

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

**LOK SABHA**  
**UNSTARRED QUESTION NO. 2427**  
TO BE ANSWERED ON THE 6<sup>TH</sup> AUGUST 2024

**MECHANISATION IN AGRICULTURAL SECTOR**

2427. SHRI VIJAY KUMAR HANSDAK:

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

- (a) the details on the status of mechanisation in the agricultural sector;
- (b) the details on the steps that the Government has taken/plans to take for increasing mechanisation in this sector;
- (c) whether the Government has any plans to set up a National Institute of Agricultural Robotics and Artificial Intelligence; and
- (d) if so, the details thereof?

**ANSWER**

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

(a) & (b): The adoption of mechanization by the farmers of various States depends on varying factors such as socio-economic conditions, geographical conditions, crops grown, irrigation facilities etc. As per the estimates of Indian Council of Agricultural Research (ICAR), agricultural mechanization level varies across different crops and their farm operation in the country. Overall, the operation-wise average mechanization levels across crops are 70% for seed-bed preparation, 40% for sowing/planting/transplanting, 32% for weeding and inter-culture, and 34% for harvesting and threshing, resulting in an overall average mechanization level of 47%.

The crop wise and operation wise percentage level of mechanization is indicated in the table below :

Crop	Percentage level of agricultural mechanization				
	Seed-bed preparation	Sowing/ planting/ transplanting	Weeding and interculture & plant protection	Harvesting and threshing	Crop wise average
Rice	80	35	35	60	53
Wheat	85	65	50	75	69

Maize	70	45	40	30	46
Sorghum and millets	60	30	20	20	33
Pulses	65	40	25	35	41
Oilseed	65	40	20	30	39
Cotton	70	40	35	0	36
Sugarcane	65	25	30	20	35
Operation wise average	70	40	32	34	47

The emphasis of the Government is to promote mechanization with the specific aim of increasing the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low and promoting 'Custom Hiring Centers' to offset the adverse economies of scale arising due to small land holding and high cost of individual ownership. A Centrally Sponsored Scheme 'Sub-Mission on Agricultural Mechanization' (SMAM) is being implemented through the State Governments w.e.f. 2014-15 under which financial assistance is provided for purchase of agricultural machines and equipments including tractors to the farmers on individual ownership basis and for establishment of Custom Hiring Centre (CHC)/High Tech Hub/Farm Machinery Bank (FMB). The pattern of financial assistance under the scheme is given in below table:

Sr. No.	Component	Financial Assistance	Eligible Beneficiaries
1	Financial assistance for purchase of agricultural machines and equipments including tractors	50% of the cost of machine/equipment with applicable ceiling limits for Small and Marginal Farmers, Scheduled Caste/Scheduled Tribe farmers, women farmers and farmers of the North Eastern States. 40% of the cost of machine/equipment for other farmers	Individual farmer
2.	Financial assistance for purchase of agricultural machines and equipments by the farmers of North Eastern Region	100% of the cost of machine for the machines costing up to Rs. 1.25 lakhs	Individual farmer of the North Eastern States

3.	Establishment of Custom Hiring Centres (CHCs) and Hi-tech Hubs.	40% of the project cost. The project cost of CHCs can be up to Rs. 60 lakhs per project and that of Hi-tech hubs can be up to Rs. 250 lakhs per project.	Rural Entrepreneurs (Rural youth and farmer as an entrepreneur), Cooperative Societies of farmers, Farmer Producer Organizations (FPOs), Self Help Groups (SHGs) and Panchayats
4.	Establishment of Farm Machinery Banks in identified villages of low mechanized States	80% of the project cost for the projects up to Rs. 10 lakhs in normal States and 95% of the project cost for the projects up to Rs. 10 lakhs for North Eastern States.	Cooperative Societies, FPOs, SHGs and Panchayats

Since inception of the SMAM, funds amounting to Rs. 7159.83 Crores has been released to various states. The States have supplied more than 18.24 lakh machines and equipments to the farmers on individual ownership basis and more than 49700 CHCs/Hi-tech Hubs/FMBs have been established in various States.

