

Introduction to Agroforestry

Planting trees as part of
a whole-farm system.



Agroforestry can be simply defined as 'agriculture with trees', however it is so much more. Agroforestry is the integration of trees into farming systems for environmental, social and economic benefit.

Agroforestry involves a wide range of trees that can be planted, restored, protected and managed as they interact with crops, livestock, wildlife and humans. It balances a range of needs and can be designed according to individual landholders' goals, capacity and site characteristics.

Agroforestry systems

There are many different approaches to agroforestry. They can be broadly categorised under three main types of system:

SILVOPASTORAL

Silvopastoral systems combine tree growing with livestock. Typically, trees are integrated as shelterbelts or woodlots throughout pastures and animals are free to graze beneath them. Animals enrich the soil and trees provide shelter and fodder.



The development of a silvopastoral stock haven on a Tasmanian Midlands property between 2005 and 2023. Source: Google Earth.

SILVOARABLE

Silvoarable systems combine tree growing with crop production. Often, trees are planted in rows large enough for a tractor to tend to the crops without damaging the trees. Trees and crops occupy different levels both above and below ground.



Silvoarable alley / strip cropping of corn and walnuts. Source: USDA NAC.

AGROSILVOPASTORAL

Agrosilvopastoral systems combine trees, crops and livestock. Crops and animals may be alternated as part of a crop rotation plan, to support soil health, nutrient cycling and to reduce fuel load. This method can only be undertaken for short, supervised periods.



Agrosilvopastoral riparian buffer in Southern Tasmania where cattle are introduced for short, supervised grazing. Source: Private Forests Tasmania

Why agroforestry?

There are proven benefits to integrating trees on farms, with a range of demonstrated environmental, economic and social outcomes as a result of agroforestry practices.

When applied correctly, agroforestry can increase farm productivity, improve enterprise income and support environmental and operational sustainability.

Environmental outcomes	Economic outcomes	Social outcomes
Improves soil fertility, prevents soil erosion and restores degraded land	Maintains or increases the productivity of farming systems and reduces input costs, particularly from the provision of shelter for livestock and crops	Supports landholder and farm employee wellbeing and health
Improves water quality and conservation, both on-farm and in catchment	Create opportunities for small-scale forest-based enterprises	Reduces farm reliance on purchased or imported products (e.g., fuel, fodder and wood products)
Limits pests within farming systems	Diversities farm production and income streams, and improves natural capital of property	Improves food and fuel security at household and community levels
Provides habitat and contributes to biodiversity conservation, and climate change adaptation and mitigation		Improves rural economy and employment opportunities
Provides renewable energy sources as an alternative to fossil fuels		

Summary of environmental, economic and social benefits of agroforestry. To learn more about agroforestry outcomes from Tasmanian projects, browse Tree Alliance’s Farm Forestry Case Studies.

Agroforestry designs

There are many ways of designing tree plantations to maximise beneficial outcomes. Configurations should be

selected depending on your priorities and the needs of your farming operations.



Configuration	Design	Benefits
Block	Large plantations of trees established as long-rotation agricultural crop. Designed to produce large volumes of wood per unit area.	Enables commercial wood production to generate revenue and diversify farm income. Can provide productivity benefits such as shelter and habitat, depending on plantation design.
Belt	Linear plantings of trees placed in strategic positions such as paddock edges, typically with at least three rows of trees.	Provides shade and shelter to improve paddock microclimate. Reduces livestock mortality, crop damage and soil erosion, lessens need for irrigation and improves growth rates for stock and crops. Can provide biodiversity and habitat, and commercial wood production.
Woodlot	Small plantings placed in strategic positions such as paddock corners, mid-pasture and between pivots. Can include stock havens specifically designed for stock protection.	Offers productivity benefits including shelter for stock, improved soil health and water quality, and biodiversity and habitat. Can provide small-scale wood production for commercial or on-farm purposes (e.g., firewood, building materials).
Riparian	Vegetation planted at the edge of waterways (e.g., stream or river banks) with different species and plant types for low, mid and upper zones.	Provides bank stabilising and filtering benefits to reduce erosion and sediment runoff from pasture, improving farm and catchment water quality, and reducing flood risk. Provides habitat and biodiversity benefits.

Summary of popular plantation configurations, their characteristics and their benefits. For more information on plantation design and configurations, read the Tree Alliance Fact Sheet 7 - Tree Configurations Guide.

Single or mixed species?

Tree plantings can be designed according to your goals, for example, whether you are looking to maximise commercial wood production or to prioritise conservation outcomes.

There is, however, evidence to support increased productivity benefits in mixed-species plantations, including biodiversity and habitat. Many farm plantings contain a mixture of species, including native and exotic species.

References

Food and Agriculture Organization of the United Nations. Agroforestry. www.fao.org/forestry/agroforestry/en/

Food and Agriculture Organization of the United Nations. Sustainable Forest Management (SFM) Toolbox: Agroforestry. www.fao.org/sustainable-forest-management/toolbox/modules/agroforestry/basic-knowledge/en/

World Agroforestry. What is Agroforestry? www.worldagroforestry.org/about/agroforestry



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Tasmania is one of the best places in the world to manage forests for sustainable and profitable outcomes. To learn more about your options for renewable native forest management, contact the team at Private Forests Tasmania on their Tree Alliance hotline or through their general enquiries.

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