

Drones for precise weeding, DJI drones helped reduce the cost of chemicals for Hungary

DJI Agriculture

For a long time, the "invasion of weeds" has caused a reduction in food production and ecological damage, which is a problem that plagues countries all over the world. Herbicides play an important role in prevention and control. Because they occupy a relatively high proportion of agricultural plant protection costs and farmers' habits of over spraying herbicides throughout the field, they accelerate the formation of weeds' resistance to herbicides, making weeding The agent fails to achieve the desired control effect, which further increases the farmer's planting costs.



Like other countries in the world, Hungary's agricultural production is also seriously threatened by weeds and other harmful organisms. At present, weeds are still mainly controlled by herbicides. Since herbicides are more harmful to the ecological

environment and sustainable land productivity, it is particularly urgent to use new control methods that are more accurate and economical while ensuring the control effect to reduce the number of weed populations and their damage.

The *Cirsium Arvense* is a malignant weed that is widely distributed in farmland and pasture. The rhizome of the thistle produces acidic substances, which makes the soil unsuitable for the growth of some crops, thus reducing crop yields and causing economic losses to farmers and farm owners.



Because the rhizome of *Cirsium Arvense* can reproduce even if it is damaged, the general soil preparation process such as plowing and plowing, not only cannot remove Silk Road Thistle but will help it spread and reproduce. Therefore, only systemic

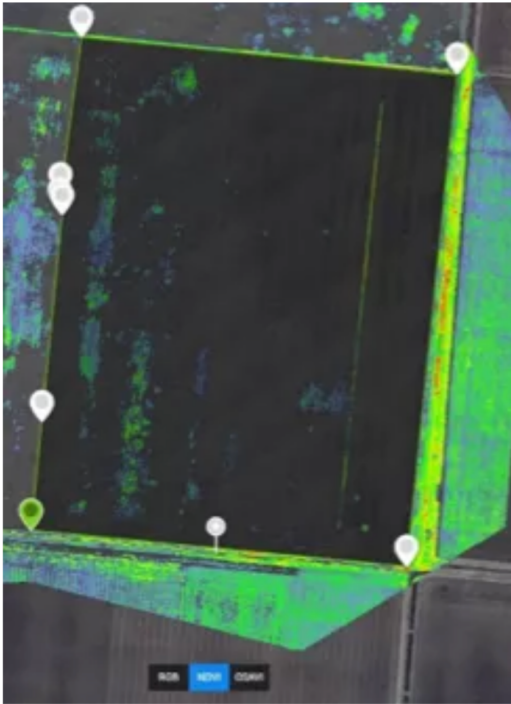
herbicides can be used before and after planting spring wheat, rape, etc. in autumn or before and after planting sunflower, soybean, corn, etc. in spring. The conventional method is to spray glyphosate on the entire field with a tractor.

Hungary uses drones for precise point spraying, reducing chemicals and costs

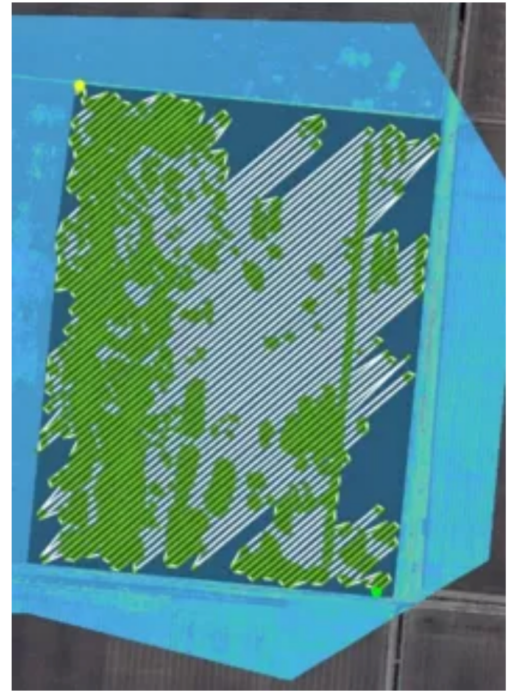


PlantaDrone, a partner of DJI Agriculture in Hungary, used multi-spectrum to monitor the distribution of a weed called *Cirsium Arvense* in the ground and then used DJI spraying drones to do precise spot spraying to achieve chemical reduction so as to reduce cost as well.