The Department of Agriculture & Farmers Welfare is also implementing Crop Residue Management Scheme from 2018-19 in order to support the efforts of the Governments of Punjab, Haryana, Uttar Pradesh, Madhya Pradesh and NCT of Delhi to address air pollution and to subsidize machinery required for management of crop residue. The scheme promotes the usage of machines such as Super Straw Management Systems, Happy Seeder, Super Seeder, Smart Seeder, Surface Seeder, Zero Till Seed cum Fertilizer Drill, Mulcher, Shrub Master/Rotary Slasher, Paddy Straw Chopper, Hydraulically Reversible Mould Board Plough, Crop Reapers and Reaper Binders for in-situ management of paddy straw and Balers & Straw Rakes for ex-situ management of paddy straw. Financial assistance @ 50% of the cost of machinery is provided to the farmers for purchase of these identified machinery and financial assistance @ 80% of the project cost is provided to the Rural Entrepreneurs (Rural youth and farmer as an entrepreneur), Cooperative Societies of Farmers, Registered Farmers Societies, Farmer Producer Organizations (FPOs) and Panchayats for establishment of Custom Hiring Centres of crop residue management machinery. With a view to enable efficient ex-situ management of paddy straw generated in these States, provisions have been made to establish projects for paddy straw supply chain under the bilateral agreement of beneficiary/ aggregator (Farmers, Rural entrepreneurs, Cooperative Societies of farmers, Farmers Producer Organizations (FPOs) and Panchayats) and Industries utilizing the paddy straw. Financial assistance @

65% on the capital cost of machinery costing up to Rs. 1.50 crores is provided by the Government. The balance amount is contributed by the Industry utilizing the paddy straw and aggregator in a flexible manner provided that the aggregator has to contribute minimum 10% of the project cost. The intervention aims at establishing a robust supply chain of paddy straw for various end user industries in biomass power generation and biofuel sectors. Under this scheme, during the period from 2018-19 to 2023-24, an amount of Rs.3333.17 Crore have been released to these States and ICAR. The States have established more than 37,000 Custom Hiring Centres (CHCs) of crop residue management machines and more than 2.95 lakh crop residue management machines have been supplied to these CHCs and individual farmers of these States.

Apart from above, horticulture mechanization is promoted under Mission for Integrated Development of Horticulture (MIDH) to improve farm efficiency and reduce drudgery of farm workforce. Financial assistance @ 25% of the cost of machines for general category of farmers and @ 35% of the cost of machinery to the Scheduled Caste (SC), Scheduled Tribe (ST), Small and Marginal Farmers, Women Farmers and beneficiaries of North Eastern States is provided for procurement of power operated machines and tools including plant protection equipments. Under National Food Security Mission (NFSM), assistance is given to all categories of farmers including small and marginal farmers on various interventions including farm implements and machines as per norms of SMAM.

The Government has also recently approved a Central Sector Scheme for providing drones to the Women Self Help Groups (SHGs) with an outlay of Rs. 1261 Crores. The scheme aims to provide drones to 15000 selected Women SHGs for providing rental services to farmers for agriculture purpose (application of fertilizers and pesticides). Of the total 15,000 drones, first 500 drones have been procured and distributed to selected SHGs by Lead Fertilizer Companies (LFCs) in 2023-24, using their internal resources. Remaining 14500 drones will be provided under this scheme during 2024-25 and 2025-26. Central Financial Assistance @ 80% of the cost of drone and accessories/ ancillary charges up to a maximum of Rs. 8.0 lakhs will be provided to the women SHGs for purchase of drones. The Cluster Level Federations (CLFs) of SHGs may raise the balance amount (total cost of procurement minus subsidy) as loan under National Agriculture Infra Financing Facility (AIF). Interest subvention @ 3% on the AIF loan will be provided to the CLFs. The scheme will help in infusing advance technology in agriculture for improved efficiency, enhanced crop yield and reduced cost of operation for the benefit of farmers. The scheme will also provide sustainable business and livelihood support to SHGs and they would be able to earn additional income of at least Rs. 1.0 lakhs per annum.

(c) & (d): Presently there is no proposal in the Ministry of Agriculture and Farmers Welfare to set up a National Institute of Agricultural Robotics and Artificial Intelligence.

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