

# Farming for a Better Climate



## Castlemains

Castlemains is located on the edge of the village of Dirleton, less than two miles west of North Berwick, East Lothian. Castlemains is farmed by Bob Simpson and family, the arable farm has been in the family for 120 years.

The cropping mix is winter wheat, spring barley, oilseed rape, winter barley, combining peas, potatoes and Brussels sprouts.

The farm enjoys a good climate and fertile soil which makes it ideal for a varied crop rotation that helps maintain soil structure and nutrients. Four 15kW wind turbines have recently been installed at the

steading and Bob is keen to explore other renewables options on the farm.



Name	Bob Simpson
Farm	Castlemains
Locality	East Lothian
Farm type	Arable
Size	235 ha

## How might climate change affect Castlemains?

In terms of climate change, it's the extremes of weather that are of particular concern.

Castlemains is only 25m above sea level and is very flat, making it prone to flooding; there isn't much fall on the land and the ditches can soon back up and the ground becomes waterlogged. This was recently illustrated during the exceptionally wet summer of 2012. Prolonged wet weather or heavy rainfall can have serious consequences for all stages of crop production, from poor seed establishment to unfavourable growing conditions and then difficulty harvesting crops, particularly lifting the potatoes.

Extremely dry summers also have an impact on the business, particularly on the more erosion prone sandy soils and in terms of irrigation requirements, especially for the potatoes. The increasing costs of inputs, such as fertiliser and fuel, are an ongoing concern and could be a real problem for future generations. We are all going to have to find more efficient ways of doing things in order to make the business as profitable and resilient as it can be.

## 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.adaptationscotland.org.uk](http://www.adaptationscotland.org.uk)

[www.agrecalc.com](http://www.agrecalc.com)



# Castlemains Farm Case Study

## Energy use

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At present, we don't have a particularly high energy usage on the farm stading, but we are going to record energy use in respect of tasks to see if we can further cut fuel bills.

For example as part of a contract with Walkers Crisps for the potatoes, there was a requirement to record fuel usage for every operation for one season. The fuel usage was in line with standard figures. We are going to do this again and consider different crop establishment techniques and see what impact this has on farm fuel bills.

## Benefit from findings at Castlemains

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Join the Castlemains discussion group. Along with meetings at Castlemains, we will also visit other businesses to see more examples of practical measures to improve farm efficiency. As part of the discussion group you will be able to share profitable ideas with other farmers and industry specialists, and tailor the programme of meetings and visits. For information on events or to see what other farmers are doing, visit

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



## Maximising nutrient efficiency

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The farm is within an NVZ which restricts the amount of nitrogen that can be put on; however the NVZ limits are more than adequate for the amount of fertiliser that is required to meet crop need at Castlemains and still be profitable.

A fertiliser plan is produced every year based on previous cropping and soil nutrient status. Over recent years several fields have been GPS soil mapped but we haven't invested in precision fertiliser equipment yet, so we will be exploring how more savings can be made here.

Organic manures and composts are used where possible, for example we get hen manure from a neighbour, and take distillery waste/by-products. Through the project we will explore the value of importing other composts, and the benefit of chopping straw rather than selling it off the farm as another way to improve soil structure and nutrient retention at Castlemains.

## Renewables

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The farm has four 15kw wind turbines which were installed in 2012. Three of the turbines feed directly into the grid and provide a good financial return on the capital investment. The energy produced by the fourth turbine is used for farm energy requirements, such as the potato store, with surplus sold to the grid. The turbines are on separate meters so we can measure energy production.

The grain drier at Castlemains is in need of replacement or upgrading, and we are keen to explore renewable energy options, particularly biomass that could also help to heat the farm house and farm cottages.

## Locking up carbon at Castlemains

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We use grass margins as buffer strips to hedges and watercourses, and with the new greening rules coming into force, more of the farm will be set aside for grass margins and fallow. These measures can help to reduce soil erosion risks and lock up carbon.

We currently bale most of the straw and sell it off farm as we have little requirement for straw for livestock; we have established straw customers which provide an additional income to the farm business. However, we would consider chopping straw and retaining winter stubbles if this was to have a benefit to the soil that would outweigh the loss of the extra income. This could be explored over the next few years. There are 2ha of mixed woodland on the farm, which are around 40 years old. These woodlands could benefit from management and their potential to lock up more carbon at Castlemains will be explored.