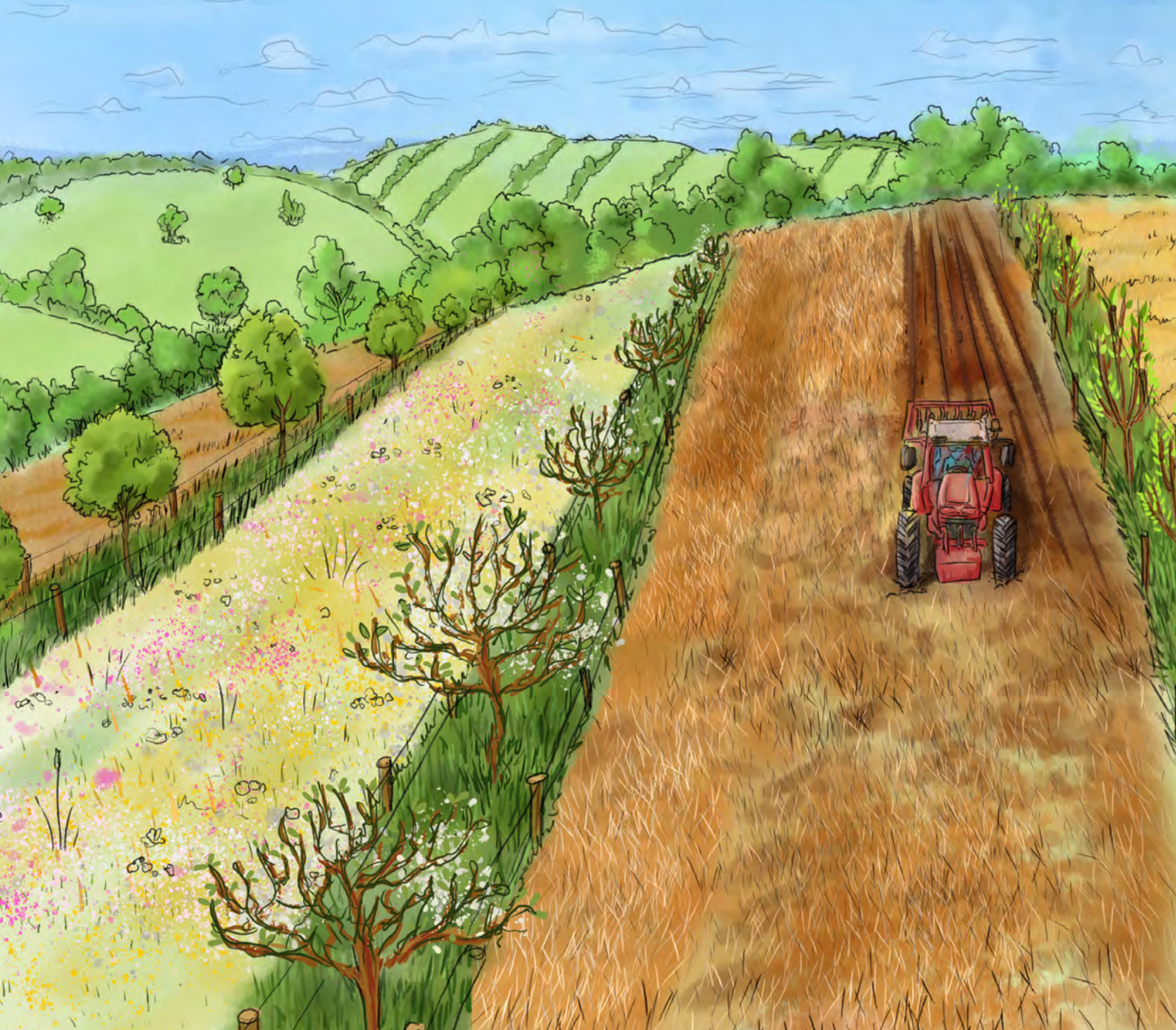


# SILVOARABLE SYSTEMS

Integrating trees into existing arable systems can support and enhance aspects of your production while increasing resilience and maximising productivity. Trees offer the opportunity to grow new products, diversifying the farm business and producing more from the same land area through '3D' farming.



Most commonly, rows of trees are spaced within fields to create alleys which can continue to be farmed for arable production. Various tree types can be planted to suit different objectives including fruit, nut and timber and biomass production or boosting biodiversity. Alley cropping systems across the UK and Europe have been proven to give greater productivity than monocultures.<sup>1</sup> Trees can improve soil drainage, reduce runoff and create more sheltered microclimates during extreme weather events, and can keep soil warmer for longer in early spring and late autumn. The rows also provide habitat for pollinators and insects that provide natural pest management.





**Orientation:** Rows are often oriented N-S to limit the effect of shading on crops growing within alleys. Orientation can differ to reflect slope, prevailing winds or specific site objectives e.g. planting along contours to reduce soil erosion.

**Row spacing:** Rows should be spaced to allow existing farm machinery to continue to operate with ease. Usually, the width of the alley will be related to existing tramline spacings. Headlands also need to be considered at either end of the row.



**In-row design:** Tree rows need to be wide enough to allow access for maintenance to the trees, and to accommodate arable operations. Trees should be spaced along the row according to their species preference. Double or triple rows of trees can be incorporated where appropriate. Rows can be undersown with a wildflower mix to provide additional benefits.

**Protection:** Trees will require appropriate tree guards to protect from browsing mammals like deer, rabbits and voles. Fruit and nut trees may need to be staked dependent on the location and the rootstock used.

**What to grow:** If productive trees are to be planted, a route to market for your new product should be identified before any planting takes place.

**Rootstocks:** Productive fruit and nut trees are grown on different rootstocks to ensure consistent size, form and productivity. Silvoarable design will involve decisions about which rootstock is appropriate. Most schemes planting fruit trees will use medium or semi-vigorous rootstocks (e.g. MM106 for apples).

**Varieties:** Selection of appropriate fruit varieties will depend on soils, aspect, exposure, altitude and location. Pollinator groups need to be considered to ensure mutual pollination benefit between varieties to maximise productivity. Select varieties that can be harvested at a time that complements adjacent arable operations.

1. Productivity and Economic Evaluation of Agroforestry Systems for Sustainable Production of Food and Non-Food Products  
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