

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION

LOK SABHA
UNSTARRED QUESTION NO. 4047
TO BE ANSWERED ON 17TH MARCH, 2026

IMBALANCE USE OF FERTILIZER

4047. SHRI ESWARASAMY K:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि और किसान कल्याण मंत्री be pleased to state:

- (a) whether the Government is aware of the recent study conducted by the Indian Council of Agricultural Research (ICAR) which found that climate change and imbalanced use of fertilizers are leading to degradation of soil organic carbon in arable lands across the country;
- (b) whether the findings indicate region-specific variations in organic carbon levels, particularly in relation to temperature, rainfall and elevation and if so, the details thereof;
- (c) the steps being taken by the Government to promote balanced fertilizer application and improve soil organic carbon content; and
- (d) the total budget allocated and utilised for soil health improvement and carbon management research projects under ICAR during the last five years, year and State-wise?

ANSWER

THE MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE
कृषि और किसान कल्याण राज्य मंत्री (SHRI BHAGIRATH CHOUDHARY)

(a) & (b): Yes, the Government is aware of the study conducted by the Indian Council of Agricultural Research (ICAR) through the ICAR–Indian Institute of Soil Science (IISS) which assessed the spatial distribution of Soil Organic Carbon (SOC) in cultivated areas of the country. The study analysed 254,236 geo-referenced top soil samples (0–15 cm depth) collected from different parts of India to evaluate SOC status and its relationship with climatic and geographical factors. Long-term fertilizer experiments have shown that imbalanced fertilizer application leads to soil fertility degradation and a decline in soil carbon levels.

The study reported that SOC in cultivated soils of the country varies widely from 0.01% to 5.25% with an average value of about 0.64% (± 0.42), indicating considerable variability in soil carbon levels across regions. The analysis shows that SOC distribution is strongly influenced by climatic and physiographic factors such as elevation, rainfall and temperature. In particular, SOC showed a significant positive correlation with elevation and a significant negative correlation with average annual maximum temperature and average annual rainfall, indicating that higher temperatures and certain climatic conditions associated with climate variability may contribute to lower SOC levels in cultivated lands.

The study also highlighted that the generated SOC distribution maps can serve as important references for soil health management, sustainable agricultural practices, land degradation monitoring, carbon sequestration efforts and climate change mitigation strategies.

(c): The Government has taken several policy steps, technological and awareness measures to promote balanced fertilizer application and improve soil organic carbon (SOC) content focusing on reducing excessive chemical fertilizer use, encouraging soil-test based nutrient management, balanced fertilization, crop diversification and promoting organic inputs. Since 2014-15, 25.90 crore Soil Health Cards have been generated/distributed across the country to promote balanced and integrated nutrient management for improving productivity and soil fertility. Across the country, 93,781 farmer trainings, 6.80 lakh demonstrations, and 7,425 farmer melas/campaigns have been conducted to promote Soil Health Card recommendations.

As parts of its awareness and training activities, the Krishi Vigyan Kendra (KVKs) train the farmers on different aspects of Soil Health and Fertility Management including balanced use of fertilizers. During 2024-25, the KVKs trained about 1.31 lakh farmers on different aspects of Soil Health and Fertility Management including balanced use of fertilizers. More than 4000 frontline demonstrations have been conducted in farmers' fields to show the impact of soil test based balanced fertilizer applications. The various schemes/ programmes across the ministries promoting the balanced fertilizer application and improve soil organic carbon content are attached as **Annexure-I**.

(d): Budget allocated and utilized for soil health improvement and carbon management research projects under ICAR - All India Coordinated Research Project (AICRP) on Soil Test Crop Response (AICRP-STCR), AICRP on Long-Term Fertilizer Experiments (AICRP-LTFE), AICRP on Micro- and Secondary Nutrients and Pollutant Elements in Soils and Plants (AICRP- MSPE), All India Network Project on Soil Biodiversity-Biofertilizers (AINP- SBB), Conservation Research Platform for Conservation Agriculture (CRP-CA), AICRP on Integrated Farming System (AICRP-IFS), and AINP on Natural Farming (AINP-NF) with AICRP centres across the country is attached at **Annexure-II** and **Annexure-III**.

