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Precision Agriculture with Use of Drones

The use of Unmanned Aerial Vehicles (UAVs) commonly known as drones have great potential to revolutionize Indian agriculture and ensure country's food security. Drones are well-equipped with many features for precision agriculture like multi-spectral and photo cameras and can be used in many areas of agriculture sector such as monitoring crop stress, plant growth, predict yields, and deliver inputs like herbicides, fertilizers and water. Drones can be used for assessing the health of any vegetation or crop, field areas inflicted by weeds, infections and pests, and based on this assessment, the exact amounts of chemicals needed to fight these infestations can be applied optimizing thereby the overall cost for the farmer. Drone planting systems have also been developed by many start-ups which allow drones to shoot pods, their seeds and spray vital nutrients into the soil. Thus, this technology increases consistency and efficiency of crop management, besides reducing the cost.

Sensing the importance and need for the use of the Drones in India, Union Agriculture Minister Shri Narendra Singh Tomar released Standard Operating Procedures (SOPs) for drone application in Agriculture and stated that under the leadership of Prime Minister Modi, all the policies since 2014 are aimed at doubling farmer's income by 2022.

The SOPs for drone regulation for pesticide application covers important aspects like statutory provisions, flying permissions, area distance restrictions, weight classification, overcrowded areas restriction, drone registration, safety insurance, piloting certification, operation plan, air flight zones, weather conditions, besides SOPs for pre, post and during operation, emergency handling plans. Considering the unique advantages of drone technologies in agriculture, the Ministry of Agriculture & Farmers Welfare (Department of Agriculture & Farmers Welfare) in consultation with all the stakeholders of this sector has brought out Standard Operating Procedures (SOPs) for the use of drones in pesticide and nutrient application that provides concise instructions for effective and safe operations of drones.

In this context, drones can go a long way in helping farmers by smoothening by farming in conjunction with the benefits of being a green technology. Use of drones in agriculture may also give ample opportunities to provide employment to people in rural areas.

IHT EDUCATION

Commercial Hydroponics: IHT successfully organized 2 weeks training programmes on “Commercial Hydroponics”, for entrepreneurs and students. The participants found the training very informative and found the information given by IHT faculty as a great learning experience. During training trainees were explained about water quality, analysis, for open & closed loop, plant nutrition management, nursery production, seeds selection, climate control in greenhouse, cladding materials, training-pruning, physiological disorders of hydroponics crops and greenhouse pest management.



Hands on Training on Commercial Hydroponics

Online Programmes - IHT also conducted various e-training programmes in different in online mode on:

- **Mushroom Production Technology:** IHT conducted 3 days training programme on “Mushroom Production Technology”
- **Landscape Horticulture:** : Institute of technology organized 1 weeks training programme on “Landscape Horticulture”.

TECHNOLOGY DEMONSTRATIONS

a. IHT organized farmers training in Mandira Centre for the production of disease free quality planting material for Khasi mandarin and sweet orange for NE states of India.



Hands on training for farmers in Nursery management – Citrus Plants

b. Similarly for management of Fusarium in Malbhog Banana with specially developed technology with FUSUCONT application, the application of the product was demonstrated in the farmers field in Kamrup and Goalpara fields.



Hands on training in farmers field on FUSICONT application

c. For making farmers aware of the potential of Dendrobium cut flower, Farmers of Kamrup district of Assam were provided hands on training for production of Dendrobium cut-flower production by the experts of IHT in their respective fields where the protected units with planting material was provided to them under DBT project.



Hands on training in farmers field in Assam on Orchids cultivation

d. Technological interventions under DBT project for Catalyzing Complementary Olericulture in Assam for Livelihood Security by Provisioning Quality Seed and Seedling of Indigenous and Commercial Vegetables Generated through Hi-Tech Mini Plug Nursery and Conventional Means and Promotion of Bio-Enterprise was undertaken by IHT in villages of Kamrup district of Assam.



Training cum demonstration of production technologies of healthy disease free seedlings of vegetable crops

e. In Meghalaya IHT organized training for farmers under project "Pilot scale demonstrations of strawberry cultivation with sustainable agro-technological interventions in farmers' fields of Meghalaya" a joint project of BRDC, Meghalaya and IHT Mandira, Assam supported by Department of Biotechnology, Government of India.



Glimpses of Training on "Technological Intervention on Strawberry Plantation and Moisture Conservation Technology in Meghalaya"

Upcoming Training Programmes:

S. No.	Title	Date	Duration	Mode of Training
1.	Landscape Horticulture	28 th Feb – 12 th March	2 Week	Online cum Offline
2.	Online basic hydroponic	3 rd – 5 th March	3 Days	Online
3.	Ornamental Nursery Production	3 rd – 5 th March	3 Days	Offline- in Campus
4.	Mushroom Production	7 th – 9 th March	3 Days	Online
5.	Protected Cultivation of Vegetables Crops	7 th – 12 th March	1 Week	Online
6.	Commercial Hydroponics	7 th – 19 th March	2 Week	Online cum Offline

*Customized courses are also offered on demand.

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