

Farming for a Better Climate



Working towards net zero carbon at Cloffrickford Farm

David Smith farms 800 acres of Grade 3B land in Aberdeenshire.

Cloffrickford Farm supports 140 suckler cows and their progeny. David also grows 300 acres of malting barley, plus 70 acres each of winter barley, oil seed rape and wheat. The farm employs 2 full time staff members, who are supplemented by occasional seasonal labour.

The herd is 50% Simmental and 50% Aberdeen Angus, using Aberdeen Angus bulls only from the top 10% in the EBV ratings, with emphasis on quality and retail beef yield.

Most of the bull calves reach 700kg live weight/ 390-400kg dead weight at approximately 13 months old. Heifer calves reach 680kg live weight and 375-380kg dead weight at around 18-19 months old.



Reducing emissions from routine practices

Where possible, winter crops are sown using min till techniques. Where ploughing is needed, fields are ploughed, sown and rolled within a couple of days to minimise emissions. Fields for spring crops are not

ploughed until late February, leaving the stubble for birds and other wildlife to take advantage of shelter and food sources on the uncultivated land during the winter.

Fields get a targeted application of farmyard manure or compost from the local composting plant.

Coupled with existing nutrient levels in soils, these applications

help to ensure crops get all the nutrients they need, topping up with bought in fertilisers as required, making best use of nutrients and supporting healthy soils.



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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Renewable energy

Under a separate company (with family members) David commissioned commercial wind turbines on the farm, capable of producing 11 megawatts of electricity on a windy day. Solar panels sited on a farm shed roof produce up to 16 kilowatts and have halved electricity bills for both the farmhouse and surrounding farm buildings since their installation.

David has been a keen supporter of Hydrogen (H₂) technology, and has been using hydrogen as a fuel to supplement the diesel combustion engine. Four vehicles on the farm have been retrofitted with hydrogen electrolyzers, which reduce emissions by up to 80% and increase fuel efficiency. One has been in daily use for six years now, with no problems.

Hydrogen technology can also support the production of Nitrogen (N) on the farm for use as a fertiliser, the process powered by renewable energy generated on farm. This production method is still undergoing further research, in conjunction with St Andrews and Aberdeen Universities.



Supporting biodiversity

David is aware of the threat posed by climate change and tries to run the farm to minimise its effect on the environment, while producing food in a way that is as efficient, economically viable and community-minded as possible. The farm includes several areas of trees, shrubs and scrub with gorse, as well as several areas of peat and wetland. This all adds to the biodiversity of the farm and helps to sequester carbon.

Recycling

Stones removed from the fields are stored on-site for crushing and recycling, for use as hardcore to repair roads and tracks, not sent to landfill. All plastic bags and wrappings are also collected and sent for recycling.



Providing amenity and support to local projects

While constructing the wind turbines, David formed a 5km linked trail of footpaths between them and across neighbouring land for use by walkers, cyclists and horse riders. David also created a pond, laid a path through a pleasant wooded glade and set up permanent picnic tables and information boards at scenic spots along the route. Ground disturbed during path construction was replanted with species-rich grasses, wildflowers and bulbs to increase biodiversity. At Cloffrickford, David and team have encouraged the public to make use of the picturesque amenities by providing and maintaining car parking spaces near the path entrances, to give easy access. The windfarm also supports local community projects with voluntary financial donations and David welcomes use of the trail and its facilities for public events, such as the popular annual cycling races.



Looking ahead

Over recent years there has been a noticeable trend towards milder, wetter winters and hotter, drier summers, which might prompt David to change the way he farms, for example looking again at crops that were previously thought to be unsuitable for the area.



Farmers have always had to, and always will, adapt to meet the challenges of working with the environment. Major changes are possible with the support from both the public and government to maximise benefits for all and help Scotland in its journey towards net zero emissions by 2045.