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Information Communication Technology and Indian Agriculture

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ABSTRACT

Development of technology has opened new opportunities and dimensions for the agriculture sector in India. This technological advancement has enabled the country to shift from a period of traditional subsistence farming to an era of hi commercial farming. India today makes use of technology at every stage of agriculture right from production and processing till marketing. In spite of this, there still remain challenges in its complete adoption by small and marginal farmers which if suitably addressed could lead to the rapid growth of the primary sector in the future years.

KEYWORDS: *Information technology (ICT), agriculture, farmers*

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INTRODUCTION

Information and communication technology based climate-smart agriculture can enhance agricultural productivity and sustainability, mentioned in economic survey 2019. Even today, 54.6% (census 2011) our population depends on agriculture as their primary occupation and income source. But changing time requires changing needs changing demand. ICT is viewed as a game change in dealing with new challenges of Agriculture. This article will describe the recent advancements of ICT deployment in Agriculture. Technology, thus, allows the farmers to take well informed and valuable decisions which consequently have a positive impact on the way activities in agriculture and its allied sectors are performed.

Various production technologies include soil management, water management, agriculture engineering, disease and pest management, greenhouse technology and use of genetic engineering among others. Processing technologies consist of freezing, pasteurisation, irradiation processing. While, there has been an introduction of marketing portals such as AGMARKNET and e NAM at the marketing level.

Government vision of doubling farmer income by 2022 could be achieved not only by increasing production but also reducing input cost by preventing over usage of resource with the help of ICT. This will result in increasing the saving and decreasing spending of farmers.

Methodology:

The methodology used for the research paper is based on secondary information collected books research paper and websites.

ICT initiatives for Agriculture

Since the penetration of smart phones with internet in rural area is around 7-8% only. Mobile telephony is considered to be the alternate and the best option to deliver services to the farmers.

Kisan Call Centers: Each and every Farmer can call to toll free number, 1800-180-1551 and make problems/queries related to farming, fertilizers, agricultural commodity prices, pesticides, horticulture, veterinary issues, It delivers expert solution to farmers on various issue. KCC receives around 28000 calls on daily basis. These call centres are working in 21 different locations in the country covering all the states and UTs. Queries which cannot be answerd by FTAs are transferred to higher level experts. These experts are subject Matter specialists of state Departments of Agriculture ICAR Institutes, and State Agricultural Universities.

AgriMarket Mobile App: Farmers sometimes have to suffer losses due to distress sales in absence of correct market information. They can take an informed decision based on information about the ongoing prices in markets around them as to which market they should take their produce for selling. This App has been developed with an aim to keep them abreast with crop prices around them. AgriMarket Mobile App can be used to get the market price of crops in the markets within 50 km of the device's location. This app automatically captures the location of person using mobile GPS and fetches the market prices of crops in those markets which fall within the range of 50 km. There is another option to get price of any market and any crop in case person does not want to use GPS location.

mKisan: All related to Agricultural information have been sending through SMS portal to farmers by state and central government in regional language. Around 25% farmers are registered to mKisan and experts/scientists of different departments like IMD, ICAR, State Government, State Agriculture Universities send information to farmers in local languages.

AGMARKNET: The AGMARKNET portal is serves as a single window for assessing websites of various organisations concerned with Agricultural Marketing. It also provides weekly price trend report for important markets in respect of major agricultural commodities. It is linked with the Online Exchange Portals for providing spot and future prices for important commodities. International price trends of various agricultural commodities are also accessible through this portal.

Kisan Suvidha App: Kisan Suvidha is an omnibus mobile app developed to help farmers by providing relevant information to them quickly. With click of a button, farmers can get the information on weather of current day and next 5 days, dealers, market prices, agro advisories, plant protection, IPM Practices etc. Unique features like extreme weather alerts and market prices of commodity in nearest area and the maximum price in state as well as India have been added to empower farmers in the best possible manner.

Farmers Portal: In the Farmers' Portal, a farmer will be able to get all relevant information on specific subjects around his village/block /district or state. This information will be delivered in the form of text, SMS, email and audio/video in the language he or she understands. These levels can be easily reached through the Map of India placed on the Home page. Farmers will also be able to ask specific queries as well as give valuable feedback through the Feedback module specially developed for the purpose.

Crop Insurance Mobile App: Government of India spends huge amounts in extending crop insurance to the farmers so as to provide them relief in case of unforeseen eventualities. This Crop Insurance mobile app can be used to find out complete details about cover available but also to calculate the Insurance Premium for notified crops based on area, coverage amount and loan amount in case of a loanee farmer. It can also be used to get details of normal sum insured, extended sum insured, premium details and subsidy information of any notified crop in any notified area.

