

GOVERNMENT OF INDIA  
MINISTRY OF CHEMICALS & FERTILIZERS  
DEPARTMENT OF FERTILIZERS

**RAJYA SABHA**

**UN STARRED QUESTION NO. 2417 TO BE ANSWERED ON: 17.12.2024**

**Adverse Effects of Excessive Use of Chemical and Fertilizes**

**2417. SHRI SANT BALBIR SINGH:**

Will the Minister of **CHEMICALS AND FERTILIZERS** be pleased to state:

- (a) whether the production and use of chemical fertilizers contribute to the emission of greenhouse gases;
- (b) the extent to which the excessive use of chemical fertilizers affect the air, water and soil;
- (c) whether excessive use of chemical fertilizers reduce the fertility of the soil, if so, the details of the measures being taken by Government to prevent it; and
- (d) whether the rules and policies have been made to manage the use of chemical fertilizers and reduce their adverse effects?

**ANSWER**

THE MINISTER OF STATE IN THE MINISTRY OF CHEMICALS & FERTILIZERS

**(SMT. ANUPRIYA PATEL)**

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(a): Ammonia is the major intermediate for production of fertilizers. Natural gas is used as the feedstock for production of ammonia. Carbon dioxide, which is one of the greenhouse gases, is released during the manufacturing of ammonia. More than 65% of carbon dioxide is captured and used for making urea and rest is released to atmosphere. Further, plants manufacturing complex and other fertilizers use fossil fuel for generating steam and heating purpose. However, their contribution compared to urea plants is very low. Application of fertilizer to soil also contributes to emission of carbon dioxide and nitrous oxide. Industry over the years have undertaken measures to reduced Green House Gases (GHG) emissions from the production by improving energy efficiency, switching to cleaner feedstock like natural gas from coal, naphtha and fuel oil.

(b): As a party to United Nations Framework Convention on Climate Change (UNFCCC), India periodically submits its National communications and Biennial updates to the UNFCCC. As per the report submitted to the UNFCCC in 2023, the production of chemical fertilizers contributed to 4.91 million tonnes CO<sub>2</sub>, equivalent in 2019. Further, soil application of chemical fertilizers for agriculture contributed to direct and indirect nitrous oxide emissions of 88.41 Million tonnes of CO<sub>2</sub>, equivalent in 2019.

(c): The Indian Council of Agricultural Research (ICAR) under All India Coordinated Research Project on 'Long-Term Fertilizer Experiments' has assessed the impact of long-term use of chemical fertilizers in different soil types under dominant cropping systems. Investigations carried out over five decades at fixed sites have indicated that there is no harmful effect of chemical fertilizers on soil fertility with balanced and judicious use. However, imbalanced use of chemical fertilizers coupled with low addition of organic matter over years may cause multi-nutrient deficiencies vis-à-vis decline in soil health. Continuous use of nitrogenous fertilizer alone had deleterious effects on soil health and crop productivity showing deficiencies of other major and micro nutrients.

(d) : The Government of India is implementing Soil Health & Fertility Scheme. Under the Scheme, the Soil Health Cards are issued to farmers for providing information on fertility status of soils and recommends dosages of fertilizers, micro-nutrients, and macro-nutrients. Further, the Soil Health Card recommends the dosage of fertilizers to be applied and the type of crop to be sown. Based on the soil health cards generated, advisories are issued to farmers through Agricultural Technology Management Agency (ATMA) and Krishi Vigyan Kendra (KVK). In addition, 70,000 Krishi Sakhis are trained to issue soil health card advisories. Further, till date, approximately 7 Lakh demonstrations, 93,781 farmer's training programmes and 7,425 farmer's mela have been organized on the proper use of fertilizers to improve soil quality.

Government of India approved the Market Development Assistance (MDA) @Rs. 1500/MT to promote organic fertilizers, i.e., Fermented Organic Manure (FOM)/Liquid Fermented Organic Manure (LFOM)/Phosphate Rich Organic Manure (PROM) with total outlay of Rs. 1451.84 Crore (FY 2023-24 to 2025-26) to address the imbalanced use of chemical fertilizers thereby reducing chemical fertilizer use.

Cabinet Committee on Economic Affairs (CCEA) on 28th June, 2023 approved the "PM Programme for Restoration, Awareness Generation, Nourishment, and Amelioration of Mother-Earth (PM-PRANAM)" which aims to support the mass movement started by States/UTs to save the health of Mother Earth by promoting sustainable and balanced use of fertilizers, adopting alternate fertilizers, promoting organic farming and implementing resource conservation technologies.

Government of India has notified the specifications of Nano fertilizers (Nano Urea & Nano DAP) under Fertilizer Control Order, 1985. The Nano Fertilizers hold great promise for application in plant nourishment because of the size-dependent qualities, high surface-volume ratio and unique optical properties; they release plant nutrients in a controlled manner contributing to higher nutrient use efficiency; and are easy to carry in the field.

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