ICAR

TRANSFORMING INDIAN AGRICULTURE

Indian Council of Agricultural Research, New Delhi
www.icar.org.in

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भाकृअनुप
ICAR

The Logo depicts wheat in growing stage, the encircling component symbolizes strength of the holistic research

VISION

Ensure food and nutritional security for all through competitive and sustainable agriculture

MISSION

Harness the power of science and education with a human touch for higher and sustainable agri-food production

MANDATE

- Plan, undertake, coordinate and promote research and technology development for sustainable agriculture
- Aid, impact and coordinate agricultural education to enable quality human resource development
- Frontline extension for technology application, adoption, knowledge management and capacity development for agri-based rural development
- Policy, cooperation and consultancy in agricultural research, education and extension

The Indian Council of Agricultural Research (ICAR), erstwhile the Imperial Council of Agricultural Research, is an autonomous organization under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India.

ICAR was established on 16 July 1929 as a Registered Society under the Societies Registration Act, 1860 on the recommendations of the Royal Commission on Agriculture.

The Union Minister of Agriculture and Farmers Welfare is the President of the ICAR, and the Union Minister of State of Fisheries, Animal Husbandry and Dairying is the Senior Vice President and the Minister of State of Agriculture and Farmers Welfare dealing with the ICAR as the Vice President. The Director General, Principal Executive Officer of the ICAR, is also Secretary to the Government of India in the DARE.

With 113 ICAR institutions (72 Research Institutes, 6 National Bureaux, 23 Project Directorates and Agricultural Technology Application Research Institutes, 12 National Research Centres), 82 All India Coordinated Research Projects & Network Research Projects and 74 Agricultural Universities (63 State Agricultural Universities, 4 Deemed Universities, 3 Central Agricultural Universities, and 4 Central Universities with agricultural faculty) spread across the country, this is one of the largest national agricultural research systems in the world.

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CONTENTS

The Beginning

The Birth

Deepening crises in agriculture and food scenario prompted the British Empire to constitute the Royal Commission on Agriculture in India in 1926.

On its recommendations, the Indian Council of Agricultural Research was born as Imperial Council of Agricultural Research.

Date of birth: 16 July 1929

THE COMMISSION'S RECOMMENDATIONS

1. Organization. The commission recommend that the Governor of India should establish

   an Imperial Council of Agricultural Research. This is to consist of 39 members, and to include:

   a) whole-time members including the Chairman, appointed by the Government of India. An account of the function, etc., of these members is given in the following sub-paragraph.

   b) 36 other members, viz. the Director of the Research Institute at Pusa; the Director of the Imperial Institute of Veterinary Research, Mukteshwar.., and five other members, nominated by the Government of India, on the recommendation of the Council by reason of their scientific knowledge or other special qualifications.

2. Finance. The Commission consider that the Council should be placed in a secure financial position, and propose that an Agricultural Research Fund should be constituted for the purpose by a grant of Rs 50 lakhs from Central Revenues to which additions should be made from time to time as financial conditions permit.

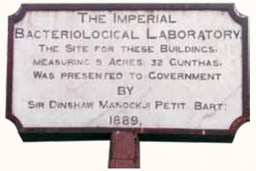
- Sir G.S. Bajpai
Secretary
Department of Education, Health and Lands
21-06-1928

The Footprint

Oldest Heritage of the
National Agricultural Research System

The then Imperial Bacteriological Laboratory, Mukteshwar, Nainital.

The Legacy



The Imperial Bacteriological Laboratory (IBL), Pune: The first institutional initiative in 1889 for scientific research on animal disease, especially rinderpest, the dreaded cattle plague. It was shifted to the picturesque hills of Mukteshwar in 1893 for quarantine reasons; now a constituent of Indian Veterinary Research Institute (IVRI), Bareilly.

Professors Robert Koch, R.F.J. Pfeiffer and G.T.A. Gaffky, the legendary bacteriologists from Germany, visited the IBL, Mukteshwar in 1897 to work on the methods for prevention and control of rinderpest. Sitting: *(L to R)* A. Lingard, R. Koch, R. Peiffer, G. Gaffky. Standing: *(Second from the left)* F.H.S. Baldrey, *(Third from the left)* H.T. Peas.

The Foundation

The Imperial Agricultural Research Institute, Darbhanga (now Samastipur), Bihar

First comprehensive Agricultural Research Institute came up in 1905 in Darbhanga (Bihar) at the behest of Government of Bengal. A disastrous earthquake in 1934 almost damaged the palatial building, but the spirit survived and it took new shape as sprawling the then Imperial Agricultural Research Institute at New Delhi in 1936.

New Era

Indian Agricultural Research Institute, New Delhi

Architects of Green Revolution

Nobel Laureate Dr Norman E. Borlaug, Dr M.S. Swaminathan and other Indian scientists, motivated and guided Indian farmers to adopt dwarf varieties of wheat that ushered Green Revolution in India during 1960s.

ICAR laid the foundation of the grand edifice of green revolution by developing and providing science and technology inputs that included improved varieties and package of practices, supported by the strong will power of the nation.

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ICAR CATALYZED REVOLUTIONS IN AGRICULTURE

GREEN REVOLUTION

- Freedom from food deficiency
- Heralded a new era of self-sufficiency in food- grains; now a food surplus nation helping countries in food-distress

Record Food-grain Production:
305.44 million tonnes (2020-21)

WHITE REVOLUTION

- Global leader in milk production
- Record milk production:
199.0 million tonnes (2020-21)
- Highest ever per capita milk availability: 407 g/day

PULSES REVOLUTION

- Peak production of pulses to the level of 25.58 million tonnes in 2020-21
- Saving of foreign exchange from imports
- Per capita availability: 17.5 kg/year (2020)

GOLDEN REVOLUTION

- Horticulture production:
331.05 million tonnes
(2020-21)

BLUE REVOLUTION

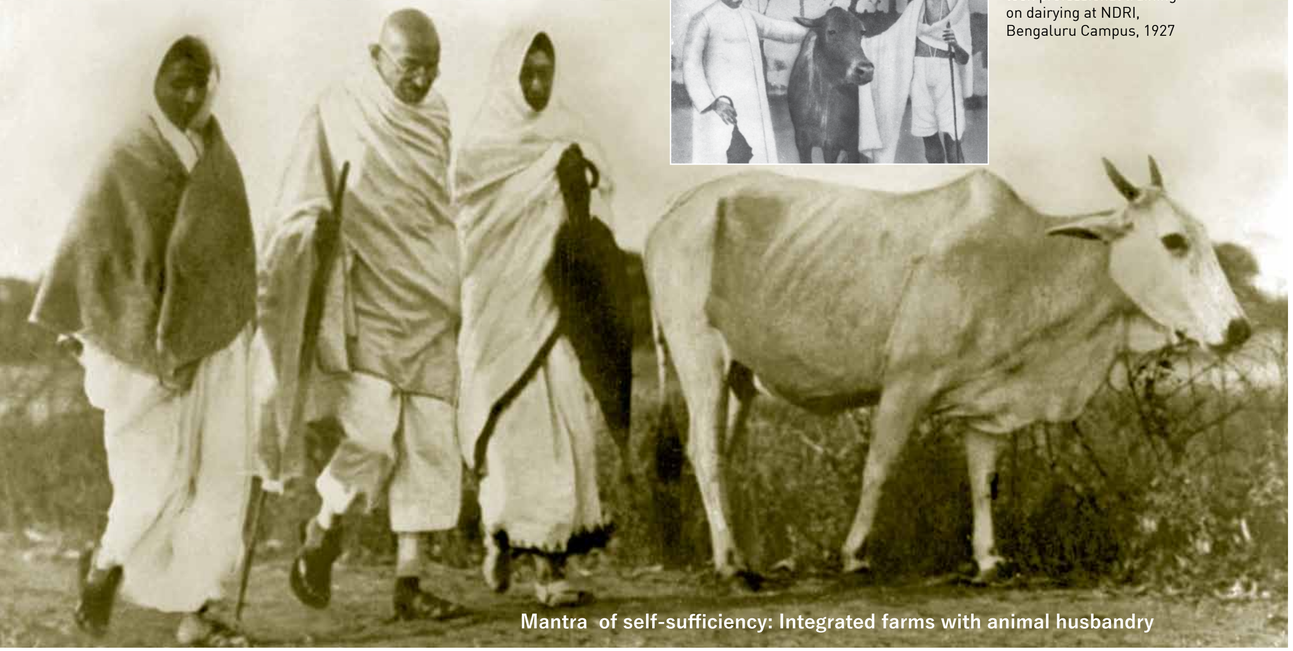
- All time high fisheries production:
14.16 million tonnes (2019-20)
- Sectoral growth more than 6%
- India exported fish and fisheries products worth US$ 6.68 billion in 2020-21

SUGAR REVOLUTION

- Sugar production:
31.00 million tonnes
(2020-21)

The Grassroots

Gandhiji along with Pt. Madan Mohan Malviya took professional training on dairying at NDRI, Bengaluru Campus, 1927



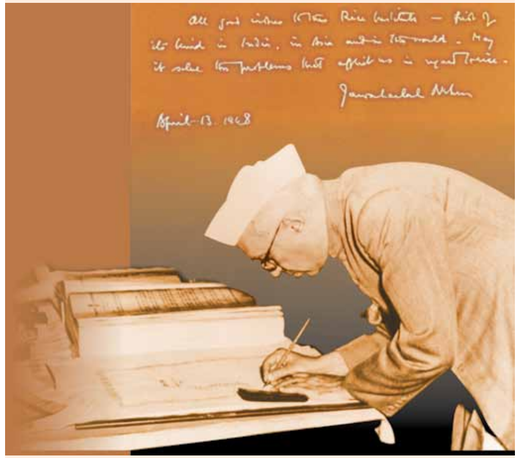
Mantra of self-sufficiency: Integrated farms with animal husbandry

THE MESSAGE

"We are not a small place, dependent for its food supply upon outside help. We are a subcontinent, a nation of 400 million. We are a country of mighty rivers and a rich variety of agricultural land, with inexhaustible cattle-wealth..... Our country should not today only be providing herself with sufficient food but also be playing a useful role in supplying the outside world with much needed foodstuff..."

