



Towards Climate-Resilient Agriculture

Healthy soils are fundamental to sustainable agriculture and long-term food security. *Khet Bachao Abhiyan* promotes scientific nutrient management, integrated soil fertility practices, climate-smart agriculture and digital advisory systems to improve productivity while conserving natural resources. Through strong institutional collaboration and farmer-centric extension, the initiative strengthens climate resilience and lays the foundation for a more sustainable, productive and resource-efficient agricultural future.

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griculture remains the backbone of the Indian economy, providing livelihoods to almost half the population and ensuring food and nutrition security. However, climate change, depletion of groundwater and soil fertility, unbalanced fertiliser use and increasing production costs have emerged as major challenges for the sector. Unfavourable climatic

conditions such as droughts, heavy rainfall, heatwaves and floods pose a serious threat to the sustainability and productivity of diverse agro-climatic regions across the country. There is an urgent need to transform the present resource-intensive agriculture to climate-smart and climate-resilient farming systems that enhance productivity without degrading the natural resource base.

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With the objective of protecting India's vast agricultural resources, the Government of India and the Indian Council of Agricultural Research (ICAR) initiated *Khet Bachao Abhiyan* (Save the Farm Campaign) from 1 June to 30 June 2026 under the slogan '*Mitti Bachao, Kheti Bachao, Kisan Bachao*' (Save soil, save farms, save farmers). The Abhiyan focuses on promoting scientific nutrient management, balanced fertilisation, soil testing, water conservation, digital agriculture and climate-smart agriculture technologies among the farming community across the nation through the extension system.

Khet Bachao Abhiyan : From Campaign to National Mission

The *Khet Bachao Abhiyan* has become the largest agricultural extension campaign of the country. Scientists from ICAR institutes, Krishi Vigyan Kendras (KVKs), State Agricultural Universities, Departments of Agriculture of various states and the farmer groups together disseminated technologies and information through farmers' meetings, field demonstrations, farmer-scientist interfaces, soil-testing camps and other extension activities.

During the month-long campaign, 31,821 events were organised across the country reaching out to over 46.01 lakh farmers and stakeholders. Furthermore, over 4.66 crore interactions took place through social media

and digital media platforms, significantly extending the campaign's outreach beyond physical gatherings (Government of India, 2026).

The campaign concluded on 30 June 2026 in Haryana, with the Union Minister of Agriculture and Farmers' Welfare, Shri Shivraj Singh Chouhan announcing that *Khet Bachao Abhiyan* would be transformed into a National Mission to continue for years to come and promote long-term soil health, climate-smart and resilient agriculture. The change from an Abhiyan to a national mission is reflective of the Government's sustained commitment to address the challenge through a programmatic and phased approach involving extension services, scientific and research institutions and farming communities.

Climate Change and the Need for Climate-Resilient Agriculture

Climate change has emerged as one of the most significant threats to Indian agriculture, affecting all aspects of production systems. Rising temperatures, changing rainfall patterns, the increasing frequency of droughts, heatwaves and floods not only affect crop yields and quality but also lead to the proliferation of pests and diseases and enhance risks in production, posing major threats to the livelihoods of small and marginal farmers (IPCC, 2023).

Climate Smart Agriculture (CSA) has been proposed as a sustainable solution to improve agricultural productivity, enhance adaptive capacity of the farmers, reduce vulnerability to climate impacts and mitigate greenhouse gas emissions to a minimum, wherever feasible (FAO, 2022).

CSA comprises a bundle of technologies, practices and approaches such as scientific crop planning, soil and water conservation, residue management, organic agriculture, judicious use of inputs, improved seeds and breeds, efficient irrigation and application of digital agriculture technology. *Khet Bachao Abhiyan* addresses the need of the hour by promoting CSA and highlighting the centrality of healthy soil in the agricultural ecosystem.

