



AGRI MAGAZINE

(International E-Magazine for Agricultural Articles)

Volume: 02, Issue: 05 (May, 2025)

Available online at <http://www.agrimagazine.in>

© Agri Magazine, ISSN: 3048-8656

Information and Communication Technology (ICTs) in Agriculture

*Nemi Chand Meena¹, Gajendra Kumar Verma² and Arun Meghwal³

¹Teacher, B.R. Agriculture College, Sahawa, Churu, Rajasthan

²M.Sc. Scholar, S.K.N. Agriculture University, Jobner, Jaipur, Rajasthan-303329, India

³M.Sc. Scholar, Sardarkrushinagar Dantiwada Agricultural University,
Sknagar, Dantiwada, Gujarat-385506, India

*Corresponding Author's email: drncdmeenaagext2021@gmail.com

In India several extension approaches like farmer friend approach, group approach, mass media approach, farming system approach, market led extension approach, participatory approach etc. have been adopted for agricultural development. Sustainability and productivity of the agricultural sector largely depends on the quality and effectiveness of extension services. For many years, farmers have been accessing agricultural information from extension workers through interpersonal communication. However, the number of extension workers has been decreasing while farming families have been increasing. Therefore, it is not possible for extension personnel to reach out each and every farmer's doorstep. This leads to low achievement of the current extension services in the country with respect to reaching out to farmers with timely and relevant agricultural information.

Information and Communication Technology (ICTs) are seen as a partial solution to rapidly disseminating information to the increasing number of farming families. ICTs have the potential to enable farmers to receive up-to-date knowledge and information about agricultural technologies, best practices, markets, price trends, consumer preferences, weather, and soil moisture conditions. ICTs based information is crucial for the adoption of different technologies related to different crops for improving yield and income of small holder farmers. There are different ICT tools like radio, TV, mobile phone, Internet, CD player etc. which are used for disseminating information to farmers within less time. Farmers also reported that mobile phones proved to be useful during health emergencies; information services on availability of inputs, quality of inputs, and pest and disease management of crops were also used by the farmers through ICTs. ICTs, as it is seen in many countries including India, have the potentiality to change the face of agriculture, in terms of production and productivity and farmer's wellbeing.

ICT tools and applications in agricultural extension for agricultural development

- ✓ Expert Systems
- ✓ Geographical Information Systems (GIS)
- ✓ Remote Sensing Applications in Agriculture
- ✓ Global Positioning System Applications in Agriculture
- ✓ e-Extension / cyber Extension
- ✓ e-Governance

Uses of ICTs in agriculture

ICTs are revolutionizing agriculture by enhancing productivity, sustainability and market access. ITCs play important role in provide information about the weather forecasting. A good knowledge of weather helps farmer to done various operations in field in profitable

manner. Farmers get knowledge about the current rate of farm produce from digital mandi mobile application so they can choose the suitable time and market to sell their crops for maximum profit. mkrishi is TCS mobile based agro-advisory system uses mobile phones and sensor technology to let farmers send queries, receive information on microclimate, local mandi prices, seek expert's advice and other information relevant to them in their local language; supports text, voice and pictures.