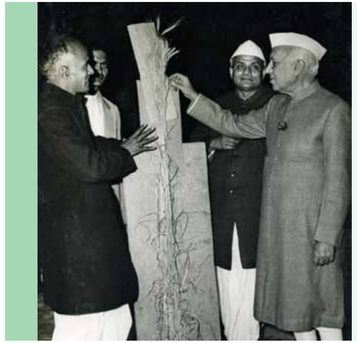
Mahatma Gandhi

The Renaissance



"*all good wishes to the Rice Institute – first of its kind in India, in Asia and in the world. May it solve the problems that afflict us in regard to rice.*"

Jawaharlal Nehru
April 13, 1948
Central Rice Research Institute, Cuttack



Dawn of Modernization

"*Everything else can wait but not Agriculture*"

said the visionary Prime Minister soon after independence

Dignity to Farmers

Shastriji took personal interest in the ICAR reorganisation process and laid out exceptional policy for agriculture.

JAI JAWAN JAI KISAN
Prime Minister Shri Lal Bahadur Shastri coined this famous slogan

Seeds of self-reliance

"Unless we increase agricultural production and thus achieve self-sufficiency in the next few years, we will have forfeited our right to call ourselves a free country, let alone a great country."

Indira Gandhi, 1966

Smt Indira Gandhi, Prime Minister of India, releasing stamp on Wheat Revolution, 1968. Shri Jagjivan Ram, Union Minister of Agriculture (right)

Jai Jawan, Jai Kisan, Jai Vigyan

Shri Atal Bihari Vajpayee, Prime Minister of India, infused the spirit of science in various agricultural pursuits as Minister of Agriculture and President of ICAR. Recognizing the contribution of science, he added 'Jai Vigyan' to the famous slogan of Shastriji 'Jai Jawan, Jai Kisan'.
He would often say – IT (Information Technology) is for India Today, and BT (Bio-Technology) is for Bharat Tomorrow.

The Commitment

Prime Minister laid the foundation stone of Indian Agricultural Research Institute (IARI), Jharkhand (28 June 2015), and IARI, Assam (26 May 2017)

I believe it is now time to take one more step forward. I wish to add 'Jai Anusandhan'. Therefore, the slogan now becomes

'Jai Jawan, Jai Kisan, Jai Vigyan, Jai Anusandhan'.

"कृषि विज्ञान केंद्र, आधुनिक कृषि के नए लाइटहाउस... किसान तक नई तकनीक, नई जानकारी को पहुंचाएं"

– नरेन्द्र मोदी

Gains in Grains

Rise of rice

Pusa Basmati 1121: World's longest basmati rice with extra long slender milled grains (9.00 mm) and longest kernel length after cooking (22 mm). A multibillion-dollar earning Basmati variety. With its development, the export earnings from Basmati variety increased nearly six-fold.

New Age Rice to Beat Challenges

India achieved more than five-fold increase in rice production over few decades owing to ICAR's rice varieties and technologies.

India, the largest rice exporter in the world, shares about 90% of Basmati rice trade in overseas market.

The country exported 17.73 million tonnes of rice earning ₹ 65,326 crore in 2020-21.

Jaya – The Golden variety: Jaya is the first rice variety released in India in 1968 through systematic breeding and contributed to green revolution.

Swarna: New age rice variety to beat food challenges.

Wheat Feast

Green Gem: Wheat varieties developed over the years by extensive breeding for higher yield, superior quality traits and resistance to climate adversities led to self-sufficiency.

The year 2020, saw record production as well as procurement. It provided the required buffer stock that have the capacity to feed millions of the Indians free of cost during the tough times.

A game changer variety HD 2967: Combines high yield with resistance against most prevalent leaf rust diseases. It has spread very fast across states occupying more than one-fourth of wheat area.

DBW 187: Bread wheat variety for highly productive, irrigated timely/early sown conditions of North Western Plains Zone (NWPZ) of India and irrigated timely sown conditions of North Eastern Plains Zone (NEPZ) of India.

HD 3086: Bread wheat variety for irrigated, timely sown condition of North Western Plains Zone (NWPZ) of India.

Grains of Glory

- India is the second largest wheat producer in the world.
- A quantum jump in wheat production during late 1960s laid a strong foundation for Green Revolution.
- Wheat served a pertinent role in progress of the nation towards economic growth as well as food and nutrition security.

Celebration of Wheat Revolution

Amazing Maize

Quality protein maize offers a bounty of essential amino acids making it perfect for alleviating protein-energy malnutrition among disadvantaged section of society.

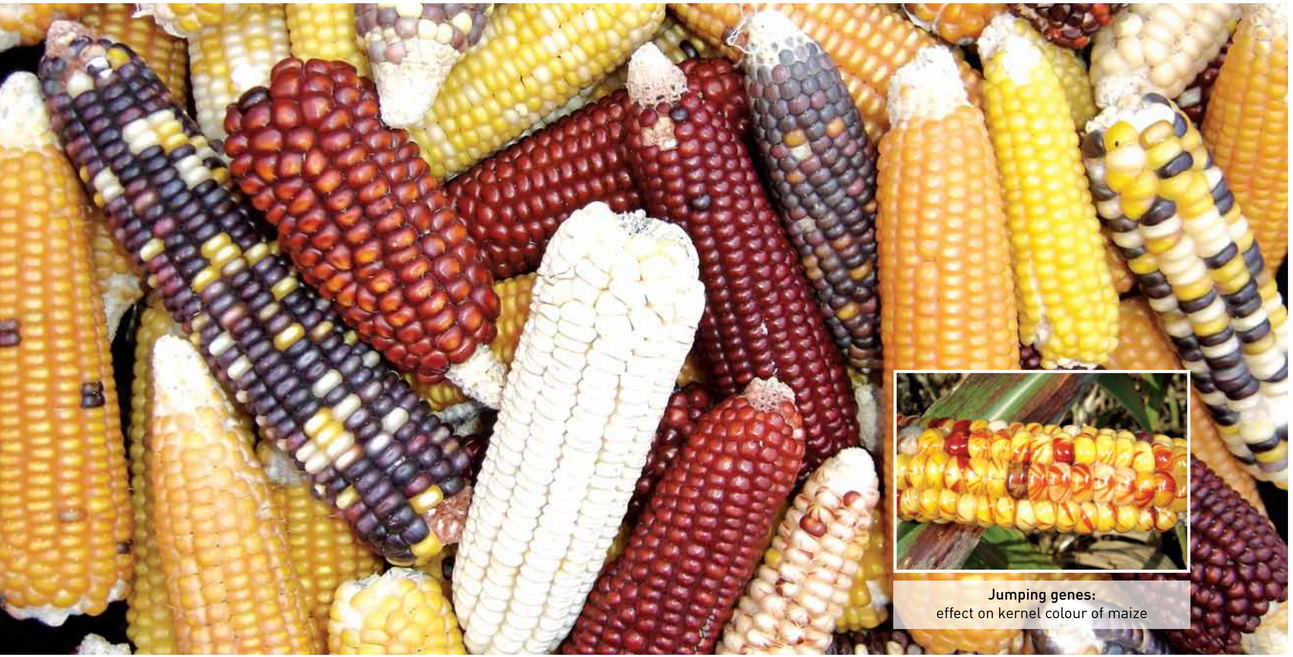
Sorghum Hybrid CSH-25: Excellent performer for grain and fodder yield combination

Small is Nutriful

Millets, now recognized as nutri-cereals, are rich in fibre, iron, zinc, other nutrients, and gluten free. Being climate resilient, they assume greater importance as main future crops for human nutrition.

Pearl millet for processing and prosperity

The Diversity



Jumping genes:
effect on kernel colour of maize

Maize diversity from Nagaland

Local Presence Global Impact

Red Jungle Fowl

The beautiful poultry bird of Indian origin was first domesticated during Indus valley civilization around 2500-2100 BC. While moving to other regions of the world, it has contributed to the evolution of various breeds of domestic chicken across the globe.

