

YOUTH AGRIPRENEURSHIP AND TECHNOLOGICAL INNOVATION:
DRIVING FORCES OF RURAL AGRIBUSINESSKomal Shukla¹, Dr. Mukta Surya²**Abstract: -**

Rural youth constitute a vital human resource for the future of agriculture and rural development. With the growing challenges of unemployment, migration, and declining interest in farming, engaging youth in agriprenurship and promoting technology adoption has become essential. Agriprenurship not only offers income and employment opportunities but also encourages innovation and sustainability in agriculture. This paper explores the importance of rural youth participation in agriprenurship, the factors influencing their technology adoption behaviour, the challenges they face, and the policy and institutional mechanisms required to strengthen their engagement. The study emphasizes that empowering youth through skill development, digital literacy, access to finance, and mentorship can transform rural agriculture into a profitable and sustainable enterprise.

Keywords: Rural youth, agriprenurship, technology adoption, digital agriculture, skill development, innovation etc.

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Introduction:

Agriculture remains the backbone of rural livelihoods in India and many developing countries. However, the sector faces multiple challenges such as low productivity, limited market access, and climate vulnerability. At the same time, rural youth are increasingly migrating to urban areas in search of better

livelihoods. Engaging rural youth in **agriprenurship** — entrepreneurship based on agricultural activities — offers a dual solution: reducing rural unemployment and rejuvenating the agricultural sector.

Agriprenurship transforms farming from a traditional occupation into a business-

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oriented enterprise by introducing modern technologies, innovative business models, and market linkages. With the advancement of ICTs (Information and Communication Technologies), mobile-based applications, and precision farming tools, agriculture has become more knowledge-intensive. Thus, **technology adoption** plays a crucial role in enabling young farmers to improve productivity, efficiency, and profitability.

Importance of rural youth in agripreneurship

Rural youth are the backbone of future agricultural transformation. They represent energy, enthusiasm, adaptability, and a strong potential for innovation — qualities that are essential for revitalizing the agricultural sector. In most developing countries, youth constitute a major portion of the rural population, yet their participation in agriculture is declining due to low profitability, limited modernization, and a lack of social recognition associated with farming. Engaging them meaningfully in agripreneurship can not only rejuvenate the sector but also create sustainable livelihoods and ensure food and nutritional security.

Some key aspects that highlight the importance of youth engagement in agripreneurship include:

1. Innovation and Technological

Adaptability: Youth are generally more open to adopting new technologies such as

precision farming, drone-based monitoring, mobile advisory services, and smart irrigation systems. Their familiarity with digital tools enables them to integrate technology into traditional farming practices, thereby increasing productivity and efficiency.

2. Employment Generation and Economic

Empowerment: Agripreneurship creates self-employment opportunities for rural youth who often struggle to find jobs in formal sectors. By initiating agribusiness ventures like food processing units, seed production, floriculture, dairy, or aquaculture enterprises, they can also generate employment for others in their communities.

3. Diversification and Risk Management:

Youth-led agribusinesses are more likely to explore non-traditional, high-value enterprises such as organic farming, agri-tourism, mushroom cultivation, and value addition through food processing. This diversification reduces the risks associated with mono-cropping and enhances income stability.

4. Sustainability and Environmental

Awareness: The younger generation is more conscious of environmental issues and climate change. Youth-driven agripreneurship encourages sustainable practices like conservation agriculture,

renewable energy usage, and waste recycling — contributing to both environmental protection and economic resilience.

5. Social Transformation and Rural

Revitalization: Youth engagement in agripreneurship revitalizes rural communities by creating vibrant local economies. Successful youth agripreneurs serve as role models, inspiring others to take up agriculture-based enterprises. This reduces migration to cities, promotes rural innovation, and strengthens the overall rural economy.

6. Global Competitiveness and Market

Orientation: Rural youth can leverage technology to connect directly with national and global markets through digital platforms, online marketplaces, and social media. Their market-oriented approach ensures that agricultural production aligns with consumer demand, improving profitability and competitiveness.

In essence, rural youth are not just beneficiaries but **key drivers** of agricultural transformation. Their participation in agripreneurship combines innovation, technology, and entrepreneurship to build a resilient agricultural ecosystem. When adequately supported with access to education, finance, and markets, youth can transform agriculture into a vibrant, profitable, and

sustainable enterprise capable of addressing both rural unemployment and food security challenges.

Role of technology adoption in agripreneurship

Technology adoption lies at the heart of agripreneurship. It enables farmers, especially rural youth, to transform traditional agricultural systems into knowledge-based, innovative, and market-oriented enterprises. In today's digital era, the convergence of information and communication technologies (ICTs), biotechnology, and mechanization has revolutionized farming practices, allowing young entrepreneurs to operate more efficiently, reduce production risks, and access broader markets.

