



Use of Drone in Pesticide Application

For Prelims: Drones, Draft Drone Rules, 2021.

For Mains: Doubling farmer's income by 2022, Uses of drone technology in agriculture & their advantages.

Why in News

Recently, the Ministry of Agriculture & Farmers Welfare has released **Standard Operating Procedures (SOPs)** for **drone application in Agriculture**.

- The use of [Unmanned Aerial Vehicles \(UAVs\) commonly known as drones](#) have great potential to **revolutionize Indian agriculture** and ensure the **country's food security**.
- The drones were used for the first time in warding off [locust attacks](#) in various states of the country.
- Earlier, the Ministry of Health and Family Welfare had launched a Drone-Based vaccine delivery model named, [Drone Response and Outreach in North East \(i-Drone\)](#).

Key Points

- **About Standard Operating Procedures (SOP):** The SOP 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,
 - **SOPs for pre, post and during operation, emergency handling plan.**
- **Drone Technology in Use of Application of Pesticides:**
 - **Pesticides:** Pesticides are one of the important agri-inputs to **address protection of crops against a large number of pests** that can wash away entire investment of farmers and hence they act as an essential input that yields substantial returns to the farmers.
 - **Conventional Spraying of Pesticide:** Conventional methods of pesticide spray application lead to several problems like:
 - Excessive application of chemicals, lower spray uniformity, unnecessary deposition and non-uniform coverage.
 - Resulting in excessive usage, water & soil pollution as well as higher expenditure on pesticides.
 - With conventional manual sprayers, the safety of operators is also a major concern.
 - **Use of Drone Technology:** The use of drone technology as a modern farming technique is aimed at making production more efficient through **precise spraying of pesticides and crop nutrients**.
 - This approach would not only **ensure accuracy, uniformity in spray across the field**, reduction in the overall use of chemicals within the area, but will also take care of the safety of the operators.

▪ **Other Uses of Drone Technology in Agriculture & Their Advantages:**

- **Crop Monitoring:** Drones are well-equipped with many features like multi-spectral and photo cameras.
 - Drones can be used for assessing the health of any vegetation or crop, field areas inflicted by weeds, infections and pests.
- **Optimum Nutrient Delivery:** Based on an assessment, the exact amounts of chemicals needed to fight infestations can be applied thereby optimizing the overall cost for the farmer.
 - This will further help in [doubling farmer's income by 2022.](#)
- **Better Crop Management:** 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.
 - This will help in enhancing the productivity as well as efficiency of the agriculture sector.
 - Use of drones in agriculture may also give **ample opportunities to provide employment to people in rural areas.**

Rules for Drone Regulations in India

- [Drone Rules, 2021.](#)
- [National Counter Rogue Drones Guidelines 2019.](#)

[Source: PIB](#)

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