

AGRICULTURAL DEVELOPMENT VIA DIGITAL EXTENSION SERVICES

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Abstract: The foundation of the Indian economy is agriculture. However, the amount of land that can be farmed is extremely small. Therefore, extensive cultivation is out of the question. The only other option is intensive cultivation, which entails raising total production by raising land productivity. In order to boost productivity, new technologies are required, and these are being developed in labs or agricultural research stations through digital extension services. In digital extension services, ICT for agriculture in developing nations gives farmers access to critical information about planting, protecting crops, and enhancing soil fertility, all of which help them increase agricultural productivity. By helping farmers prepare for sporadic events like floods, droughts, or even pest and disease outbreaks, weather-related advisories and alerts help them avoid suffering large crop losses. In order to ensure they get fair returns, ICTs also give them a dependable way to shop around for the best prices on produce in the local markets and other daily updates. For farmers in remote areas of several emerging nations, the growing availability of affordable mobile phones and the internet is an added benefit. They can now more easily access additional information and services that help them make informed decisions because they have affordable mobile devices at their disposal.

Keywords: Agriculture, Digital, Extension Services.

1. INTRODUCTION

Approximately 60% of Indians make their living from agriculture, which accounts for 22% of the country's GDP. ICT, or information and communication technology, has a lot to offer the agricultural industry. It can help farmers become more productive and make better decisions. Farmers can get up-to-date information on crop management, market prices, and weather from ICT. They can remain current on new crop varieties, production techniques, and quality control thanks to this. Farmers can monitor various aspects of their fields, such as plant growth, soil health, and weather patterns, by utilizing GPS and GIS technologies. With the use of this information, they can optimize yield and resource efficiency by choosing the right times to plant seeds and use resources like fertilizer and water.

Today's farmers can stay current on crop cultivation techniques by using a few buttons to connect with a global network of farmers, agronomists, businesses, and other service providers.

This is made possible by the use of cutting-edge technology in agriculture. Adopting ICT in agriculture has the benefit of allowing policymakers to better understand the situation on the ground through information sharing. This understanding will help in the design and implementation of policies related to agrarian and rural development that will benefit farmers. They can also address issues of gender bias, women's empowerment, and other socioeconomic concerns with the aid of ICTs, which have a wide reach to even the most remote locations.

2. AGRICULTURAL EXTENSION SERVICES

Agricultural extension services are coordinated efforts by public, private, and non-governmental organizations to give farmers knowledge, guidance, and sufficient resources to advance sustainable agriculture practices, increase productivity, and improve farming methods. By bridging the gap between farmers and agricultural research, these services aim to accelerate the adoption of new technologies, methods, and best practices.

List of Services

1	Most recent Package of practices	Ideal agronomic techniques
		Pest and Insect Management
		enhanced types
		Early disease and pest detection and control
2	Technology used after harvest	Storage facilities
		Processing methods
		Marketing strategies
3	Market related data	Updates to input and output prices
		Accessibility of both sources and products
		Updates to input and output prices
		Accessibility of both sources and products
4	Predicting the weather	Rainfall pattern
		Temperature
		Humidity
5	Details on the newest methods and tools	Farm machineries details
		Storage techniques
6	Information on soil testing and soil sampling	
7	Details of subsidies and programs for rural development	
8	News on General Agriculture	

3. DIGITAL EXTENSION SERVICES

In the field of agriculture, information and communication technologies (ICTs) refer to the networks, mobile devices, devices, services, and applications that facilitate the exchange, management, and processing of data, information, or knowledge with a specific audience. In addition to several contemporary technologies like computers and the internet, sensors, Geographic Information Systems, satellites, and the like, they encompass a wide range of convergent technologies, including traditional telecommunications, television and video, radio, CD-ROMs, cell phones, and smart devices. Information and communication technology's main function is to move information from one place to another.

Farmers benefit from the use of digital extension technologies in a variety of contexts. Multiple studies and the experiences of precision development yield insights that emphasize the importance of human-centered design, continuous experimentation, and ongoing monitoring. The network of parties engaged in digital agriculture addresses privacy and funding issues. Additionally, it looks at how digital extension services can be extremely helpful in promoting social learning among farmers. The distribution of agricultural technologies through the use of contemporary technologies has drastically changed the agricultural environment and raised productivity, sustainability, and efficiency.

3.1. The Information Village Project

Ten villages close to Pondicherry, India were connected to computers through the M S Swami Nathan Research Foundation's Information Village Project, which disseminated data on health, agriculture, meteorology, and fishing conditions.

Because of the inclusive use of local languages and an inclusive multimedia format that makes participation possible for all, these new technological tools are empowering everyone with knowledge and opportunity.

3.2. Information Kiosk

The "Information Kiosk" needs to be more visually appealing, comprehensive (it needs to give farmers access to all available information on the subject, including scenarios and options), and include a source of the information as well as additional resources for further reading and clarification.

More direct communication between farmers and researchers will result from this, and feedback and packaging for research extensions will also be improved in terms of both quality and language.

3.3. Create cutting-edge ICT infrastructure to link important stakeholders

Supplying all states, SAMETIs, districts, blocks, state agricultural universities, zonal research stations, and Krishi Vigyan Kendras with phone, ICT (Internet), SATCOM (Satellite Communication Linkage), and video conferencing connectivity

3.4. Establish a system for wrapping information at important involved agencies.

Delivery of extension information in conjunction with the integration of agricultural marketing data, such as market prices, marketing intelligence, and forecasts unique to each state or district.

Combining extension information with knowledge on related topics such as horticulture, animal husbandry, sericulture, etc. to give farmers a comprehensive understanding.

3.5. Establish a Nodal Cell in Every State to Regularly Track the Development of Cyber Extension

A Nodal Cell that is fully connected to all District and Federal Agencies in order to guarantee relevant policy input at the State level.

3.6. Connections directly between local suppliers, traders, retailers, and producers

Digital commerce

Email-based information exchange

Management for supply chains

3.7. Call centres

Human resources, computer support, and telecommunications infrastructure are arranged to effectively and efficiently handle farmer inquiries promptly in their native tongues. Farmers can get prompt resolutions to their issues in their native language.

3.8. Social Media

Social media is an important and versatile tool for community building, communication, and information sharing in the agriculture industry. Real-time market updates on prices, trends, and demand help farmers make informed decisions. Through peer-to-peer learning and the sharing of best practices and experiences, the platforms help farmers build a sense of community. Social media is being used by agricultural experts and organizations to spread insightful information and research findings, increasing the industry's knowledge base. Social media also acts as a direct marketing channel, giving farmers the opportunity to present and sell their goods to customers. People working in the agriculture industry can network and share ideas in online communities and discussion forums. Social media platforms are used to link farmers, spread agricultural knowledge, and build communities where they can exchange insights and

experiences. Social media is a common tool used by agricultural organizations and experts to respond to questions from farmers and share updates on new technologies.

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