



ANNUAL HIGHLIGHTS

2025-26

Innovating Agriculture
Empowering Farmers
Securing the Future



RESEARCH



INNOVATION



SUSTAINABILITY

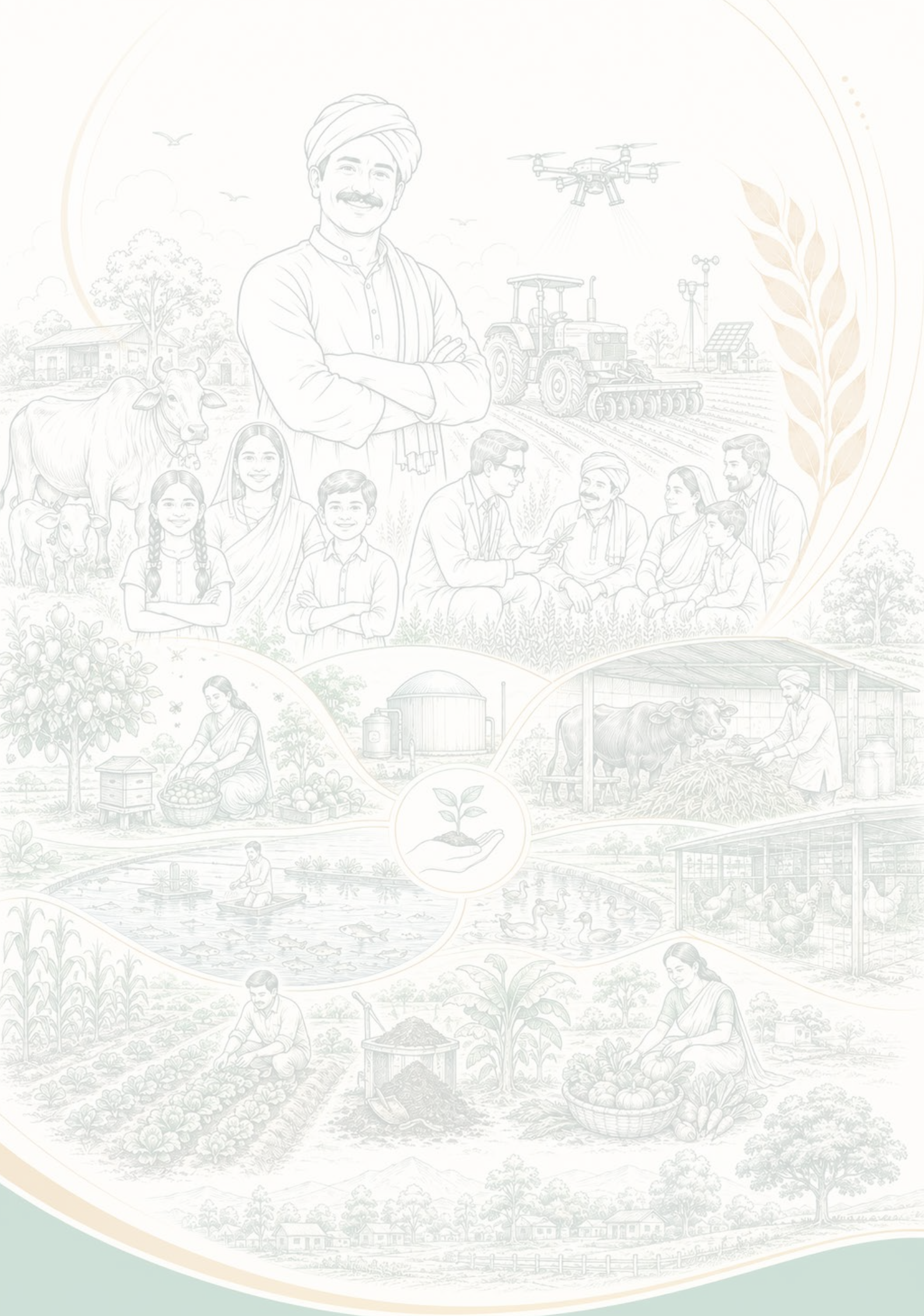


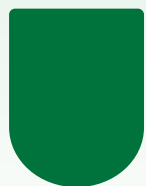
PROSPERITY

Indian Council of Agricultural Research
New Delhi



*Science for every field
Innovation for every farmer*





PREFACE

THE Indian Council of Agricultural Research (ICAR) continued to strengthen India's agricultural research, education, and extension system, advancing its vision of "One Organization–One Purpose–One Narrative." The year 2025-26 witnessed record production of foodgrains, horticultural crops, and milk, supported by ICAR's scientific innovations and enhanced skilling and last mile delivery through extension network. During the year, 367 agri-horti crop varieties and 152 production and protection technologies were developed.

