



## Drone Spraying and Artificial Intelligence

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### Abstract

In India agriculture is the huge sector. But now a days its facing a lot of problem due to non-using of modern techniques. Also other problem are chemical contact with pesticides, and danger from insect and animal. The drone can be useful for spraying pesticides and crop protection. this can be done by the single person standing at a safe distance and by controlling the UAV. This help the farmer in reducing the time taken and also provide the Safety to the farmer.



**Keywords:** Improving agricultural productivity, ICT in drones, variety of crops, Agricultural consumption.

### Introduction

An industry of value, Agriculture sets the livelihood of 65% of the population of India, directly or indirectly. The vitality of the Agriculture industry is so deep-rooted in our system that its growth heavily affects the Gross Domestic product (GDP) of our country by about 17%. Heightening this growth factor has become ever so-crucial to generate more revenue, income, and employment. The dynamic and speedy nature of technology brings convenience and advancement to its applied industrial. Drone technology and the use of Unmanned Aerial vehicles (UAVs) in such applications has brought about incremental progress, saving time and cost.

### Drone Technology as A Tool for Improving Agricultural Productivity

In modern days, drone technology is often utilized in agricultural insurance claims and stock-taking of animals due to its mapping and imaging abilities. High-pixel infrared cameras enhance accuracy while counting animals as every animal is treated as a distinct heat spot (Bharti et al., 2020). The concentration on an animal also permits the evaluation of its well-being based on temperature assessment, thus enabling prompt identification and nursing of sick animals. Charting and photographing functionalities of drone frameworks with a variety of sensors can be utilized throughout the production course to boost production planning, thus improving yields. The drone mechanism is deployed in soil condition assessment prior to starting the vegetation cycle and thus provides the potential for better productivity (Bharti et al., 2020). Soil valuation by 3D terrain mapping provides the actual soil color covering, which aids in precise measuring soil moisture, water flow, and land quality. Automated drones fitted with spraying features are used in the monitoring of agricultural processes and crops to schedule tasks and expeditiously address the observed issues throughout plant life. The integration of advanced drone-acquired airborne data with supplementary information

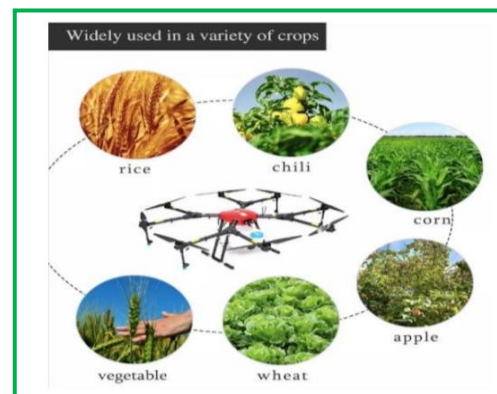
from soil charts and weather predictions is essential in refining terminal data (Bharti et al., 2020). The assimilation also enables the growers to draw full benefits of the land and optimize their normal yield ceiling.

### Information and Communication Technology ( ICT) in Drones

The development of comprehensive monitoring, mapping, and output projection systems based on distant sensing and information and communication technology (ICT) has been a key focus in the agricultural sector. The prime target has been the small-scale farmers who play a vital role in sustaining food security globally. Satellite-centered crop monitoring (SCM) ventures assimilate auto-sensing, crop simulation, and ICT applications to produce and deliver accurate and almost real-time data about crop growth and productivity (Awad, 2019). They also detect and provide information on the destruction emanating from biotic and abiotic agitations. Isolated identification-based data and coverage for crops in developing economies technology provides authentic and timely community-level statistics about crop-planted fields. The tool also offers information on the season commencement and its geographical variabilities, and the estimated and definite harvest while portraying any catastrophe's effects on a particular crop growing stretch. Consequently, the mechanization provides synchronous data for the execution of crop indemnification schemes in numerous states.

### Especially we are Working for Agriculture Drone because

- In our country majority of farmers Spray chemicals. without taking basic safety precautions and suffer from various ailments due to spraying of pesticides.
- Traditional spraying system costly: 700 / Acre.
- Water wastage 100L/ Acre.
- Time consuming 1 day / Acre.
- Labour availability issue.



### Agricultural Consumption to increase by 70%

As global population projected to reach over 9 billion by 2050, agricultural consumption is expected to increase by a massive 70%. raising the question how the growing demand for food is going to be met. A drone can check the ground and splash appropriately to required measure of fluid by balancing the separation starting from the earliest stage showering in the continuous, for even scope. It diminishes the measure of synthetic compounds entrance into the ground water and secures the field for a significant lot it is likewise valuable in a way that the farmer is far from the field amid showering , Agriculture drone manufacturing that stays away from the pesticide harming.

### Agriculture Drone Benefit

- Safety and health improvement of our farmer no direct contact with pesticides.
- Cost effective for our farmer only 400/Acre.
- It can spray pesticides with fixed position and fixed orientation, which reduces pollution to water and soil.
- 90-190 liter water saving because only require 10L / Acre.
- Easy to use and maintain.

### Agriculture Drone Drawback

- It requires basic knowledge and skills to operate the agriculture drone.

- Most of the drone have less flight time and covers less area. Drone having more features are also more expensive.
- Need to obtain government clearance in order to use it.
- It is difficult to fly them in extreme condition.
- It uses same air space as commercial aircraft and hence may interfere with manned aircraft if it comes in their flight path.

### Conclusion

Drones employed in AI agriculture may be thought of as an intensive approach driven by advanced technology. However, there are features of this innovative farming, such as applying variable rate mechanization and location-centered soil data, that are already in use globally. UAS science has the latent of assisting the farmers in optimizing their inputs. They can also give the agronomists detailed, timely, and granulated information. Harnessing drones use in small to large-scale farming has a high probability of attaining higher agricultural output and a substantial increase in investment returns. Further, the practice is characterized by reduced emissions to the surroundings, thus ensuring environmental sustainability.

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