Rural youth are generally more open to experimentation and risk-taking, which makes them ideal candidates for early technology adopters. Their familiarity with digital tools, social media, and mobile applications helps bridge the gap between traditional knowledge and modern innovation. Through technology adoption, agripreneurship evolves from manual operations to data-driven decision-making systems that enhance productivity, reduce losses, and improve sustainability.

1. Enhancing productivity and efficiency-

Modern technologies such as precision farming, remote sensing, and automation have transformed the efficiency of

agricultural operations. Tools like drone surveillance and satellite imaging help monitor crop health and detect pest infestations early, while soil and weather sensors enable real-time decision-making regarding irrigation and fertilizer application. These innovations minimize resource wastage, reduce input costs, and optimize yields, making farming more profitable for young entrepreneurs.

2. Strengthening information and communication flow-

ICT-based tools play a critical role in connecting rural youth with knowledge networks. Mobile applications, web portals, and social media platforms provide real-time access to weather forecasts, market prices, best agricultural practices, and government schemes. For instance, platforms like *Kisan Suvidha*, *eNAM*, and *AgriStack* in India have empowered farmers with transparent market linkages and reliable information systems. Such connectivity fosters informed decision-making and helps young farmers transition from isolated cultivators to networked agripreneurs with national and global reach.

3. Facilitating value addition and agribusiness development-

Technology enables youth to move beyond primary production and engage in value addition

activities such as food processing, packaging, and branding. Small-scale food processing units, cold storage facilities, and mobile-based logistics systems allow rural entrepreneurs to increase product shelf life and command better prices. Digital marketing platforms like *Amazon Kisan Store*, *BigHaat*, and local WhatsApp-based networks help youth reach customers directly, bypassing intermediaries and improving profit margins.

4. Financial inclusion through digital technologies-

The integration of FinTech (financial technology) into agriculture has revolutionized access to credit, insurance, and subsidies. Mobile banking, UPI payments, and digital lending apps make it easier for youth to start agribusiness ventures without traditional collateral requirements. Platforms like *PM-KISAN*, *Jan Dhan-Aadhaar-Mobile (JAM) trinity*, and digital crop insurance services have created a transparent financial ecosystem that benefits rural entrepreneurs.

5. Promoting climate-smart and sustainable agriculture-

Technological innovations are not only profit-oriented but also crucial for climate resilience. Youth-led start-ups are using technology for water conservation, solar-powered irrigation, organic certification, and carbon footprint

monitoring. These climate-smart technologies ensure environmental sustainability while maintaining productivity and profitability. Through digital awareness campaigns and remote advisory services, young agripreneurs are promoting practices that protect natural resources and ensure long-term food security.

6. Capacity Building and Knowledge

Sharing- Digital learning platforms and e-extension systems are redefining agricultural education and training. Programs such as Massive Open Online Courses (MOOCs) in agriculture, YouTube tutorials, and KVK online training sessions help youth gain practical knowledge without leaving their villages.

Challenges in engaging rural youth in agripreneurship

Despite the growing potential, several barriers hinder rural youth participation in agripreneurship and technology adoption:

Limited Access to Credit: Many young farmers lack collateral or financial literacy to obtain loans for agribusiness ventures.

Skill Gaps: Insufficient training in entrepreneurship, business management, and digital skills.

Perception of Agriculture as Unattractive: Agriculture is often viewed as

labor-intensive and low-profit compared to urban jobs.

Lack of Infrastructure: Poor internet connectivity, storage facilities, and transportation limit market access.

Policy Constraints: Limited youth-specific policies or incentives to support agripreneurial ventures.

Social and Cultural Barriers: Family and community resistance to adopting non-traditional agricultural ventures.

Addressing these challenges is essential for motivating youth to see agriculture as a profitable and respectable profession.

Government and Institutional Initiatives

The engagement of rural youth in agripreneurship and technology adoption cannot be achieved without strong institutional support and enabling policies. Governments, agricultural universities, NGOs, and private organizations play a crucial role in creating an ecosystem that encourages innovation, risk-taking, and entrepreneurship among rural youth. In India, several initiatives have been launched in recent years to promote youth participation in agriculture and allied sectors through training, financial support, incubation, and technological access.

⇒ National and Government-Level Initiatives

The Government of India has recognized youth as a vital component in agricultural transformation. Through various ministries — including the Ministry of Agriculture & Farmers Welfare, Ministry of Rural Development, and Ministry of Skill Development & Entrepreneurship — multiple flagship schemes and programs have been implemented.

1. Agri-Clinics and Agri-Business Centres

(ACABC) Scheme:- Launched by the Ministry of Agriculture and implemented by MANAGE (National Institute of Agricultural Extension Management), this scheme aims to develop agripreneurs by providing them with training and financial support. It helps agricultural graduates set up ventures such as input dealerships, custom hiring centres, soil testing labs, and farm advisory services.