Soil for Climate Resilience

Key Policy Measures



National Mission for a Green India

Enhances forest and tree cover to strengthen carbon sinks and ecosystem services



National Mission for Sustainable Agriculture

Promotes climate-resilient farming through improved soil health and efficient water use



National Mission on Natural Farming

Advances nature-based farming to improve soil fertility and reduce input costs



Carbon Credit Trading Scheme

Enables farmers to earn carbon credits through verified emission reduction practices

Source: Ministry of Agriculture and Farmers Welfare

Soil Health: The Foundation of Sustainable Agriculture

The term 'soil health' refers to the continued capacity of soil to function as a vital living ecosystem that sustains plant or animal production, provides environmental benefits, and supports human health and habitation (NRCS, USDA). It refers to the biological health, chemical quality and physical integrity of the soil. Healthy soil is rich in microorganisms, fungi, earthworms and beneficial insects that work together to cycle nutrients, improve soil structure, enhance water retention and resist degradation.

However, over years of intense agriculture, frequent tillage and monocropping of food crops and the injudicious use of fertilisers, particularly nitrogenous fertilisers and Diammonium Phosphate (DAP) have adversely affected the health of Indian soil. As a result, the physical, chemical and biological properties of soils have deteriorated considerably. Data from national assessments indicate that 64 per cent of Indian soils are deficient in available nitrogen, while about 48.5 per cent of the soils are having low organic carbon content.

This significantly reduces nutrient use efficiency, microbial activity and the capacity to withstand stress (Government of India, 2026).

During the *Khet Bachao Abhiyan*, the Union Minister compared indiscriminate use of fertilisers with over-medication in the body, stating that excessive fertilisers were killing beneficial micro-organisms and earthworms in the soil, raising acidity and decreasing the lifespan of soil resources. He emphasised the need for balanced fertilisation instead of unscientific use of fertilisers.

Soil Health Cards: Scientific Diagnosis for Balanced Fertilisation

Efficient plant nutrient management, which is essential for enhancing agricultural productivity, depends on accurate assessment of soil fertility and nutrient status. The Soil Health Card (SHC) Scheme provides a scientific diagnosis of a farm's soil health on twelve parameters of chemical and physical quality of soil helps the farmers in balanced use of fertilisers according to soil fertility and crop requirement (Government of India, 2024).

Khet Bachao Abhiyan also focused on popularising the use of digital SHC and helped to upload farmers' soil health card data through mobile applications, which provide crop-wise recommendations on balanced nutrient application.

Integrated Nutrient Management: Restoring Soil Fertility

Balanced fertilisation cannot be achieved through chemical fertilisers alone. Maintaining the biological activity of the soil through the judicious use of organic manure, compost, vermicompost, green manure, biofertiliser along with balanced chemical fertilisers is indispensable for restoring and improving soil productivity.

Integrated Nutrient Management (INM) is a holistic approach that combines organic and inorganic nutrient sources to maintain and enhance soil fertility and nutrient use

Pillars of Khet Bachao Abhiyan



SOIL HEALTH MANAGEMENT

Maintain and improve soil health for better productivity and sustainability.



BALANCED USE OF FERTILIZERS

Use fertilizers in the right balance and amount for higher yields and soil health.



SOIL TESTING AND SOIL HEALTH CARDS

Regular soil testing and use of Soil Health Cards for informed nutrient management.



NATURAL FARMING PRACTICES

Adopt natural and eco-friendly farming practices for healthy soil and environment.



WATER CONSERVATION

Conserve water through efficient use and sustainable practices for agriculture.



