

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

LOK SABHA
UNSTARRED QUESTION NO. 1523
TO BE ANSWERED ON THE 29TH JULY, 2025

ADOPTION OF NEW AND EMERGING TECHNOLOGIES IN AGRICULTURE

1523. DR. KALANIDHI VEERASWAMY:

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

- (a) the steps taken by the Government to promote the adoption of new and emerging technologies in agriculture such as Artificial Intelligence (AI), precision farming, drone technology, climate-smart agriculture and biotechnology;
- (b) the details of any pilot projects or initiatives undertaken in the State of Tamil Nadu for the introduction of such technologies during the last five years;
- (c) whether the Government is providing financial incentives, technical support, or training programs for farmers, particularly small and marginal farmers to adopt these technologies;
- (d) the total funds allocated and disbursed to Tamil Nadu under schemes such as the Digital Agriculture Mission, Sub-Mission on Agricultural Mechanization (SMAM) and Krishi Yantra Subsidy Scheme since 2019, year-wise; and
- (e) whether the Government has collaborated with research institutions, agri-tech startups, or the State Government of Tamil Nadu to promote technology-driven agricultural practices and if so, the details thereof?

ANSWER

THE MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE
कृषि एवं किसान कल्याण राज्य मंत्री (SHRI RAMNATH THAKUR)

(a) to (c): The government has taken various steps to promote the adoption of new and emerging technologies in agriculture such as Artificial Intelligence (AI), precision farming, drone technology, climate-smart agriculture in the States/UTs including the state of Tamil Nadu, such as:

- I. The Government of India is implementing the "Innovation and Agri-Entrepreneurship Development" programme under Rashtriya Krishi Vikas Yojana (RKVY) from 2018-19 onwards with an objective to promote innovation and agri-entrepreneurship by providing financial support and nurturing an incubation ecosystem in the country. The government has appointed 5 Knowledge Partners (KPs) and 24 RKVY Agribusiness Incubators (R-ABIs) from across the country for implementation assistance and incubation of startups under this programme. Start-ups are taking projects in various field of agriculture and allied sectors like Precision agriculture including applications of sensor, Artificial Intelligence (AI), Internet of Things (IoT), Information & Communication Technology (ICT), & drone, Farm Mechanization, Post-Harvest, Food Technology & Value addition, Supply Chain and Agriculture logistics & agriculture inputs, Waste to Wealth & Green Energy in Agriculture & Organic Farming, Allied Sectors etc. Under this programme, for the idea/pre-

seed stage, a selected start-up shall be eligible for a maximum financial assistance of Rs. 5 lakh in one instalment. For the seed stage, a selected start-up shall be eligible for a maximum financial assistance of Rs. 25 lakh in two instalments of 50% and 50% based on the recommendation given by the SIC Committee. Trainings, Technical and financial assistance is provided to startups to launch their products, services, business platforms, etc, into the market and facilitate them to scale up their products and operations to attain business viability. More than 5000 Agri-Startups have been trained by KPs and R-ABIs under this programme during FY 2019-20 to 2024-25. So far, 1943 Agri-Startups have been supported with technical and financial assistance under this programme during FY 2019-20 to 2024-25, including 448 women-led startups. The funding support of Rs. 146.38 crore grants-in-aid has been released in installments for funding to these 1943 agri-Startups to the respective KPs & R-ABIs.

- II. Rashtriya Krishi Vikas Yojana (RKVY) is a Centrally Sponsored Scheme. States have been provided flexibility and autonomy for selection, planning approval, and execution of projects/programmes under the scheme as per their need, priorities, and agro-climate requirements. The funds are released to the State Government.
- III. In order to promote use of drones in agriculture, under SMAM, financial assistance @ 100% of the cost of drone up to a maximum of Rs. 10 lakhs per drone is provided for its purchase and demonstration on the farmers' fields by the institutes under Indian Council of Agricultural Research (ICAR), Farm Machinery Training & Testing Institutes, Krishi Vigyan Kendras (KVKs), State Agriculture Universities (SAUs), State and other Central Government Agricultural Institutions/Departments and Public Sector Undertakings (PSUs) of Government of India engaged in agricultural activities. The Farmers Producers Organizations (FPOs) are provided grants up to 75% of the cost of Kisan Drone for its demonstrations on the farmers' fields. In order to make available drone services to farmers on rental basis, financial assistance @ 40% up to a maximum of Rs. 4.00 lakhs are provided for purchase of drones by CHCs under Cooperative Society of Farmers, FPOs and Rural entrepreneurs. Agriculture graduates establishing CHCs are eligible to receive financial assistance @ 50% of the cost of drone up to a maximum of Rs.5.00 lakhs per drone. For purchase of drones on individual ownership basis, the Small and Marginal, Scheduled Caste/Scheduled Tribe, Women and North Eastern State farmers are provided financial assistance @ 50% of the cost up to a maximum of Rs. 5.00 lakhs and other farmers @ 40% up to a maximum of Rs. 4.00 lakhs per drone.

