



ICAR & Its Role in Food & Nutritional Security

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Why in News?

The **Indian Council of Agricultural Research (ICAR)** celebrated its **97th Foundation Day** on **16th July 2025**, marking a **significant milestone** and **highlighting its transformative role** in **strengthening Indian agriculture** and **ensuring food and nutritional security**.

Indian Council of Agricultural Research (ICAR)

- **About:** It is the **apex body** for **coordinating, guiding, and managing agricultural research and education** in areas such as **agriculture, horticulture, animal sciences, and fisheries** in India.
 - Established on **16th July 1929** as a registered society under the **Societies Registration Act, 1860** and **headquartered in New Delhi**.
- **Functioning:** It functions as an **autonomous organisation** under the **Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare**.
 - ICAR is among the **largest national agricultural systems globally**, with **113 research institutes** and **74 agricultural universities** across India.

What are Highlights of ICAR's Role in Ensuring Food and Nutritional Security?

- **Agricultural Growth & Food Security:** ICAR played a pivotal role in the **Green Revolution** and **food security** by boosting production of foodgrains (6.21x), horticulture (11.53x), fish (21.61x), milk (13.01x), and eggs (70.74x) from 1950-51 to 2021-22.
 - In 2024-25, India achieved its **highest-ever foodgrain output** at **353.95 million tonnes**, becoming the **largest producer of rice and milk**, and **second in wheat, horticulture, and fish**.
- **Research Excellence & Innovation:** ICAR released **679 field crop varieties** (including 27 bio-fortified), **world's first two genome-edited rice varieties**, and contributed 90% to **Rs 50,000 crore basmati exports**.
 - It also led to **115.3 MT wheat production** (85% under ICAR varieties) and significantly boosted **pulse and oilseed output**.
- **Advancement in Horticulture, Fisheries, Livestock & Engineering:** Developed **83 horticulture varieties**, **2,950+ tonnes of breeder seeds**, and **22 lakh planting materials**.
 - It introduced **super-intensive shrimp farming**, breeding protocols for 7 fish species, registered **10 livestock breeds**, released **2 chicken varieties**, and deployed **45 new agri-machines**, enhancing on-farm efficiency and sustainability.
 - **Climate-Smart & Resource Management Initiatives:** Established **National Soil Spectral Library**, developed **35 Good Agricultural Practices (GAPs)**, **organic**

farming models for 10 cropping systems, promoted **agroforestry in Odisha**, and innovated a **microbial consortium** reducing methane emissions in rice cultivation by **18%**.

- **Capacity Building, Education, and Extension:** Implemented the **6th Deans Committee Report on agricultural education**, launched **PM-One Nation One Subscription (PM-ONOS) scheme**.
 - It awarded **ASEAN Fellowships**, and trained staff under **Karmayogi Jan Seva**. ICAR conducted **18.57 lakh farmer trainings**, issued **4.19 crore mobile advisories**, helped reduce **stubble burning by 80%**.
- **Global Collaboration & Strategic Initiatives:** Strengthened ties with **ASEAN, SAARC, G20, QUAD, BRICS**, etc., signed **9 MoUs**, participated in platforms like **Consultative Group on International Agricultural Research (CGIAR)** & **International Center for Agricultural Research in the Dry Areas (ICARDA)**.
 - It also launched transformative programmes like the **Global Centre on Millets (Shree Anna)**, **Clean Plant Programme**, **National Gene Bank**, **MAHARISHI initiative**, and genome editing in **40 crops**, positioning India for next-gen agri-resilience.

What are the Key Initiatives for Promotion of Agriculture in India?

- **Credit & Financial Support:**
 - [Kisan Credit Card \(KCC\) scheme](#)
- **Crop Insurance:**
 - [Pradhan Mantri Fasal Bima Yojana \(PMFBY\)](#): Covers crop loss from pre-sowing to post-harvest.
 - [Restructured Weather-Based Crop Insurance Scheme \(RWBCIS\)](#): Covers weather-related risks.
- **Mechanisation & Infrastructure:**
 - [Sub Mission on Agricultural Mechanization \(SMAM\)](#): Promotes equipment training via Farm Machinery Training & Testing Institutes (FMTTIs).
 - [Agriculture Infrastructure Fund \(AIF\)](#): Provides loans (interest subvention up to 3%) for post-harvest infrastructure, capped at 9% for loans up to Rs 2 crore.
- **Research & Technology:**
 - **National Research Centre for Makhana (NRCM)**: Developed Makhana processing machines and supported 24 enterprises.
 - **Project VISTAAR**: Unified digital agri-ecosystem integrating AI chatbots, Agristack, and real-time farmer feedback.
 - **Gramin Krishi Mausam Sewa (GKMS)**: Disseminates weather advisories via 130 Agromet Field Units and apps like [Meghdoot and Mausam](#).
- **Organic & Sustainable Farming:**
 - [Paramparagat Krishi Vikas Yojana \(PKVY\)](#) for promoting organic farming clusters.
 - [Per Drop More Crop \(PDMC\)](#) provides **subsidies to small/marginal farmers** for micro-irrigation (drip/sprinkler systems).
- **Institutional Support & Decentralization:**
 - [Rashtriya Krishi Vikas Yojana \(RKVY\)](#)
 - **Agriculture Technology Management Agency (ATMA)**: Strengthens decentralized agricultural extension services.
- **Collectivization & Market Access:**
 - [Formation and Promotion of 10,000 FPOs Scheme](#)
- **Pension & Social Security:**
 - [Pradhan Mantri Kisan Maandhan Yojana \(PMKMY\)](#) provides Rs 3,000/month pension post age 60 farmers.
- **Skill Development & Education**
 - [Krishi Vigyan Kendras \(KVKs\)](#)
 - **Skill Training of Rural Youth (STRY)**: 7-day short-term training in agriculture & allied sectors.
 - **Student READY Programme**: Skill-oriented training, internships, and rural exposure for agri-students.

Agriculture is the backbone of the Indian economy, yet farmers face persistent structural challenges. Discuss the key issues and examine how ICAR-led reforms can contribute to sustainable and inclusive agricultural growth.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

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)

Q. In India, which of the following can be considered as public investment in agriculture? (2020)

1. Fixing Minimum Support Price for agricultural produce of all crops
2. Computerization of Primary Agricultural Credit Societies
3. Social Capital development
4. Free electricity supply to farmers
5. Waiver of agricultural loans by the banking system
6. Setting up of cold storage facilities by the governments

Select the correct answer using the code given below:

- (a) 1, 2 and 5 only
- (b) 1, 3, 4 and 5 only
- (c) 2, 3 and 6 only
- (d) 1, 2, 3, 4, 5 and 6

Ans: (c)

