## Empirical Evidence of Major ICTs in the Development of Indian Agriculture

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### Introduction:

- Agriculture is most important sector with the majority of the rural population in developing countries depending on it.
- In Indian scenario, it said that the country lives in villages which means that farming and agriculture sector contributes in GDP of the country to great extent.
- The traditional approaches of agriculture being adopted since long back in the history, has numerous challenges in terms of production, marketing, profit etc.
- The challenges of the traditional agriculture are addressed significantly by using information and communication technologies (ICT) that play an important role in uplifting the livelihoods of the rural poor.

### What is ICTs

Information and Communication Technology or Technologies (ICT) is an umbrella term that includes all technologies for the manipulation and communication of information.

Information and Communication Technology are defined as a diverse set of technological tools and resources used to transmit, store, create, share or exchange information.

### Need of ICTs in Indian Agriculture

- To accelerate agricultural growth
- To facilitate better information services
- To empower small and marginal farmers
- To develop essential feedback mechanism

### Role of ICTs in Indian Agriculture

- Enhancing Agricultural Production
- Improving Market Access
- Capacity-building and empowerment
- Advisory services
- Creating employment opportunities

### Objectives

- To ensure ownership and develop entrepreneurship in farmers of Indian villages.
- To develop local content and create awareness.

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- To spread knowledge of technologies, crop cycle, suitable use of fertilizers etc.
- To ensure language and cultural pertinence and active participation of farmers.
- To help the villagers augment the growth of agriculture and contribute in GDP growth.
- To implement a framework for agricultural development strategies, investments and programs.
- To provide concrete guidance on agriculture through several motivational real time examples; telling them the success stories of farmers who have been successful using ICT.
- To provide local as well as global markets.
- To increase public investment in agriculture.
- To improve performance of producer organizations.
- To improve access to financial and banking services.
- To use innovative practices through science and technology, and many more…

## Tools of an ICTs system

- Tools
- Computer

- Laptops
- Tablet PCs
- Smart phone
- Kiosk
- Internet
- Websites
- Scanners

## Categorization of Major ICT initiatives

- Web portals & Websites
- e-NAM
- KVK knowledge Portal
- Digital mandi India
- e-Sagu
- Agropedia

1. **Mobile Phone Based**
   - Kisan call center
   - IFFCO kisan sanchar limited
   - TCS mKrishi
2. **Knowledge Kiosks**
   - e-chaupal
   - e-Sagu
   - Common Service Centers
3. **Expert Systems**
   - Rice crop Doctor
   - Expert system on mushroom
   - EXOWHEM
   - IGFRI Expert system
4. **Android Mobile Applications**
   - Kisan Rath
   - mKisan app

- Kisan suvidha app
- Pusha Krishi app
- Micro Mitra
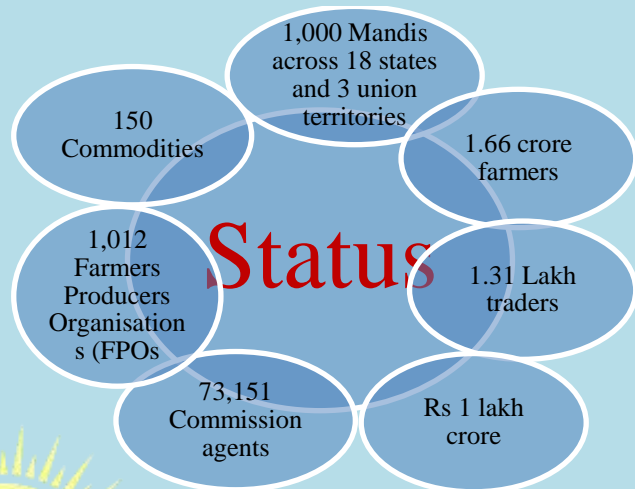- Buffalo Poshahaar
- Agrimarknet

## e-NAM

- It was launched by the Ministry of Agriculture, Government of India on 14 April 2016 by Prime Minister of India, Narendra Modi.
- The e-NAM Portal provides a single window service for all APMC related information and services.
- A national e-market platform for transparent sale transaction and price discovery initially in regulated market.

## VISION

To promote uniformity in agriculture marketing by streamlining of procedures across the integrated markets, removing information asymmetry between buyers and sellers and promoting real time price discovery based on actual demand and supply.

## MISSION

Integration of APMCs across the country through a common online market platform to facilitate pan-India trade in agriculture commodities, providing better price discovery through transparent auction process based on quality of produce along with timely online payment.

Gate entry — Sampling & Assaying — Online Trading — Electronic weighing — Online payment — Gate exit

### Status

- 1,000 Mandis across 18 states and 3 union territories
- 150 Commodities
- 1.66 crore farmers
- 1,012 Farmers Producers Organisations (FPOs
- 1.31 Lakh traders
- 73,151 Commission agents
- Rs 1 lakh crore

## Kisan Call Centre

- It was launched by Ministry of Agriculture on January 21, 2004.
- Its working in 14 different locations, 22 local languages, from 6.00 am to 10.00 pm on all seven days of the week.