Further, Sub Mission on Agricultural Mechanization (SMAM) is being implemented w.e.f 2014-15 through States/UTS Governments. SMAM is now being implemented under the umbrella of the Centrally Sponsored Scheme of Rashtriya Krishi Vikas Yojana (RKVY). The scheme aims at 'reaching the unreached' by bringing to the small and marginal farmers in the core including women farmers and giving the benefits of farm mechanization, by Promoting 'Custom Hiring Centers', creating hubs for hi-tech & high value farm equipments, distribution of various agricultural equipments, creating awareness among stakeholders through demonstration and capacity building activities.

The Government has established four number of Farm Machinery Training and Testing Institutes at Budni (Madhya Pradesh, Hisar (Haryana), Garladinne (Andhra Pradesh) and Biswanath Chariali (Assam) under the administrative control of Department of Agriculture and Farmers Welfare. These institutes are imparting training to Farmers including women farmers/Technicians/ Engineers/ Unemployed Youths/ Machinery

Manufacturers, etc. under various training programmes on latest technology of farm mechanization including kisan drones.

- IV. The Government has approved 'Namo Drone Didi' as Central Sector Scheme for providing 15,000 drones to the Women Self Help Groups (SHGs) with an outlay of Rs. 1261 Crores for the period from 2023-24 to 2025-26. The major objectives of the scheme is to promote advance technology in agriculture for improved efficiency, enhanced crop yield & reduced cost of operation and to empower SHGs as drone service providers for increasing their income and providing livelihood support to them. Under this scheme, Central Financial Assistance (CFA) @ 80% of the cost of drone package up to a maximum of Rs. 8.00 Lakhs is provided to the selected women SHGs. 15 days drone pilot training for one of the members of SHGs and 5 days drone assistant training to other members/family member of SHGs is provided as a part of drone package. Lead Fertilizer Companies (LFCs) have distributed 1094 drones to drone didis of SHGs in 2023-24 using their internal resources. Out of these 1094 drones, 500 drones have been distributed under the Namo Drone Didi Scheme. The State-wise distribution of 1094 drones is attached at Annexure-I.
- V. Department of Agriculture & Farmers Welfare is implementing the Centrally Sponsored Scheme of Per Drop More Crop (PDMC) in the Country from 2015-16. PDMC focuses on enhancing water use efficiency at the farm level through Micro-Irrigation, namely Drip and Sprinkler Irrigation Systems. The Micro Irrigation helps in water saving as well as reducing fertilizer usage through fertigation, labour expenses, other input costs and overall income enhancement of farmers. The Government provides financial assistance @ 55% for small and marginal farmers and @ 45% for other farmers for the installation of Drip and Sprinkler systems under the PDMC.
- VI. Pradhan Mantri Fasal Bima Yojana (PMFBY) envisages use of improved technology. Accordingly, the National Crop Insurance Portal (NCIP) and the Application for Intermediary Enrolment (AIDE) app have been developed to disseminate information about the scheme to the farmers. Farmers, can insure themselves through the portal and apps and check the status of their application, claims etc. Further, Village Level Entrepreneurs (VLEs) under Common Service Centres (CSCs) have also been engaged to enroll farmers and disseminate coverage information, claims etc. Government has taken various steps to strengthen implementation of the scheme, leveraging technology in implementation of the scheme, capturing of yield data/Crop Cutting.
- VII. The Government has approved the Digital Agriculture Mission, which envisages the creation of a Digital Public Infrastructure (DPI) for Agriculture, such as AgriStack, Krishi Decision Support System, and a comprehensive Soil Fertility & Profile Map to enable a robust digital agriculture ecosystem in the country. This, in turn, would drive innovative farmer-centric digital solutions and make reliable crop-related information available to all farmers on time. The AgriStack DPI consists of three foundational registries or databases associated with the agriculture sector, i.e., Geo-Referenced Village Maps, Crop Sown Registry, and the Farmers Registry, all created and maintained by the State Governments/ Union Territories. The government is providing technical and financial support to all the states/UTs to implement this DPI, including the state of Tamil Nadu.
- VIII. Under the National e-Governance Plan in Agriculture (NeGPA) component of the Digital Agriculture Mission, funding is given to the States/UTs for Digital Agriculture Projects using emerging technologies like Artificial Intelligence (AI) and Machine Learning (ML), Internet of Things (IoT) sensor-based systems, etc.

