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

LOK SABHA
UNSTARRED QUESTION NO. 5102
TO BE ANSWERED ON THE 24TH MARCH, 2026

PROMOTION OF FUTURE-READY FARMING TECHNOLOGIES

5102. SHRI VIJAYKUMAR ALIAS VIJAY VASANTH:

Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) whether the Government has prepared a comprehensive roadmap to promote future-ready farming technologies in view of climate change and rising food grain demand, if so, the details thereof;

(b) whether district-level crop planning is being aligned with projected population growth and food security requirements, if so, the details of the framework and implementation mechanism thereof;

(c) whether any training programmes are being conducted to educate farmers on climate-resilient agriculture, precision farming and water-efficient cultivation practices, if so, the details of the coverage and beneficiaries thereof;

(d) whether digital advisory platforms and artificial intelligence-based tools are being deployed to assist farmers in crop selection, pest management and yield optimization, if so, the details thereof; and

(e) whether promotion of drought-resistant and high-yield seed varieties has been intensified to address environmental variability and if so, region-wise adoption data thereof?

ANSWER

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

(a) to (e): The Government, through Indian Council of Agricultural Research (ICAR), is implementing a project-National Innovations in Climate Resilient Agriculture (NICRA), which studies the impact of climate change on agriculture to promote future-ready farming technologies and rising food grain demand. Under the project, risk and vulnerability assessment of agriculture to climate change has been carried out at district-level 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. District Agriculture Contingency Plans (DACPs) for these 651 districts have also been prepared to address

weather aberrations and recommending location specific climate resilient crops and varieties and management practices for use by the State Departments of Agriculture. Under NICRA, for enhancing the resilience and adaptive capacity of farmers to climate variability, location-specific climate resilient technologies have been demonstrated through Krishi Vigyan Kendras (KVKs) in 448 model Climate Resilient Villages. These are spread over 151 climatically vulnerable districts. Capacity building for establishing village level seed banks and community nurseries is undertaken under NICRA. Drought and flood tolerant climate-resilient varieties of rice, wheat, soybean, mustard etc, were demonstrated in several NICRA villages. Besides, training programmes are conducted under Agricultural Technology Management Agency (ATMA) on various issues of agricultural practices. 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.

Under NICRA, technical assistance for small and marginal farmers is extended to additional vulnerable districts beyond the 151 currently covered districts for climate-resilient practices. Village level institutions through farmers' participatory approach, such as Village Climate Risk Management Committees, seed and fodder banks have been established Further, Indian Council of Agricultural Research has established 731 KVKs to promote new technologies in agriculture and allied sectors, including climate-resilient agriculture. KVKs organize training programmes for farmers, under which 18.56 lakh farmers have been trained.

Government has been leveraging Artificial Intelligence (AI) and Iot-enabled systems to enhance crop productivity, sustainability, and farmer livelihoods. The "Kisan e-Mitra" Voice-based AI chatbot, supporting 11 regional languages, assists farmers with queries on PM-KISAN and other programmes, handling over 20,000 queries daily and having responded to more than 95 lakh queries to date. Further, the Ministry of Agriculture and Farmers Welfare has launched Bharat VISTAAR, an AI-powered multilingual digital platform that provides farmers with real-time advisory, access to government schemes, market rates, and weather updates through a single interface. It currently supports Hindi and English, with plans to expand to 11 languages, and features a 24×7 AI assistant, "Bharati," offering immediate support via phone. The National Pest Surveillance System uses AI and Machine Learning to detect pest infestations early, helping farmers reduce climate-induced crop losses; the system is currently used by over 10,000 extension workers and supports 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. Further, ICAR has launched an ICT-based platform, "KISAN SARATHI", to provide digital advisories to farmers on crop selection, pest management, and yield optimization, with more than 2.75 crore farmers from over 3.43 lakh villages registered on the platform. Promotion of drought-resistant and high-yield seed varieties has been intensified to address environmental variability.

****