A countrywide common eleven digit Toll Free number 1800-180-1551 has been allotted for Kisan Call Centre.

## Features of Kisan Call Centre

- 100% call recording and retention of recorded calls for six months.
- Back up through Fixed Cellular Terminal (FCT) in case of PRI line failure.
- Provision for registering the farmers for receiving SMS sent through mKisan.

- Feedback on performance of FTAs at the end of each call.

## How to work?
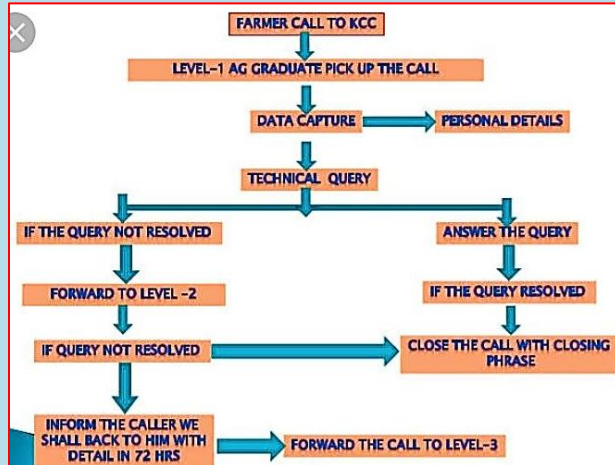


Calls answered by Kisan Call Centers during the last 3 years including current year up to 30.06.2021

| | |
|---|---|
| 48,48,624 (2018-19) | 60,52,767 (2019-20) |
| 10,91,237 (2021-22) | 54,74,446 (2020-21) |

## Kisan Rath

- The application has been developed by the National Informatics Centre –NIC.
- 'Kisan Rath' mobile app to facilitate transportation of food grains and perishable during lockdown.
- It will be available in eight languages initially, including English and Hindi.

## Benefits & Features

- The App will allow transportation from farm gate to mandi.
- The application will prove beneficial to the farmers and businessmen of the country.
- This application provides an easy selling and buying of products.
- By using this application, we can easily stay updated with the current market situation.
- There are more than 14000 custom hiring centers available on the application which provides this facility.
- Facilitate in searching for transport vehicles for primary and secondary transportation.
- The application will also remove the middle man as the buyer and the seller can contact directly.
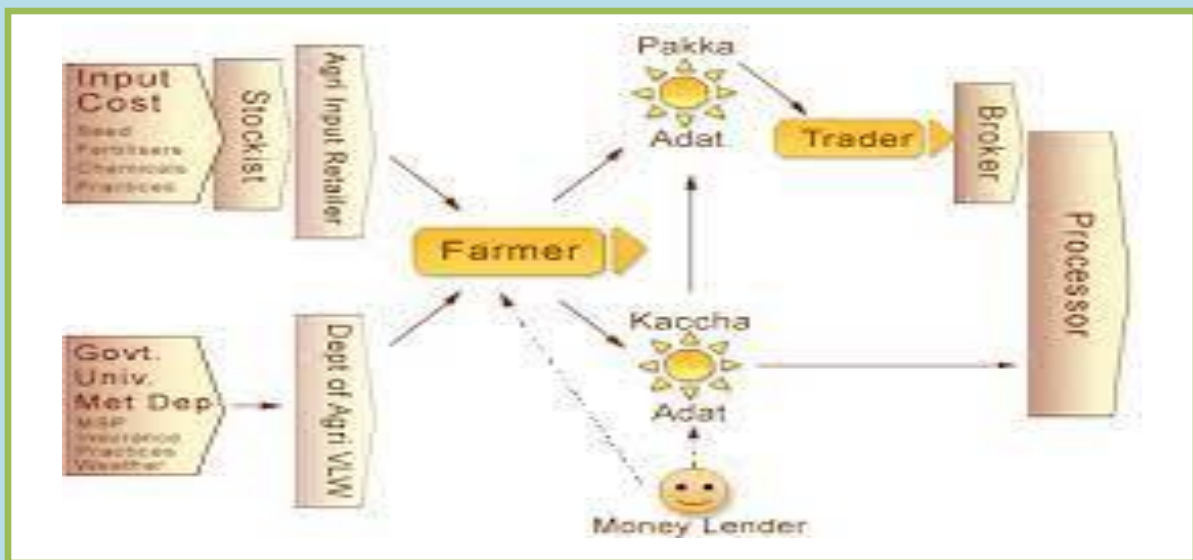
## How the App will work?
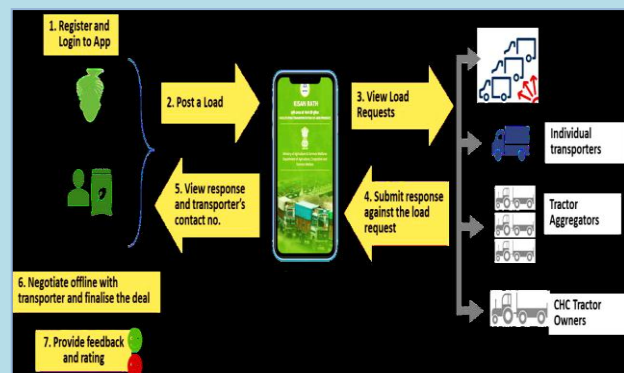