The ICAR's **focus** remained closely aligned with Gol's priority initiatives, including the Mission for Aatmanirbharta in Pulses, Mission for Cotton Productivity, National Mission on High-Yielding Seeds, National Makhana Board, and the Second National Genebank. It also advanced sustainability through natural farming, the Clean Plant Programme, nano-research, animal health, blue economy, climate resilient agriculture etc. In a significant institutional milestone, ICAR introduced MELIA (Monitoring, Evaluation, Learning and Impact Assessment), comprehensive Gender and Communications policies while strengthening its Research Data Management framework, reinforcing its commitment to inclusivity, transparency, and data-driven governance.

I express my sincere gratitude to **Shri Shivraj Singh Chouhan**, Hon'ble Union Minister of Agriculture & Farmers Welfare and President, ICAR Society; **Shri Rajiv Ranjan Singh**, Hon'ble Union Minister of Fisheries, Animal Husbandry & Dairying and Senior Vice-President, ICAR Society; **Shri Bhagirath Choudhary**, Hon'ble Minister of State for Agriculture & Farmers Welfare and Vice-President, ICAR Society and **Shri Ramnath Thakur**, Hon'ble Minister of State for Agriculture & Farmers Welfare. We are indebted to them for their visionary leadership, guidance and continued support to advance ICAR's mission.

On behalf of ICAR, I place on record my deep appreciation for all the Senior Officers and staff of the Department of Agricultural Research and Education (DARE) and ICAR, and allied Ministries/Departments, as well as the members of the ICAR Society and Governing Body, Vice-Chancellors of Agricultural Universities, bilateral and multilateral partner organisations, private sector and the dedicated farmers of the country. Their collective dedication and commitment drive excellence, foster innovation, and facilitate the effective implementation of ICAR's programmes and initiatives. I extend my special and heartfelt appreciation to all our stakeholders, particularly the farmers, whose experience, participation and aspirations remain at the centre of our efforts.

Dr M.L. Jat

Secretary, DARE & Director General, ICAR

**“ Innovation is meaningful only when
it makes the farmer prosperous. ”**

THE YEAR IN REVIEW

As India advances towards the vision of Viksit Bharat @2047, agriculture remains central to the nation's economic growth, environmental sustainability, and rural prosperity. The year 2025–26 was one in which that vision moved from aspiration to evidence.

Foodgrain production rose to 252 million tonnes, a nearly 49 per cent increase. This is not merely a statistical milestone; it is the collective outcome of scientific research, technological innovation, and the growing adoption by farmers of solutions emerging from agricultural science.

Behind this headline number lies a year of scientific firsts: the release of the world's first genome-edited rice varieties for cultivation; the unveiling of the Gau and Mahish genomic chips by the Hon'ble Prime Minister, opening a new chapter in indigenous livestock improvement; and the direct outreach to more than 13.5 million farmers, field by field, through the Viksit Krishi Sankalp Abhiyaan - India's largest-ever scientist-to-farmer outreach initiative.

This publication is a record of that transformative year. It is organised around the way ICAR itself now works - as "One Organization, One Purpose, One Narrative" - tracing the journey from the laboratory to the last field. It brings together advances in crop and livestock science, soil and climate resilience, mechanisation and post-harvest value addition, education and digital outreach, and, finally, the global partnerships that are carrying Indian agricultural science beyond our borders.

Every number in the pages that follow represents more than an achievement on paper. It represents a farmer whose yield increased, whose risk was reduced, or whose income became a little more secure.

Together, these numbers tell the story of Indian agriculture moving forward: with science as its foundation, farmers at its centre, and Viksit Bharat @2047 as its guiding vision.



