



Food and Agriculture  
Organization of the  
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Working together for Zero Hunger  
through digital innovation

# dLOCUST – THE POTENTIAL OF DRONES FOR LOCUST EARLY WARNING AND PREVENTIVE CONTROL

As part of global Desert Locust monitoring, early warning and preventive control in Africa and Asia, locust survey teams could be equipped with drones to locate areas of green vegetation in the desert, search the areas for locusts, and treat them safely and effectively.

## ISSUE

Vast areas of desert stretching from West Africa to India and including some of the world's poorest countries are regularly monitored for Desert Locust by national ground teams in four-wheel-drive vehicles. These areas have no mobile or internet coverage and may be several days' drive from the national locust centre.

Although satellite-based estimates of rainfall and green vegetation can guide monitoring routes, images suffer from omission errors and are often not available in time. Aerial surveys are often

precluded by high costs or unavailability of aircraft. There is therefore a need to supplement these tools with technologies to guide ground teams to green vegetation and locust infestations.

## ACTION

Research and development is underway to provide a fixed-wing drone solution. The drone would be capable of flying some 100 km while collecting data on the location of green vegetation and processing this imagery on board as a map.

In turn, the map would guide ground survey teams to areas for

- Fixed-wing drone to search for green vegetation up to 100 km.
- Rotary drone to check vegetation for locusts.
- Rotary drone to spray locust concentrations.
- Integrated with eLocust3 rugged hand-held tablet.
- Operated by national locust teams.



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further inspection of up to 5 km using a rotary drone. If significant infestations were found, then a control drone could safely and effectively spray the locusts before they form swarms.

All the drones would have to be lightweight, portable, solar-powered, durable and easy to use and maintain locally. The “dLocust family” would be integrated with eLocust3, the hand-held rugged tablet used by survey and control teams for recording observations and transmitting them in real-time by satellite. National locust centres would be responsible for managing and using dLocust.

## MORE INFORMATION

LOCUST WATCH website:

[www.fao.org/ag/locusts/en/activ/DLIS/drones/index.html](http://www.fao.org/ag/locusts/en/activ/DLIS/drones/index.html)



## IMPACT

In a few years’ time, the integration of dLocust with current survey activities undertaken by national teams on the ground will enhance the efficiency and timeliness of Desert Locust monitoring and early warning, leading to a decline in frequency, duration and intensity of devastating plagues, and improving food

security and livelihoods. It will allow each ground team to cover much larger areas and access those that are difficult or impossible such as sand dunes and insecure zones. Moreover, using drones for control will minimize risks to humans and make operations more effective and safer for the environment, leading to a reduction in the use of chemical pesticides.

**CONTACT:** [keith.cressman@fao.org](mailto:keith.cressman@fao.org)

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