"India has four of the 34 biodiversity hot-spots in the world"

Treasure for Future

Bar coded Banana Field Genebank

In vitro genebank

India houses the second largest gene bank in the world; the National Gene Bank at New Delhi holds more than 450 thousand indigenous and exotic accessions of crop species from across India and the world. It also has a large cryopreservation bank.

Five National Bureaux for Genetic Resources act as custodian of huge *in-situ* and *ex-situ* collection of genetic resources of crops, animals, fishes, insects and microbes.

Efforts of the council saw to it that India becomes one of the first countries in the world to enact an intellectual property law on plant varieties that brought the concerns of farmers within its ambit. Farmers are encouraged to be involved in conservation, improvement and utilization of genetic resources of economic plants and their wild relatives.

Seed Vault

ICAR deposited seeds in the Svalbard Global Seed Vault as safety duplicates. It is a global initiative for securing crop genetic diversity located in the Permafrost region in far north in the Arctic Island of Svalbard.

Unravelling the Secrets

India as a partner of the global initiative contributed to deciphering the rice genome. Complete genetic code is helping rice breeders to quickly develop varieties with specific traits such as stress resistance and high yield.

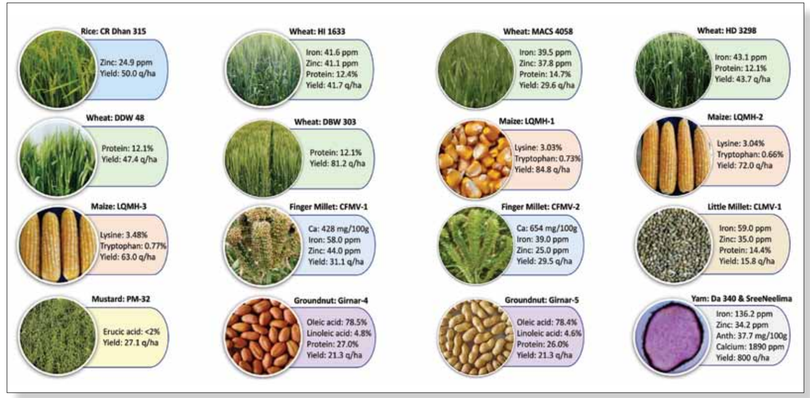
India contributed to global tomato genome sequencing

The Genomics

- ICAR partnered in the global genome sequencing of rice, wheat, tomato and potato.
- Independently sequenced the genome of pigeonpea, jute, mango and fishes.

Nutrifoods

Solapur Lal: First Biofortified pomegranate variety. Fruits are rich in iron, zinc, vitamin-C and anthocyanin.



Biofortified crop varieties dedicated to the Nation by the Prime Minister of India

Soybean: Country's first Kunitz Trypsin Inhibitor (KTI) variety developed

Wheat WB 2: Rich in iron (40.0 ppm) and zinc (42.0 ppm)

Pusa Double Zero Mustard 31: Country's first canola quality Indian mustard variety; low in erucic acid and glucosinolates.

Alleviating Malnutrition

Crop biofortification is the most sustainable and cost-effective approach to tackle malnutrition among masses. Crop varieties have been made nutritionally rich and superior through breeding methods.

Newly released biofortified crop varieties are rich in protein, zinc, iron, vitamin A, vitamin C, lysine and tryptophan.

Fabulous Fields

Pulses Panorama

Mission mode approach revolutionized pulse production, broke yield barriers and helped India reduce import-dependence.

Mungbean varieties provide resilience and improve soil fertility

Pulses Revolution

Pulse production reached all-time high with a record increase.

Availability of new varieties and large scale field demonstrations made farmers aware about the seeds of new varieties of pulses.

Seed hubs on pulses established across the country provided quality seeds to farmers.

Pulses revolution reduced import-dependence and helped alleviate protein malnutrition among predominantly vegetarian population of the country.

Protein rich pods of pigeonpea

Oils' Kitty

Groundnut Girnar 4 and 5 – High yield, large seeded and suitable for export purposes

Soybean: A major oilseed crop as well as the most economical source of quality protein; contains 40% protein and 20% oil. Newly developed varieties giving high yield in farmers' field.

Double Pusa Zero Mustard 31: Country's first canola quality Indian mustard variety.

Improving edible oil scenario

Varietal improvement and complementary technologies for oilseeds.

Released more than 800 new varieties of mustard, groundnut, soybean etc.; quality seeds being produced in seed hubs and large-scale demonstrations in farmers' field are contributing to the edible oil economy of the country.

Sugar Revolution

Wide-scale cultivation of extra-ordinary varieties have ushered sugar revolution in India. This variety (Co 86032), a dominant one in Maharashtra covering more than 50% area, is tolerant to drought, smut and red rot.

Co 0238 (Karan 4) is a champion variety in north zone with high yield and high sugar recovery. This variety has brought sugar revolution in the country enabling adequate availablity, sugar export and diversion of heavy molasses and juice to ethanol production.

Juicy Canes

Sugarcane, a major cash crop, is providing employment to over a million people directly or indirectly.

India is number one in sugarcane productivity among major sugarcane growing countries.

Quick adoption of ICAR varieties of sugarcane by farmers led to attain higher productivity. The varieties, improved agro-practices, and low cost plant protection measures helped record sugar production. It made India not only self-reliant in sugar production but also an exporting country.

White Gold

India developed the first cotton hybrid (H-4) in the world, genetically modified cotton hybrids occupies more than 90% of cotton area. India is the largest producer of cotton.

Golden Fibre

Jute, now re-positioned as the fashion fabric, has rejuvenated the golden fibre with huge business opportunities.

JRO 204: 38.9 q/ha yield; high fibre strength (27 g/tex); resistant to insect (yellow mite) and disease (stem rot); fibre suitable for making sacks, hessian, twills and geotextile.

JRO524 (Navin), is a high-yielding tossa jute variety with durable resistance to premature flowering in early sowing under long-day conditions.

"In Bangladesh, over 90 % of land under Tossa jute is grown with imported seeds of JRO 524 from India".

(*Dhaka Tribune* 22 May 2021)

Process of jute fibre making (left to right)

Jute products

Agroforestry

Developed models of agro-forestry to promote agri-horti, agri-silvi and silvipastoral systems for raising farmers' income.

Chrysanthemum as intercrop in coconut (Arsikere)

Green fodder in desert - success of Bajra Napier Hybrid

Pineapple and mango integrated farming

IFS for rainfed lowlands

Models for Higher Income

Integrated farming models developed for various eco-zones of the country that go beyond cropping systems to include horticulture, honey-bee, fisheries, livestock, poultry and other subsidiary income generation enterprises.

Integrated farming system (IFS) is an efficient approach to double farmers' income with added advantages of waste recycling, climate resilience and risk minimization. Implemented in farmers' field in north-eastern and southern India.


Rainbow Crops

The King

Parent-tree of world renowned Dussehri Mango at Malihabad, Uttar Pradesh.

(*Inset*) **Amrapali:** A popular hybrid of famous 'Dussheri' and 'Neelam' varieties; it is dwarf, suitable for high-density plantation and a regular bearer with clusters of small-size fruits.

Citrus – Shoot-tip grafting and disease-free planting materials for realising higher yield.

Export of banana to Italy and Middle East initiated.

Pomegranate Bhagwa – A champion variety; gross income from 5 hectare area ₹ 88.80 lakh. India is the largest producer of pomegranate in the world.

Fruits Fair

India is the second largest producer of fruits in the world with amazing diversity across the country.

World leader in the production of mango, banana and papaya.

During 2020-21, India exported fruits worth ₹ 4,971.22 crore/ 674.53 million USD.

Grapes, pomegranates, mangoes, bananas, oranges account for larger portion of fruits exported from the country.

Manjari Kishmish

ICAR standardized the cultivation of grapes on dogridge rootstock, which resulted in improved quality of grapes, reduced production cost, increased yield and higher profits for farmers. Nearly 90% of grape plantation is based on the rootstock. Implemented strategy for the production of 'Zero' pesticide residue grapes, promoting exports.

Cash in Hand

Mass multiplication of vegetable seedlings under shade net

During last 25 years, vegetable production area has increased from nearly 6 million ha to more than 10 million ha. During 2020-21, India exported vegetables worth ₹ 4,969.73 crore/ 667.61 million USD. The vegetable export basket included onion, potato, tomato, and green chilli.

Vegetables for Prosperity

India is the second largest producer of vegetables in the world.

- India is the largest producer of ginger and okra amongst vegetables and ranks second in the production of potato, onion, cauliflower, brinjal and cabbages.
- Per capita vegetable availability in India is approximately 400 g/day.
- High yield potential has been combined with multiple-disease resistance in hybrids of tomato, namely Arka Rakshak, Arka Samrat and Arka Abhed.

