

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

**RAJYA SABHA**  
**UNSTARRED QUESTION NO - 492**  
TO BE ANSWERED ON THE 26/07/2024

**USE OF SPACE TECHNOLOGY IN AGRICULTURAL SECTOR**

492. SHRI G.C. CHANDRASHEKHAR:

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

- (a) whether Government is using space technology in agriculture sector in the country;
- (b) if so, the details thereof and the areas identified by Government for this purpose; and
- (c) whether Government has launched a pilot project using space technology for better yield estimation and if so, the details thereof and the outcome of the project?

**ANSWER**

THE MINISTER OF AGRICULTURE AND FARMERS WELFARE

(SHRI SHIVRAJ SINGH CHOUHAN)

(a) & (b): Yes, Sir. The Ministry of Agriculture and Farmers Welfare, has been proactive in using the space technology in agricultural sector. The Ministry, since early 80s has been funding various projects, under which Indian Space Research Organisation developed methodologies for Crop Production Forecasting. The Department of Agriculture, Cooperation and Farmers Welfare established a Centre, called Mahalanobis National Crop Forecast Centre, in 2012, for operationalisation of the space technology developed in the Indian Space Research Organization, for crop production forecasting. The Department has another centre called Soil and Land Use Survey of India, which uses satellite data for soil resources mapping. Currently, the Department is using space technology for its various programmes/ areas, such as, Forecasting Agricultural Output using Space, Agro-meteorology and Landbased Observations (FASAL) project, Coordinated programme on Horticulture Assessment and Management using geoinformatics (CHAMAN) project, National Agricultural Drought Assessment and Monitoring System (NADAMS), Rice-Fallow Area Mapping and intensification, proper implementation of Crop Insurance etc.

(c): The Department of Agriculture, Cooperation and Farmers Welfare had launched KISAN [C(K)rop Insurance using Space technology And geoinformatics] project during October 2015. The project envisaged use of high-resolution remote sensing data for optimum crop cutting experiment planning and improving yield estimation. Under this project, pilot

studies were conducted in 4 districts of 4 States viz. Haryana, Karnataka, Maharashtra and Madhya Pradesh. The study provided many useful inputs [for smart sampling, yield estimation, optimum number of Crop Cutting Experiments (CCEs) etc.], which were used to define Standard Operating Procedures for use of satellite data in the revised guidelines of Pradhan Mantri Fasal Bima Yojna (PMFBY).

Further, during 2019-20, pilot studies were conducted envisaging space technologies through 12 agencies in 64 districts of 15 States for 9 crops, while these approaches were validated in Rabi 2019-20 in 15 blocks of 6 States. During 2020-21, the pilot studies were scaled up to 100 districts spread over 9 states of the country, with the help of 7 agencies for paddy crop in Kharif 2020, which continued in Rabi 2020-21 for Rabi Rice and wheat crop.

Various technologies viz., Satellite, UAVs, Simulation models, and AI/ML techniques were used in the study to derive the yield estimates at Gram Panchayat (GP) level. Based on the finding of these studies, Technology based GP level yield estimation for Paddy and Wheat crop had been rolled out from Kharif 2023 under the YESTECH (Yield Estimation System using Technology) initiative of PMFBY.

Further, pilot studies have also been undertaken for technology based GP level crop yield estimation for non-cereals crops i.e Soybean, cotton, Jowar, Bajra, Gram, Mustard, Maize and Guar during Kharif & Rabi 2022-23. Based on the findings of non-cereal crop pilots, Yield estimation for Soybean Crop has been selected for implementation under YESTECH initiative.

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