SCIENTIFIC CROP MANAGEMENT

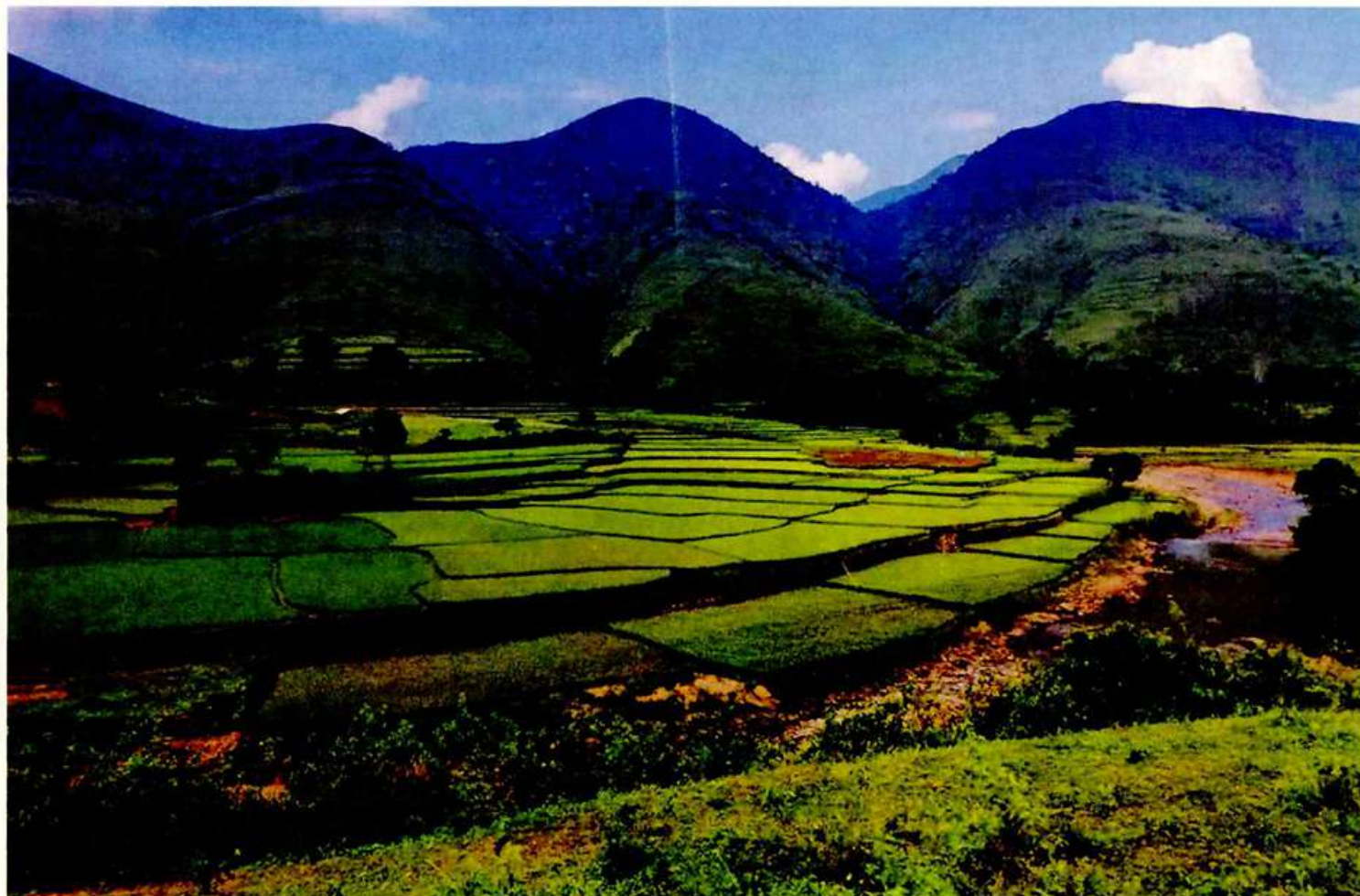
Practice scientific planning, timely operations and management for better crops and higher productivity.



SUSTAINABLE AGRICULTURAL TECHNIQUES

Adopt sustainable techniques for long-term agricultural productivity and environmental protection.





efficiency (ICAR-IISS, 2023). INM enhances soil's organic carbon, stimulates microbial population and activity, improves soil physical structure and promotes balanced availability of plant nutrients. It reduces the reliance on high-cost chemical fertilisers and production costs and also minimises the pollution load on the environment, which are critical for sustainable agriculture in the era of climate change.

Science at the fingertips: Aiding Digital India

Digitalisation is transforming the Indian agrarian sector. The *Khet Bachao Abhiyan* emphasised the use of a Soil Health Card based mobile advisory system to deliver location-specific soil nutrient information to farmers on smartphones.

The integration of various digital platforms covering weather forecasts, pest monitoring, nutrient recommendations, irrigation schedules and market prices, equips farmers with better information for decision making. Precision agricultural tools such as the Internet of Things (IoT), sensors, artificial intelligence (AI), remote sensing, drone technology, and Geographic Information Systems (GIS) are becoming significant drivers of resource-use efficiency and productivity

enhancements in the agricultural sector (Government of India, 2024).

These technologies enable efficient application of fertilisers and pesticides, help in managing crop health, identify deficiencies and optimise the irrigation schedules. As a result, they help reducing the cost of production, conserving resources, and increasing yield.

