Silvopasture

Bex Tyers from Innovative Farmers, a network of farmers running trials on their own farms, reviews the first three years of a 12-year project to assess the impact of growing trees on Devon farms

A group of six farmers and Rothamsted's North Wyke research farm have teamed up with FWAG South West and Organic Research Centre through Innovative Farmers to form the Devon Silvopasture Network.

The trial has been designed to explore the commercial and environmental effects of implementing silvopasture on UK farms. The farmers have been supplied with trees and planting advice by The Woodland Trust. Each farm has then planted one or more of three silvopasture designs. Over 12-years, the trial will explore the impact on economic performance, biodiversity, soil health, soil carbon and animal welfare, to name just a few.

I caught up with the three participants from the field lab, Andy Gray from Elston Farm, Rob Dunn from Rothamsted North Wyke and Henry Andrews from Warson Farm at The Agroforestry Show in September 2023.

Early benefits

It may take some years for established research to come out of the trials, but in the short two and a half years since the start of the field lab, many of the farmers and the team at Rothamsted have already seen positive outcomes from planting trees on-farm.

Andy's planting design includes a mantle of three hawthorns around the trees that has grown into a protective hedge. In 2021, these hawthorns were nine inches high – they are now at five feet and already providing protection. Having thought it would take 12 years before he could put livestock in those fields, he now thinks they will be summer stocking in those areas in five years' time.

On Henry's farm, much of the impact has been observational so far, he commented, "In the past two years we have only used antibiotics once and have found that grazing the willows has helped with lameness." He also shared that with cows grazing coppice, they have seen less worm egg counts in their manure, which they have measured against stock on open pasture. The decrease has been so significant that they have stopped worming cattle among the trees and have hardly found any worm burden.

Additionally, when weighing cattle each month, they saw daily liveweight gains had not dropped off from not being on open pasture. It is suggested that this could be due to the high protein content of leaves, as well as cows being able to graze mulberries and similar wild fruits.

Early challenges

Unpredictable weather made the early establishment stage of the trial more challenging. From multiple destructive storms to a long period of drought in 2022 and earlier in 2023, followed by exceptional rainfall. During this process there were clearly a lot of learnings around getting tree establishment right.

Andy's main advice is to have as young and small a tree as possible and make sure that it is guarded adequately, as he shared that "the smaller the tree you plant, the faster it grows and more rapidly it overtakes the more expensive, bigger trees".

At Rothamsted, the 2,500 trees were planted manually with the help of employees over two weeks. They scarified the ground, put a 'v' slot in and planted bare root trees in with a stake and tree guard. The trees at Rothamsted had a 97% survival rate in the first year.

Henry similarly planted trees manually. Having been on a tight budget, Henry chose cheaper stakes and found that a lot of them broke. To save hassle and time, investing in high-quality stakes is strongly advised by all of the participants.

As more research is done on the other farms, there will be further data on survival rates across all seven sites.

Next steps

While this research is only in its infancy, there has already been a great deal of learnings. In the next few years, more samples will be taken to test soil health, biodiversity, and animal welfare, among other metrics. These samples will be compared with the original baseline samples and should hopefully show interesting data that will enable the Devon Silvopasture Network to start building a more solid picture of the real impact that silvopasture is having on their whole farm systems.

You can find out more about, and follow updates from, the farmer-led research at www.innovativefarmers.org/field-labs/devon-silvopasture-network or listen to the farmers talking at the Agroforestry Show on YouTube at https://bit.ly/49gH2gv.

(Top) Tree planting on one of the farms in the Devon Silvopasture Network
(Bottom) Bex Tyers from Innovative Farmers

Trial tests will include:

- Surveys in vegetation, soil organic carbon, and insect communities and how trees affect these metrics as they grow.
- Looking at sward competition and rates of growth at different stages of tree canopy development
- Biodiversity research looking at bats, birds and dung beetles as the agroforestry system matures
- Monitoring tree establishment rates and practicalities of looking after the trees
- When the livestock has been introduced, welfare assessments will be undertaken.