All India Radio: Kisan vani Programme on All India Radio has been proposed by the Government **of India** to take place on the 1st April 2004. Necessary steps have been taken by the Department to formulate the programme to be broadcasted from the 1st **of** April 2004 and onwards. 96FM/AM stations of All India radio are broadcasting 30 minute programme six days a week from 6.30-7.00 PM. Each station broadcasts separate programme in respective dialects.

DD Kisan: on the Doordarshan agriculture based channel providing farming community information's inclusive of inclusive of research updates, extension advisories, market rates and weather updates through Mausam Khabar, Swsth kisan, Mandi Khabar programme.

eNAM: National Agriculture Market (eNAM) is a pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities. Small Farmers Agribusiness Consortium (SFAC) is the lead agency for implementing eNAM under the aegis of Ministry of Agriculture and Farmers' Welfare, Government of India.The Market facilitates farmers, traders and buyers with online trading in commodities. The market is helping in better price discovery and provides facilities for smooth transaction of their produce. The eNAM markets are providing popular as the crops are weighed immediately and the stark is lifted on the same day and the payments are cleared online.

ITCs e-Choupal: ITC Limited has provided computers and Internet access in rural areas across several agricultural regions of the country, where the farmers can directly negotiate the sale of their products with ITC Limited. Online access enables farmers to obtain information on mandi prices, and good farming practices, and to place orders for agricultural inputs like seeds and fertilizers. This helps farmers improve the quality of their products, and helps in obtaining a better price.

Community Radio: Several NGOs and Farmers community has effectively utilized community radio to disseminate Agricultural information to farmers and Rural populations "suggestions for pest attacks, sharing success stories of farmers of that region has made a huge impact through this community radio" said sundarapandian of 'Vayalaga vanoli' community radio station at kottampatti Mudurai district to iMo Agri Forum

mKRISHI: mKrishi a mobile agro advisory system, initiative by Tata Consultancy Services (TCS) private sectors entity, The mKRISHI Platform harnesses five digital forces social networks, mobility, analytics for crop acreage and yield, crop health, soil status, weather and pest forecasts and resource quality assessment, helping farmers minimize risk. Currently, more than 400,000 farmers across Punjab, Tamil Nadu, Gujarat and Maharashtra have signed onto the mKRISHI platform. Crop information for cotton, groundnut, onions, basmati rice, wheat, red gram and soya is being disseminated through messages and voice recordings.

Agrostar: Provides genuine agricultural inputs to the farmers at their doorstep it is a pune based e-commerce platform, directly linked to the farmers. Agrostar helps farmers to procure agricultural inputs such as seeds. Plant nutrition, plant protection and agriculture equipment by simply giving a missed call on the company's the company's toll free number, 1800 or through their mobile app to prevent hardship of unavailability of products.

IKisan: Ikisan is an agricultural portal, a one-stop information resource for the farmer. Ikisan provides online, detailed content on crops, crop management techniques, fertilisers & pesticides and a host of other agriculture related material. Latest updates on related markets, products and weather forecasts are also available. Generic information enriches you with common topics on agriculture like Soils, Seeds, Nutrients, Rural Credit, Insurance, Sprayers, Machinery etc.

Conclusion:

Besides all these advantages, decision support system through ITC-facilitates farmers for planning type of crops, practicing goog Agricultural practices for cultivating, harvesting, post-harvesting and marketing their produce to get better resuts. Further advanced technologies like Networking, Big data analytics and Artificial Intelligence

adds strength and efficiency to ICT in Animal desease management and Disaster management, Hence the future prospects of ICT in agriculture is positive and we can expect it to uplift millions poor Indian formers out of poverty. Above Some commonly used ICT tools by farmers include call centers, video, digital photography, GIS, web portals, mobile apps, community radio, e-mail, audio and video conferencing and even social media platforms like facebook and WhatsApp etc.

Many private initiatives in India also helps farmers, through ICT to reach out farmers, This will help them to market their agriculture inputs and crop advisories. The changing structural scenario in Agriculture from subsstence to market based model requires ICT role in linking corporate with farmers as contract farming, supply chain stakeholders, export promoters, etc.

Technology has indeed opened new opportunities and dimensions for innovations in the agriculture enabling its rapid growth and development. The large number of technological advancements happening within the sector will lead to the sector's growth in the future years. However, there are also a number of issues associated with the use of techno agriculture which need to be suitably addressed via government support, through public partnerships in various technology-oriented projects and efforts to improve literacy and skill development for those in the agriculture sector.

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