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10 AI genomics projects of IIT-I to boost farm productivity efficiency

TIMES NEWS NETWORK

Indore: The AgriHub, an AI and deep learning-based innovation hub for agriculture at Indian Institute of Technology, Indore (IIT-I), has approved 10 new genomics research projects that focus on precision farming, IoT-enabled smart agriculture and drone-based monitoring to improve farm productivity and efficiency.

The new projects target key crops such as soyabean, chickpea, wheat and rice. They are aimed at improving yields, disease resistance and input efficiency, which are critical for food security and farmer incomes.

The expansion brings its total research pipeline to 21 ongoing projects, marking a push to take advanced technologies like genomics and precision farming from labs to fields.

AgriHub principal investigator Aruna Tiwari said the focus is on translating research into field-level impact. "These projects are designed to address core challenges in Indian agriculture. By combining AI, genomics and field-level technologies, we are working towards solutions that can directly improve productivity, reduce losses and support farmers in managing risks," she said.

The development has practical implications for farmers with several projects already moving towards field deployment.

The researchers at AgriHub is also strengthening its backend infrastructure to handle large-scale agricultural data, including genome sequencing and phenotyping, which can accelerate development of improved crop varieties.

IIT-I director Suhas Joshi said, "By integrating AI, IoT and high-performance computing, we are creating systems that can support farmers, industry and policymakers. The goal is to build scalable solutions that strengthen the entire agricultural value chain."

The initiative is also expanding its outreach. A recent industry interaction and outreach meet in Bhopal focused on taking these technologies to the ground.

TECH TONICS

- An IoT-based soyabean disease forewarning system that gives early alerts
- A computer vision-based smart pesticide spraying system to reduce input costs
- A soil microbial testing kit to help farmers assess soil health and optimise fertiliser use

OTHER INNOVATIONS: Leaf image-based disease detection tool, groundwater forecasting application and a portable post-harvest treatment kit