acumen	New York, United States	SokoFresh, Kentaste
15.	Rianta Capital	Zurich, Switzerland	Something & Nothing
16.	021 Capital	Bangalore, Karnataka, India	BharatAgri
17.	Accel	Palo Alto, California, United States	EcoSoul Home Inc.
18.	Native Angels Network	New Delhi, Delhi, India	MangoPoint , Farmers Fresh Zone,
19.	BSP Funds	Toronto, Ontario, Canada	Cropin
20.	Trifecta Capital Advisors	New Delhi, Delhi, India	Rebel Foods, Shadowfax

Source: <https://shizune.co/investors/agriculture-%28agtech%29-vc-funds-india>



## 9. Funding Volume:

As per Economic Survey 2022-23, Indian Agri-Tech Startups has raised an astonishing ₹6,600 crore in funding from 2018-19 to 2021-2022 with an annual growth rate of 50%. The survey also highlighted that currently there are more than 1000 startups working to improve agriculture sector in India and trying to improve the life of thousands of farmers.

As per the report of Aventus Capital, India will have 8-10 Unicorn startups in next five years. The report also highlighted that Agri-tech Startups raised \$796 million in 30 fundraising deals. Some glimpse of recent deals is as follows:

- MeraTractor, an online platform to sale-purchase old tractors, raised ₹ 5 crore in funding.
- Cropin Technologies, a global ag-ecosystem intelligence provider, raised ₹ 113 crore in funding.
- Ecozen, a Farm-to-Fork value chain for perishables, raised ₹ 82 crore in funding.
- Pepper Farms, a full stack platform for protected cultivation, raised ₹ 8 crore in funding.
- Falca, a rural AgTech supply chain startup offering one-stop solution for all farming needs, raised ₹ 24 crore in Pre-series A round funding.
- Arya.ag, a comprehensive post-harvest services platform, raised astonishing ₹ 497 crore in Series C round funding.
- BharatAgri, a smart farming solutions provider, raised ₹ 14 crore in Series A funding.
- Sorted, a tech platform for quality fruits & vegetables, ₹ 41 crore in funding.

### List of Agri-tech Startups and their funding:

**Table:-4**

S. N.	Name of Startup	Funding	Funding Round	Company Funding Stage	Investors
1.	<b>Aarav Unmanned Systems</b>	\$5.97M	3 Seed & 2 Early	Series A	31
2.	<b>Crofarm</b>	\$41.5M	7 Seed & 2 Early	Series B	69
3.	<b>Bombay Hemp Co.</b>	\$6.01M	8 Seed	Seed	35
4.	<b>Aibono</b>	\$5.35M	4 Seed	Seed	29
5.	<b>Cropin</b>	\$65.3M	5 Seed, 5 Early Stage, 3 Late-Stage, 1 Debt	Series C	40
6.	<b>Clover Ventures</b>	\$16.5M	3 Seed, 3 Early Stage, 1 Debt	Series B	8
7.	<b>BharatAgri</b>	\$13M	6 Seed , 2 Early-Stage	Series A	43
8.	<b>Intello Labs</b>	\$16.8M	5 Seed , 5 Early-Stage, 1 Debt	Series B	60
9.	<b>Ninjacart</b>	\$377M	1 Seed, 6 Early-Stage, 7 Late-Stage, 3 Debt	Series D	40
10.	<b>Gold Farm</b>	\$2.58M	3 Seed	Seed	10



11.	<b>Waycool</b>	\$310M	3 Seed, 3 Early-Stage, 7 Late-Stage, 8 Debt, 1 Grant (prize money)	Series D	53
12.	<b>Agrowave</b>	\$4.34M	4 Seed	Seed	6
13.	<b>BigHaat</b>	\$20.4M	3 Seed, 1 Early-Stage, 1 Debt	Series B	17
14.	<b>Bijak</b>	\$34.1M	1 Seed, 2 Early-Stage	Series B	17
15.	<b>Ergos</b>	\$22.1M	3 Seed, 4 Early-Stage	Series A	7
16.	<b>Fasal</b>	\$7.31M	4 Seed, 1 Grant (prize money)	Seed	24
17.	<b>AgricxLab</b>	\$775K	2 Seed	Seed	6
18.	<b>Licious</b>	\$490M	1 Seed, 2 Early-Stage, 8 Late-Stage	Series F	65
19.	<b>Jai Kisan</b>	\$85.6M	2 Seed, 2 Early-Stage, 3 Debt, 2 Grant	Series B	62
20.	<b>Star Agriwarehousing</b>	\$89.9M	1 Late-Stage, 3 PE	Series C	36
21.	<b>Nuziveedu Seeds</b>	\$105M	2 PE	Late Stage	4
22.	<b>FreshToHome Foods</b>	\$286M	1 Seed, 2 Early-Stage, 5 Late-Stage	Series D	86
23.	<b>Captain Fresh</b>	\$118M	4 Seed, 2 Early-Stage, 2 Late-Stage	Series C	31
24.	<b>DeHaat</b>	\$222M	4 Seed, 1 Early-Stage, 4 Late-Stage, 1 Debt	Series E	27
25.	<b>AgroStar</b>	\$124M	2 Seed, 2 Early-Stage, 3 Late-Stage	Series E	17

Source: Tracxn.com

## 10. Funding Analysis:

According to the report published by Bain & Co, the investor community has shown substantial interest in the Agri-tech and Agri-ecosystem sectors, leading to India's emergence as the third largest country in terms of Agri-tech funding and the number of Agri-tech startups. This report emphasizes the growing attention and investment directed towards India's Agri-Tech industry, reflecting its potential and significance in the agriculture sector.

