

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE & FARMERS WELFARE
DEPARTMENT OF AGRICULTURE & FARMERS WELFARE

LOK SABHA
STARRED QUESTION NO. 128
TO BE ANSWERED ON THE 09TH DECEMBER, 2025

CLIMATE RESILIENT TECHNOLOGIES IN AGRICULTURE

*128. SHRI TATKARE SUNIL DATTATREY:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि एवं किसान कल्याण मंत्री be pleased to state:

- (a) the steps taken by the Government to address climate vulnerability to various aspects of agriculture, such as vulnerable crops and areas, monitoring weather fluctuations, stakeholder meetings, etc.
- (b) the details of Climate-resilient technologies being developed to help those engaged in agriculture to deal with climate change and adverse weather events;
- (c) the steps taken by the Government to enhance farm mechanisation, particularly for small and marginal farmers, and especially in rural and tribal areas;
- (d) the role of KVKs in initiatives like research, outreach to farmers, mechanisation, etc.; and
- (e) the details of any findings with regard to the State of Maharashtra in connection with adoption of new technology, climate and weather resilience or farm mechanisation?

ANSWER

MINISTER OF AGRICULTURE AND FARMERS WELFARE
कृषि एवं किसान कल्याण मंत्री (SHRI SHIVRAJ SINGH CHOUHAN)

(a) to (e): A statement is laid on the Table of the House.

STATEMENT IN RESPECT OF PARTS (a) TO (e) OF THE LOK SABHA STARRED QUESTION NO. 128 DUE FOR ANSWER ON 09TH DECEMBER, 2025 REGARDING “CLIMATE RESILIENT TECHNOLOGIES IN AGRICULTURE”

(a) to (b): Indian Council of Agricultural Research (ICAR) is implementing a project- National Innovations in Climate Resilient Agriculture (NICRA) that studies the impact of climate change on agriculture and conducts district level risk & vulnerability assessment due to climate change. Under the project, risk and vulnerability assessment to climate change has been carried out for 651 agricultural districts as per Intergovernmental Panel on Climate Change (IPCC) protocols. 310 districts were identified as vulnerable out of which 109 districts have been categorized as ‘very high’ and 201 districts as ‘highly’ vulnerable. For enhancing the resilience and adaptive capacity of farmers to climate variability, location-specific climate resilient technologies such as system of rice intensification, aerobic rice, direct seeding of rice, zero till wheat sowing, cultivation of climate resilient varieties tolerant to extreme weather conditions such as drought and heat; in-situ incorporation of rice residues etc. have been demonstrated under the project through KVKs in 151 districts covering 448 Climate Resilient Villages. Capacity building for establishing village level seed banks and community nurseries is undertaken under NICRA to enable availability of seed in the adopted villages. Drought and flood tolerant climate-resilient varieties of rice, wheat, soybean, mustard, chickpea, sorghum, gram, and foxtail millet were demonstrated in several NICRA villages. Besides, training programmes are conducted under Agricultural Technology Management Agency (ATMA) on various issues of agricultural practices.

Under NICRA, technical assistance for small and marginal farmers is extended to additional vulnerable districts beyond the 151 currently covered districts, to promote adoption of climate-resilient practices. Village level institutions through farmers’ participatory approach, such as Village Climate Risk Management Committees, seed and fodder banks have been established for smooth functioning and need based technology penetration. The project is contributing to farmers’ capacity building and improved crop yields, thereby leading to the socio-economic development.