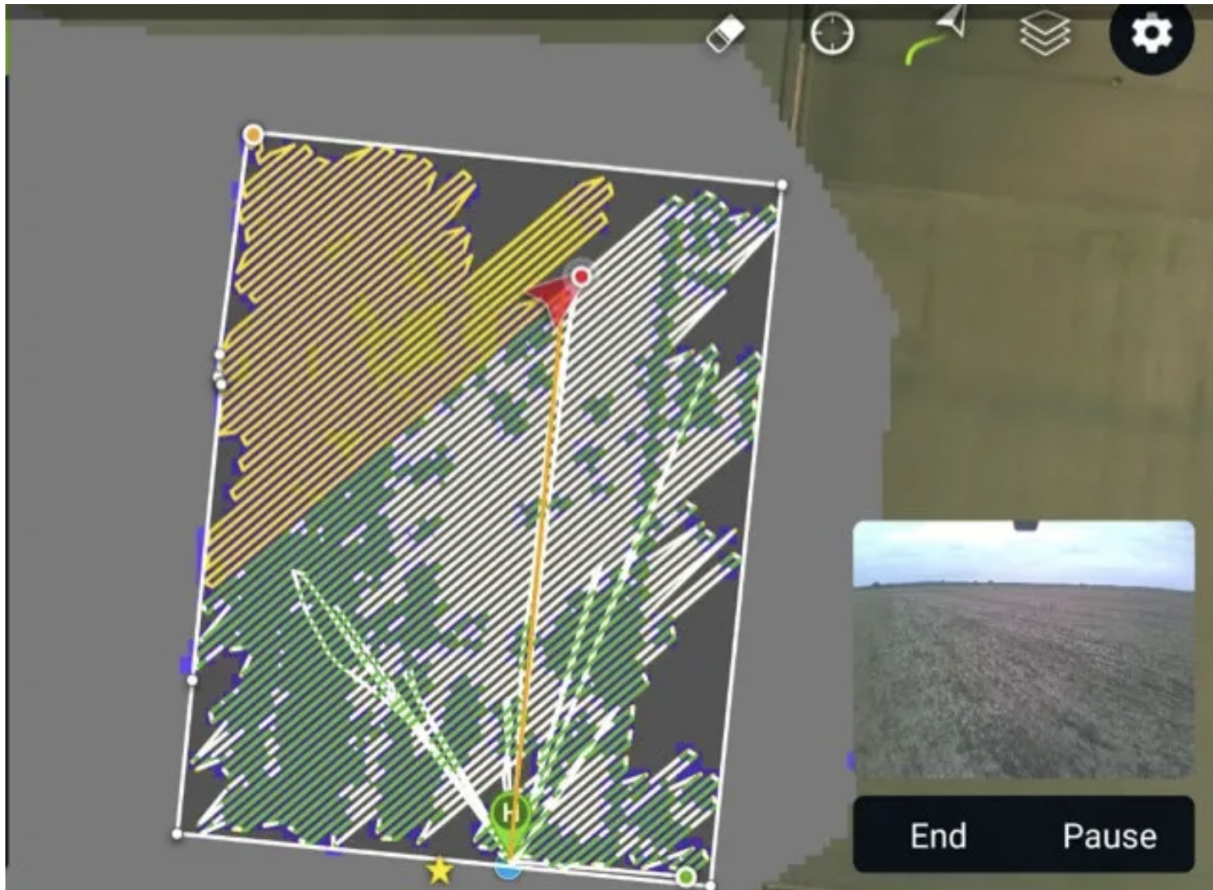
PlantaDrone uses multi-spectrum to monitor the fields before and after sowing, uses NDVI vegetation index to isolate the occurrence location of *Cirsium Arvense*, generates a precise spraying prescription map, and sprays it by using DJI spraying drones thus achieving the precise weeding of the drone.



NDVI image of weeds



Precise spot spray prescription map and
Route map



Accurate spot spray operation screen image

Drone precise weeding, saving 15 euros per hectare

The results show that under the premise of achieving the control effect, compared with traditional tractors, the use of drones to accurately weed 18 hectares can save 61L of chemical solution, thereby saving 262.3 euros in operating costs, which is about 15 euros per hectare, which is a significant saving.

According to the UAV can save 30-50% of chemical dosage, we start with saving 30%.

Usually, we use 5L/Ha glyphosate for tractor operations, this time we use 3.5L/Ha for drones.

For an area of 18Ha, if a tractor is used, a total of 90L glyphosate is required, and if a drone is used, we should use a total of 60L glyphosate.

Because of the use of multi-spectrum, we only need to spray the area that needs to be sprayed, so we used a total of 83L of the mixture (including 29L of glyphosate)

In this way, 18Ha saved a total of 67.78% of chemicals.

Engineer Elemer from PlantaDrone said, “If we are to reach the GreenDeal target of 50% reduction in the use of agrochemicals in Europe by 2030, our best opportunity is to use precision spraying/spreading and variable operations.”

Under the development trend of digital agriculture, the use of DJI agricultural drones for precision weeding to solve a series of problems such as the high cost of herbicide use and the environmental pollution caused by pesticide abuse will be used more and more around the world. While achieving the reduction of chemicals and increasing efficiency, the green and sustainable development of global agricultural ecology will be promoted.

www.wonderfull.ca