Development of disease and pest resistant varieties with matching production technologies led to a revolution in vegetable production; new vegetable varieties are being released from time to time.

Mass production and distribution of quality seeds and planting materials helped raise productivity and income of farmers.

The Underground Earner

Blooming potato field; Aeroponic potato seed production *(inset)*

India is the second-largest potato exporter in the world contributing ~12% of global production; exports potatoes to more than 30 countries around the world.

ICAR varieties cover more than 85% of total potato area in the country. Kufri Pukhraj is the most popular variety; Chipsona variety series is suitable for processing.

Potato varieties exist for all seasons and all regions: generate about ₹ 57,512 crore gross value every year

Cassava: Cassava mosaic virus resistant variety developed

Elephant foot yam

Wonder Tubers

Tuber crops – sweet potato, taro, cassava and yams are rich in dietary fibre, minerals, vitamins and bioactive phytochemicals – can sustain food, nutrition, health and livelihood security; and help mitigate effects of climate change.

Tubers play a critical role in livelihood and food security of tribal farmers.

Tuber starch finds way in many industries. Suitable varieties developed for higher yields; and technologies developed for a wide range of value-added products–food to industries and from polymers to gels.

Sweet potato tubers

Taro tubers

Yam tuber

The Taste Makers

Onion variety Bhima Red

Onion: Harbinger of prosperity for farmers

Garlic variety Bhima Purple

Garlic field

Storage structures and technologies developed to maximize returns by reducing storage losses by 20-50% depending upon the period of storage.

The Duo

India is the second largest producer of onion and garlic in the world. Indian onion is a favoured commodity in many African countries. In the last 2 decades, production of onion in India has increased more than four times and of garlic two times due to ICAR technologies and superior varieties developed with higher yield and quality.

Protein Packs

White button (*above*) and Oyster mushrooms (*inset*): A rural enterprise for diversification, higher income and nutrition security. Mushroom cultivation is viable and attractive for landless farmers particularly women, and suitable for urban agriculture.

Cottage Mushrooms

The production of mushroom, a crop of waste to wealth, has almost doubled in India in less than a decade. The high yielding varieties and farmer friendly ICAR technologies have played a significant role in propelling this growth.

Development of temperature-tolerant strains and in-house cultivation technologies pushed its cultivation to new heights.

Popular in urban markets owing to nutritional and health benefits, and now with new varieties, mushroom has become popular among rural masses.

Technology developed for early fruiting in Shiitake mushroom.

Flammulina

Ganoderma

Hericium

Shiitake

Volvariella

Yellow oyster

Blooms for Business

Queen of the East – Chrysanthemum is the third important commercial flower crop after rose and marigold in the country. Hybridization and mutation breeding efforts in ICAR yielded a large number of varieties that are suitable for cut flower, loose flower and pot mum purposes. The flowers are rich in a myriad of nutraceutical pigments.

In 2007, the Department of Posts, Government of India commemorated rose varieties developed by ICAR by releasing unique postal stamps

In 2008, a postage stamp of Dr B.P. Pal, the first DG, ICAR, was released

Dr Pal pioneered extensive breeding of roses for fragrance and colours

Flower Power

Growth of floriculture is all time high with increasing demand in domestic and overseas markets. ICAR provided research backstopping for the floriculture sector for promotion of domestic and export markets. Technologies to improve vase-life along with appropriate packaging technologies improved marketing and business potential. The area and production under flower crops got almost tripled in last two decades.

Marigold: Indian desi varieties having longer blooming period and good shelf-life; backed with improved cultivation technologies, turning fields into golden cash. Varieties suitable for different temperature regimes developed to ensure year-round cultivation.

Rose varieties developed by Dr B.P. Pal

Banjaran | Haseena | Rose Sherbet

Versatile gladiolus varieties

Beauties to Behold

Genetic resources of *Phalaenopsis* Orchids maintained at Orchidaria of ICAR-NRC Orchid, Pakyong, Sikkim

Arundina graminifolia

Phaius tankervillieae

Orchids

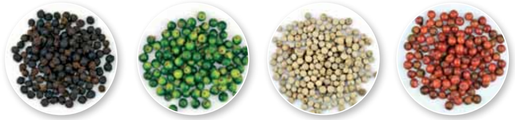
North-eastern India is a treasure trove of orchids with incredible diversity in size, shape and colour; and with high keeping qualities even up to 10 weeks.

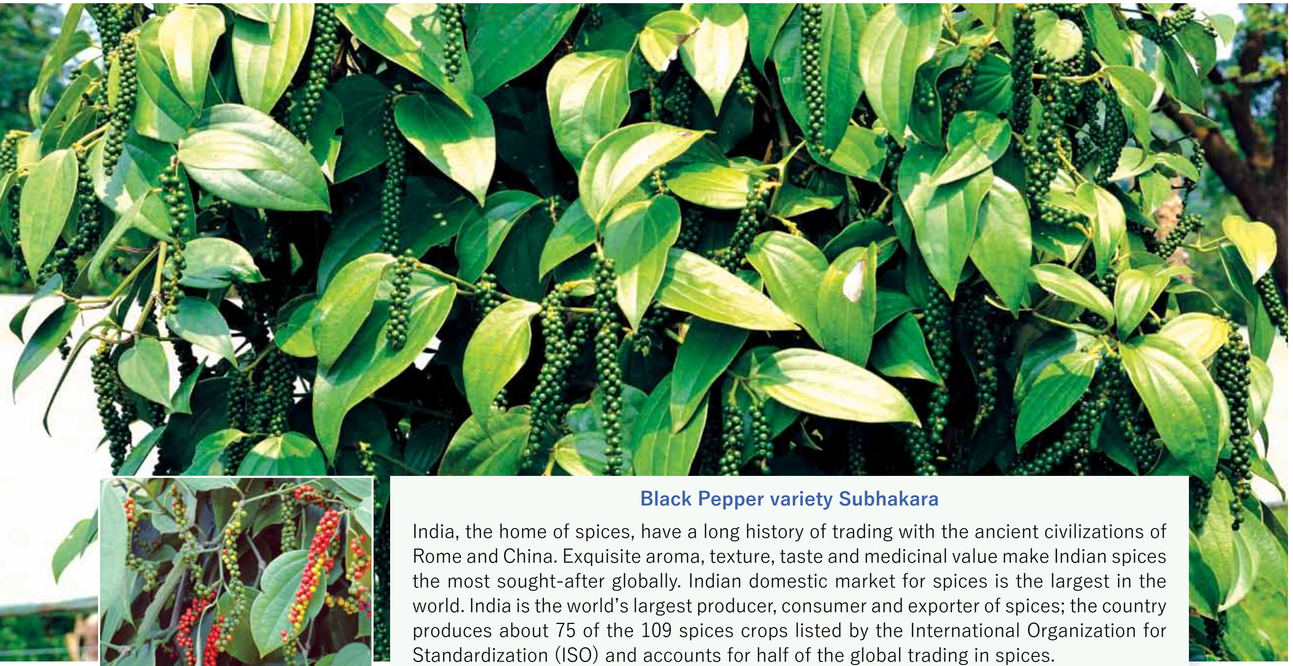
Research and development initiatives led to collection of 3,130 accessions (being maintained in orchidaria), and improved technologies for its cultivation, domestic trade and export.

Oncidium orchid

Thunia alba

The Black Queen





Black Pepper variety Subhakara

India, the home of spices, have a long history of trading with the ancient civilizations of Rome and China. Exquisite aroma, texture, taste and medicinal value make Indian spices the most sought-after globally. Indian domestic market for spices is the largest in the world. India is the world's largest producer, consumer and exporter of spices; the country produces about 75 of the 109 spices crops listed by the International Organization for Standardization (ISO) and accounts for half of the global trading in spices.

Clove flower *(Top)*
Harvested clove *(Middle)*
Dried buds *(Bottom)*

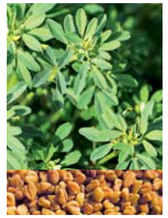
Ginger plantation *(Top)*
Protected cultivation *(Middle)*
Rhizomes *(Bottom)*

Turmeric field *(Top)*
Rhizomes *(Middle)*
Dried *(Bottom)*

Small cardamom in farmers field *(Top)*
Small cardamom *(Middle)*
Dried *(Bottom)*

FOOD FLAVOURS

Fennel



Fenugreek

Cumin

Spices

High yielding varieties developed by ICAR are replacing low productive spices varieties. Across the spice crops, 150 varieties developed by public funded ICAR research cover more than 80% of the total area.

New varieties of seed spices are spreading to different agro-climatic zones.

Post-harvest technologies and value-addition further enhanced trade and export potential.

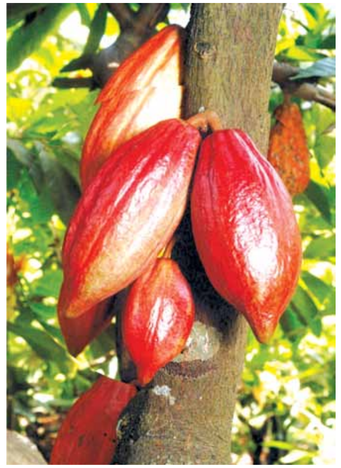
The Versatile Nut

Establishment of the Coconut Research Station in 1916 (now known as ICAR-Central Plantation Crops Research Institute) testifies the importance of coconut. India houses world's largest collection of coconut and the International Coconut Genebank for South Asia (ICG-SA).

