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

LOK SABHA
UNSTARRED QUESTION NO. 3688
TO BE ANSWERED ON THE 11th AUGUST, 2026

TECHNOLOGY DRIVEN CROP MONITORING SYSTEM

†3688. Shri Darshan Singh Choudhary:
Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि एवं किसान कल्याण मंत्रीbe pleased to state:

(a) whether modern technologies such as satellites, drones, Artificial Intelligence (AI), remote sensing, Geographic Information Systems (GIS), and the Internet of Things (IoT) are being utilized by the Government for the effective implementation of technology-driven crop monitoring systems;
(b) the details regarding projects undertaken for this purpose over the last three years, including coverage, funds allocated and utilized and key achievements in areas such as crop assessment, pest and disease management, irrigation planning and the verification of crop insurance claims, State-wise; and
(c) whether the Government is implementing any special action plan, in collaboration with the States to integrate these systems with the Pradhan Mantri Fasal Bima Yojana (PMFBY), Digital Agriculture Mission, National Natural Farming Mission and other agricultural schemes in order to provide real-time crop-related advisories to farmers?

ANSWER

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

(a) to (c): The Government of India uses various modern technologies such as satellites, drones, Artificial Intelligence (AI), Remote Sensing, Geographic Information Systems (GIS), and the Internet of Things (IoT) for the effective implementation of technology-driven crop monitoring systems.

A. Use of Remote Sensing & Geographic Information Systems (GIS):

I. FASAL (Forecasting Agricultural output using Space, Agro-meteorology and Land-based observations): It provides pre-harvest production forecasts at national, state, and district level for major crops using multispectral and Synthetic Aperture Radar (SAR) satellite data. It includes 11 major crops (Paddy, Wheat, Jute, Cotton, Sugarcane, Soybean, Tur, Gram, Mustard, Lentil, and Rabi Sorghum) across 20 states.

II. Disaster monitoring & assessment: MNCFC regularly generates remote based inputs i.e vegetation condition maps, soil moisture status, drought condition assessment, flood inundation and hailstorm impact for effective crop management.

III. Krishi Decision Support System: It integrates and standardizes geospatial and non-geospatial data, including satellite, weather, soil, crop signatures, reservoir, and

groundwater data, along with government scheme information. It support evidence-based decision-making by the government and facilitate innovative solutions by research institutions and the agritech industry. The information available on Krishi-DSS is used for crop map generation for identifying crop sown patterns and crop diversification, drought/flood monitoring, and technology/model-based yield assessment for settling crop insurance claims by farmers.

IV. YESTECH (Yield Estimation System based on Technology): YES-TECH initiative, under PMFBY, includes satellite-based crop yield models for Gram Panchayat-level yield estimation and claim settlement. YESTECH is being implemented for paddy, wheat & soybean crop across 12 states.

V. WINDS (Weather Information Network and Data System): WINDS is a National Initiative under PMFBY to strengthen weather data infrastructure across India. It is proposed to augment the existing weather network with new network of Automatic Weather Station (AWS) at Block/Tehsil/Taluk level and an Automatic Rain Gauge (ARG) at the Gram Panchayat level. Currently, WINDS programme is being implemented in 7 states.

B. Use of Drones:

Use of drones are promoted under Sub-Mission on Agriculture Mechanization (SMAM) by providing assistance up to 50% for agriculture graduates, Small and Marginal farmers of the North Eastern States for procuring kisan drones. For other farmers, financial assistance for the purchase of Kisan Drones is provided at 40% of the cost. Financial assistance of 40% of the cost is also provided for establishing Custom Hiring Centres of Kisan Drones. A total of 2122 Drones have been distributed/approved under SMAM scheme.

Further, the 'Namo Drone Didi' Central Sector Scheme aims to equip selected Women Self Help Groups (SHGs) with drones to offer rental services to farmers for agricultural applications, including spraying of fertilizers and pesticides. As per the information provided by the Department of Fertilizers, 1094 drones have been distributed to Drone Didis of SHGs. All these SHG members have been provided training at the Remote Pilot Organisations (RPTOS) authorised by Directorate General of Civil Aviation (DGCA).

C. Use of Artificial Intelligence:

I. National Pest Surveillance System (NPSS): This system tackles the loss of produce by utilizing AI and Machine Learning to detect pest infestation in crop issues, enabling timely intervention for healthier crops. This tool allows farmers to capture images of pests to help them mitigate pest attacks and reduce crop losses. At present, it covers 73 crops for 436 pests. AI-based analytics using field photographs for satellite-based crop mapping is being used in Crop-weather matching and monitoring of crops sown. As of today, 35,565 advisories have been issued through the application.

II. BharatVistaar: BharatVistaar (Virtually Integrated System to Access Agricultural Resources) is a multilingual Artificial Intelligence (AI)-powered Digital Public Infrastructure

(DPI) for Agriculture. The platform provides farmers with AI-enabled, real-time and location-specific agricultural advisories and access to Government schemes and agricultural support services.To date, the platform has served over 5.9 lakh farmers and addressed more than 93 lakh farmer queries. It provides information on 18 Central Government schemes, crop and livestock advisories, weather forecasts, mandi prices, pest and disease identification, soil health-based recommendations, grievance redressal, etc. The platform is available through a Chatboat (web portal & mobile application), and through a dedicated telephone line.

III. KISAN SARATHI: Krishi Vigyan Kendras are using Kisan Sarthi, an ICT-based platform developed by the Indian Council of Agricultural Research (ICAR), to provide crop-specific advisories to farmers. More than 2.97 crore farmers are registered on this platform from across the country.

AgriStack project under Digital agriculture Mission and other RS-IS initiatives support a wide range of digital services by integrating with various schemes, for accurate targeting of beneficiaries for Direct Benefit Transfer (DBT) under PM-KISAN, Minimum Support Price (MSP)-based procurement through the Food Corporation of India (FCI), booking of Fertilizer and transparent, efficient, accurate and timely settlement of claims under PMFBY. They also enable faster delivery of services, such as disaster relief disbursement in Maharashtra, sanctioning of Kisan Credit Card (KCC) loans within half an hour, and improved farmer outreach for participation in procurement schemes. Furthermore, the Farmer ID is being used for enrolment under the Pradhan Mantri Fasal Bima Yojana (PMFBY), procurement under the Price Support Scheme (PSS) of PM-ASHA, and linking with Soil Health Cards to support crop and input planning. In addition, Digital Crop Survey data is being utilized to generate near real-time crop production estimates.

Further, under National Mission on Natural Farming, the geo-referencing of Natural farms/clusters are captured under Krishi MApper application.

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