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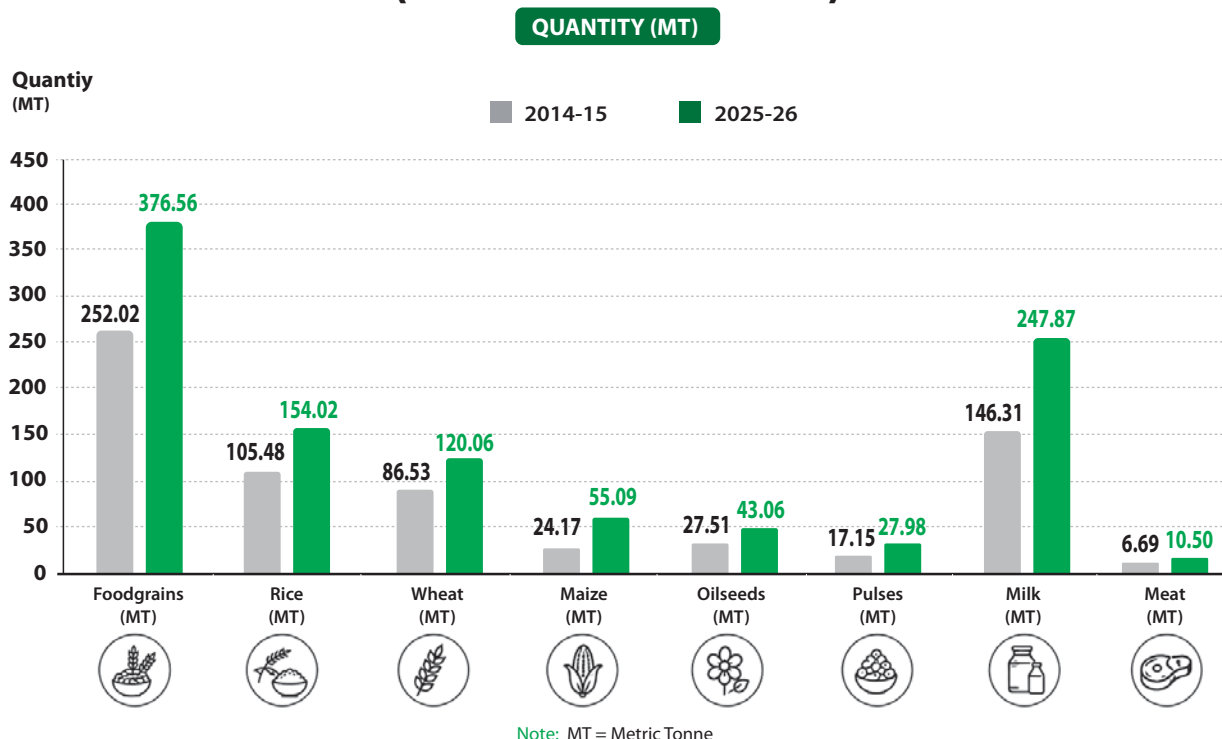
01

FEEDING A NATION, NOURISHING A FUTURE

India's Journey Towards Food and Nutritional Security

India has made remarkable progress in strengthening food and nutritional security, ensuring greater availability of safe and nutritious food for over 1.4 billion people. **Through biofortified crop varieties, improved livestock and fisheries technologies, climate-resilient innovations and their last mile delivery, ICAR has played a pivotal role in enhancing agricultural productivity, improving nutrition, and building a resilient agri-food system for the nation.**

India's Agri-Food Production Growth (2014-15 versus 2025-26)



Foodgrain production increased from 252 MT to a record 376 MT, strengthening food and nutritional security for over 1.4 billion people in the last 11 years.



The Indian Council of Agricultural Research (ICAR) is India's premier institution for agricultural research, education, and extension, transforming scientific innovation into solutions that enhance productivity, strengthen food security, and improve farmer livelihoods. Through its nationwide **Network of Research Institutes, Agricultural universities, and Krishi Vigyan Kendras (KVKs)**, ICAR bridges the gap between laboratories and farmers' fields.

