Agriculture Census

For Prelims: Agriculture Census, Technology for Farmers, Related Government Initiatives

For Mains: Significance of Agriculture Sector in Economy, Technology in aid of farmers, Government Initiatives

Why in News?

Recently, the **Ministry of Agriculture & Farmers' Welfare** launched **"The Eleventh Agricultural Census (2021-22)."**

- This computation will bring **huge benefits in a vast and agricultural country like India.**

What do we need to know about the Agriculture Census?

- **About:**
  - **Agriculture** Census is conducted **every 5 years**, which is being undertaken now after delay due to the **Covid - 19 Pandemic.**
  - Entire Census operation is conducted in **three phases** and **operational holding** is taken as a statistical unit at micro level for data collection.
    - Based on the agriculture census data collected in three phases, the Department **brings out three detailed reports** analyzing trends on various parameters at **All India and States/UTs level.**
      - District/Tehsil level reports are prepared by the respective States/UTs.
  - Agricultural Census is the **main source of information** on a variety of agricultural parameters at a relatively minute level, such as the **number and area of operational holdings, their size, class-wise distribution, land use, tenancy and cropping pattern, etc.**
- **Eleventh Census:**
  - The field work of the agricultural census **will start in August 2022.**
  - This is the **first time that data collection** for agricultural census will be conducted on **smartphones and tablets,** so that data is available in time.
  - **It includes:**
    - Use of **digital land records** like land title records and survey reports
    - Collection of data through **app/software using smartphone/tablet.**
    - Complete **enumeration of all villages** in states with non-land records during Phase-I as done in states having land records.
    - **Real time monitoring** of progress and processing.
  - Most of the States have **digitized their land records and surveys**, which will further accelerate the collection of agricultural census data.
  - The use of **digitized land records** and the **use of mobile apps for data collection** will enable the **creation of a database of operational holdings in the country.**

What do we mean by Digital Agriculture?

- **About:**
  - **Digital Agriculture** is **ICT (Information and Communication Technologies)** and **data ecosystems** to support the development and delivery of timely, targeted information and services to make farming profitable and sustainable while delivering safe, nutritious and affordable food for all.
  - **Examples**:
    - **Agricultural** biotechnology is a range of tools, including traditional breeding techniques, that alter living organisms, or parts of organisms, to make or modify products, improve plants or animals, or develop microorganisms for specific agricultural uses.
    - **Precision agriculture (PA)** is an approach where inputs are utilised in precise amounts to get increased average yields, compared to traditional cultivation techniques such as agroforestry, intercropping, crop rotation, etc. It is based on using ICTs.
    - **Digital and wireless technologies** for data measurement, Weather monitoring, Robotics/drone technology, etc.
- **Benefits:**
  - **Farm Machinery Automation:**
    - It allows **fine-tuning of inputs** and reduces demand for manual labour.
  - **Remote Satellite Data:**
    - **Remote satellite data and in-situ sensors** improve the accuracy and reduce the cost of monitoring crop growth and quality of land or water.
    - Freely available and high-quality satellite imagery dramatically **reduces the cost of monitoring many agricultural activities**. This could allow governments to move towards **more targeted policies** which pay (or penalise) farmers based on observed environmental outcomes.
  - **Traceability Technologies and Digital Logistics:**
    - These services offer the **potential to streamline agri-food supply chains,** while also providing **trusted information for consumers.**
  - **Administrative Purpose:**
    - In addition to monitoring compliance with environmental policies, digital technologies enable **automation of administrative processes for agriculture and the development of expanded government services**, such as in relation to extension or advisory services.
  - **Maintenance of Land Records:**
    - Using the technology, the data related to a **large number of landholdings can be appropriately tagged and digitised.**
      - It will not only help better targeting but also **reduce the quantum of land disputes in courts.**

What Initiatives has the Government taken for Digital Agriculture?

- **AgriStack:**
  - The Ministry of Agriculture and Farmers Welfare has planned creating 'AgriStack' - **a collection of technology-based interventions in agriculture.**
  - It will create a **unified platform for farmers** to provide them end to end services across the agriculture food value chain.
- **Digital Agriculture Mission:**
  - This has been initiated for 2021 -2025 by the government for projects based on new technologies like **artificial intelligence, block chain**, **remote sensing and** GIS technology, **use of** drones **and** robots **etc.**
- **Unified Farmer Service Platform (UFSP):**
  - UFSP is a combination of **Core Infrastructure, Data, Applications and Tools** that enable **seamless interoperability** of various public and private IT systems in the agriculture ecosystem across the country.
  - **UFSP is envisaged to play the following role:**
    - Act as a **central agency** in the agri ecosystem (like UPI in the e Payments)
    - Enables **Registration of the Service Providers** (public and private) and the

Farmer Services.
- Enforces **various rules and validations required** during the service delivery process.
- Acts as a **Repository of all the applicable standards,** API's (Application Programming Interface) and formats.
- Act as a **medium of data exchange** amongst various schemes and services to enable comprehensive delivery of services to the farmer.

- **National e-Governance Plan in Agriculture (NeGP-A):**
  - A Centrally Sponsored Scheme, it was initially launched in 2010-11 in 7 pilot States, which **aims to achieve rapid development in India** through use of ICT for timely access to agriculture related information to the farmers.
  - In 2014-15, the scheme was further extended for all the remaining States and 2 UTs.
- **Other Digital Initiatives:**
  - **Kisan Call Centres**
  - **Kisan Suvidha App**
  - **Agri Market App**
  - **Soil Health Card (SHC) Portal**

Way Forward

- Policymakers will need to **consider potential benefits, costs and risks,** and to understand the factors affecting technology uptake so that interventions can be targeted to where there is a market failure, or a public interest.
- **Understanding how technology can help** in different components of the policy cycle, and may require **government bodies to expand their skillsets,** invest in technology and training, or partner with other actors (both government and non-government).
- There is a need to build a **robust digital infrastructure in the country** consisting of **satellite imaging, soil health information, land record, cropping pattern and frequency, market data, and others.**
- Data efficiency can be increased through - **Digital Elevation Model (DEM)**, **Digital Topography, Land Use & Land Cover, Soil Map, etc.**

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. In the context of India's preparation for Climate -Smart Agriculture, consider the following statements:

1. The 'Climate-Smart Village' approach in India is a part of a project led by the Climate Change, Agriculture and Food Security (CCAFS), an international research programme.
2. The project of CCAFS is carried out under Consultative Group on International Agricultural Research (CGIAR) headquartered in France.
3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (d)

Explanation:

- The Climate-Smart Village project in India is a CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). The CCAFS started piloting the Climate-Smart Village in 2012 in Africa (Burkina Faso, Ghana, Mali, Niger, Senegal, Kenya, Ethiopia, Tanzania, and Uganda)

and South Asia (Bangladesh, India, and Nepal). Hence, statement 1 is correct.

- Climate Change, Agriculture and Food Security (CCFAS) is carried out under CGIAR (formerly the Consultative Group for International Agricultural Research). The Headquarters of CGIAR is in Montpellier, France. CGIAR is a global partnership that unites international organizations engaged in research about food security. Hence, statement 2 is correct.
- International Crops Research Institute for the Semi- Arid Tropics (ICRISAT) is a CGIAR Research Center. ICRISAT is a non-profit, non-political public international research organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Hence, statement 3 is correct.
- Therefore, option (d) is the correct answer.

Source: PIB