Woodland Valley Farm

Ladock, Cornwall

Summary

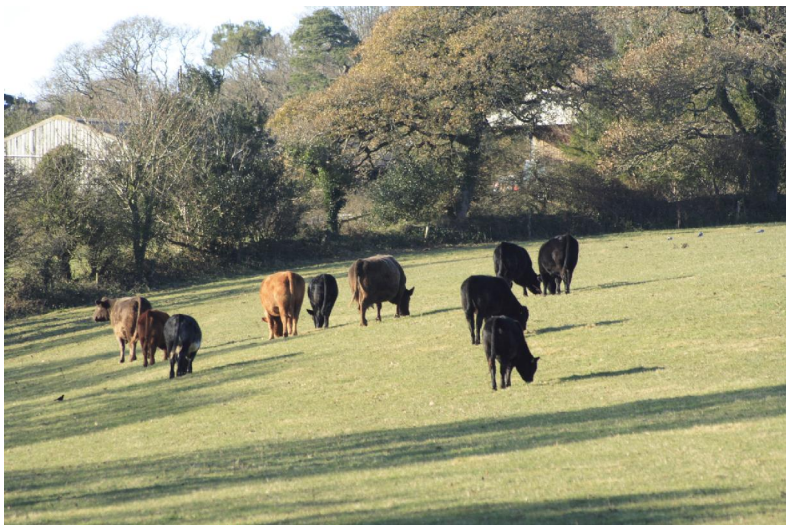
Woodland Valley Farm is an organic livestock farm in mid Cornwall that has been working for a number of years on reducing its carbon footprint. The CFF Carbon Calculator revealed that the majority of emissions, 73% came from livestock in the form of methane and nitrous oxides. Other emissions, totalling 22% were mostly from solid and liquid fuels, and electricity.

On the flip side, the farm has a lot of woodland and hedgerows, along with some new orchard. Collectively these carbon sinks absorb almost as much carbon as all the emissions sources put together. But even more exciting is the indication that the farms' soils are absorbing many times more carbon than this biomass – more will be revealed when full soil analysis results are retuned in spring 2011.

If the soils do turn out to be net carbon sinks, the farm will be absorbing vastly more carbon than it emits. Furthermore the farm produces excellent quality food, has a range of projects and initiatives with the local community and does a substantial amount of educational work with schools and colleges.

Introduction

Set in a quiet valley, Woodland Valley farm is a 170 acre farm in mid Cornwall rearing cattle and pigs for which are used in the educational business or sold locally, There are 26 acres of woodland , extensive mature hedgerows, permanent pasture and some wetland.



Cows grazing on species rich pasture at Woodland Valley Farm

Farm owner Chris Jones is also heavily involved in the Transition Ladock and Grampound Road, and has been active in promoting

community renewable energy schemes and local food initiatives. There is a community owned 20 kW wind turbine on Chris' land and space for 50 community allotments for local residents.

The farm also has an education centre mostly catering for school and colleges , but a there is also a wide range of other clientèle, from weddings to youth clubs.

Chris did a carbon audit with Climate Friendly Food in autumn 2009, and has revisited the exercise a year on. The results have been illuminating for the farm and have driven some change in direction in which Woodland Valley is headed.

Emissions

Carbon emissions are largely comprised from the methane and nitrous oxide generated by livestock on the farm, amounting to 73% of total farm emissions. Of these livestock, cattle were the largest contributors by far, which is entirely in line with the relative proportions of livestock on the farm.

Indirect emissions caused by materials and manufactured items were very small, the most significant being the embodied energy from a 6year old tractor. Items such as aggregate, wood and packaging had a minimal carbon impact in relation to other emissions.

The other significant emissions were from use of liquid fuels in tractors and vehicles (8%), electricity (9%) and solid fuels used for heating (5%).

Whilst the emissions from fuels related to less than a quarter of total emissions, what this analysis does, with any business, is emphasise the amount of fossil fuels used and therefore its resilience in the face of resource depletion.

Mature trees and hedgerows are very important carbon absorbing assets on any farm

Sequestration

After 2009, Chris arranged for organic matter analysis in the soils on every in hand field on the farm. Whilst there weren't enough prior organic matter analysis to compare every field, indications are that organic matter levels are rising steadily across most parts of the farm. This means the soil is absorbing vast amounts of carbon and provided this soil is not cultivated and grazing pressure is managed well, the carbon will be held in the soil profile.

Significant amounts of woodland and a long network of mature hedgerows also add to the carbon being sequestered at Woodland Valley. Another positive new development is the planting of 6 acres of nut and fruit trees, which will absorb carbon for years to come and make a substantial contribution to the food security

and nutritional quality of the local population's diet.

The amount of carbon sequestered in biomass alone at Woodland Valley nearly outweighs all of its carbon emissions. If soil analysis results do show, as expected, that the soils are absorbing vast amounts of carbon, then the farm will be a net carbon sink. This is something Chris is rightly very proud of.

Improvements since last year

Analysis of the different carbon footprints between 2009 and 2010 reveal some positive changes at Woodland Valley. Overall carbon emissions have decreased by nearly 7%, despite an increase in emissions from livestock, as the stock numbers have increased slightly, but as no cereal crops are grown currently less tractor work is undertaken. Use of liquid fuels, electricity and solid fuels have all reduced over the course of the last year, which is a positive move in terms of resilience, .

The new orchard has increased the amount of sequestration on the farm, whilst the woodland and hedgerows continue to sequester significant amounts of carbon. Meaningful comparisons between soil organic matter levels in the fields can't be made as yet, but in spring 2011 a full comparison will be made. However indications are that soil management practices are enabling organic matter levels to rise across most of the farm at a steady rate.

Chris Jones leading a "low carbon farming" farm walk in March 2011

Overview

Woodland Valley has opportunities to further reduce its carbon emissions from fuel use. Further stocking of the land will increase emissions from livestock again, which is something to be mindful of in terms of the overall carbon footprint and the ability of soils to carry on absorbing carbon.

That said, the amount of carbon sequestered on the farm is significantly more than the emissions created - in this sense the net carbon balance is negative (which is a good thing!). However it's important not to lose sight of the need to continually look at ways to reduce direct and indirect emissions of greenhouse gases from food production.

What this exercise demonstrates is that it's entirely possible for farms to absorb more carbon than they emit. “Carbon neutral” is an accolade that many businesses try to

achieve, but farms have the potential to be “carbon negative”. Stewards of the land are the only people in society that can achieve carbon negativity, a point that we must not lose sight of.

Pasture fed livestock systems that operate like Woodland Valley, have high animal welfare levels, produce good quality meat and act as carbon sinks as well as good wildlife habitat, landscape maintenance and energy sources. This is a world apart from current industrial agricultural systems and those farmers and growers that do provide these benefits to society need to be recognised for their positive stewardship of the land.

More about Woodland Valley Farm can be found on their website **www.woodlandvalley.co.uk**

CFF Carbon Calculator offers a free carbon calculator for organic farmers and growers online at **www.cffcarboncalculator.org.uk**. It also is in partnership with Farm Carbon Cutting Toolkit, offering help, advice and networking for farmers and growers to reduce their carbon emissions and increase their energy resilience. For more information look at **www.farmcarbontoolkit.org.uk**