In 2025–26, guided by the vision of

“One Organization – One Purpose – One Narrative,”

ICAR accelerated climate-smart technologies, digital transformation, and research-driven innovations aligned with national priorities. As one of the world's largest agricultural innovation systems, it continues to drive sustainable growth across crops, livestock, fisheries, natural resources, mechanization, and biotechnology—empowering farmers and shaping the future of Indian agriculture.

National Agricultural Research, Education and Extension Network led by ICAR



114

Research
Institutes and
Bureaux



80

Agricultural
Universities



731

Krishi Vigyan
Kendras

03

A YEAR OF IMPACT

Measuring Progress. Inspiring Transformation.

The year 2025–26 reflects ICAR's continued commitment to science-led agricultural transformation. Through breakthrough research, technology dissemination, and farmer-centric extension, the Council strengthened productivity, sustainability, and resilience across the agricultural sector. ICAR continued to bridge scientific research with field-level impact by promoting innovation through crop improvement, climate resilience, digital agriculture, and technology transfer. Through strong partnerships and farmer-centric initiatives, the Council accelerates the adoption of sustainable solutions, reinforcing its commitment to food security, rural prosperity leading to a resilient agricultural future.

**367**

Agri - Horticultural
Varieties Developed

**165**

Varieties
Registered

**152**

Technologies
Generated

**475**

Technologies
Commercialized

**55**

Patents Granted

**792**

Licensing
Agreements Signed

**0.18 million**

Frontline
Demonstrations

**22 million**

Farmers
Reached

Every number reflects innovation, collaboration, and impact — showcasing ICAR's commitment to empowering farmers and shaping India's agricultural future.

04

CROP IMPROVEMENT

Reimagining Food Security Through Science Narrative

Genome editing, breeding for climate-resilience, and improved seed systems are redefining agricultural landscape. The release of world-first genome-edited rice varieties marks a significant milestone in India's scientific leadership.

**339**

Crop varieties released

**28**

Horticultural varieties notified across 18 crops

**33**

Biofortified Varieties Developed

**2**

Genome-Edited Rice Varieties Developed

**10,937**

tonnes breeder seed produced

**43,311**

tonnes quality seed produced

Every breakthrough in crop science brings India closer to a future where productivity, sustainability, and resilience grow together.

05

SUSTAINABLE PLANT HEALTH MANAGEMENT

Managing Resources, Maximizing Productivity

Precision technologies, nano bio-inputs, AI-enabled pest surveillance, and plant health management are enabling farmers reduce inputs while improving productivity and profitability.



Nano Biotech Capsules
For enhanced growth and productivity in crops



AI-enabled Pheromone Traps
Reduced pesticide use and increased yield



Microbial Consortia
For improved soil health, higher yields, and biotic stress tolerance



Rapid Detection Assays
For monitoring and management of insect-pests

Science-led crop health management is facilitating farmers use fewer resources, reduce risks, and achieve higher productivity while protecting the environment.

ICAR's animal breeding programmes, genomic technologies, vaccines, and reproductive innovations are improving indigenous livestock productivity while conserving valuable genetic resources

**3 vaccines developed**

Negative Marker Trivalent FMD, IVRI-M Recombinant PPR Marker & Modified Live Attenuated Canine Parvovirus vaccines

**12 region-specific**

feeding modules & feed additives developed



17 indigenous & synthetic breeds of livestock and poultry registered

**Gau & Mahish Chips**

(Advanced Unified Genomic Chips) developed and launched by the Hon'ble Prime Minister



0.6 million cattle & buffalo semen doses produced



1.45 million chicks & ducklings distributed



3 new rural poultry varieties released



ICAR is advancing resilient livestock systems through science, innovation, and sustainable management.

LIVESTOCK MANAGEMENT

Harnessing the Potential of Indigenous Genetic Resources



ISO 17025 recognition
awarded to ICAR-NMRI
Meat Species Identification
Referral Laboratory



30 million SMS alerts
on 15 major livestock
diseases sent to farmers
up to 2 months in advance



626 research papers
published in high-impact
national & international
journals



4 Global Referral Laboratories
recognized for 5 infectious
diseases (FMD, Equine
Piroplasmosis, Avian
Influenza, PPR & Leptospirosis)



INR 50 million
revenue earned
through
license fees



1,922 training
programmes conducted,
benefiting 2,12,277
rears and stakeholders

*Building stronger livestock systems for tomorrow relies on
science-driven solutions*

FISHERIES & BLUE ECONOMY

Building Future-Ready Aquatic Food Systems

Innovations in fisheries resource management, aquaculture, fish health, breeding technologies, super-intensive precision shrimp farming, and fish germplasm conservation are unlocking new opportunities to strengthen food and nutritional security, and create sustainable livelihoods.



