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

LOK SABHA
UNSTARRED QUESTION NO. 2598
TO BE ANSWERED ON THE 16TH DECEMBER, 2025

AGRICULTURAL PRODUCTIVITY AND CROP YIELDS

2598. SHRI NAVEEN JINDAL:

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

(a) the manner in which the rising temperatures, erratic rainfall, heatwaves, and other extreme climatic events are affecting agricultural productivity and crop yields in the various agro-climatic zones in the country;
(b) the details of adaptive measures and climate-resilient agricultural practices the Government is promoting to help farmers mitigate the impact of climate change; and
(c) the details or steps being taken to promote the use of modern technology, such as drones, AI, and digital platforms, among small and marginal farmers, and to bridge the digital divide?

ANSWER

THE MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE
कृषि एवं किसान कल्याण राज्य मंत्री (SHRI RAMNATH THAKUR)

(a) & (b): Rising temperatures, erratic rainfall, heatwaves, and other extreme climatic events pose challenges to agricultural productivity . Indian Council of Agricultural Research (ICAR) is implementing the National Innovations in Climate Resilient Agriculture (NICRA) project, to study the impact of climate change on agriculture. The Project undertakes district-level risk and vulnerability assessments, and simulation modelling to estimate future climate change projections and implications for agriculture. Risk and vulnerability assessment of agriculture to climate change has been carried out for 651 predominantly 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 supporting 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, etc. have been demonstrated through KVKs in 448 Climate Resilient Villages of 151 climatically vulnerable districts. Capacity building for establishing village level seed banks and community nurseries is being undertaken.

Further, to address the impact of climate change, ICAR has released 2900 varieties during last 10 years (2014-2024). Out of these 2661 varieties are tolerant to one or more biotic and/or abiotic stresses. Drought and flood tolerant climate-resilient varieties of rice, wheat, soybean, mustard, chickpea, sorghum, gram, and foxtail millet have been demonstrated in several NICRA villages.

Several schemes are implemented under National Mission on Sustainable Agriculture (NMSA) to deal with the adverse climate situations in the agriculture sector. Per Drop More Crop scheme increases water use efficiency at the farm level through micro irrigation technologies i.e. drip and sprinkler irrigation. Rainfed Area Development scheme focuses on Integrated Farming System for enhancing productivity and minimizing risks associated with climatic variability. The Soil Health & Fertility scheme assists states in promoting Integrated Nutrient Management through judicious use of chemical fertilizers including secondary and micronutrients in conjunction with organic manures & bio-fertilizers. Mission for Integrated Development of Horticulture, Agroforestry & National Barnboo 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 failure of the crop by providing financial support to farmers suffering crop loss/damage arising out of unforeseen natural calamities and adverse weather incidence.

(c): The Government is taking several steps to promote the use of modern technology, such as drones, AI, and digital platforms, among small and marginal farmers and to bridge the digital divide. Artificial Intelligence (AI) and IoT-enabled systems are being leveraged to improve crop productivity, sustainability, and farmer livelihoods. The ‘Kisan e-Mitra’ voice-based AI chatbot, supporting 11 regional languages, assists farmers with queries related to

PM-KISAN and other programmes, handling over 20,000 queries daily and having responded to more than 95 lakh queries so far. The National Pest Surveillance System uses AI and Machine Learning for early detection of pest infestations, helping farmers reduce climate-induced crop losses; it is currently used by over 10,000 extension workers and covers 61 crops and more than 400 pests. AI-based analytics using field photographs and satellite imagery are also being deployed for crop-weather matching and monitoring of sowing patterns.

To promote drone technology, financial assistance is provided under the Sub-Mission on Agricultural Mechanisation (SMAM), under which small and marginal, SC/ST, women, and North Eastern State farmers receive 50% support (up to ₹5 lakh), while other farmers receive 40% support (up to ₹4 lakh) for individual drone ownership.

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. The Panchayat-level weather forecast information is accessible through multiple digital platforms, including: eGramSwaraj (https://egramswaraj.gov.in/), 'Gram Manchitra' Application of Ministry of Panchayat Raj (https://grammanchitra.gov.in/gm4MVC), 'Meri Panchayat' Mobile App and Mausamgram web portal of IMD (https://mausamgram.imd.gov.in/).

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