2. National Rural Livelihood Mission

(NRLM):- The NRLM promotes self-employment and entrepreneurship among rural youth and women by forming Self-Help Groups (SHGs) and producer collectives. It provides credit linkages, capacity-building and business development services to help youth start micro and small enterprises in agriculture and allied sectors.

3. Start-up India and Stand-Up India

Initiatives:- These programs encourage

innovation and entrepreneurship across sectors, including agri-tech. They provide tax exemptions, incubation support, and easier access to venture capital and loans for young entrepreneurs, particularly those from rural backgrounds.

4. Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME)

Scheme:- This initiative supports rural youth and small enterprises in food processing through credit-linked subsidies and technical training. It promotes value addition and enhances income opportunities in rural areas.

5. Digital Agriculture Mission (2021–25):-

This policy framework focuses on integrating digital technologies — such as artificial intelligence, block chain, drones, GIS, and IoT — into agriculture. It aims to enhance transparency, traceability, and data-driven decision-making, directly benefiting young agripreneurs engaged in technology-based agriculture.

6. Pradhan Mantri Krishi Sinchai Yojana (PMKSY) & Kisan Credit Card (KCC):-

These programs facilitate financial inclusion and improve irrigation efficiency. They are essential for young farmers starting new agribusinesses requiring capital and infrastructure support.

⇒ **Institutional and Educational Support**

Academic and training institutions play a vital role in preparing youth for agripreneurial ventures. Agricultural universities, Krishi Vigyan Kendras (KVKs), and national institutes like MANAGE and NIRDPR (National Institute of Rural Development and Panchayati Raj) have integrated agripreneurship and innovation into their training programs.

1. Agripreneurship Development

Programs (ADPs): Conducted by agricultural universities and KVKs, these programs provide practical training in business planning, market analysis, and financial management. They help rural youth turn ideas into viable agribusiness models.

2. Incubation Centers and Agri-Startups:

MANAGE, ICAR institutes, and state agricultural universities have established incubation hubs to nurture agritech startups. Examples include the RKVY-RAFTAAR Agri-Business Incubation Centres and NABARD's Agri-Business Incubation Support, which offer mentorship, seed funding, and access to technology.

3. NABARD and FPO Promotion:

The National Bank for Agriculture and Rural Development (NABARD) supports Farmer Producer Organisations (FPOs) and rural entrepreneurship by providing

credit, training, and market linkages. FPOs act as platforms for youth to collectively engage in production, processing, and marketing, enhancing bargaining power and reducing transaction costs.

4. Skill Development and Vocational

Training: Programs like Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) and Skill India Mission aim to train rural youth in modern agricultural technologies, agribusiness management, and value chain operations. Such initiatives ensure that youth possess both technical and managerial competencies to succeed as agripreneurs.

⇒ Impact and Achievements

These initiatives have begun to show tangible impacts. Thousands of young agripreneurs trained under ACABC and RKVY-RAFTAAR programs have successfully established enterprises in areas such as organic farming, dairy production, seed processing, and agri-input retailing. Similarly, the digital agriculture mission has improved the adoption of technology-driven solutions like mobile-based extension, precision farming, and e-commerce in rural regions. Moreover, institutional support has contributed to a paradigm shift — from viewing agriculture as a livelihood activity to recognizing it as a profitable, innovation-led

enterprise. This mind set change is critical for sustaining youth interest in the sector.

The Road Ahead

Despite these positive outcomes, the full potential of youth engagement in agripreneurship remains untapped. Future efforts should focus on:

- ☞ Strengthening coordination between ministries, financial institutions, and research bodies.
- ☞ Expanding digital infrastructure in remote villages.
- ☞ Simplifying access to start-up funding and credit for first-generation entrepreneurs.
- ☞ Promoting rural innovation labs and incubation ecosystems in every agricultural university.
- ☞ Ensuring gender equity and inclusivity in entrepreneurship programs.

An integrated approach involving policy, finance, education, and technology will be essential to sustain the momentum and ensure long-term success of youth-driven agripreneurship in rural India.

Conclusion

Rural youth engagement in agripreneurship and technology adoption represents the cornerstone of modern agricultural transformation. As the global economy evolves and rural demographics shift, empowering youth to take leadership

roles in agriculture has become both an economic necessity and a developmental imperative. Youth are not merely the future of agriculture — they are the *present drivers of innovation, modernization, and sustainability*. By embracing agripreneurship, rural youth can reimagine agriculture as a profitable and knowledge-intensive enterprise rather than a subsistence livelihood. Their natural inclination toward technology, creativity, and experimentation enables them to bring dynamism into rural economies.

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