CPCRI developed an array of high yielding varieties, dwarf varieties and hybrids to increase production.

Processing technologies developed/standardized for virgin coconut oil and high value products like coconut shell activated carbon and coconut shell powder.

Initial fruit set in Cashew hybrid H 130: It starts setting seeds in first year itself, while others fruit in second or third year. For the first time in India, a dwarf cashew genotype, to reduce pruning in high density planting systems, was approved for release.



Cocoa: Improved varieties and hybrids developed for higher and bold beans with less shell contents.

Arecanut is exported to over 48 countries.

Plantation Crops

Farm mechanization and various processing machineries contribute substantially to reduce the production cost, increase labour efficiency and enhance product output and quality of plantation crops.

The Health Treasure

Guggul: Famous for oleo gum resin which is highly valued for its medicinal properties, but its extraction leads to certain death of the plant. Guggul is enlisted under the 'Critically Endangered' category in the IUCN Red Data Book. Introduction as a hedge plant in the farms of dry arid areas is helping in its conservation.

New varieties of Isabgol developed and popularized

Lemongrass: Aroma for livelihood

Improved varieties of Ashwagandha developed

India is the first in the world in production of aromatic essential oils.

Medicine Chest with Aroma

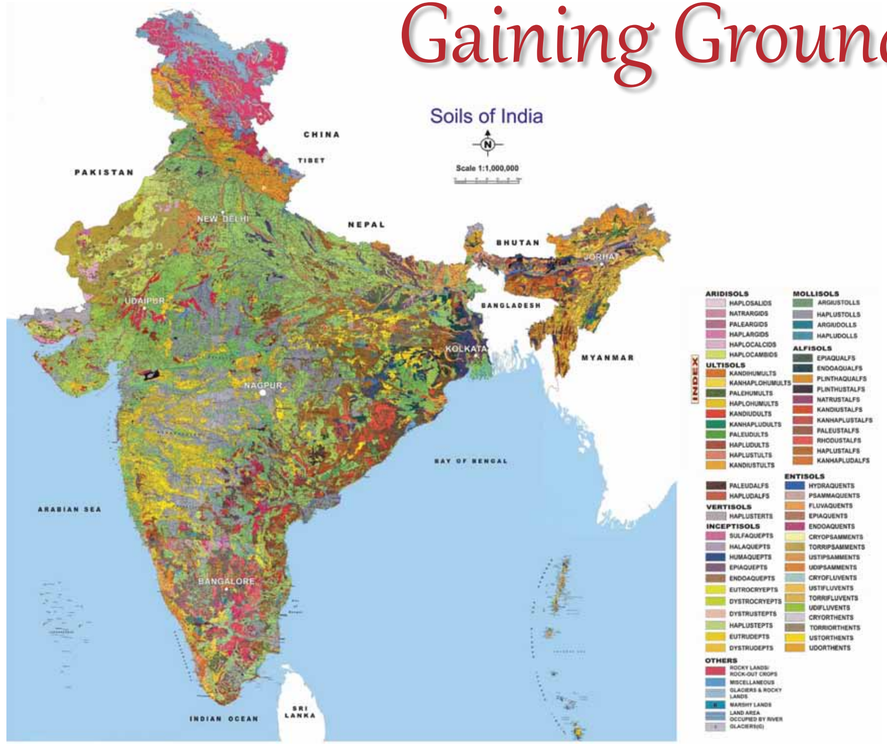
Basil

Legendary Asoka in flowering: Value for virtues

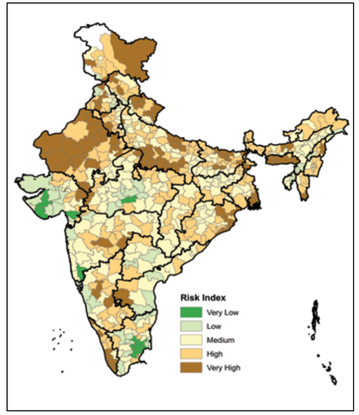
Improved varieties, higher oil contents, matching package of practices and efficient post-harvest processing have made India a prominent player in world trade of aromatic oils.

Nurturing Nature for Generations

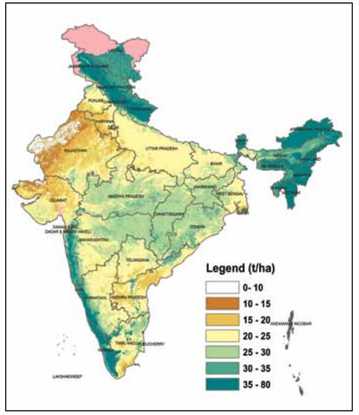
Gaining Ground



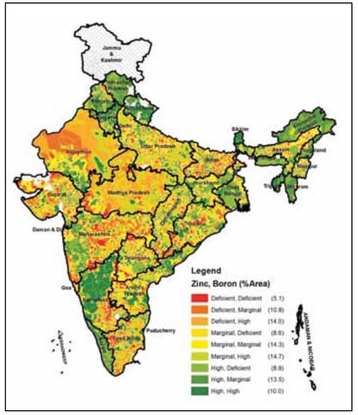
ICAR-NBSS&LUP Nagpur developed soil resource maps of the country in 1:1 million scale. The major soil types of India are red and laterite soils (Alfisols, Oxisols, Ultisols, Incepitsols etc.; 117.2 M ha), black soil (Vertisols and their associations; 73.5 M ha), alluvial soil (Entisols and Inceptisols; 58.4 M ha) and desert soils (mostly Aridisols and Entisols; 30 M ha).



District-level climate vulnerability map of India



Soil organic carbon (SOC) stock map of India based on around two lakh geo-referenced soil samples collected from soil depth of 30 cm. The SOC stock of Indian soils is generally low.



Soil micronutrient deficiency in the country based on the analysis of 242,827 surface soil samples collected during 2014-2020 from 600 districts. About 36.5 and 23.4% of soil samples are deficient in plant-available zinc and boron, respectively.

Save Our Soils

Land resource inventory (1:10,000 scale) developed for 62 blocks covering 60 agro-ecological subregions, helped better agricultural land use planning.

Nearly 1.0 lakh hectare waterlogged saline soils reclaimed; cropping intensity improved by 40% with 2-3 fold increase in farmers' income.

Gypsum Technology for Sodic Soil Reclamation
Successful rice crop after reclamation of sodic soil in Haryana (*inset*)

The Efficiency

Improved technologies developed for conservation and harvesting of water with revival of traditional structures.

Drip irrigation in tissue culture banana plantation

Poly cement tank – A low cost option for water harvesting

Water harvesting pond (Capacity 45,000 L)

Per Drop More Crop

Model watersheds developed for various regions of the country to address land degradation, enhance ground water availability besides restricting land degradation and improving ecosystem services.

Micro-irrigation and drip fertigation technologies developed for various crops and cropping systems saving – upto 60% irrigation water & 40% fertilizers.

The Mitigation

State-of-the-art plant phenomics facility at the Indian Agricultural Research Institute, New Delhi is being used for identification of superior genes and genotypes for development of climate resilient crop varieties.

Climate Resilience

Developed and validated district contingency plans to empower farmers with climate mitigation measures.
Climate resilient technologies minimized risk of crop failure.
More than 151 clusters of climate resilient villages were developed across the country by KVKs and ICAR institutes.

Weather station at CRIDA, Hyderabad

Climate Smart Farming

Intercropping of maize + pigeonpea in 4:1 ratio, Siddanuru village, District Davangere, Karnataka

View of National Innovations in Climate Resilient Agriculture (NICRA) village, Siddanuru, Davangere district, Karnataka

Climate resilient crops and varieties adopted, in NICRA village, Siddanuru, Davangere district, Karnataka

NICRA Interventions at Climate Smart Village of S. Raguttahalli, Tumkur District, Karnataka

Measures to mitigate climate change effects included

- Harvesting of rain water in farm ponds
- Supplemental irrigation from desilted community ponds
- Climate resilient varieties
  - Rati ML 365
  - Pigeonpea BRG 1, BRG 2 and BRG 5
- Intercropping groundnut + pigeon pea (10:2) for risk management
- Hydroponic fodder maize during lean season/dry spells.

Back to Nature

Organic Frenchbean: Better quality, higher income

Providing Biosolutions

More than sixty organic farming models developed

Trichogramma: A bio-agent to control insect-pests

Being Organic

Nutrient management with organic inputs helps in building the soil heath by improving the soil microflora and amount of soil carbon, which is very important for sustainable agriculture.

Protocols for organic cultivation of several crops developed along with methodologies for pests and disease (bio-agent; biopesticites) and nutrition management (bio-fertilizers).