According to the Economic Survey 2022-23, the Indian agri-tech landscape has witnessed the emergence of over 1,000 startups during the last five years. However, for the purpose of analyzing funding trends, a specific subset of 28 startups has been selected, which is listed in Table-4 above. This selection allows for a focused examination of the funding patterns and investment activities within the agri-tech sector, providing valuable insights into the financial support received by these chosen startups. By narrowing down the sample, a more detailed understanding of the funding dynamics and trends can be obtained to inform further analysis and decision-making processes.

To analyze the funding these startups are divided in the following sectors:

- Precision Farming
- Farm Management System
- Supply Chain Optimization
- Market Linkages



- Farm Inputs
- Agri-marketplaces
- Agri-financing Platform

Sector-wise detail of funding is as follows:

**Table 5:**

Sr No.	Sector of Startups	Agritech Startup	Funding	Total
1.	Precision Farming	BharatAgri	\$13M	\$26.32 Million
		Bombay Hemp Company	\$6.01M	
		Fasal	\$7.31M	
2.	Farm Management System	Cropin	\$65.3M	\$65.3 Million
3.	Supply Chain Optimization	Crofarm	\$41.5M	\$1282.14 Million
		Clover Ventures	\$16.5M	
		Intello Labs	\$16.8M	
		Ninjacart	\$377M	
		Waycool	\$310M	
		Agrowave	\$4.34M	
		Ergos	\$22.1M	
		<u>Star Agriwarehousing &amp; Collateral Management</u>	\$89.9 million	
		<u>FreshToHome Foods</u>	\$286 million	
		<u>Captain Fresh</u>	\$118 million	
4.	Market Linkages & Agri-marketplace	<u>Aibono</u>	\$5.35M	\$751.4 Million
		<u>Bijak</u>	\$34.1M	
		<u>Licious</u>	\$490 million	
		<u>DeHaat</u>	\$222 million	
5.	Farm Inputs and Equipments	Gold Farm	\$2.58M	\$133.95 Million
		BigHaat	\$20.4M	
		Nuziveedu Seeds	\$105M	
		Aarav Unmanned Systems	\$5.97M	
6.	Agri-financing Platform	Jai Kisan	\$85.6M	\$85.6 million
7.	Multiple Sector	<u>AgriCXLab</u>	\$0.775 million	





		<u>Agrostar</u>	\$124 million	\$124.775 million
8.	Sale/Purchase Agricultural Land	Farm2Fam	Not Available	Not Available

**A close analysis of funding in above table reveals following facts:**

- In terms of the number of startups, the Supply Chain Optimization sector has received the highest funding. A total of 10 startups operating in this sector have secured funding. This indicates the significant invested interest in supporting startups focus on improving supply chain efficiency in the agriculture sector. The funding received by these startups highlights the recognition of the importance of streamlining logistics, reducing wastage, and enhancing the overall effectiveness of the agricultural supply chain.
- In terms of the amount of funding, the Supply Chain Optimization sector has once again emerged as the top recipient, securing a staggering \$1282.14 Million dollars in funding. This significant investment further emphasizes the immense potential, success, and popularity of this sector. The substantial funding indicates the confidence investors have in the ability of supply chain optimization startups to transform the agricultural. It also reflects the recognition of the crucial role played by streamlined supply chains in improving the overall competitiveness and sustainability of the agricultural sector.
- The agri-financing, sale/purchase of agricultural land, and farm management system sectors have received funding for only one startup each. This limited investment suggests a relatively lower level of popularity and potential for improvement within these sectors. It highlights the need for further attention and support to address the challenges and opportunities in agri-financing, land transactions, and farm management systems. These sectors play a critical role in facilitating financial access, efficient land transactions, and effective farm management practices. By focusing on enhancing these sectors and developing innovative solutions, there is an opportunity to unlock their full potential and contribute to the overall growth and sustainability of the agricultural industry.

**Conclusion:**

The amount and number of funding received by startups in the agri-tech sector clearly demonstrate the potential of this sector in addressing major agricultural challenges in the country. It is evident that these startups have the capability to provide innovative solutions and make a positive impact on the agricultural landscape. However, ensuring a conducive environment for their operations and growth is crucial, and this responsibility primarily lies in the hands of the government and the public sector. By implementing supportive policies, creating robust infrastructure, fostering research and development, and promoting collaboration between startups and the agricultural ecosystem, the government and public sector can facilitate the growth of agri-tech startups. This collaborative effort will not only benefit the startups but also contribute to the overall development and sustainability of the agricultural sector in the country.



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