

# Farming for a Better Climate



## Auchnieve and Mains of Thornton

Auchnieve and Mains of Thornton are farmed by brothers Kenneth and Leslie Cooper, with the assistance of four staff.

Mains of Thornton farm was purchased by Leslie's and Kenneth's grandfather in 1939 with additional units being added in the 1940s. Over the following decades Ian Cooper and Partners acquired additional land, the latest acquisitions being as recent as 2007.

Pitgaveny farm, purchased in the 1940s, consists in the main of hill ground with steep slopes and shallow soils. It is Pitgaveny that was part planted in trees between 2007 and 2009 and now makes up the majority of the company's woodland holding.

The farm business is currently split between both conventional and organic units.

<b>Name</b>	I Cooper and Partners
<b>Farm</b>	Auchnieve and Mains of Thornton
<b>Locality</b>	Oldmeldrum, Aberdeenshire
<b>Farm Type</b>	Part organic lowland mixed farm with beef, sheep, arable & woodland
<b>Size</b>	550ha including 57ha of managed woodland
<b>Staff</b>	2 partners & 4 employed

## How might Climate Change affect our farm ?

The farm is situated in the east of Aberdeenshire. The climate here is not predicted to change as dramatically as that further south and some of these changes, for example the predicted warmer summers, could prove beneficial. Winters are also expected to become warmer, which might at first seem to be beneficial; however, we need to be mindful that certain pests and diseases may become more common. This will influence our choice of crops and varieties as we look for systems that can cope with changing pressures.

Climate change and food security is more problematical elsewhere in the

world and this will make the demand for certain goods particularly strong. We expect the costs of commodities, and in particular fertilisers, to rise. At Mains of Thornton, we are organic, so self sufficient in this respect. Our land husbandry enables us to increase not only soil fertility but also its organic carbon content. Having a mixed organic enterprise gives our business diversity and we believe makes us more robust, particularly against the uncertainties of future climate change.



## Case Study

Find out what other farmers are doing to improve profitability and adapt to a changing climate in our series of case studies.

There are five sets of Practical Guides covering :

Use energy and fuels efficiently

Develop 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

Find further information, including links to other Practical Guides and Case Studies, at



[www.farmingforabetterclimate.org](http://www.farmingforabetterclimate.org)

Funded by the Scottish Government as part of their Climate Change Advisory Activity

## Websites

[www.farmingforabetterclimate.org](http://www.farmingforabetterclimate.org)

[www.farmingfutures.org.uk](http://www.farmingfutures.org.uk)

[www.bbc.co.uk/climate](http://www.bbc.co.uk/climate)

[www.soilassociation.org](http://www.soilassociation.org)

[www.scotland.gov.uk](http://www.scotland.gov.uk)

[www.ipcc.ch](http://www.ipcc.ch)

[www.carbontrust.co.uk](http://www.carbontrust.co.uk)

[www.forestry.gov.uk](http://www.forestry.gov.uk)

[www.forestry.gov.uk/climatechange](http://www.forestry.gov.uk/climatechange)

[www.forestry.gov.uk/forestry/INF-864g2r](http://www.forestry.gov.uk/forestry/INF-864g2r)

[www.decc.gov.uk/RHI](http://www.decc.gov.uk/RHI)

# Auchnieve and Mains of Thornton

## Renewables

Currently the farm business is looking to develop wind energy. We may in future also consider supplying wood fuel from our woodlands.

Wood fuel provides a 'carbon neutral' alternative to oil, gas and coal and demand is expected to increase dramatically with the introduction of the renewable heat incentive.

We also recognise that future timber products from woodlands, particularly construction grade timber, will replace products with high embedded carbon content such as steel, concrete and plastic.

## Energy & Fuels

Our farm at Mains of Thornton is organic and is less energy intensive than similar conventional units.

We are considering extending our organic activities to Auchnieve. We are also looking at methods of reducing our transport commitments.

## Measures to reduce the farm carbon footprint

Perhaps the most cost effective method of reducing our carbon footprint is through locking carbon into the soil and vegetation. We've opted to do this through managing soils and pasture, increasing the grassland proportion of the rotation and careful management of organic manures. We've also planted several woodlands, although the carbon sequestered in some of these has been sold to a third party. We still benefit because we no longer farm this land, which was some of our least productive.

## Woodland planting

We have recently planted more trees on the farm, targeting areas with limited economic agricultural potential. Initially five areas were identified and would, if planted, have covered around 73 ha. Later amendments reduced this to four areas amounting to around 48 ha (net area and excluding open spaces, fire breaks and rides). The land chosen was a mix of arable and grass, much of which was difficult to work, or was situated on slopes and rough ground.

The woodland was planted between 2006 and 2008 with the overall aim of reducing costs of working marginal ground.

Growing trees 'sequester' carbon from the atmosphere and lock it up as part of the wood and other organic compounds. The rate at which this sequestration process occurs depends on the tree species. Conifers like Douglas fir and Sitka spruce can be very productive in carbon sequestration terms. However not all sites are suitable for these species. The sites chosen for planting have meant that we have had to use lower yielding pines and larches.

The newly planted woodlands (excluding open ground) consist of around 20 ha of native broadleaf trees and 28 ha of commercial conifers. The broadleaves are expected to sequester some 5,800 tonnes of carbon dioxide (CO<sub>2</sub>) over the next 65 years. The faster growing conifers are expected to sequester some 11,700 tonnes of CO<sub>2</sub> over the same period, if not clear felled. We do not plan to harvest the broadleaf trees but will manage the conifers commercially; thinning, felling and replanting/regenerating as necessary.

## Finance and economics of the woodland

Even with grant aid, the cost to fence, prepare the ground, plant and maintain the trees coupled with the reduction in land value, made the project non-viable financially. Luckily additional funding was secured via SAC through a Carbon Brokerage Company, who, on behalf of their clients, purchased the carbon sequestration rights from us. Reputable brokerage companies register their carbon sales and will look to follow the Forestry Commissions draft Carbon Code.

Calculations were made by the Brokerage Company and they paid a lump sum for a time-limited contract; the carbon can only be sold once. Some of the carbon is held in reserve by the Brokers for insurance purposes, so we effectively receive money for a proportion of the total sequestered carbon.

We need only to maintain our woodland to the same standards appropriate to the grant contracts to receive the carbon money. The additional carbon funding will not affect any thinning or harvesting we would normally carry out, provided the woodland is restocked after felling. We may retain the carbon sequestered by future woodland planting in order to offset and reduce our own carbon footprint.