ArguVax-1

fish vaccine developed to combat *Argulus* infestation and reduce economic losses



Super-Intensive Precision Shrimp Farming

achieved production 40-50t/ha/4 months
survival rate: 85-95%



Integrated Seaweed - Shrimp Farming

achieved 18% higher shrimp productivity
seaweed production: 12t/ha



Marine Ornamental Fish- Royal Dottyback

achieved breeding and seed production
market value: INR 2500-4000/piece



Fish Germplasm Conservation

54 lakh fingerlings released in the Ganga River System



ICAR is advancing sustainable fisheries through science-driven innovations that enhance productivity, strengthen aquatic ecosystems, and improve livelihoods.

CONSERVING GENETIC RESOURCES

Protecting Biodiversity Today for Secured Future

ICAR continued to strengthen the conservation and utilization of plant, animal, and fish genetic resources, safeguarding biodiversity and supporting future agricultural innovation.

Plant Genetic Resources



0.47 million

Seed accessions conserved



13,102

Accessions cryopreserved



83,000+

Germplasm samples supplied for use

Animal Genetic Resources



10

New indigenous breeds registered and 17 breeds gazetted/notified



21,500

Semen doses conserved



1,920

Somatic cell vials preserved

Fish Genetic Resources



4

New marine fish species and 11 cave fish identified

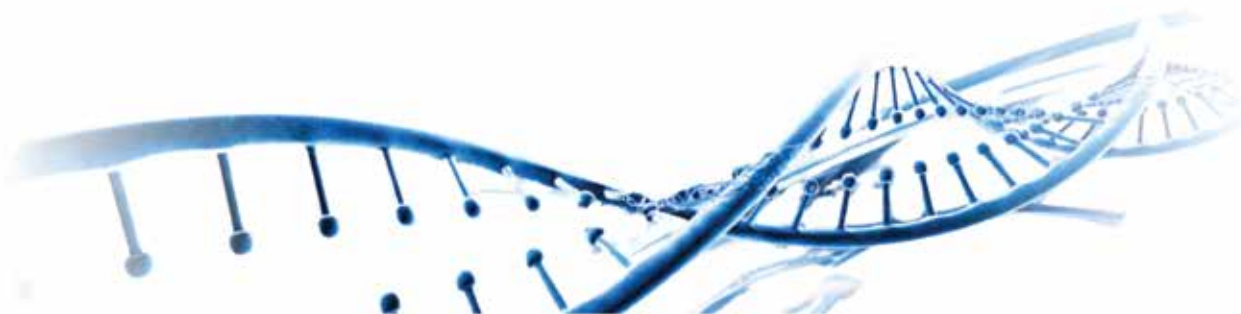


Designer Clownfish Hybrids
developed



7

New freshwater fish species recorded



By conserving and harnessing genetic diversity, ICAR is safeguarding the foundation of resilient crops, sustainable agriculture, and future food security.

SOIL & WATER PRODUCTIVITY

Healthy Resources, Productive Landscapes

Digital soil intelligence, groundwater mapping, and precision nutrient management are enabling efficient resource use while supporting climate adaptation.



National Soil Spectral Library Geoportal

80%+ Prediction accuracy based on 40,000 spectral signatures



e-Fertilizer Advisory & Resource Management System (e-FARMS)

Field-validated in wheat (97.3% accuracy)



Digital Soil Depth Map of India

90 m resolution



Groundwater Quality Map of India

68.2% groundwater of good quality



Halo-CaRe (Microbial Crop Residue Formulation)

