

Introducing trees to enhance farm sustainability



Michael Rogers is an organic farmer from Beeson, South Devon, who farms 100 acres (and rents 60), and has diversified his business based on a desire for the farm to be a sustainable learning resource for all.



The farm is in a Higher Level Stewardship (HLS) agreement; therefore a proportion of it is dedicated to the protection and preservation of wildlife. Michael explains that he joined the Countryside Stewardship Scheme in 1995 and went in to the HLS after ten years. In recent years, due to health problems, he has reduced his livestock to a more manageable 40 beef and 45 suckler cows. He converted arable fields back to pasture and stresses that feeding the cattle is a bi-product of fertility building.



Michael explains that he has always been interested in sustainability and believes that it is important for children to learn about where their food comes from and to be able to think about producing food that is less reliant on fossil fuels. With this in mind he converted a Dutch barn, originally a milking parlour in the 1980s, into an education centre (see below).



The centre is run completely on [renewable energy](#); there is a small [wind turbine](#), solar panels, [solar PV](#) (see below) and a [biomass boiler](#). Wood from coppiced hedgerows on the farm is used to feed the boiler and to sell to people in the village. Most of the materials used to build the centre were recycled. The walls and ceilings are insulated with recycled plastic bottle and lamb's wool, straw and cellophane.



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farmer profile



Michael stresses that the 'holistic' approach he applies to the farm and education centre is more important to him than farming organically. He tries to apply this ethos throughout everything and to farm whilst protecting wildlife and producing food. The hedgerows he has been cultivating on the farm and the hedges that have recently planted are a demonstration of this intent (see below).



He has focussed on planting productive trees with a 2-3 metre gap between the hedge and the fence (see above). A variety of different species have been incorporated such as dog rose, spindle, apples, hazels, blackthorn, ash, rowan, and some transplanted alders... the idea being to make a native hedge with largely edible uses.

The maintenance of hedges and use of native trees is a HLS requirement. Michael believes that if farmers can grow productive hedgerows and potentially generate profit from them, they could afford to leave a 2-3 metre margin around fields.

He has planted, in collaboration with Liz Turner, a 3 acre field using [agroforestry](#) principles, which includes alley cropping and a forest garden. This has been a natural development for Liz from the '[Tree for Health](#)' project that she runs. They have established the site to investigate the potential benefits of different species and to look at ways of tackling food production and resource-use in the light of climate change and to get the community more involved.

The majority of the trees and shrubs were planted in the winter of 2011 - 2012 and were 2-3 years old when planted. Annual crops such as grains, legumes and vegetables e.g. broccoli have been grown in-between trees such as apples / pears, nut trees and trees and shrubs grown for wood fuel, timber or other uses such as dyes, weaving and nitrogen fixing. They have grown and harvested crops as diverse as lupins, lentils, and soya beans. They have also been experimenting with growing locally appropriate wheat with a low vernalisation requirement.

Below shows the original layout of the field (with the alley crops at the upper end).



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Liz explained that she went about designing the forest garden by considering the benefits of different species and how the combinations could be most beneficial. She looked at how many canopy trees could be fitted into the allocated space and looked at the layout against an ordnance survey map before cutting out circles to scale of the canopy sizes and moving them around according to requirements such as where they would be best suited with regards to orientation, sun and shade requirements etc.



Trees were selected that could potentially generate some income i.e., pears, apples, plums, cherries (see above) and the more unusual and perhaps not so well known such as mulberries, medlar, quince, greengages, cherry plums,

autumn olive, large hawthorn varieties, Japanese wineberry, chokeberry, jostaberry, junberry and sea buckthorn.

The aim has been to create a perennial system that mimics nature, viewing diversity as being more healthy and resilient against disease. Some of the crops planted will be more adept at surviving cold temperatures while others will be more suited to warmer conditions.

Crop interactions have been an important consideration in designing the layout. For example, horseradish has been grown under apple trees whereas blackcurrants are grown away from hazel as the latter can harbour big bug mite. Groundcover is provided by grass and buttercups, with 6 month old wood chippings placed on cardboard being used around the bases of the young trees as mulch (see below).



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There is also a nut tree orchard on the farm, growing trees such as maiden hair tree (*Ginkgo biloba*) (see below), walnut varieties and Swiss stone pine (*Pinus cembra*).



Here is quick reference guide of examples of some of the different species planted within the 3 acre plot:

Alley trees and shrubs

- Willow, dogwood, broom, *Eucalyptus gunnii*, small leaved lime, wild cherry, rowan, almonds (*Prunus dulcis*), hazel, apples, pears, blackcurrants, blueberries, red currants, *Rosa rugosa*...

Forest garden trees and shrubs

- Apples, cherries, *Elaeagnus umbellata*, hawthorn, plums, medlars, mulberry, Szechuan pepper (*Zanthoxylum schinifolium*), sea buckthorn, strawberry tree, witch hazel...
- Goji (*Lycium barbarum*), tayberries, bush clover, oriental bush quinces, chokeberries, Chilean guava...

Perennials

- Three cornered leek (*Allium triquetrum*), Skirret (*Sium sisarum*), quamash (*Camassia quamash*), horseradish, sea beet (see below)...



Michael and Liz highlight that managing the [soil](#) is a constant challenge; there is a high level of silt and it is also quite shallow, which can make it either very easy or very difficult to work! If it gets too wet Michale says it can be like “rolling marbles on a grand scale!”, ruining the soil structure. They hope to get the community more involved; while the intention is for it to be a largely self-sustaining system, it still requires constant labour.

If you would like to know more about Trees for Health, click [here](#).