Pusa Decomposer for *in situ* and *ex situ* crop residue decomposition was developed to mitigate residue burning problems.

Business with Bee

Honey bees act as an excellent pollinator of crops, thus help in increasing crop yield. Apiary included as a critical component in Integrated Farming models.

Bee Hotels: A novel concept providing nesting site for bee pollinators in agriculture fields

Honey Tales

Honey worth ₹ 716 crore (US $ 96.77 million) was exported in year 2020-21, owing to ICAR developed technologies for–

meliponiculture, i.e. Scientific domiciles for stingless bees; integrated management of swarming and absconding in *Apis cerana*; low cost technology for artificial domicilation of solitary bees, etc.

Capacity building of rural youth and women for bee keeping, value-addition and marketing.

Livestock for Livelihood

> “Future economic growth would have to come from improvements in animal productivity”

Desi Wealth

Sahiwal herd: High quality milk production with specific health benefits; low maintenance cost and heat-stress tolerance

Hariana cow – Dual purpose cattle, famous for endurance for hot climate.

Tharparkar Cow Herd – An important milch breed.

Tharparkar bull – The males are used for draught in harsh climate.

Conservation and Improvement

Indigenous breeds of cattle were improved through field progeny testing and selection; conservation efforts increased their population. Desi cattle breeds are important because of their resistance to tropical diseases, low maintenance cost besides providing A 2 milk.

Identified, characterized and gazette notified indigenous breeds of Livestock & Poultry including cattle.

Gir cattle – It provides milk, manure and draught power. Their tolerance to harsh climatic conditions make them a suitable cattle breed to mitigate global warming.

Kankrej cow – Among all cattle breeds, Kankrej is considered the oldest. Research initiated in late 1970s to conserve the germplasm.

Black Gold

Murrah Buffalo: Best buffalo in the world; played a critical role in White Revolution.

Nili-Ravi has milk with high fat (6.8%)

Banni – A nocturnal grazing buffalo (Bhuj, Gujarat) with typical double coiling horns

Chilka, a unique buffalo breed, is adapted to brackishwater ecosystem of Chilika lake

Conservation and Improvement

Jaffarabadi, heaviest buffalo breed

Pandharpuri, the Milk ATM – milk anytime, anywhere

The determination of ICAR helped develop technological innovations and solutions for efficient and sustainable buffalo production systems, with reach to farmers. Conservation and propagation of most precious high yielding elite buffalo germplasm is a well-recognized and widely applauded feat of the scientific fraternity of ICAR.

Number of elite bull mothers of Murrah and Nili-Ravi breeds of buffalo increased.

Poor Man's Cow


Sirohi male

Jamunapari, the milch goat breed of India known for parenting Anglo Nubian breed of Europe.
Goat milk is having better digestibility, buffer capacity, alkalinity and therapeutic values.
Scientists identified new biopeptides in goat milk having human health benefit.

Civilizations followed their footprints


Bharat Merino sheep


Avikalin


Magra sheep

The mission of ICAR is to develop the poor man's cow, the goat, as a means of livelihood security, poverty alleviation and employment generation for the smallholders.

ICAR scientists emphasized on more lambs per lambing, and successfully developed and propagated Avishaan sheep with high fecundity (2-4 lambs/ lambing) for higher mutton production under farmers' field situtation to enhance their income and fulfill protein requirement of the country. The efforts helped to obtain higher body weights at slaughter age besides overall improvement in sheep production system.

The sheep husbandry sector contributes nearly 8% of total meat production, and employs nearly 6 million people in the country.

India stands Second in wool production in the world.


Garol sheep lamb

Friends Forever


Avishaan with quadruplet lambs

The Landmark

Transformation in health management of livestock

Vaccines and diagnostics developed by ICAR countributed to improved health management and enhanced livestock productivity.

Animal diseases namely Rinderpest, contagious bovine pleura-pneumonia, African horse sickness and Dourine eradicated from the country.

The eradication of rinderpest reduced import dependence of livestock products and increased export of meat.

Vaccines were also developed against important small ruminant diseases such as PPR, goat pox and sheep pox.

Efficacy of PPR vaccine encourages its extensive use throughout the world.

Developed diagnostics for detection of adulterants in milk.

Surveillance, monitoring and forecasting of economically important animal diseases.

ICAR is working on antimicrobial resistance in food-producing animals and aquaculture.

Memorial Pillar at IVRI, Mukteswar, Uttarakhand, to mark the global freedom from the deadly disease of rinderpest – India successfully eradicated the dreaded cattle plague rinderpest with sustained and concerted vaccination campaign.

Ten calves were born in a year to an elite Karan Fries cow through embryo transfer technology

The cloned female calf Garima (born on 6 June 2009) (*left*) and male cloned calf Shrestha (born on 26 August 2010) (*right*). Superior hand-guided cloning technique was adopted.

Biotechnics

India developed first cloned buffalo in the world in 2009.

Cutting-edge technologies are leading to a new era of faster multiplication of superior germplasm to boost milk production in the country.

Pratham, the world's first *in-vitro* fertilized buffalo calf

Clones of elite Murrah buffalo

The White Challenge

Double humped camel in Ladakh – ICAR efforts are in progress to improve milk yield and their utility in tourism

Yak – The lifeline for Highlanders

Yak habitat is between 3,000 m and 6,000 m in the mountains of Leh (Ladakh), Himachal Pradesh, Sikkim and Arunachal Pradesh. Yak rearing is a way of life and a major means of sustenance of the economically and socially deprived resource poor people. It is a multi-purpose animal that provides milk, meat, fibre, hide and dung; and thrives at places where other animals are unable to sustain. Yaks are also used as pack animals for transportation of household goods and also for riding.

Mithun, the domesticated wild gaur, plays an important role in daily life of tribal population of northern Himalayas.

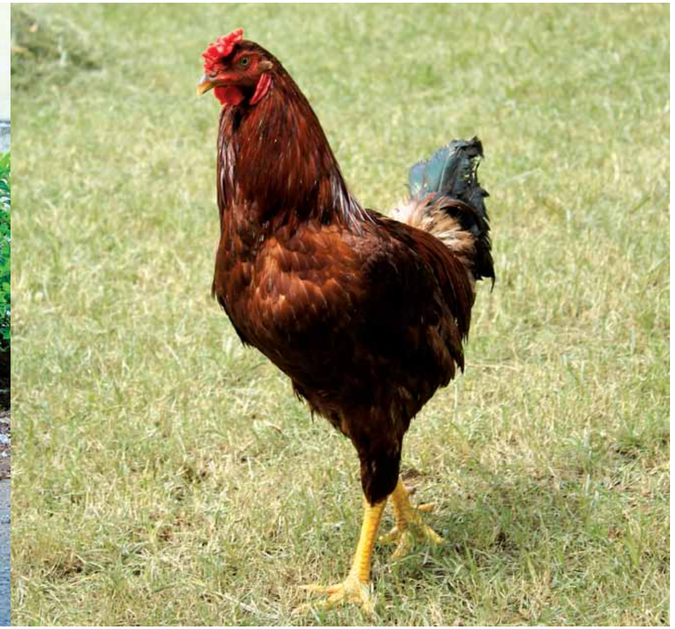
In High Altitudes

High altitude research led to recognition and improvement of livestock in cold deserts. Successful blending of yak fibres with jute, developed fabrics for various uses. Complete feed block technology improved nutritional status of yak.

ICAR has played a keyrole in the conservation, breeding and health management of mithun thus making its rearing a sustainable commercial venture.

Birds of Prosperity

Vanraja ruling backyard poultry



CARI Nirbheek

Backyard poultry emerged as a favourite source of additional income for marginal and landless farmers. Productivity of desi birds increased with scientific management practices.

Kadaknath – Black bird with nutritionally rich black meat.

Aseel – Most popular Indian game bird is found in states of Odisha, Andhra Pradesh and Chhattisgarh.

Ankaleshwar – A hardy desi breed, reared mainly by tribals for meat and egg production under backyard system.

Nicobari pair – These birds produce highest number of eggs among desi birds. Research efforts improved the egg size.

Gainful Poultry

Poultry Industry, a sunrise sector, has a growth rate of 8.51% in egg and 7.52% in broiler production. Around 1 million farmers are engaged in backyard poultry farming. India is the third largest egg producer and fourth largest broiler producer in the world.

New poultry varieties have the potential to increase farmers' income by 2.5 times.

ICAR Scientists are working on reducing the footprints of antibiotics through the use of herbal products and innovative food products.

Blue Revolution

The growth and sustainability of fisheries sector requires intense research, training and extension activities in all field of fisheries, including capture, culture and post-harvest management. ICAR paved the way for higher fisheries education and training to achieve rapid growth of fisheries sector.

Cage-culture: The technology that transformed fisheries sector in India by raising per unit productivity; 1,700 cages in open seas.

Cage farming, a low volume high density fish farming system, gives 40 times more yield than the conventional marine fish farming systems. It has huge potential for employment generation through direct and indirect employment in cage maintenance, fabrication and allied activities. The estimated annual employment generation in 2030 is 7.53 million mandays.