Several schemes have been initiated under National Mission for Sustainable Agriculture (NMSA), to promote sustainable agriculture practices. Per Drop More Crop (PDMC) scheme increases water use efficiency at the farm level through micro irrigation technologies i.e. drip and sprinkler irrigation. Rainfed Area Development focuses on Integrated Farming System for enhancing productivity and minimizing risks associated with

climatic variability. The Soil Health & Fertility scheme promotes integrated nutrient management through judicious use of chemical fertilizers. Mission for Integrated Development of Horticulture, Agroforestry & National Bamboo Mission also promote climate resilience in agriculture. Further, Pradhan Mantri Fasal Bima Yojana along with weather index based Restructured Weather Based Crop Insurance Scheme provide a comprehensive insurance cover against crop failure by providing financial support to farmers suffering crop loss/damage arising out of unforeseen natural calamities. ICAR has released 2900 varieties during last 10 years (2014-2024) of which 2661 varieties are tolerant to one or more biotic and/or abiotic stresses.

To mitigate the impacts of adverse weather on agriculture, under the Gramin Krishi Mausam Sewa (GKMS) scheme, medium-range weather forecasts for the next 5 days at the district and block levels are generated by Indian Meteorological Department (IMD). Based on rainfall and other weather parameters along with weather forecasts issued by IMD, 130 Agromet Field Units prepare Agromet Advisories in English as well as in the regional language for dissemination through multiple channels. Also, farmers access weather information including alerts and related agromet advisories specific to their districts through the mobile App viz., 'Meghdoot' launched by the Ministry of Earth Sciences which is available in English and 13 regional languages. These weather details are also accessible to farmers through 'Mausam' App of IMD. The Panchayat-level weather forecast information is accessible through multiple digital platforms, including: eGramSwaraj (<https://egramswaraj.gov.in/>), 'Gram Manchitra' Application of MoPR (<https://grammanchitra.gov.in/gm4MVC>), 'Meri Panchayat' Mobile App and Mausamgram web portal of IMD (<https://mausamgram.imd.gov.in/>).

(c): Government is implementing Sub-Mission on Agricultural Mechanization' (SMAM) across the country including State of Maharashtra. The objectives of the scheme includes increasing the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low. The scheme promotes 'Custom Hiring Centers (CHC)' to offset the adverse economies of scale arising due to small land holding & high cost of individual ownership of agricultural machines. Under the Scheme, financial assistance @ 40% to 50% of the cost of machines, depending on the categories of farmers is provided for purchase of agricultural machines. Financial assistance @ 40% of the project cost is also provided to rural entrepreneur, Cooperative Societies of Farmers, Registered

Farmers Societies, Farmer Producer Organizations (FPOs) and Panchayats for CHCs. Financial assistance @ 80% of the project cost for the projects up to Rs. 30 lakhs is provided to Cooperative Societies of farmers, Registered Farmer Societies, FPOs, Self Help Groups and Panchayats for setting up of village level Farm Machinery Banks.

(d): The Government is operating Krishi Vigyan Kendras (KVKs) scheme to promote adoption of new technologies in agriculture and allied sectors. This includes Climate Resilient Technologies through technology assessment, demonstration and capacity development among the extension functionaries and farmers. KVKs act as frontline extension centres, bridging the gap between research and practice through hands-on training, tailored to local agro-climatic conditions. 151 KVKs in climatically most vulnerable districts are implementing Technology Demonstration Component of NICRA which aims at enhancing resilience in agriculture and making farmers adaptive to climatic vulnerabilities

(e): In Maharashtra two districts (Nanded and Beed) were considered as 'very high' and 11 districts (Nandurbar, Akola, Washim, Wardha, Chandrapur, Hingoli, Parbhani, Jalna, Ahmednagar, Latur, and Osmanabad) fall under 'high' risk category. Among these, NICRA is operational on a pilot scale in 6 districts (Ahmednagar, Beed, Jalna, Latur, Nandurbar and Osmanabad). Demonstration of location-specific climate resilient technologies and capacity building programs were conducted for farmers in NICRA villages. Some of the promising technologies demonstrated to the farmers of Maharashtra include desilting of community ponds and check dams; Jalkunds, conservation/dead furrows and trench cum bunding in soybean, pearl millet and cotton, micro-irrigation in cotton and chickpea, mulching in fruits and vegetables, short duration soybean and chickpea varieties, intercropping systems, backyard poultry and breed upgradation in goat.
