Farming for a Better Climate

Woodend Farming Partnership Restoring Rural Resilience

Woodend Farming Partnership was formed in 2008 by John & Louise Seed who now work with their son Donald, who is the 4th generation to farm at Woodend in the Scottish Borders. Here the Woodend team outline some of the measures they have put in place.

We have taken a progressive, **evidence-based** approach to farming that enhances biodiversity, reduces the farm carbon footprint whilst maintaining or even improving yields. We have two main enterprises here at Woodend: free range egg production and arable cropping. There are 32,000 free range laying hens and 190 hectares of arable land growing wheat, barley, oats and field beans. In 2021 the cropping consisted of 38ha of winter oats, 16ha of spring barley, 67ha of winter wheat, 43ha of home-grown protein, 7ha of EFA (mainly field margins and beetle banks), and 15ha of permanent grass & trees for the hens.

For us, it's about making our business more resilient to external factors we cannot control, such as rising energy and fertiliser prices. Through investing in energy production and adopting low-carbon, energy-efficient production systems and supporting the natural environment, our resilience and profitability can be maintained and even improved.

Protecting farm soils

We are gradually replacing inversion tillage with strip drill and minimum tillage systems to reduce costs, carbon emissions and improve soil health.

All our over-wintered fields that are to be planted with spring crops are sown with green cover crops after harvest.

Our vision is to be environmentally conscientious land managers, operating a profitable business, with resilience built-in.

Find out more:

How are other farmers improving profitability and adapting to a changing climate? See our series of case studies, or take a look at our practical guides:

- 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

Keep up to date:

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- subscribe to our monthly newsletter,
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Investing in energy production

In 2013 we installed a 950kW biomass boiler to dry grain, provide heat to the egg pack house and heat all the houses on the farm via a district heating system. We installed 50kW of solar panels and a 75kW wind turbine at the same time which provided nearly all the power needed to run the grain dryer and farm.

We subsequently improved the power efficiency of the farm by installing voltage management, power factor correction, surge protection and stand-by energy systems together with using soft-start and variable speed motor controllers to reduce power consumption and costs. This helps us to make the best use of the renewable energy we generate on the farm. All the houses have every possible energy saving measures installed, including double glazing and insulation.

An energy and carbon audit identified that installing additional power generation together with battery storage would enable us to provide all the power we needed and export any surplus, so we installed an additional 75kW of solar generation in July 2022.

We would like to have installed more, but grid constraints limited the amount that our grid operator would allow. However, we anticipate that with appropriate battery storage and export management systems we will be able to generate even more power in the future and are working towards that. We plan to install electric vehicle chargers and battery storage at every house on the farm as we move towards having 100% electric vehicles.

Supporting the natural environment

We have tailored our farming to benefit wildlife and biodiversity, which in turn increases ecosystem stability in the face of environmental change, without reducing the potential for agricultural yield and profitability.

We have planted 8kms of hedges and 1 hectare of woodland over the past ten years; there are now over 18kms of hedges on the farm and 8 hectares of broadleaf woodlands. We have 5ha of enhanced grass margins across the farm with several beetle banks, and every field has a multi-species margin around it which encourages natural predation and pollination in the crops, particularly the field beans. The poultry field includes 30% agroforestry with 2,700 trees growing at 4m spacing, including 400 cider apple trees, plus our wind turbine and ground mounted solar.

Reducing feed costs

Purchased feed was a major cost and source of carbon emissions, particularly where it used imported soya and sunflower products. We now produce our own feed for the hens using as much home-grown produce in the ration as we can.

We first planted trial plots of intercropped home-grown protein (“HGP”) in 2021, that is growing cereals as a support crop for peas and beans, and the results from the 37ha of harvested HGP in 2022 indicate that home grown proteins can be a cost-effective way to replace a major proportion of bought in protein with the added potential to reduce the whole farm carbon footprint from 0.64 to 0.51 kg CO_2e / kg output, which equates to a reduction of 185 tonnes of CO_2e/year. We have invested in additional storage to allow us to do this more cost effectively and anticipate expanding the amount of HGP and locally produced protein into the ration for the hens in the future.