

DRONES: AN EYE IN THE SKY FOR AGRICULTURE

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Agriculture during this modern era is highly susceptible for climate change, land degradation and shrinkage of resources. In this context the incorporation of sustainable development and technology advancement in agriculture is a necessity. One among the technological advancement in modern agriculture during recent times is "Drone technology"

DRONES— AN EYE IN THE SKY

Drones or unmanned aerial vehicles (UAVs) are remotely controlled air crafts with no human pilot on board. Use of drone technology in agriculture is having a revolutionary impact. The use of drones are encouraging by various state agricultural universities and companies such as SKYMET. Generally drones consist of navigation system, GPS, multiple sensors, high quality cameras etc. It enables evidence based planning and spatial data collection. Major applications of drones in agriculture includes,

a) Soil and field analysis

Potential soil quality, nutrient status, soil moisture status can be mapped by obtaining 3D images of field soil. This enables to understand the heterogeneity of fields, planting patterns to follow and soil management strategies.

b) Crop spraying or spot spraying

The most important application of drones. The plant protection sprays are generally done manually or mechanically. The drone facilitated sprays are comparatively cheaper and more effective than the above methods. It is the best method for spraying operations over a large area especially when handling with hazardous chemicals. It is reported that by using drones there was a reduction in herbicide use by 52 percent in soybean fields.

c) Crop mapping and surveying

Near Infrared (NIR) equipped drones can assess the plant health. The overall mapping of field helps to understand how well the crop has established in various part of the field, stage of crops. The GPS equipped drones can be a part of precision agriculture.

d) Irrigation monitoring and management

The thermal sensor facilitated in drones helps to track moisture status of field. Real time monitoring of field moisture status helps to take immediate irrigation or drainage actions. The areas that are deficit in moisture can be identified and area specific or need based management can be done

e) Seed planting

Some drone manufactures are in experimentation to shoot seed material into prepared soil. If it is proven experimentally, the it would be a giant leap in modern agriculture.

f) Crop management assessment

The extent and nature of damage caused by pest, disease and weeds can be understood by analyzing multispectral images captured using drones.

BENEFITS OF DRONE TECHNOLOGY

- ✿ Precision farming
- ✿ Enhanced production
- ✿ Resource conservation
- ✿ Evidence for crop insurance
- ✿ Faster decision making

CONCLUSION

Adaptation of technological advancement is having a transformative potential in agricultural sector. The drone technology along with advanced data analysis and geographic system tremendous changes can be created in agricultural sector. A large number of farmers are to be benefited from this technologies in near future.