72.6% residue decomposition in 21-24 Days



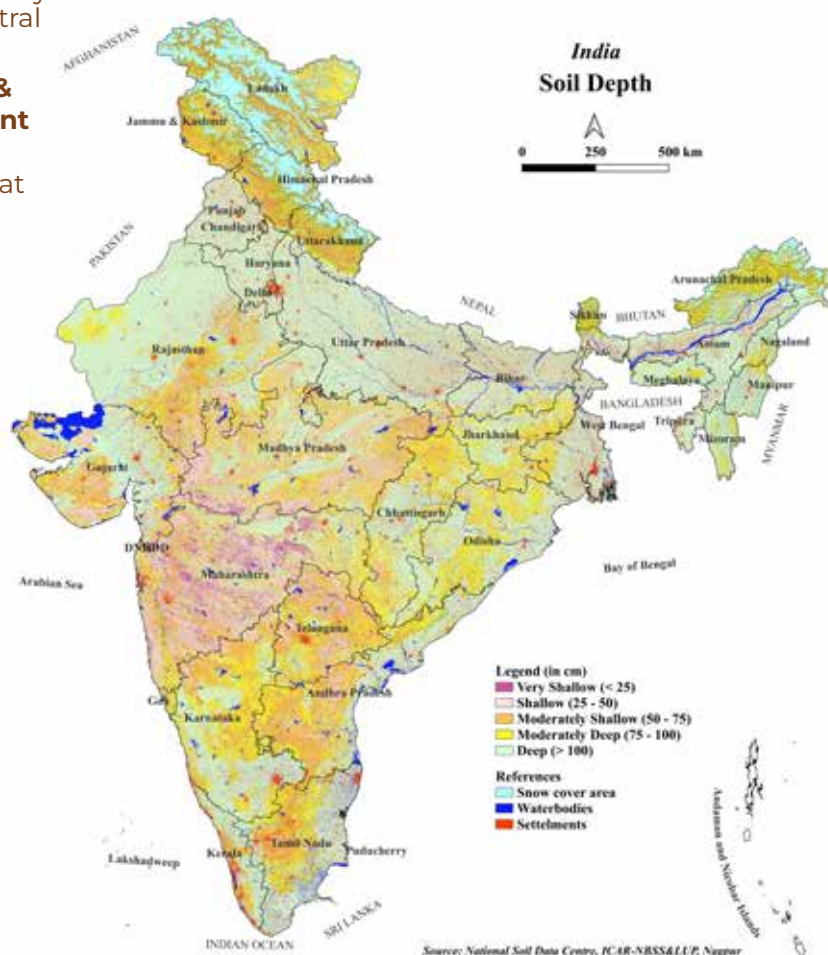
Halo-Mrida Sudharak

Calcareous sodic soil reclamation



Soil Organic Carbon Map of India

SOC<0.5% in 33% area



ICAR is empowering farmers with science-based solutions that improve soil health, optimize water use, and build resilient agricultural landscapes.

CLIMATE-RESILIENT AGRICULTURE

Adapting Agriculture for a Changing Climate

Climate-smart technologies, resilient crop varieties, and integrated farming systems are reducing risks while enhancing sustainability and farmer incomes.



Harit Dhara Feed Formulation
17-20% methane reduction in ruminants



Methanotroph Formulation in Rice 8–12% methane reduction



Climate-Smart IFS Model
B:C ratio 3.42, (INR 0.55 million returns)



448 Climate-Resilient Villages (living Labs) Developed



651 District Agriculture Contingency Plans Developed



Natural farming protocols for 7 states

Through adaptive farming practices, and data-driven solutions, ICAR is strengthening agriculture's capacity to respond to climate uncertainty.

11

MECHANIZATION & ENERGY MANAGEMENT

Modernizing Farm Operations for Enhanced Efficiency

Integrating automation, digital tools, and advanced machinery helps optimize resource use, reduce manual labour, and modernize farm management.



Fertilizer saving
8-38%



Nitrogen efficiency improved
5-7%



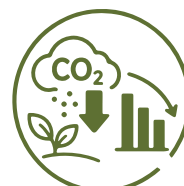
Yield gain
7.6%



Fuel consumption reduced
31-37%



Renewable energy savings
25-50%



Emission reduced
40%

By integrating smart mechanization, automation, and energy-efficient technologies, ICAR is transforming agricultural operations to enhance productivity, reduce drudgery, and promote employment and income generation of rural youth.

12

POST-HARVEST & VALUE ADDITION

Creating More Value Beyond the Farm Gate

Advanced processing systems, non-destructive quality testing, and bio-based packaging solutions are transforming raw agricultural produce into high-value, safe consumer products.



