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Smart Aerial Spreading

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Executive Summary

An innovative procedure has been put in place in Switzerland to enable drone operators to perform crop spraying. This is less damaging to the environment and less noisy than applications using helicopters, and also more precise than conventional agricultural spray nozzles.

The Federal Office of Civil Aviation (FOCA) authorises the application of plant protection products by drone over vineyards and other crops. Switzerland has developed a simplified operational approval process which does not require drone certification. Creating a market of companies involved in crop spraying activities required intense discussions between the authorities and the industry as well as complex coordination between several Swiss governmental entities.

To date, ten companies have been authorised to perform aerial crop spraying by drone in Switzerland, three of them in the French-speaking part of Switzerland and seven in the German-speaking part.

Background

Five different Swiss governmental entities jointly developed this process based on a wide variety of investigations. Up to 2018, the only approved process for crop-spraying operations was by helicopter. This process is relatively complex due to the requirements of traditional aviation and because of the stringent requirements when spraying chemicals. Authorisation has to be sought from the Federal Office of Civil Aviation several months in advance. This office can only issue authorisation after consultation with the Federal Office of Agriculture, the Federal Office of the Environment, the State Secretariat for Economic Affairs and the Federal Food Safety and Veterinary Office. After going through this long procedure, the helicopter operator may obtain authorisation to spray crops ensuring a certain distance is maintained to buildings, people and nature reserves. Currently, only one company in Switzerland is authorised to perform crop spraying using helicopters. In adapting this authorisation procedure to drones, it became clear that spray drift when using drones is substantially lower than from helicopters.

An operation-centric process

Agroscope, the Swiss federal centre of excellence for agricultural research, conducted drift measurements on drones in conjunction with companies specialised in crop spraying. The results showed that spray drift from drones is much lower than from helicopters.

Following these findings, the FOCA, along with Agroscope and various other governmental entities, established a new procedure by which plant protection products can be sprayed using a drone while maintaining smaller safety distances and without a type certificate being required for the machine. The machine needs to be approved by Agroscope and the operator needs to hold a valid permit for the use of plant protection products and comply with operational restrictions set by the FOCA.

