GOVERNMENT OF INDIA
MINISTRY OF CHEMICALS AND FERTILIZERS
DEPARTMENT OF FERTILIZERS

LOK SABHA

UNSTARRED QUESTION **NO. 5564** TO BE ANSWERED **ON: 04.04.2025**

Import of Nano Urea

5564. THIRU DAYANIDHI MARAN:

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

(a) whether scientific studies and field trials were conducted to assess the effectiveness of Nano Urea before its approval for large-scale use, if so, the details thereof;
(b) whether the Government has taken note of the reports suggesting that Nano fertilizers used by the farmers were found to be inefficient and costly and if so, the details thereof;
(c) whether the Government is considering reassessment of its policy for large-scale promotion of Nano Urea, in light of the said reports about Nano Urea's inefficiency and if so, the details thereof;
(d) whether the Government has conducted any study on Nano Urea's use impacts on nutritional quality of staple grains produced, if so, the details thereof;
(e) whether reports also suggest that Punjab Agricultural University and other institutions have found a decline in crop yield; and
(f) if so, whether the Government will conduct independent trials in Tamil Nadu's agro-climatic conditions before further promoting Nano Urea in the area and if so, the details thereof?

ANSWER

THE MINISTER OF STATE IN THE MINISTRY OF CHEMICALS AND FERTILIZERS
(SMT. ANUPRIYA PATEL)

(a) to (e): Yes. Indian Council of Agriculture Research (ICAR) research institutes/state agricultural Universities carried out nano urea trials on different crops such as Paddy, Wheat, Mustard, Maize, Tomato, Cabbage, Cucumber, Capsicum and Onion in different agro-climatic zones. The study on the effect of nano urea (liquid) on crop yield and soil indicated that nano-urea can be used as foliar spray for top-dressing instead of normal urea. Independent study carried out by the ICAR institute on selected crops revealed that Nano urea spray along with recommended practice enhanced 0.8% growth (height, tillers), 1% in physiological traits (chlorophyll, enzyme), 2% yield attributes over 100% RDN in rice. It also significantly decreased the cynogen (bitterness compound) in cassava and enhanced protein content (1-2%) and reduced fiber fractions in fodder maize.

The Maximum Retail Price (MRP) of 45 Kg bag of conventional Urea, after subsidy, is Rs 266.5 per bag. Against this, the MRP of Nano Urea produced by various companies are as under :

Sr. No	Company Name	The cost of Nano Urea without subsidy (MRP)
1	Indian Farmers Fertilisers Cooperative Limited	Rs 225 per 500 ml bottle
2	Ray Nano Science & Research Centre	Rs 225 per 500 ml bottle
3	Meghmani Crop Nutrition Limited	Rs 225 per 500 ml bottle
4	Zuari Farm Hub Ltd	Rs 265 per 500 ml bottle
5	Coromandel International Limited	Rs 325 per 500 ml bottle

A 500 ml bottle of Nano urea is approximately equivalent to 1 bag of 45 Kg of conventional Urea.

The MRP of 50 Kg bag of conventional DAP, after subsidy, is Rs 1350 per bag. Against this, the MRP of Nano DAP produced by various companies are as under:

Sr. No	Company Name	The cost of Nano DAP without subsidy
1	Indian Farmers Fertilisers Cooperative Limited	Rs 600 per 500 ml bottle
2	Coromandel International Limited	Rs 600 per 1 litre bottle
3	Zuari Farm Hub Ltd	Rs 625 per 500 ml bottle

A 500 ml bottle of Nano DAP is approximately equivalent to 1 bag of 50 Kg of conventional DAP.

In case of conventional Urea and conventional DAP, Government bears the cost of subsidy for their sale, while even without any subsidy, Nano fertilizers are cheaper than conventional fertilizers.

The project "Effect of Nano Urea and DAP and popularization of its use in crop production," is undertaken at ICAR from 2024 to 2026, to evaluate the impact of Nano Urea and DAP on crop growth, soil health, and nutrient uptake across various agro-ecological zones in India.

