

# **In a First, U'khand to Deploy Camera-Equipped Drones to Advise Farmers on Soil Fertility**

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In a first in the country, Uttarakhand is going to introduce an unmanned airborne remote sensing system using drones equipped with sophisticated cameras which will analyse the fertility of soil, based on which farmers can decide which crops should be grown and in which area of their fields. These drones will have the capability to fly as close as 50 metres from the ground and will work under cloud cover too.

Scientists at G.B. Pant University are of the view that satellite-based remote sensing is passe and drones are the future for farmers and the Indian agriculture sector for getting the best and most promising yield.

As per experts at the university, satellite remote sensing often fails in providing accurate data of tiny objects and from distance of over 700 kilometres from Earth's surface, capturing everything is impossible.

"Unlike satellite-based remote sensing, which is more or less defunct during kharif season for about 3-4 months due to cloud cover, these drones will help farmers in knowing the future of the crop as it will give information starting from pest infestation at a preliminary stage to possible threats to the crop during the rest of the season. The system has the potential to bring about a radical change in the way farming is done in India," said Ajeet Singh, head of agrometeorology department, GB Pant University, which has devised the system.

The unmanned drones will be able to study electromagnetic radiation ranging from 300 to 2,500 nanometres, whereas human eyes can see electromagnetic waves which have radiation from 400 to 700 nanometres.

"Farmers will now be able to do farming based on four Rs - Right Time, Right Input, Right Place and Right Manner. Farming by adoption of these four Rs will boost yield significantly. The images gathered by the drones will be analysed by experts at the laboratory and accordingly farmers will be directed to take the next steps," scientists said.

This technology, which is prevalent in developed countries, plays a significant role in estimating the nutrients of various land patches and will also give nutrient value 'within' the field, ultimately boosting 'precision farming', which means farming done by measuring the nutrient value of the soil inch by inch.

Jitendra Kumar, dean (agriculture) at the university said, "Our scientists have worked on this technology with since 2011 and we are expecting that very soon Uttarkahand will see drones aiding farmers and agriculture department. States like Haryana and Punjab, where farmers use fertilisers excessively and a lot of crop blights are also seen, stand to benefit from this technology as well."