[Part (c) of Lok Sabha USQ No. 4047 dated 17th March, 2026]

Scheme / Programme	Implementing Ministry
<ul style="list-style-type: none"> • AICRP on LTFE • AICRP on STCR • AICRP on MSPE • AINP on SBB • CRP on CA • Soil Health Card (SHC) Scheme • Paramparagat Krishi Vikas Yojana (PKVY) • Mission Organic Value Chain Development for North Eastern Region (MOVCD-NER) • National Mission on Natural Farming (NMNF) • National Mission for Sustainable Agriculture (NMSA) • Soil Health Management (SHM) Scheme 	Ministry of Agriculture & Farmers Welfare
<ul style="list-style-type: none"> • PM-PRANAM (Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth) • Nutrient Based Subsidy (NBS) Scheme 	Ministry of Chemicals & Fertilizers
<ul style="list-style-type: none"> • GOBAR-Dhan Scheme 	Ministry of Jal Shakti / Rural Development
<ul style="list-style-type: none"> • City Compost / Waste-to-Wealth Initiatives 	Ministry of Housing & Urban Affairs

[Part (d) of Lok Sabha USQ No. 4047 dated 17th March, 2026]

The allocation and expenditure in various projects over the last five completed years

(Rs. In lakh)

Institute/ AICRPs/ AINP	Year									
	2020-2021		2021-2022		2022-2023		2023-2024		2024-2025	
	Allocation	Utilized	Allocation	Utilized	Allocation	Utilized	Allocation	Utilized	Allocation	Utilized
AICRP-LTFE	526.11	526.11	574.57	574.57	651.06	651.06	695.65	695.65	783.49	783.49
AICRP-STCR	782.75	782.75	926.95	926.95	1087.86	1087.86	1274.12	1274.12	1419.32	1419.32
AICRP- MSPE	709.42	604.58	829.53	829.53	914.99	914.99	775.41	775.41	990.46	990.46
AINP- SBB	228.37	150.05	212.04	212.04	284.33	284.33	304.60	304.60	200.35	200.35
CRP- CA	218.41	184.74	274.99	274.93	242.36	242.36	335.29	335.29	373.19	373.13
AICRP-IFS	188.35	186.34	675.37	673.37	580.46	579.37	642.27	639.46	635.41	635.41
AINP-NF	88.47	87.46	252.56	251.42	193.78	193.78	336.28	334.22	245.99	245.99
Total	2741.88	2522.03	3746.01	3742.81	3954.84	3953.75	4363.62	4358.75	4648.21	4648.15

[Part (d) of Lok Sabha USQ No. 4047 dated 17th March, 2026]**List of Co-operating Centres under AICRPs/AINP/CRP**

<p>AICRP on LTFE UAS GKVK, Bangalore; OUAT, Bhubaneswar; TNAU, Coimbatore; PJTSAU, Hyderabad; JNKVV, Jabalpur; PAU, Ludhiana; CSKHPKV, Palampur; BAU, Ranchi; GBPUAT, Pantnagar; KAU, Pattambi; JAU Junagarh; MPUAT, Udaipur; VNMAU, Parbhani; Dr PDKV, Akola; IGKVV, Raipur; ICAR-IARI, New Delhi; ICAR-CRIJAF, Barrackpore; ICAR-IASRI, New Delhi.</p>
<p>AICRP on MSPE PJTSAU, Hyderabad; RAU, Pusa; AAU, Anand; HAU, Hisar; JNKVV, Jabalpur; Dr PDKV, Akola; OUAT, Bhubaneswar; PAU, Ludhiana; TNAU, Coimbatore; GBPUAT, Pantnagar; AAU, Jorhat; BCKV, Kalyani; RAU, Ranchi; CSKHPKV, Palampur; CSAUAT, Kanpur; KAU Kerala; UAS Bengaluru; CAU, Manipur; NIANP Bengaluru; ICAR-IARI, New Delhi; RLBCAU, Jhansi.</p>
<p>AICRP on STCR PJTSAU, Hyderabad; RAU, Pusa; IGKV, Raipur; ICAR-IARI, New Delhi; HAU, Hisar; HPKV, Palampur, GKVK, Bengaluru; KAU, Vellanikara; JNKVV, Jabalpur; MPKV, Rahuri; OUAT, Bhubaneswar; PAU, Ludhiana; SKRAU, Bikaner; TNAU, Coimbatore; GPUAT, Pantnagar; BCKVV, Kalyani; ICAR-CRIJAF, Barrackpore; PAJANCOA, Puduchery; BHU, Varanasi; AAU, Jorhat; JAU, Gujarat; SKUAT, Srinagar; BAU, Ranchi; ICAR-IISR, Lucknow; ICAR-Complex, Manipur.</p>
<p>AINP on SBB AAU, Jorhat; ANGRAU, Amaravathi; BAU, Ranchi; HAU, Hisar; JNKVV, Jabalpur; KAU, Thrissur; MAU, Parbhani; MPUAT, Udaipur; OUAT, Bhubaneswar; RAU, Pusa; TNAU, Coimbatore; YSPUHF, Solan; CRRI, Hazaribagh; ICAR-IARI, New Delhi; DGR, Junagarh; GBPUAT, Pantnagar; UAS, Dharwad.</p>
<p>CRP on CA PIC New Delhi, PIU Bhopal, ICAR-IISS Bhopal, ICAR-CRIDA Hyderabad, ICAR-IARI Delhi, ICAR-DWR Jabalpur, ICAR-RCER Patna, ICAR-CSSRI Karnal, ICAR-NIASM Baramati, ICAR-IIWBR Karnal, ICAR-NRRI Cuttack, ICAR-IIFSR Modipuram, ICAR-CIAE Bhopal.</p>

