

Third Eye of Farmers (Drone)

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INTRODUCTION

There was an improvement in therapy as science advanced. The agricultural industry has also started to get better and look nicer at the same time. New methods are being developed by experts to advance the agricultural industry. Additionally, drones assist farmers in their work. According to experts, farmers who have begun employing drones. Prior to it, he was limited to 10 bighas of crops. With the use of drones, he can now clear 50 to 100 bighas of land in the same amount of time and with less labour. Technically, the drone just assists the farmer in the field as a companion. In India, the majority of people make their living from agriculture and related industries. Agribusiness still provides the primary source of income for 70% of rural families, with small and marginal farmers making up 80% of the farming population. Communities that depend on agriculture have a harder time providing for a big population's food demands. Climate change, declining soil quality, weed and insect infestation, population growth, urbanisation, and deteriorating environmental conditions are all concurrently affecting agricultural yield. Farmers can pick precision farming as a management technique to handle the problem and increase productivity, quality, and yield while ensuring the efficacy of inputs like water and fertiliser.



Drone uses in agriculture-

Drones can complete all activities faster and more consistently, which reduces input waste and improves input usage effectiveness.

The idea of "maximum productivity with least expenditure" may be strictly adhered to and the operating expenses can be reduced with the use of drones. To achieve the main goal, such as maximum productivity, it is advised to deploy drones for agricultural operations with intelligent missions.

❖ Soil analysis or fertility assessment-

For a crop to produce its maximum yield, evaluation of the physical, chemical, and biological qualities of the soil is crucial. It has been established that applying manures, fertilisers, and soil conditioners without first assessing the soil's fertility is a bad idea.

The optimal amount of fertiliser is used in accordance with the crop's demands and in order to produce the desired crop yield. Drone-assisted soil testing or fertility assessments, however, can improve fertiliser usage efficiency (FUE) and reduce losses.

❖ Crop monitoring-

The most challenging duty for everyone involved in agricultural production is crop monitoring. Critical inspection and recurrent visits to the agricultural field are also complex acts. Drones are primarily utilised for monitoring crops. It involves monitoring the growth of a crop from the moment the seeds are sown until harvest. This enables farmers to keep an eye on crops as they develop and address any issues fast enough to save the plant. Drones may be used in a variety of agricultural applications, including the following considerations-

1. Crop health
2. Water needs
3. Soil investigation
4. Afforestation

❖ Security

With the use of a drone, monitoring the region may be done quickly instead of

taking hours of walking. In addition to agriculture, the drone sector is expanding quickly. It is regarded as being incredibly helpful for agricultural management. Drones can travel to remote parts of a farm without physically being there. This enables for more regular monitoring of difficult-to-reach regions while also saving crucial time.

To make sure everything is functioning properly, the drone camera offers a daily overview of agricultural activities. They may also be used to find objects and identify wounded or missing animals in distant viewing regions.

❖ AI drones

Drones are continually being developed using artificial intelligence and machine learning. Small farmers in poor countries may benefit from it. Since maize is grown in massive monoculture fields, modern drone technology is more useful for crop monitoring. To teach AI systems to detect uncommon crops and varied planting patterns, further effort is required.

❖ Techniques for agricultural spraying-

It takes many days for the farmers to spray fertilizers and pesticides. At the same time, with the help of drones, it can be completed in a few hours. Due to the sensors equipped with high technology, the drone also identifies where there is a lack of nutrients. Fertilizer can be sprinkled more at that place. At the same time, even after getting the correct information about pesticides, the drone sprays at the right place. With the help of time-lapse photography, irrigation of water is done properly at that place. In order to get rid of pests and undesired plants like weeds, herbicides must be used, which is essentially what determines how healthy the crop will be. Data from advanced sensors may be presented to government organisations or farmers in the form of estimations or crop insurance as proof, which can also assist farmers in better

understanding how to increase agricultural yields while reducing crop damage.

❖ **Procedures for operating agricultural drones were followed-**

1. Investigating the region
2. Autonomous drone use
3. uploading the data
4. Output

❖ **Benefits-**

1. There is no danger of misuse because certified pilots fly the drones.
2. They could raise ROI (Return on Investment).
3. They work twice as quickly as people do.
4. Drones employ ULV (ultra-low volume) spraying technology, which

reduces the need for excessive chemical use and water use.

5. They are inexpensive and need little upkeep.
6. They aid in raising agricultural production.

Agri-drone limitations

1. The weather has an impact on drones. It is advised to avoid using drones while it is raining or windy outside.
2. The typical farmer could find it difficult to comprehend how a drone works.
3. To utilise it, you must acquire government authorization.
4. More feature-rich drones are more costly.