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

LOK SABHA
UNSTARRED QUESTION NO. 1856
TO BE ANSWERED ON THE 11TH MARCH, 2025

SOIL FERTILITY MAPPING

1856. Dr. AMOL RAMSING KOLHE:
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Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि एवं किसान कल्याण मंत्री be pleased to state:

(a) whether the Government has undertaken any initiatives for Soil Fertility Mapping, if so, the details of the schemes and programs launched for mapping soil fertility in the country;

(b) the number of districts covered under soil fertility mapping so far in the State of Maharashtra;

(c) the manner in which this initiative is expected to benefit farmers in improving agricultural productivity;

(d) whether the Government has integrated geospatial technology, remote sensing, and AI-based tools in Soil Fertility Mapping, if so, the details of the technological interventions used in soil health assessment;

(e) whether the soil fertility data is made available to farmers in an accessible format and if so, the details thereof along with the challenges faced in implementing Soil Fertility Mapping in remote and hilly areas;

(f) whether soil degradation and nutrient deficiencies have been identified through mapping,and if so, the key findings;

(g) the impact of Soil Fertility Mapping on reducing excessive chemical fertilizer use; and

(h) the future plans for expanding soil fertility mapping across all agricultural zones in the country?

ANSWER

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

(a): Soil & Land Use Survey of India (SLUSI), under Department of Agriculture & Farmers Welfare is generating of district/village-wise digital soil fertility maps through geo-spatial

techniques using Soil Health Card (SHC) data. Soil Health Cards are generated under Soil Health & Fertility Scheme of Government of India. Soil Health & Fertility Scheme assists states in promoting Integrated Nutrient Management (INM) through judicious use of chemical fertilizers including secondary and micro nutrients, in conjunction with organic manures & bio-fertilizers for improving soil health and its productivity. Soil samples are processed following standard procedures and analyzed for various parameters viz, pH, electrical conductivity (EC), Organic Carbon, available Nitrogen, Phosphorus, Potassium, Sulphur and micronutrients (Zinc, Copper, Iron, Manganese & Boron). SHC provides information to farmers on soil nutrient status (low, medium & high) and recommendation on appropriate dosage of nutrients to be applied for improving soil health.

(b): Soil fertility maps for 351 villages spread across 34 districts of Maharashtra has been generated.

(c): Soil Fertility Maps provide detailed spatial information about the nutrient composition and health of the soil. It helps farmers in application of fertilizers and soil amendments judiciously, reducing the risk of overuse or underuse. It enhances economic outcomes for farmers, as they are able to maximize their returns with less input, thus increasing overall profitability.

(d): Geospatial techniques, including remote sensing & AI based tools, are used in Soil Fertility Mapping. The SHC soil sampling point is geo-coded using GPS, the sample is assigned a unique QR Code, and this QR code is retained during analysis in soil testing labs.

(e): Soil Fertility data in the form of SHCs is made available to farmers. Farmers can download SHC from the portal by entering registered mobile number. Challenges like logistical, technical, and physical infrastructure barriers are there in remote and hilly areas for soil fertility mapping. Presently use of Village Level Soil Testing labs and mini labs in hilly and remote area are addressing these challenges.

(f): Soil degradation and nutrient deficiencies have been identified through comprehensive mapping efforts using soil survey and soil health card data. Through SHC farmers are advised for balanced use of fertilizer to overcome the nutrient deficiencies.

(g) & (h): Soil fertility mapping is an essential tool which provides precise, location specific data on the nutrient and soil health status. The soil fertility maps enable farmers to identify areas with nutrient deficiencies or surpluses, allowing for targeted fertilizer application customized to the specific needs. Mapping the availability of nutrients in the soil, farmers can avoid the indiscriminate use of fertilizers, ensuring appropriate usage. The Scheme is available to all States & UTs.

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