FV Sagar Harita, a fuel-efficient multipurpose fishing vessel designed by ICAR meets all technical standards. It is fitted with solar panels to promote green energy and reduce carbon footprints.

The Catch

India is the second largest aquaculture producer of the world. The aquaculture sector has been growing steadily at around 7-8% – the highest among other agriculture-related production sectors in India. It is providing livelihood to more than 25 million people in India, who are directly engaged in fisheries and aquaculture.

India is the third largest in marine fisheries global production.

ICAR techniques helped in producing seed/yolk sac larval, which were distributed to stakeholders for marine cage and coastal pond farming/sea ranching.

ICAR developed Ecosystem Health Index (EHI) to monitor the coastal ecosystem during different seasons.

Biofence was identified to mitigate the adverse effects of ocean pollution more effectively.

Identification of new invasive species in different regions was initiated and intensified by ICAR through awareness campaigns.

Milkfish, a potential fast growing fish highly suitable for farming in coastal areas.

Haul of genetically improved and faster growing breed of Rohu, Jayanti.

Aqua Beauties

Clown Fish (Marine Ornamental)

ICAR has been working dedicatedly towards development of coldwater fisheries sector in all the Himalayan states. Some of the programmes focussed on fish species important from conservation point and ornamental purposes and on promoting eco-tourism and fish sanctuaries in various places.

Giant danio

Amphiprion sebae

Neon tetra

The Ornamentals

Malawi cichlid

Frontosa cichlid

Adequate technologies in breeding, seed production and culture of freshwater and marine ornamental species developed.

Backed by improved and standardized practices, the enterprise became popular among farmers for additional source of income, especially for farm women. Suitable fish species identified and introduced.

Mechanization

Machines at Work

Happy seeder technology for direct sowing of wheat led to enhanced wheat yield over conventional tillage machine; saving of cultivation cost due to reduction in cost of tillage (60-70%), weed management (20-25%) and irrigation management (15-20%). It generated employment and reduced crop waste burning incidents.

In Service

ICAR has developed more than 300 successful technologies in frontier areas of agricultural engineering with great potential to increase productivity, reduce cultivation cost, reduce drudgery of agricultural workers, support value–addition, conserve resources and provide alternate energy sources. The economic impact of 17 most popular commercialized agricultural machineries and technologies has been estimated at ₹ 7,210 crore/annum.

Millet mill

Tractor operated drip lateral-cum-plastic mulch laying machine

Live fish carrier

Drone Remote Sensing: CAT Scanner for Crop Health Monitoring and Precision Agriculture

Energy Equations

Renewable sources of energy in field: Power from biogas and solar radiation.

Agri-Photo-voltaic system in fields: Harvesting of solar power

Energy from Nature

To address energy needs in agriculture, renewable sources of energy are being deployed in fields.

Efficient agri-voltaic systems developed for deployment in various crop fields with provision of rain-water harvesting. Agri-voltaic system, connected to a grid through net metering system may lead to a handsome income per acre/year. As per scientific estimates its installation in farmer's field improves the land equivalent ratio.

Standard protocols developed for ethanol production from energy feed stocks—sugarcane, sugarbeet, sweet sorghum and other cellulosic material; new crop varieties released for 1G and 2G bioethanol production.

The Processing and Value Addition

Developed machinery and process for producing value added products from jute and allied fibres.

Fish-dressing station

Extrusion, a versatile technology for development of a variety of convenience food products, is being used for developing ready to eat snack products from fish and shellfish

Automated packaging line for spherical horticultural crops

Makhana Popping Machine

Machines developed for roasting and popping of makhana comprise a newly designed roaster and a centrifugal type popping/impacting unit to increase popping capacity, reduce drudgery of manual processing method, and improve the quality of popped makhana.

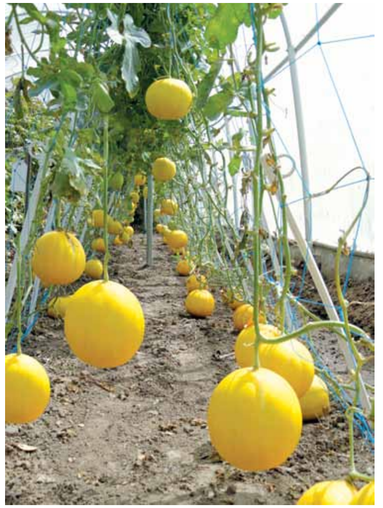
Products for Profits

The food – processing sector, another Sunrise sector, has potential to enhance farmers' income by 20-25%. ICAR scientists developed post-harvest technologies, protocols, novel machineries and products to reduce post-harvest losses leading to enhanced income of the farmers.

A wide range of value-added food products introduced in the market as novelty products for nutrition; paved way for entrepreneurship development in post-harvest processing and value-addition.

The Hi-tech Farming

Bumper harvest under protected cultivation of tomato Arka Rakshak.



Muskmelon grown in polyhouse during winter: A money spinner

Protected cultivation of capsicum

Protected cultivation of tomato in arid regions is key to increase water productivity and farmers' income

Protected cultivation of Gerbera

Cultivation in Control

Protected cultivation of off-season vegetables and commercial flowers in high-tech green houses standardized and extended to farmers.

A new avenue of agri-business with potential.

Technology for construction of low-cost polyhouse developed.

Outreach

Field day in a successful farmer's field

Field day on Greengram in Kaimur district of Bihar

Pond based IFS demo unit at KVK Khowai of Tripura

First KVK at Puducherry, 1974

Last Mile Connectivity

Krishi Vigyan Kendras (KVKs) serve as knowledge and resources centres at district level. First KVK at Puducherry, 1974, a humble beginning has now turned into a dedicated large family of over 731 KVKs across the country, which strive for knowledge and technology empowerment of farmers.

ICAR Outreach programmes include Farmers FIRST, Attracting and Retaining Youth in Agriculture (ARYA), Cluster Frontline Demonstration of pulses and oilseeds, Cereal Systems Initiatives for South Asia (CSISA), National Innovations in Climate Resilient Agriculture (NICRA), Pulses Seed hubs, Mera Gaon Mera Gaurav and Awareness creation on government schemes, etc.

Annually more than 15 lakh farmers/farm women, rural youth and extension personnel are trained and technology demonstrations are conducted on more than 3 lakh farmers' field.

High quality seeds of improved varieties and hybrid of different crops, planting material, bio-products, livestock, poultry eggs and fingerlings are produced and distributed among the farmers, a service being provided on regular basis.

Temples of Learning

With six agricultural education institutions* taking root in 1905 in the country, the small canopy of knowledge tree spread into one of the largest agricultural education networks in the world.

* Latest photographs used

Agriculture College, Kanpur now CSAUA&T, Kanpur

Agricultural School, Saidapet, Chennai (Relocated to Coimbatore later) now Tamil Nadu Agricultural University, Coimbatore

Punjab Agricultural College, Lyallpur (now in Pakistan)

Bihar Agricultural College now Bihar Agricultural University, Sabour, Bhagalpur, Bihar

College of Agriculture, Nagpur now College of Dr PDKV, Akola

Imperial Agricultural Research Institute, Darbhanga, (Now Samastipur), Bihar (relocated to New Delhi later).

भाकृअनुप
ICAR

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

ICAR, through its Plan Scheme, supports and enables National Agricultural Research and Education System (NARES) to maintain quality higher agricultural education through accreditation, periodic course updation/revision, attracting talented students, capacity building of faculty and promotion of holistic higher education.

Agricultural Universities

63 State Agricultural Universities (SAUs)

3 Central Agricultural Universities

4 Deemed Universities

4 Central Universities having Faculty of Agriculture

Women Power

Trained farm women in subsidiary agricultural operation for increasing family income

Farm women showing keen interest in vermicompost

ICAR-Central Institute for Women in Agriculture at Bhubaneswar—an institution, first of its kind in Asia— exclusively devoted to gender related research in agriculture.

Feeding azolla to ducks and fishes

Contribution at Par

Women friendly technologies and machinery to reduce drudgery of farm women. Special programmes to raise efficiency and equity.