List of AICRP-IFS & AINP-NF Centres

State / U.T	University/ Institute	AICRP-IFS (74 no's)				AINP-NF (20 no's)
		On-station Research			On-farm Research (districts) (32 no's)	
		Main Centre (25 no's)	Sub- Centre (11 no's)	Vol. Centre (6 no's)		
A& N Islands	CARI, Port Blair	----	----	Port Blair	----	----
Andhra Pradesh	ANGRAU, Hyderabad	-	Maruteru	----	Vizianagaram	----
Assam	AAU, Jorhat	Jorhat	----	----	Golaghat	----
Bihar	BAU, Sabour	Sabour	----	----	Saharsa, Biharz	----
	ICAR-RC for ER, Patna	----	----	Patna	----	----
Chhattisgarh	IGKV, Raipur	Raipur	----	----	Bastar	Raipur
Delhi	IASRI, New Delhi	-	-	Delhi	-	-
Goa	ICAR-RC for Goa	----	----	Old Goa	----	----
Gujarat	SDAU, S. K. Nagar	S. K. Nagar	----	----	Sabarkantha	SK Nagar
	AAU, Anand	----	----	----	Dahod	----
	NAU, Navsari	----	Navsari	----	----	----
	JAU, Junagardh	----	Junagadh	----	----	----
Haryana	CCS HAU, Hisar	Hisar	----	----	Rewari	----
Himachal Pradesh	CSK HPKV, Palampur	Palampur	----	----	Kullu	Bajaura
J&K	SKUAST, Jammu	Chatha (Jammu)	----	----	Udhampur	----
Jharkhand	BAU, Ranchi	Ranchi	----	----	Saraikela-Kharsawan	Ranchi

Karnataka	UAS, Bangalore	----	----	----	Chikkaballapura	----
	UAS, Dharwad	----	----	----	Uttara Kannada	Dharwad
	UAS, Raichur	Siruguppa (Bellary)	----	----	----	----
	UAHS, Shivmoga	Kathalgere	----	----	----	----
Kerala	KAU, Thirssur	Thiruvanthapuram	----	----	Alappuzha	----
	CTCRI, Thiruvanthapuram	-	-	-	-	Thiruvanthapuram
	IISR, Calicut	----	----	----	----	Calicut
Madhya Pradesh	JNKVV, Jabalpur	Jabalpur	Powarkheda Rewa	----	Mandla and Jabalpur	Jabalpur
	RVS KVV, Gwalior	----	Indore	----	----	----
	IISS, Bhopal	----	----	----	----	Bhopal
Maharashtra	MPKV, Rahuri	Rahuri	----	----	Solapur	----
	MAU, Parbhani	Parbhani	----	----	Nanded	----
	DPDKV, Akola	Akola	----	----	Wardha	----
	DBS KKV, Dapoli	Karjat	----	----	Palghar	Karjat
Meghalaya	ICAR-RC for NEH Region	----	----	Umiam	----	Umiam
Orissa	OUAT, Bhubaneswar	Bhubaneswar	Chiplima	----	Kendujhar & Khordha	----
Punjab	PAU, Ludhiana	Ludhiana	----	----	Patiala	Ludhiana
Rajasthan	SK RAU, Bikaner	Durgapur (Jaipur)	----	----	Bharatpur	
	KAU, Kota	-	Kota	-	-	-

	NRCSS, Ajmer	-	-	-	-	Ajmer
	MPUAT, Udaipur	----		----	Rajasmand	Udaipur
Sikkim	ICAR-RC- NEH, Gangtok					Gangtok
Tamil Nadu	TNAU, Coimbatore	Coimbatore	Thanjavur	----	Salem & Dindigul	Coimbatore
Telangana	PJTSAU, Rajendranagar	Rajendranagar	Rudrur	-	Rangareddy	-
Uttar Pradesh	CSAUAT, Kanpur	Kanpur	----	----	Unnao	----
	NDUAT, Faizabad	Kumarganj	----	----	Mau	----
	BHU, Varanasi	----	Varanasi	----	----	----
	IIFSR, Modipuram	----	----	Modipuram	Meerut	Modipuram
Uttarakhand	GBPUAT, Pantnagar	Pantnagar	----	----	Almora	Pantnagar
	VPKAS, Almora	-	-	-	-	Almora
West Bengal	BCKV, Kalyani	Kalyani	----	----	Bankura	-
	RKVU, Narendrapur	-	-	-	-	Narendrapur