85% accuracy

x-ray based non-destructive detection of infested mangoes



100%

insect-free grain storage using IR and UV-C treatment



Functional foods

with enhanced nutrition



Nanocellulose biocomposite films

for eco-friendly packaging



Biodegradable soybean cutlery

Modern post-harvest interventions minimize crop losses and add value, driving higher profitability across India's agri-food systems.

13

AGRICULTURAL EDUCATION

Preparing Human Capital for Viksit Bharat

Through curriculum reforms, scholarships, experiential learning, and international partnerships, ICAR continues to strengthen India's agricultural human capital.


80

ICAR-Accreditation
institute
supported



**Gender Equality
(UG)** No. of Girls
increased by **53%**
since **2017**



International Trainings
Received **36** Countries,
2,701 Students,
1,073 Faculty


414

Industry
sponsored
projects


82,029

Students
Received National
Fellowship


192

International Fellowship
(Netaji Subhas
BIMSTEC + ASEAN)



**IARI: 47th Worldwide &
7th in Asia in Agricultural
Sciences (EduRank 2025)
| 151-200 Global Band in
Agriculture & Forestry
(QS 2026)**



**NIRF 2025 |
Agriculture & Allied
Sectors: ICAR-IARI
Rank 1 | ICAR-NDRI
Rank 2**



QS Ranking (2026)
IVRI: 51-100 in
Veterinary Science |
NAAC Accredited A++

By nurturing the next generation of agricultural professionals through quality education, experiential learning, and global collaboration, ICAR is building the human capital needed for Viksit Bharat.

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DIGITAL AGRICULTURE

Strengthening Informed Data-Driven Decisions

Digital platforms, AI-enabled advisory systems, and integrated information networks are delivering timely and contextualised knowledge to millions of farmers and empowering employees through digital governance.



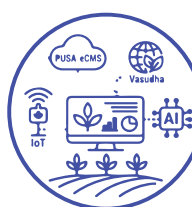
27.5 million

Stake holders registered
on Kisan Sarathi Portal



40 million

advisories
delivered to
farmers



**Precision
Agriculture
Initiatives:**

PUSA-eCMS, Vasudha, IoT
Systems & AI-Enabled Pest
Surveillance



By integrating gender-responsive approaches, community participation, and inclusive development strategies, ICAR is ensuring that agricultural innovation creates equitable opportunities and resilient livelihoods for all.

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EXTENSION & CAPACITY BUILDING

Labs to Farm

The frontline extension system, through 731 KVKs under 11 ICAR-ATARIs, and ICAR research institution connects research with farmers by delivering technology assessment, demonstrations, and training, accelerating “Last Mile Connect” and capacity building for enhanced productivity, resilience, and livelihoods.



731 KVKs
11 ATARIs



8,767
On-Farm Trials



73,063
training
programmes



2.4 million
participants

0.18 million
Frontline
demonstrations



0.31 million
Rural youth
trained



22 million reach
44 million advisories

By investing in frontier research and emerging technologies, ICAR is generating scientific breakthroughs that accelerate innovation and address the future challenges of agriculture.

LAST MILE CONNECT

Assessing Demand for Research & Innovations

Viksit Krishi Sankalp Abhiyaan (VKSA), conducted from 29 May–12 June 2025, adopted a “One Nation–One Agriculture–One Team” approach to strengthen the Lab-to-Land Mission. The campaign enhanced farmers’ awareness of improved technologies and government schemes while capturing grassroots feedback to drive demand-led agricultural research.



2170
Teams



60,917
Programmes



1,40,107
Villages



728
Districts



39,72,412
Farm Women



13.5 million
Total
Participants



Farmer-inspired
innovations identified:
300+



Researchable
questions/issues
identified:
500+

By leveraging digital technologies and integrated information systems, ICAR is connecting research with real-time decision-making and imparting knowledge to millions of farmers.

GLOBAL PARTNERSHIPS

Collaborating Beyond Borders

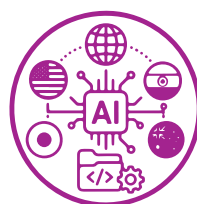
Strategic partnerships with international institutions strengthen scientific exchange, technology development, and global agricultural cooperation.



