

India's First Soil Carbon Payments Put Farmers at the Centre of Regenerative Agriculture

Over ₹2.9 Crore to be Disbursed to More Than 2,500 Farmers in Punjab and Haryana

Posted On: 17 SEP 2026 12:09PM by PIB Delhi

India's agricultural carbon market has moved from policy to the farm level, with more than 2,500 smallholder farmers in Punjab and Haryana set to receive digital payments for adopting regenerative farming practices. The first payments were released at a programme organised at Punjab Agricultural University (PAU), Ludhiana, marking a new link between sustainable agricultural practices and additional income for farmers. Dr M. L. Jat, Secretary, Department of Agricultural Research and Education (DARE) and Director General, ICAR, initiated the Direct Benefit Transfer (DBT) to 2,550 farmers from Punjab and Haryana.



The payments are part of 'Aadi', a Grow Indigo farmer carbon programme launched in 2019 with technical guidance from ICAR. Under the programme, farmers adopted practices such as Direct Seeded Rice (DSR), reduced tillage, and crop residue management between 2019 and 2022. The resulting greenhouse-gas reductions and increases in soil carbon were measured and independently verified before carbon credits were issued. The programme covers more than two million acres and over 100,000 farmers across seven states and has issued agricultural carbon credits under the Verra VM0042 methodology.

The programme builds on a broader transition towards regenerative agriculture in Punjab and Haryana, including crop residue management, water conservation, and farming systems aimed at improving soil health and climate resilience. ICAR institutions have contributed scientific and field expertise in areas

including greenhouse-gas accounting, crop-simulation modelling, soil-sampling protocols, device validation, field-team training and satellite and remote-sensing approaches. ICAR–Indian Agricultural Research Institute (IARI), New Delhi, has contributed to these processes, while Grow Indigo is also working with ICAR–Agricultural Technology Application Research Institute (ATARI), Zone 1, to promote regenerative agriculture.

During his visits to Punjab under the Viksit Krishi Sankalp Abhiyan and subsequent engagements with farmers and agricultural institutions Union Minister for Agriculture and Farmers' Welfare Shri Shivraj Singh Chouhan has emphasised farmer-centric agricultural research and field-level adoption of sustainable technologies. He highlighted the importance of direct-seeded rice and residue-management practices. During his June 2025 visit to Punjab, he interacted with farmers and reviewed farming practices as part of the campaign.



Dr M. L. Jat, Secretary, DARE and Director General, ICAR, said that the initiative demonstrates how climate-smart farming practices, backed by scientific assessment and rigorous verification, can create additional income opportunities for smallholder farmers while contributing to water conservation and improved air quality. He congratulated the participating farmers and acknowledged the contribution of ICAR institutions to the scientific framework supporting the initiative.

The carbon payments provide an economic incentive for practices that can also generate environmental benefits. Direct Seeded Rice can reduce irrigation requirements compared with conventional transplanting, while improved crop-residue management can help reduce stubble burning and associated air pollution. For enrolled fields during 2019–2022, the programme estimates savings of 45 billion litres of water and more than two lakh tonnes of crop residue kept out of fires, avoiding an estimated 1,000 tonnes of PM2.5 emissions.

Farmers were paid according to their share of the carbon credits generated from their fields. Grow Indigo released the payments digitally from its own funds before the credits were fully sold, enabling farmers to receive the payments without waiting for sale proceeds. Farmers could choose between an assured upfront payment and 75 per cent of the net carbon revenue after the credits were sold. The first issuance covered around 30,000 acres and more than 50,000 carbon credits, with participating farmers receiving approximately ₹3,000–₹15,000.

The payments followed a multi-year process of measurement and independent verification. Farmers who joined the programme after 2022 are part of the next monitoring cycle and will receive payments as their carbon credits are issued.

Dr Usha Barwale Zehr, Executive Director, Grow Indigo, described the payment as the first instance in India of farmers being paid for carbon stored in their soil and acknowledged the trust and patience of participating farmers during the scientific assessment and verification process. Farmers Harinderjeet Gill of Nurpur Bet, Ludhiana, and Amandeep Kaur of Sangrur also shared their experiences, highlighting the economic and environmental benefits associated with continuing regenerative practices and avoiding crop-residue burning.

The initiative forms part of a wider agricultural transformation supported by ICAR, agricultural universities, Krishi Vigyan Kendras (KVKs) and State institutions. Field-level experiences are providing a foundation for wider adoption of practices such as residue retention, minimum soil disturbance, DSR, diversified cropping, improved soil biology and efficient water use, with the objective of integrating sustainability and productivity in farming systems.

Punjab has also recorded a substantial decline in farm-fire incidents. According to Government data, Punjab recorded 5,114 farm-fire incidents during the 2025 paddy harvesting season, the lowest number since monitoring under the present framework began, representing a 93 per cent reduction compared with 2021 and a 90 per cent reduction compared with 2022. The Ransinh Kalan model in Moga, where the village maintained a 100 per cent residue-burning-free status across 1,310 acres for six consecutive years, further demonstrates the potential of sustained residue-management efforts.

The significance of these developments also extends to international agricultural cooperation. The 16th BRICS Agriculture Ministers' Meeting, held in Indore in June 2026 under India's chairship, agreed to establish a BRICS Network of Centres of Excellence on Agroecology and Regenerative Agriculture for Climate Resilience and Productivity, with initial coordination by ICAR-Indian Institute of Farming System Research (IIFSR), Modipuram. The BRICS New Delhi Declaration, adopted in September 2026, subsequently welcomed the strengthening of cooperation through this network.

The Ludhiana initiative brings together three interconnected dimensions of India's agricultural transformation: farmer-centric, field-based agricultural research; ICAR's Lab-to-Land approach through its research institutions, ATARIs and KVKs; and international cooperation to share and scale sustainable agricultural practices. The first soil-carbon payments demonstrate how scientifically measured environmental outcomes can be connected with economic incentives for farmers, while contributing to resource conservation, climate resilience and sustainable agricultural production.

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(Release ID: 2311218) Visitor Counter : 1245

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