

Sowing Innovation: The Rise of Agritech Startups in India

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Abstract

India's agricultural landscape is undergoing a significant transformation driven by the rapid rise of agritech startups. Leveraging cutting-edge technologies such as artificial intelligence, IoT, and blockchain, these startups are addressing longstanding challenges in agricultural production, supply chains, and market linkages. This article explores how the Startup India initiative and government-backed funding schemes have catalyzed this growth, leading to increased efficiency, job creation, and rural empowerment. It highlights the role of incubators, women-led enterprises, and tech innovations in reshaping farming practices and value chains across the country. Despite notable achievements, the sector faces hurdles including funding gaps, digital illiteracy, and infrastructural limitations. The article concludes with strategic recommendations for sustaining the agritech revolution and integrating it with national priorities like sustainability and food security. With a strong policy push and inclusive ecosystem, India is poised to lead a new era of digitally driven, sustainable agriculture.

Introduction

India, with its vast agrarian landscape and a legacy rooted in farming, is witnessing a quiet revolution—a digital and technological shift led by a surge in agritech startups. These startups are not only modernizing traditional agricultural practices but are also redefining production systems, market access, and entire value chains. In the heart of rural fields and across buzzing digital platforms, India's agri-entrepreneurs are cultivating future where precision meets productivity and innovation meets inclusivity.

Agritech's Emergence: Seeds of Innovation

The government's flagship Startup India initiative has been instrumental in nurturing this ecosystem. As of October 2024, over 152,000 startups have been recognized under this initiative, with more than 3,000 of them operating in the agriculture sector (IndiaStat data). These startups are leveraging technologies like IoT, AI, blockchain, and remote sensing to address critical issues such as low farm productivity, post-harvest losses, and poor market connectivity.

From drone-enabled crop monitoring to mobile apps providing real-time mandi price alerts, agritech innovations are empowering smallholders with actionable insights, improving yields, and connecting them directly with consumers. Notably, over 1,300 of these startups are utilizing emerging and disruptive technologies to support agricultural operations (ORF, 2023).

Job Creation and Economic Impact

Agritech startups are also emerging as significant job creators. According to industry-wise data from DPIIT, agriculture-focused startups have generated over 83,000 direct jobs, making it one of the top sectors in employment generation within the startup ecosystem. This is a substantial contribution to the broader pool of

1.66 million jobs created by startups under the Startup India initiative as of October 2024.

States like Maharashtra (304,078 jobs), Karnataka (186,352), and Uttar Pradesh (148,677) lead in startup-driven employment, with agritech playing a notable role in these regions. Furthermore, the agritech sector in India employs approximately 100,000 people across various roles, including technical, operational, and managerial positions. In the next five years, the sector is expected to generate an additional 60,000 to 80,000 job opportunities, spanning roles like AI development, technology, supply chain management, and sustainable farming solutions (Livemint, 2024).

Fueling Growth: Funding and Support Systems

Financial backing and incubation support have catalyzed the growth of agritech ventures. Under the Startup India Seed Fund Scheme (SISFS), over ₹176.63 crore has been disbursed to more than 1,000 startups via approved incubators as of April 2023 (IndiaStat, 2023). Agritech-focused incubators such as Indigram Labs Foundation and the Agri Business Incubation Society have played pivotal roles in identifying high-impact rural innovations and supporting them at the early stages.

The ecosystem is also becoming more inclusive. By October 2024, 1,278 women-led startups had received funding totaling ₹227.12 crore under SISFS—many of which are engaged in sustainable agriculture, rural supply chains, and agri-processing.

Between 2014 and 2024, Indian agritech startups secured approximately \$2.4 billion in funding across various stages. Notably, 116 seed-stage deals raised around \$146 million, while 41 late-stage deals amassed approximately \$1.3 billion, indicating a robust investment interest in scaling agritech solutions (Statista, 2024). However, in 2023, Indian agrifoodtech startups raised \$940 million across 129 deals, marking a 60% decline from the previous year, reflecting broader trends in venture capital investments (AgFunder, 2024; statista.com).

Disrupting the Value Chain: From Farm to Fork

The influence of agritech startups is evident across the agricultural value chain:

1. **Input Supply and Precision Farming:** Startups like Fasal, CropIn, and AgNext use AI, remote sensing, and soil analytics to offer precise recommendations on crop management. These services help farmers optimize inputs and reduce costs.
2. **Market Linkages and Digital Mandis:** Platforms like Ninjacart and AgriBazaar connect farmers directly to wholesale buyers, cutting out intermediaries and improving price realization. These digital mandis are especially transformative in regions where traditional APMCs are inefficient.
3. **Logistics and Cold Chain Management:** IoT-enabled cold storage and real-time logistics platforms ensure better shelf-life and traceability. Blockchain is increasingly being deployed for provenance tracking in premium produce exports.
4. **FinTech for Farmers:** Agri-fintech is emerging as a lifeline for smallholders. Startups now provide microloans, insurance, and KYC-free payments, often backed by farm-level data analytics for credit risk assessments.

Grassroots to Global: The Rural-Tech Synergy

India's agritech movement is remarkable for its grassroots reach. Many startups are building vernacular, voice-enabled platforms to overcome barriers of digital literacy. Others are training farmers in digital tools and soil management practices, often in collaboration with rural incubation centers.

A number of these startups are being nurtured by regional incubators affiliated with IITs, IIMs, and agricultural

universities under the SISFS umbrella. Institutions like IIM Kashipur, TNAU, and ICAR centers are actively involved in mentoring and funding rural innovators.

Challenges in the Field

Despite the momentum, challenges persist. These include fragmented landholdings, low internet penetration in rural areas, limited digital literacy, and risk-averse attitudes toward technology adoption. Many startups also face funding gaps after the seed stage, struggling to scale without substantial venture capital inflow.

The Road Ahead: Harvesting Potential

The way forward for India's agritech lies in deeper integration with national priorities like climate resilience and sustainable farming. A few strategic interventions could accelerate this momentum. Firstly, expanding public-private partnerships (PPPs) can bridge infrastructural gaps in rural logistics, warehousing, and irrigation. Secondly, the establishment of regulatory sandboxes specifically for agritech can enable controlled experimentation with emerging technologies like gene editing, blockchain traceability, and autonomous farm machinery. Third, improving digital infrastructure and mobile connectivity in underserved rural regions is vital to ensure equitable tech access for smallholder farmers. Moreover, including agritech modules in agricultural universities and skilling programs can prepare the next generation of rural innovators. Finally, targeted incentives and simplified compliance mechanisms for startups focusing on sustainability, climate-smart agriculture, and women-led enterprises can further enrich the ecosystem. With coordinated support from government, investors, incubators, and academia, India can turn its agritech surge into a long-term engine for rural transformation and food security.

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