5
Operational
work-plans
launched



6
International
MoUs signed



7
QUAD Project
on Precision
Agriculture
through AI and
Robotics



108
International
Delegation
visits



Collaborations
spanning USA,
Brazil, Australia,
Russia, Morocco
and others

By bridging the gap between research and practice, ICAR is accelerating the adoption of technologies that empower farmers and strengthen local capacities, through global collaboration and networks.

18

KNOWLEDGE & COMMUNICATION

Sharing Science, Inspiring Change

Publications, digital media, exhibitions, and social platforms are expanding the reach of agricultural knowledge while strengthening stakeholder engagement.



45,000+

Journal Articles Hosted



85.8K

Youtube Subscribers



262.9k

X Followers



475

Scientific Publications



36.7k

Instagram Followers



4.15 Million

Website Page Views



Users From

200+ Countries



255k Facebook followers



Through digital platforms, scientific publications, and strategic communication, ICAR is expanding the reach, visibility and impact of agricultural research.

LOOKING AHEAD

As ICAR carries this momentum into its 98th year, the institution stands at the threshold of a new agricultural revolution – one measured not merely in higher yields, but in knowledge, sustainability, and resilience delivered to every field and every farmer.



The future of Indian agriculture lies in producing more with fewer resources-raising mechanization, water-use efficiency, and nutrient-use efficiency while reducing post-harvest losses and the environmental footprint of every hectare under cultivation. It lies specific, science-based advice, powered by artificial intelligence, remote sensing, and precision agricultural.



SCIENCE-DRIVEN. FUTURE-READY

ICAR envisions a future where agriculture is powered by science, guided by sustainability, and driven by innovation.



INNOVATION FOR RESILIENT SYSTEMS

Advances in genomics, artificial intelligence, digital agriculture, climate-smart technologies, and circular bioeconomy approaches will help create farming systems that are productive, resilient, and environmentally responsible.



PEOPLE AT THE HEART

At the heart of this transformation are people-farmers, youth, women, researchers, and entrepreneurs. By empowering them with knowledge, technology, and opportunities, ICAR is ensuring that scientific progress translates into stronger livelihoods and sustainable growth.



SCIENCE. SOCIETY. SUSTAINABLE IMPACT

As India moves towards the vision of Viksit Bharat, ICAR will continue to bridge science and society, transforming innovation into impact and ensuring that the benefits of research reach every farmer, every field, and every community.

The pages of this book are a record of one year. They are also a promise for the next: that ICAR will continue to convert science into societal impact, ensuring that agriculture remains the strongest pillar of India's journey towards becoming a developed nation by 2047.



Achievements That Shaped ICAR during 2025-26

*Driving Growth, Resilience and Prosperity
through Agricultural Science*



Genome-Edited Rice Breakthroughs

ICAR developed the world's first genome-edited rice varieties, DRR Dhan 100 and Pusa DST Rice-I, offering higher yields, drought resilience, and climate resilience.



367 New Crop & Horticultural Varieties

Improved varieties were added to boost productivity, nutrition, and climate resilience across diverse farming conditions.



Lab-to-Land Technology Transfer

792 technology licensing agreements enabled faster adoption of ICAR initiatives, key farmers and industry.



Nationwide Farmer Outreach

The Viksit Krishi Sankalp Abhiyan reached over 13.5 million participants across 1,40,107 villages, strengthening farmer-science linkages.



Livestock Conservation

ICAR notified 16 indigenous breeds and developed genomic tools to protect India's animal genetic heritage.



Biotechnology Milestones

Key achievements include a cloned Gir cattle and the development of Gau Chip and Mahish Chip for genetic improvement.



Blue Economy Growth

Advances in breeding 38 fish and 1000 livestock species, also with innovations in health and nutrition, strengthened sustainable aquaculture.



Climate-Resilient Farming

ICAR promoted climate-smart villages, soil intelligence tools, and low-carbon processors to support adaptation.



Modern Agricultural Education

Reforms aligned with NEP-2020 enhanced essential learning and future-ready agricultural education.



Global Leadership

International partnerships and collaborations strengthened India's role in global agricultural innovation.