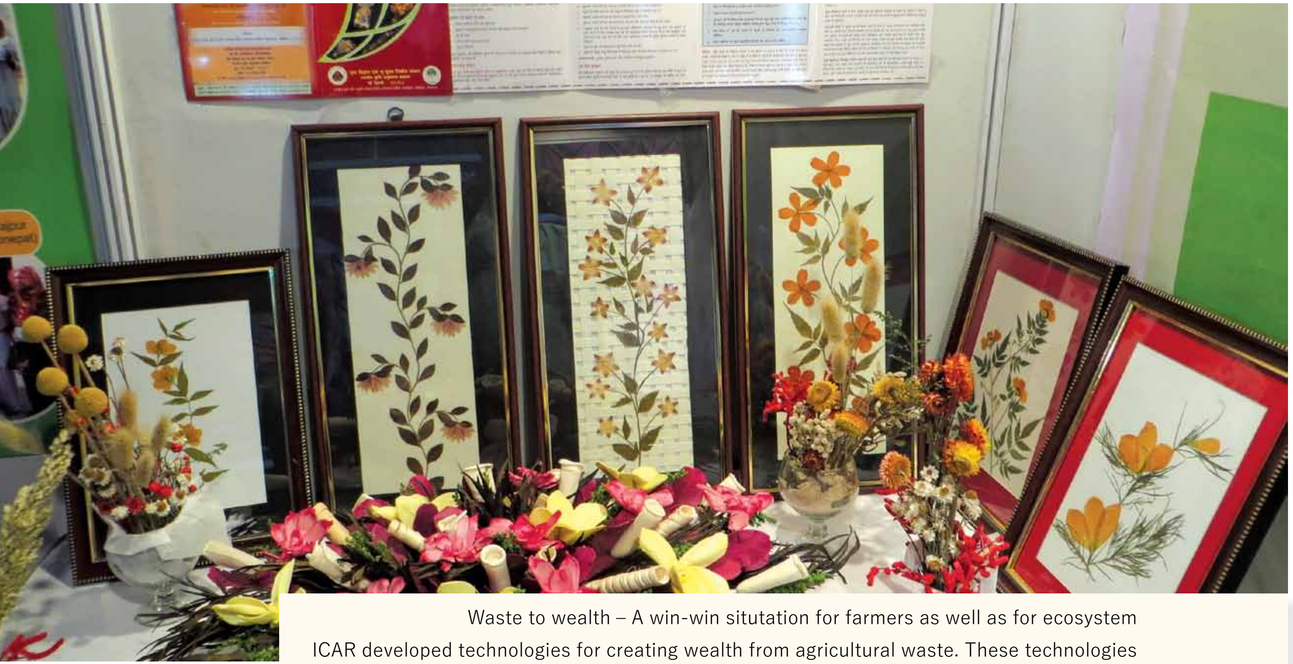
Institutionalized research for farm women in different technology-based thematic areas.

Catalyzed farm women oriented research in many R&D institutions and Agricultural Universities.

Use of power sprayer by farm women

Use of gloves while harvesting brinjal

The Utilization



Waste to wealth – A win-win situtation for farmers as well as for ecosystem

ICAR developed technologies for creating wealth from agricultural waste. These technologies utilize various waste material generated during agricultural activities. Several of these are presently at various stages of commercialization.

Capacity building

Several products from Banana

Overcoat from banana textile blend

Disposable eating plates from banana sheath

Banana fibre based handicrafts

Floral basket from banana sheath

Bioplastic from banana waste

Sari made from banana fibre and blended with cotton

Jewel box from banana sheath

Banana textile

Waste to Wealth

Waste from agriculture, livestock, fisheries and other allied activities converted into products of economic importance.

Waste based enterprises backed by feasible and viable technologies are coming up across the country.

A humble contribution of ICAR to 'Clean India' campaign.

The Network

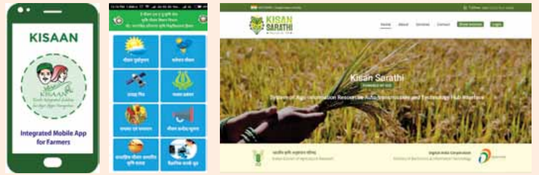
Advice on Mobile: Farmers use net-connectivity for guidance in agriculture operation – quick, easy and at negligible cost.

Disseminating Knowledge

Advisory services on mobiles with unique interactive features are being provided. More than 350 mobile apps developed and operationalized for different agricultural commodities and resource management, which are now unified and integrated into a single App (KISAAN 2.0) to facilitate farmers; theme-wise categorization helps quick identification and easy access to apps; developed in 11 regional languages with thousands of downloads.

Periodicals, books, handbooks, bulletins, monographs, e-books, media columns, social media contents, advisories, etc. brought out by ICAR are for all stakeholders of agriculture sector. The knowledge banks are available in open access as well as in closed access models to the stakeholders in agriculture.

ICAR took steps to disseminate knowledge for benefitting the national as well as global agricultural world including the most valued stakeholder, the farmers.



Multimedia based multilingual ICT communication system – KISAN SARATHI: An interface solution with farmers was launched in July, 2021.

OUTREACH THROUGH SOCIAL MEDIA

https://twitter.com/icarindia

https://youtube.com/c/IndianCouncilofAgriculturalResearchOfficial

https://facebook.com/InAgrisearch

https://www.instagram.com/officialicarindia/

Popular ICAR Publications

Going Global

Hon'ble President of India dedicates Advanced Centre for Agricultural Research and Education (ACARE) established by ICAR-IARI to the people of Mayanmar.

ASEAN-India Agriculture Ministers meet at New Delhi

BRICS Agriculture Ministers meet at New Delhi

International Linkages

Developed functional linkages with CGIAR, SAARC, ASEAN, BRICS, IBSA, BIMSTEC and many other functional groups and countries to undertake research in frontier areas of agricultural science and to promote human resource development.

Facilitated establishment of Advanced Centre for Agricultural Research and Education in Myanmar; and Afghan National Agricultural Sciences and Technology University in Kandhar, Afghanistan.

Awards international fellowships to foreign and Indian students.

Signing of a Memorandum of Understanding between ICAR and ILRI

Work Plan signed between ICAR and CIMMYT

Emerging Entrepreneurship

Promotion and motivation to agri-entrepreneurship by providing incubation facilities and awareness programmes. Agribusiness incubators: Enabled Agri-startups by providing necessary trainings and skills. Over 800 agri startups in India use ICAR technologies.

ICAR TABLEAU – KISAN GANDHI

Kisan Gandhi – ICAR tableau showcased cow-based farming supported by Mahatma Gandhi, rolled on Rajpath on 26 January 2019. This ICAR tableau won first prize.

And the Journey Continues...

Union Agriculture Minister and President, ICAR

Dr Rajendra Prasad	(2.9.1946–14.1.1948)
Shri Jairam Das Daulat Ram	(19.1.1948–13.5.1950)
Shri K M Munshi	(13.5.1950–13.5.1952)
Shri Rafi Ahmed Kidwai	(13.5.1952–24.10.1954)
Shri Ajit Prasad Jain	(25.11.1954–24.8.1959)
Shri S K Patil	(24.8.1959–1.9.1963)
Sardar Swarna Singh	(1.9.1963–9.6.1964)
Shri C Subramaniam	(9.6.1964–13.3.1967)
Shri Jagjivan Ram	(13.3.1967–27.6.1970) (10.10.1974–2.2.1977)
Shri Fakhruddin Ali Ahmed	(27.6.1970–3.7.1974)
Shri Prakash Singh Badal	(27.3.1977–17.6.1977)
Shri Surjit Singh Barnala	(18.6.1977–28.7.1979)
Shri Brahm Prakash	(30.7.1979–14.1.1980)
Shri Rao Birendra Singh	(14.1.1980–31.10.1984)
Shri Buta Singh	(31.12.1984–12.5.1986)
Shri GS Dhillon	(12.5.1986–13.2.1988)
Shri Bhajan Lal	(14.2.1988–2.12.1989)
Choudhary Devi Lal	(2.12.1989–1.8.1990) (10.11.1990–21.11.1990) (21.11.1990–21.6.1991)
Dr Balram Jakhar	(21.6.1991–17.1.1996)
Dr Jagannath Mishra	(7.2.1996–16.5.1996)
Shri Suraj Bhan	(16.5.1996–1.6.1996)
Shri Chaturanan Mishra	(29.6.1996–19.3.1998)
Shri Atal Bihari Vajpayee	(19.03.1998–22.11.1999)
Shri Nitish Kumar	(22.11.1999–3.3.2000) (27.5.2000–22.7.2001)
Shri S L Patwa	(6.3.2000–25.5.2000)
Shri Ajit Singh	(22.7.2001–24.5.2003)
Shri Rajnath Singh	(24.5.2003–21.5.2004)
Shri Sharad Pawar	(22.5 2004–26.5.2014)
Shri Radha Mohan Singh	(28.5.2014–30.5.2019)
Shri Narendra Singh Tomar	(30.5.2019–Till Date)

Senior Vice President

Shri Parshottam Rupala	(7.7.2021–Till Date)

Vice President

Shri Kailash Choudhary	(30.5.2019–Till Date)

Directors General of ICAR

Dr B P Pal	(1965–1972)
Dr M S Swaminathan	(1972–1979)
Dr O P Gautam	(1979–1985)
Dr N S Randhawa	(1985–1990)
Dr V L Chopra	(1992–1994)
Dr R S Paroda	(1994–2001)
Dr Panjab Singh	(2001–2002)
Dr Mangala Rai	(2003–2009)
Dr S Ayyappan	(2010–2016)
Dr T Mohapatra	(2016–...)

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Secretary, Department of Agricultural Research and Education
and
Director General, Indian Council of Agricultural Research

Dr AK Singh
DDG (Agricultural Extension)

Produced by

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