Scientific innovations don't help farmers unless they reach their fields. For the successful implementation of *Khet Bachao Abhiyan*, ICAR institutions, KVKs, SAUs, and State Departments of Agriculture played a significant role through their vast extension networks. During the campaign, scientists organised village meetings, field demonstrations, farmer-scientist interactions, soil testing camps and hands-on training on various aspects such as judicious use of fertilisers, soil testing, integrated nutrient management, water conservation and climate-smart agriculture.

Farmer learning through demonstration methods enhances confidence and accelerates adoption of the technologies, since they are able to view and analyse the outcomes at the ground level under their prevailing agro-climatic conditions. Hence effective extension



work is paramount for effective utilisation of science for farming practices.

Empowering Women and Rural Youth for Transformative Change

The future of Indian agriculture lies in enabling the active participation of women and rural youth. Women contribute immensely to the various farming activities such as production, value addition, post-harvest operations and animal husbandry. Government initiatives like the *Krishi Sakhis* and *Namo Drone Didi* encourage the training of rural women to operate drones, collect soil samples, work as custom hiring service operators, and take up agri-entrepreneurship (Government of India, 2026).

Challenges Ahead

Despite several interventions, the widespread adoption of climate-resilient agricultural practices has yet to be achieved on a large scale. Factors such as inadequate access to regular soil testing services, difficulties faced by farmers in interpreting Soil Health Card advisories, small and fragmented landholdings, low levels of mechanisation, poor-quality agricultural inputs, groundwater depletion, and an uncertain market environment continue to hinder the adoption of improved technologies.

Climate change is emerging as a major challenge to agriculture, with the increasing frequency of extreme weather events such as heatwaves, floods, droughts and a rise in the prevalence of new pests. Addressing these challenges requires improved collaboration between institutions, enhanced digital literacy, efficient delivery of agricultural inputs, stronger markets, and farmer-centric implementation of policies.

Way Forward

Further research into innovative and context-specific technologies in the agricultural sector, adoption of precision agriculture techniques, implementation of smart agriculture tools, development of climate-resilient crop varieties and improved research infrastructure will help strengthen our agriculture system. Capacity building through training, awareness programmes on issues related to women in agriculture, youth entrepreneurship and on-farm learning should also be continued and strengthened. Scientific knowledge should reach all the villagers to ensure that its utility benefits farmers directly.

Khet Bachao Abhiyan and Sustainable Development Goals (SDGs)

The *Khet Bachao Abhiyan* contributes towards India's endeavour to achieve the United Nations SDGs 2030 through enabling a sustainable and climate resilient agriculture sector.

Zero Hunger : By improving soil health, utilising balanced fertilisation and following the principles of climate-resilient agriculture, the *Khet Bachao Abhiyan* contributes towards improving crop productivity, enhancing food security and promoting sustainable agricultural production.

Clean Water and Sanitation : The adoption of water-conserving techniques like drip and sprinkler irrigation, laser land levelling and conservation of soil organic carbon ensures water-use efficiency and better management of groundwater.

Climate Action : Through advocating climate-smart agricultural practices, conservation agriculture and promoting better carbon sequestration in soil, *Khet Bachao Abhiyan* supports climate mitigation and adaptation.

Life on Land : Practices promoting soil health conservation, protection of biodiversity in the soil and avoiding degradation of land contribute towards ecosystem services and sustainable agriculture.

Khet Bachao Abhiyan demonstrates that it is not merely soil conservation programme but rather an effort to strengthen the link between sustainable resource management and climate resilient food systems, helping in realising the aspirations of *Viksit Bharat@2047* and achieving Sustainable Development Goals (SDGs).

Conclusion

The *Khet Bachao Abhiyan* is a landmark initiative towards building climate-resilient agriculture in India. By advocating soil health, balanced fertilisers use, scientific nutrient management, water resource efficiency and the integration of scientific innovations such as digital agriculture and improved extension services, the programme has clearly laid a roadmap for a sustainable future for Indian agriculture.

These efforts focus on healthy soils, efficient resource management, technological innovation and farmer empowerment are essential for creating *Viksit Bharat@2047* and will ensure the future of Indian agriculture. After all, saving soil means saving agriculture and, by extension, the livelihood of the nation. □

