



Managing the tree understorey: Opportunities for crop diversification

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In many silvoarable systems the area between the trees and under the tree canopy within the tree row is an underutilised space.

Planting new crops in this area can provide additional short term income while trees establish, or longer term if shade tolerant species are used, increasing production and diversifying the range of marketable products from the tree row and therefore the farm.

New crops that could be established underneath the trees include culinary herbs, flowers (bulbs or cutting material), perennial fruit and vegetables such as globe artichokes or rhubarb, mushrooms and berry bushes.

Some species and varieties will be better suited to the conditions found in tree rows (particularly levels of tolerance to shade) and it may be worth trialling varieties or species first to identify those best suited, before scaling up.

Ideally, the new crop will complement current alley and tree production, but for unusual crops some marketing and/or processing may be needed. As well as increasing overall productivity, understorey crops may benefit useful biodiversity such as bees by providing new habitats and resources.

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However, this increase in complexity can also present challenges, and the following practical points need consideration:

- There will be establishment costs and ongoing additional labour requirements. To reduce the labour impact ideally choose crops that can be harvested and managed in farm quieter periods.
- For some tree systems or management practices (e.g. short rotation coppice, or high density fruit trees), the competition for resources such as sunlight, water and nutrients may be too strong to allow any understorey crops. As the trees grow, the understorey microclimate conditions will change, with shade and competition increasing for open site plants. This may mean that the understorey crops will also need to change over time or eventually be out-competed.



Figure 1. Daffodils in the agroforestry row understorey at Tolhurst Organics, UK

References:

The Agroforestry Research Trust (www.agroforestry.co.uk) has produced some beautiful and useful publications that cover a range of potential understorey crops.

Smith et al (2017) Lessons learnt: Silvoarable agroforestry in the UK. (www.agforward.eu/)