An MoU has also been signed between National Productivity Council (NPC) of India and Department of Fertilizers on 5th March, 2024 to undertake the study of Nano Urea on "Evaluating Efficacy, Utility and Impact of Nano Urea in comparison to Conventional Urea. Study conducted in 8 States (AP, Assam, Gujarat, Bihar, Karnataka, MP, Maharashtra, UP), 24 districts and 120 villages from key stakeholders viz. farmers, retailers, SAU/KVK and submitted their findings as under:

(i) Improved Nano Urea plus with 16% Nitrogen (w/w) or 20% Nitrogen (w/v) which covers large number of crops is better for higher yield.

(ii) Percentage increase in yield for combined application of conventional urea (basal dose) and nano urea (foliar application) as compared to conventional urea alone is 1.65-14.82% depending upon the crop based on feedback from farmers(at **Annexure**).

(iii) The crop growth is better if seed treatment is done with Nano DAP.

(iv) Conventional urea harms the population of earthworms which are beneficial for the health of soil and the crops. Hence conventional urea may be used to a minimum extent and the use of nano urea has to be promoted for better soil and crop health.

(v) Nano urea does not degrade soil health as it is applied as a foliar application.

The experiments conducted by Punjab Agricultural University (PAU), Ludhiana on IFFCO Nano Urea during 2020-2024 along with on-farm trials at 17 Krishi Vigyan Kendras (KVKs) of PAU and 10 farmers' fields, did not support the claims regarding yield improvement or nitrogen efficiency with the use of nano urea. However, ICAR study recommends using 2 foliar sprays of Nano urea, along with 2/3 of the recommended N and full doses of PK, which can increase crop yields by 3-8%. Short-term studies have found no significant impact of Nano urea application on soil properties, including soil nitrogen content.

(f) Yes. ICAR has informed that Annamalai University and Tamil Nadu Agricultural University have tested the product of IFFCO Nano Urea, in Tamil Nadu.

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Annexure

Annexure referred to in reply to part (a) to (e) of Lok Sabha Unstarred question No. 5564 for answering on 04.04.2025

S.No.	Crop	States Covered under Study	Range of % increase in yield in different crops
1	Paddy	Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra & Uttar Pradesh	3.12 -12.74
2	Wheat	Andhra Pradesh, Bihar, Gujarat, Maharashtra, Madhya Pradesh & Uttar Pradesh	3.32 -10.11
3	Maize	Bihar, Gujarat, Karnataka, Maharashtra & Madhya Pradesh	8.11 -12.5
4	Cotton	Andhra Pradesh, Gujarat, Karnataka & Maharshtra	3.58 - 10.16
5	Mustard	Gujarat, Madhya Pradesh & Uttar Pradesh	8.12 -12.14
6	Sugarcane	Gujarat, Karnataka & Uttar Pradesh	1.65 -4.00
7	Chilli	Andhra Pradesh, Gujarat & Uttar Pradesh	7.3 -11.31
8	Potato	Assam, Gujrat & Madhya Pradesh	4.32 -7.88
9	Soyabean	Gujarat & Karnataka	5.87 - 6.98
10	Gram	Andhra Pradesh & Madhya Pradesh	2.98 - 12.76
11	Groundnut	Andhra Pradesh & Gujarat	7.11 - 12.00
12	Onion	Andhra Pradesh & Madhya Pradesh	5.32 -11
13	Pearl Millet	Gujarat & Maharashtra	7.16 - 9.57
14	Cabbage	Madhya Pradesh & Uttar Pradesh	7.50 -13.57
15	Brinjal	Andhra Pradesh & Uttar Pradesh	6.7 - 14.38
16	Garlic	Madhya Pradesh	7.58 -12.00
17	Coriander	Madhya Pradesh	7.81 -12.01
18	Pea	Uttar Pradesh	6.14 -14.82
19	Carrot	Madhya Pradesh	6.20 -10.12
20	Castor	Gujarat	7.52 - 7.67
21	Ragi	Andhra Pradesh	3.45-7.67
22	Masur	Madhya Pradesh	5.73-8.00
23	Moong	Madhya Pradesh	5.53-7.98
24	Tabacco	Gujarat	7.71-8.00
25	Tomato	Andhra Pradesh	3.54-6.52
26	Udad	Maharashtra	5.7-9.5
27	Watermelon	Maharashtra	10.83-11.02
28	Arhar	Gujarat	5.9-8.1
29	Banana	Andhra Pradesh	5.21-7.1
30	Boro/Springce	Assam	3.54-8.23

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