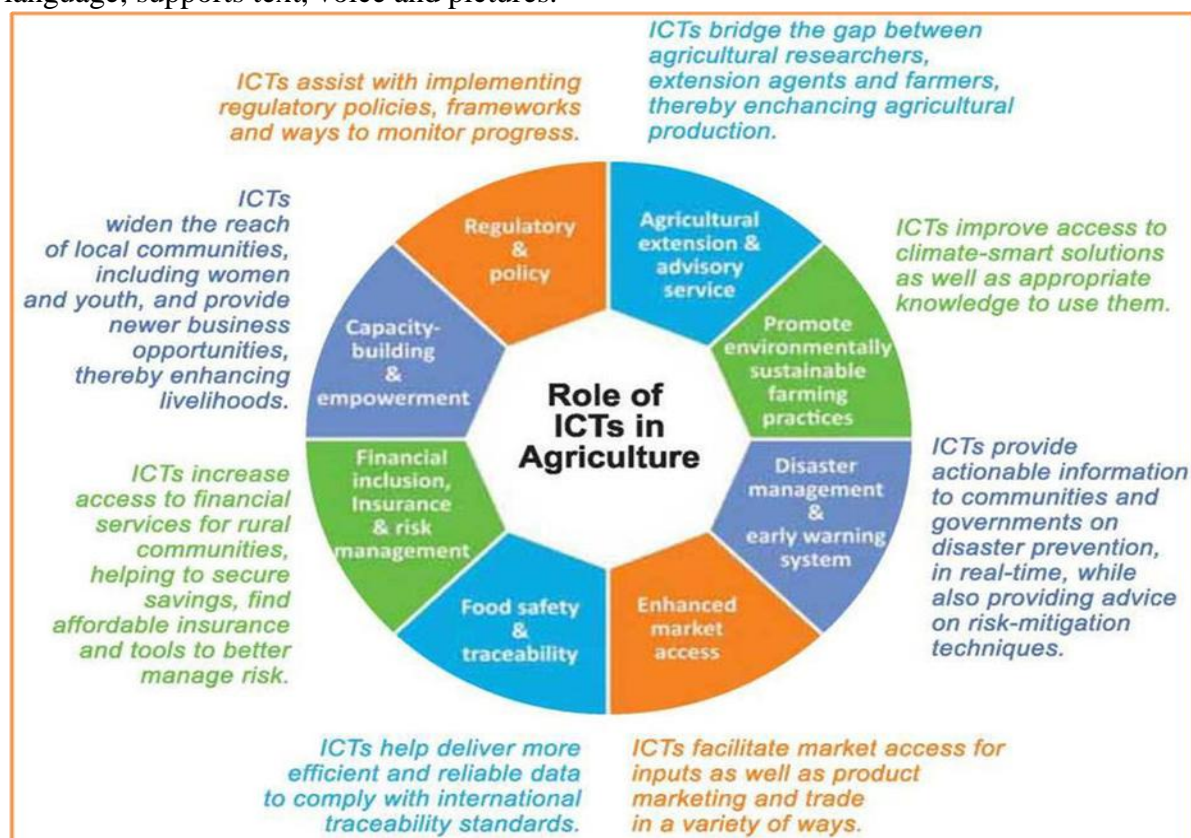


Figure 1. Role of ICT in agriculture (Source: FAO, ITU)

Kisan Call Centres is ICT tool which provide answer from farmers' queries on a telephone call in their own dialect. A countrywide common eleven digit Toll Free number 1800-180-1551 has been allotted for Kisan Call Centre. e-Choupal is a rural digital infrastructure initiative by ICT aimed at empowering Indian farmers through technology. It involves establishing Internet kiosks in villages (e-Choupals) that provide farmers with access to information, products, and services to enhance their farm productivity and improve their income.

Benefits of ICTs in agriculture

There are various benefits of information and communication technology which enhance the farmer's strength. Precision farming and resource optimization enable farmers to monitor soil health, crop condition and pest activity in real-time. This data-driven approach allows for precise application of water, fertilizers and pesticides, leading to higher yields and reduced environmental impact. It provides market access to farmers to secure better prices and reduced post-harvest losses. ICT facilitates access to weather forecasts, early warning systems and climate data allowing farmers to make timely decisions regarding planting, irrigation and harvesting. This proactive approach helps mitigate risks associated with adverse weather conditions and pest outbreaks. Mobile banking and digital platforms provide farmers with access to financial services, including loans, insurance and subsidies. ICT platforms offer educational resources, online courses and digital libraries enabling farmers to access the latest agricultural research and best practices. ICT reduce the gap between information rich and information poor farmers and support sustainable development in rural and agricultural communities.