- IX. 'Kisan e-Mitra' is a voice-based AI-powered chatbot developed to assist farmers with responses to their queries on the PM Kisan Samman Nidhi scheme. This solution supports 11 regional languages and is evolving to assist with other government programs. At present, it handles over 20,000 farmer queries daily and so far, more than 95 lakh queries have been answered.
- X. AI based, National Pest Surveillance System, for tackling the loss of produce due to climate change, utilizes AI and Machine Learning to detect pest infestation in crops, enabling timely intervention for healthier crops. This tool, currently used by over 10,000 extension workers, allows farmers to capture images of pests to help them mitigate pest attacks and reduce crop losses. At present, it supports 61 crops and over 400 pests combinations.
- XI. AI based analytics using field photographs for crop health assessment and crop health monitoring using Satellite, weather & soil moisture datasets for Rice and Wheat crops.

(d): The total funds allocated and disbursed to Tamil Nadu under the Digital Agriculture Mission and Sub-Mission on Agricultural Mechanization (SMAM), since 2019, year-wise, are given at Annexure -II.

(e): Department is partnering/collaborating with the various institutions across the country for the development of usable, scalable solutions. Some of the collaborations are given below:

- I. In PMFBY, Yield Estimation System based on Technology (YESTECH), Tamil Nadu Agriculture University (TNAU) has been identified as the Mentor Agency for Technology Rollout (MITR) and Technology Implementation Partner (TIP).
- II. Mahalanobis National Crop Forecast Centre (MCFC) has collaborated with Space Application Centre (SAC) for Drought monitoring, Semi-physical model development for crop yield estimation, with the National Remote Sensing Centre (NRSC) for flood monitoring, Satellite data access and soil moisture products and with the Indian Council of Agricultural Research (ICAR) -Indian Agricultural Research Institute (IARI) for Crop simulation model-based crop yield estimation.
- III. IIT Ropar has been declared as a Centre of Excellence for the Ministry of Agriculture & Farmers' Welfare.
- IV. Tamil Nadu Agricultural University (TNAU) has been identified as a Partner Institute to execute the soil survey & mapping at 1:10,000 scale to execute the National Soil mapping Programme (NSMP), 1:10K in the allocated area.
- V. Further, the Government of Tamil Nadu has collaborated with Tamil Nadu Agricultural University (TNAU) for biotechnology, climate-smart practices, and digital advisory systems. Also, Tamil Nadu has a collaboration with the National Informatics Centre and Tamil Nadu e-Governance Agency (TNeGA) for the integration of land records, crop data, and farmer profiles under the Digital Agriculture Mission.

State-wise number of drones distributed to SHGs by the LFCs in 2023-24 and the members of SHGs given drone pilot training

S. No.	State Name	No of Drones distributed	No. of members of SHGs given drone pilot training
1	Andhra Pradesh	108	108
2	Assam	28	28
3	Bihar	32	32
4	Chhattisgarh	15	15
5	Goa	1	1
6	Gujarat	58	58
7	Haryana	102	102
8	Himachal Pradesh	4	4
9	J&K	2	2
10	Jharkhand	15	15
11	Karnataka	145	145
12	Kerala	51	51
13	Madhya Pradesh	89	89
14	Maharashtra	60	60
15	Odisha	16	16
16	Punjab	57	57
17	Rajasthan	40	40
18	Tamil Nadu	44	44
19	Telangana	81	81
20	Uttar Pradesh	128	128
21	Uttarakhand	3	3
22	West Bengal	15	15
	Total	1094	1094

Annexure – II
(Rs. in Crores)

Year		Digital Agriculture Mission	Sub-Mission on Agricultural Mechanization (SMAM)
2019-20	Allocated	-	70
	Released	3.55	70
2020-21	Allocated	-	86.94
	Released	-	86.94
2021-22	Allocated	-	22.27
	Released	1.1249	22.27
2022-23	Allocated	-	75
	Released	0.4821	75
2023-24	Allocated	-	162
	Released	16.6388	162
2024-25	Allocated	47.09	123
	Released	13.64	-
2025-26	Allocated	29.93	61.50
	Released	15.98	-
