

Case Study: Cost Savings of using a Drone



**Could using a drone on farm save you money and reduce your labour costs ?
Could it improve animal welfare?**

A case study was carried out to measure the impact a drone could have and if cost savings could be achieved at a local level.

Advances in technology have revolutionised every industry and farming is no exception. Over the years drones have started to play an important role and are often used in a larger scale to carry out a variety of farming tasks including:-

- ◆ Crop Observation
- ◆ Crop Spraying/irrigation
- ◆ Pesticide Management
- ◆ Observation of field growth
- ◆ Thermal Imaging
- ◆ Photography
- ◆ Planting & future pollinating
- ◆ Security

However at a more local level we wanted to investigate if using a drone could save the average farmer any time and money to carry out routine farm jobs and if so, could any benefits be sought in doing so.

Craig MacIntosh from Highland Drones Ltd assisted with the advice and a DJI Mavic Pro Platinum was used on Clynelish, a 300 acre livestock farm in the north of Scotland. Although there are many drones available,

this particular model had the ideal specifications and the farmer liked the features and functions it offered. The terrain on the farm varied with large dense areas of gorse and hill type ground which was home to 900 breeding ewes and 80 head of cattle.

Almost immediately the benefits of using the drone could be seen when checking the livestock. The sheep were unconcerned at the drone and only reacted if the drone was flown at a very low level. The drone could cover vast areas on the hill ground and provide real time footage of the stock health status below.

In a very short space of time the job of checking the hill sheep, which normally took approximately 40 mins to complete was reduced down to 10 mins.

Additionally the cattle who were not on the hill but grazing the surrounding farmland fields daily check was reduced from 1.5 hours to 30 minutes.

Further advantages of flying the drone soon started to emerge including:-

- ◆ It was tremendous in the very rough ground that was covered in whins/brackens at locating livestock
- ◆ It could be used to move sheep towards the gates
- ◆ It proved to be less stressful on livestock, especially when checking livestock close to giving birth
- ◆ It was a much safer option than the quad/tractor on wet areas and extensive rough areas, in addition to reducing tracking on the ground



- ◆ Drainage channels were picked up
- ◆ Checking the grass growth for silage.

Cost Savings:-

If we calculate the human element of the amount of time spent checking stock and what savings could be made by using the drone twice a week, there are some positive cost savings (Drone would not be used daily as human intervention would still be required)

Grassland checks on foot take 1.5 hours
Reduced to 30 mins with drone is a saving of 104 man hours per year.

Hill checks

40 minutes on quad/truck

Reduced to 10 minutes with drone is a saving of 26 man hours per year.

A total saving of 130 hours per annum.

Taking into account the average skilled farm labour of £12.80 (FMH as at 2019/20)



equates to a saving of £1664 per annum for checking the stock as per indicated.

At a price of £1169 the drone would recoup itself within the first year. (Price of drone correct at the time of this study)

Additional savings that were also looked into was the reduction of the farms carbon footprint. Using the drone instead of the quad or farm truck would see a reduction in fuel usage. The quad would achieve on average 3.3 litres per mile and the truck 5.5 miles to check the stock, which equates to a reduction of 104 litres per year saved in fuel.

Other considerations were the reduction on wear and tear of the vehicles and the cost of damage to the grass sward the vehicles create.

Animal welfare for any farmer is paramount and using the drone proved to reduce stress to the livestock, in comparison to a quad/truck entering the fields.

It also meant that any ill/sick animals were detected much quicker and those that grazed deep into the hill ground were more easily found.

The outcome of this case study resulted in the farmer purchasing the drone with the full intentions of continuing to use it on farm.

If you are considering a drone for your own use on your farm or croft, it is important you do so legally and ensure you follow the correct guidance and safety measures that have been laid out by the Civil Aviation Authority. A copy of the Drone Code and further details can be found at— [Unmanned aircraft and drones | UK Civil Aviation Authority \(caa.co.uk\)](https://www.caa.co.uk/Unmanned-aircraft-and-drones)

