

Farming for a Better Climate



Improving carbon efficiencies at Clynelish - key focus farm findings.

Clynelish near Brora in Sutherland is run by Jason and Victoria Ballantyne in partnership with Jason's father Murdoch.

The tenanted farm covers 121 hectares of grass and hill supporting 75 suckler cows and around 500 ewes. A further 80 acres of rough grazing is rented locally. A Sheep Stock club of 235 Ewes provides extra size and viability to the business.

Jason and Victoria volunteered to participate in the initiative from 2014 - 2018 and joined with two other farms in the local area, Corrimony and Auchmore, under the working title of HiFEN (Highland Farming Efficiency Network).



Improving fuel efficiency

Over the 3 year initiative Jason and Victoria were able to reduce fuel use by 26%, around 1,740 litres of red diesel, despite the amount of fuel used at Clynelish being lower than comparable farm businesses. This saved them 4,649kg CO₂ and based on a price of 53ppl, made a financial saving of £922.20. Some of the fuel efficiency measures included:

- Switching from ploughing to direct drilling when establish new grass leys.
- Improved grassland utilisation through grazing instead of cutting the grass for silage.
- Changing the winter feeding regime to a ration of straw, silage and kale. This approach resulted in fewer hectares of silage being grown, and therefore a corresponding reduction in the machinery operations required.
- Spreading farm manures during the spring to coincide with livestock housing being cleaned out. This has reduced manure handling requirements when compared to storage in temporary field heap middens. Additional benefits to this approach have included improved nutrient utilisation, less risk of runoff and pollution risk from a field midden and the reduction in soil compaction from less trafficking across fields when adding to and drawing from the field heap midden.

Case Study

Find out how other farmers are improving profitability and adapting to a changing climate in our series of case studies, or take a look at our practical guides covering:

- Energy and fuel use
- Renewable energy
- Lock carbon into soils and vegetation
- Optimise the application of fertilisers and manures
- Optimise livestock management and the storage of manure and slurry

For more information, visit our webpages at

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Farming for a Better Climate is funded by the Scottish Government

Websites

www.farmingforabetterclimate.org

www.soilassociation.org

www.gov.scot

www.ipcc.ch

www.agrecalc.com

www.planet4farmers.co.uk

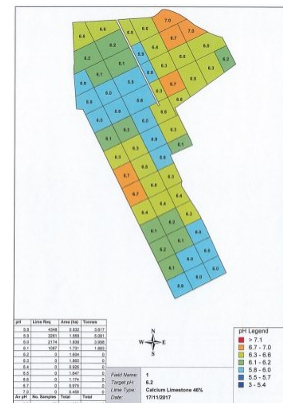


Key focus farm findings - Clynelish

Nutrient use efficiency

GPS soil sampling in 2015 and 2017 informed a renewed fertiliser and liming policy. Applying lime has increased grass production at Clynelish and, impressed with the results, is an area Jason and Victoria will continue to focus on.

Before starting as a focus farm, Jason and Victoria made use of pot ale from the neighbouring distillery, however as supplies became less reliable they looked towards inorganic fertiliser in combination with on-farm manures. Fertiliser application is informed by soil analysis results and, when weather conditions are suitable, applications are made early in the season to increase spring growth and later in the summer to ensure continued growth in the autumn; this has also helped to extend the grazing season on the farm. It is estimated that applying lime and fertiliser according to soil analysis results has increased grass growth by 30%, allowing the business to increase sheep numbers and reduce purchased feed.



Improving livestock productivity

In 2017, partially influenced by increased grass availability, Jason and Victoria increased the size of their flock by 150. The Ballantynes planned to split the hill paddocks (45 acres and 18 acres) into 40 x 2ha blocks and rotationally graze with sheep during the winter, with 600 ewes grazing 2ha for 2 days before being moved to the next paddock. This approach would improve feeding quality from grass, livestock



performance and remove the need for high energy licks pre and post tupping. The expected saving for this was around 2/3p per head per day for 6 weeks, a potential saving of £997.50 and 1,127 kg CO₂e. Poor weather conditions, particularly in the autumn/winter of 2017 meant that the plan had to be postponed.

Lameness in sheep was a focus for one of the Clynelish meetings. It was suggested that a 10% lameness problem in 100 lowground ewes could be costing in the region of £16 per animal. Lameness could impact the number of lambs born, reared and weaning weights, increased replacement rates and higher costs from labour and medicines required for effective treatments. With this in mind, Jason and Victoria kept detailed health records of their breeding flock and only actively bred from the ewes not prone to foot rot. By increasing the flock health, their aim is to increase outputs from reduced inputs in subsequent years.

Key carbon findings

- Overall, total emissions at Clynelish fell by 12% during the project. Although already technically efficient, Jason and Victoria could still make small changes to routine practices on the farm.
- The measure of on-farm greenhouse gas emissions in relation to saleable product, also referred to as 'emission intensity' fell from 34.67 CO₂e to 30.41 CO₂e per kg of saleable output, also representing a fall of 12% carbon emissions per unit of product as a result of improving efficiencies. These figures compare well to other similar upland sheep businesses.
- Red diesel used has reduced by 1,740 litres (-26%), saving 4,649kg CO₂e and, based on a price of 53ppl, reducing the fuel bill by £922.20.
- Soil testing, targeted nutrient use and liming has improved grass growth. Although lime will increase in the farm carbon footprint in the short term, benefits will be seen in the future.
- There is approximately 3ha of mature and intermediary mixed broadleaf woodland that includes Birch, Willow and Alder. Its estimated that the farm woodland is sequestering 32,670kg CO₂e per annum.
- For practical ways to reduce your farm carbon footprint, visit www.farmingforabetterclimate.org