## e- Choupal

- An initiative of ITC Limited in June 2000.

- Its provides information on weather, price discovery, agri knowhow and best practices.

The kiosks are managed by trained local farmers who help the local agricultural community to access the information in their local language.

**Working Model**



**Krishi Vigyan Kendra (KVK) portal**

- It was launched by the Union Minister of Agriculture and Farmers Welfare, Shri Radha Mohan Singh in New Delhi on 08 July 2016.
- The portal provides information on different services being provided by different KVKs.
- Weather and market related information can also be accessed by the farmers and others.
- Q&A facility will also be available for the farmers.

- Agriculture related information of the districts will also available for the farmers.

**mKisan app**

- This app has been designed and developed by inhouse IT team of DAC with the help of C-DAC Pune.

- It enables farmers and all other stakeholders to obtain advisories and information being sent by experts and government officials at different levels through mkisan portal without registering on the portal

**Agri-market**

- This application is developed by **the IT department of Ministry of Agriculture.**
- Agri Market 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 price of crops in those markets which falls 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.

**Digital Mandi India**

- It has been developed by **BITCOE (BSNL IIT-Kanpur Centre of Excellence)** at IIT-Kanpur.

**Its main features are:**

- Browse through various commodity categories
- Browse prices in different states
- Simplified flow to reach the selected commodity's mandi price
- Copy the mandi price of a commodity
- Sync data from the Indian government portal Agmarknet.nic.in

**Kisan Suvidha App**

- Kisan Suvidha Mobile App has been lunched by Hon'ble Prime Minister on March 19,2016.
- This mobiles app is useful for formers as it provides-

(a) Weather / Extreme Weather alerts

(b) Dealers

(c) Market Price

(d) Plant protection

(e) Agro advisories

(f) How to contact KCC

(g) Soil Health Card

(h) Cold Storage and gowdowns

**Pusa Krishi App**

Pusa Krishi App has been lunched by Union Agriculture Minister Radha Mohan Singh on 22 March ,2016 during 'Krishi Unnati Mela'.

Following facilities are available on Pusa Krishi App-

- New Release Varieties
- Production Technology
- Protection Technology
- New Develop Equipment& Implements

**IFFCO Kisan App**

- This app was launched in 2015 with an aim to help Indian farmers by the IFFCO.
- Users can access a variety of information like-

**Micro Mitra**

- An Initiative of ICAR-National Bureau of Agriculturally Important Microorganisms for Farmers.

→ **It contains information about-**

1. About Formulation
2. Crops where these formulations can be used
3. Advantages
4. Application

5. Dosages

6. Precautions

7. Cost

➡️ Information is provided in Hindi and English both languages.

## Buffalo Poshahaar

➡️ Buffalo Poshahaar (Nutrition) is an educational mobile app, designed and developed by ICAR-CIRB.

➡️ The major areas and sub areas covered are-

  ✓ Balanced ration

  ✓ Feed management according to different physiological stages of buffaloes, importance of salt & drinking water, preparation of low-cost concentrate mixture, mineral mixture, complete feed block.

## e- Sagu

- e- Sagu is a tool for IT-based personalized Agro-advisory system. ("Sagu" in Telegu language means cultivation).

- It aims to improve farm productivity by delivering high quality personalized (farm-specific), query-less advice in a timely manner to each farm at the door-step of the farmer.

## Agropedia

- The government-backed initiative, Agropedia, was launched on 12 January 2009.

- The website currently contains information on nine crops--rice, wheat, chickpea, pigeon pea (*toor*), vegetable pea, litchee, sugarcane, groundnut and sorghum.

## Rice-Crop Doctor

- MANAGE has developed an expert system to diagnose pests and diseases for rice crop and suggest preventive/curative measures.

- The rice crop doctor illustrates the use of expert-systems broadly in the area of agriculture and more specifically in the area of rice production, pests and diseases management and some deficiency problems limiting rice yield.

## Expert System on Mushroom

- Expert System for Mushroom Crop has been developed using Agri Daksh.

- Its provides information about cultivation technology, diseases and pest management, spawn production technology, compost preparation, harvesting, Crop management, medicinal value, Fungal, viral, bacterial diseases & abiotic disorders.