



Nutrient Use Efficiency in Indian Agriculture: N 30–45%, P 15–25%, K 50–60% — Government Focuses on Balanced Use and Higher Farm Returns: Smt. Anupriya Patel

ICAR Highlights Declining Response Trends Due to Nutrient Imbalance; Initiatives Underway to Improve Efficiency and Value Addition

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Nutrient Use Efficiency (NUE) refers to the proportion of applied fertilizer nutrients that are effectively absorbed and utilized by crops for growth and yield. NUE levels are influenced by a range of factors, including crop type, soil conditions, agro-climatic variations, fertilizer source and application methods, irrigation practices, and overall crop management. As per experimental studies conducted by the Indian Council of Agricultural Research (ICAR) and other research institutions, NUE in India is generally estimated at **30–45% for nitrogen (N)**, **15–25% for phosphorus (P)**, and **50–60% for potassium (K)**.

On farm value addition, the average Gross Value Added (GVA) from agriculture and allied sectors is estimated at approximately ₹2–3 lakh per hectare per year, though this varies widely depending on crops, regions, and market conditions. Horticultural crops typically generate significantly higher value addition per hectare compared to cereals. The Government is actively supporting value addition through key schemes such as:

- Pradhan Mantri Kisan SAMPADA Yojana (PMKSY)
- Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)
- Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) Scheme
- ICAR has informed that over the decades, this ratio has shown a declining trend due to factors such as nutrient imbalance in soils, excessive use of nitrogenous fertilizers, and decline in soil organic matter. Based on experimental results compiled from various field experiments, the fertilizer-to-grain response ratio in the country during recent years has ranged from 9.55 to 11.05 kg of grain per kg of fertilizer applied.

In 2025 (January–December), total sales of subsidised urea stood at 399.40 lakh metric tonnes (LMT).

ICAR has informed that based on typical Nutrient Use Efficiency (NUE) ranges (N: 30–45%, P: 15–25%, K: 50–60%), a significant portion of applied fertilizers is not immediately utilized by crops. The remaining nutrients may be lost through leaching, volatilization and runoff, or retained in soil as residual or fixed nutrients for subsequent crops.

This information was provided by Smt. Anupriya Patel, MoS for Chemicals & Fertilizers, in a reply to a Unstarred Question in the Rajya Sabha today.

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