

COMBINING POULTRY WITH FORESTRY



ESTABLISHING A SILVOPOULTRY SYSTEM IN IRELAND



1. Hens in a recently established agroforestry poultry system 2. Open area in a free-range agroforestry poultry system 3. Hens in a recently established agroforestry poultry system with a static house in the background 4. Recently established agroforestry plot with trees in shelters, beside a static poultry house

WHAT AND WHY

“Why poultry and forestry can be mutually beneficial”

In agroforestry systems, poultry can play a significant role, offering synergies between animal welfare, land management, and economic diversification. Trees provide essential shelter from wind and rain prevalent in the Irish climate, and shade during the summer, reducing heat stress. This improves poultry welfare and enhances productivity, especially for free-range and organic systems. The natural cover from trees also encourages foraging and dust-bathing behaviours, contributing to healthier birds. Additionally, tree canopies and dense vegetation reduce the visibility of aerial predators like hawks while providing safe spaces to hide from ground predators.

From a land management perspective, poultry contribute to weed and pest control, as their foraging reduces the need for chemical herbicides and insecticides. Poultry manure, rich in nitrogen, acts as a natural fertilizer, improving soil fertility and supporting tree growth. The scratching action of poultry further aerates the soil, while tree roots stabilize it, preventing erosion and compaction. Biodiversity also benefits significantly, as agroforestry systems create habitats for pollinators, birds, and other wildlife. Native Irish tree species, such as *Quercus robur* (oak), existing *Fraxinus excelsior* (ash), *Alnus glutinosa* (alder), and *Corylus avellana* (hazel), contribute significantly to both the ecosystem and landscape.

Agroforestry with poultry provides significant economic opportunities. Primary income can be generated through the sale of free-range eggs and meat, which are in high demand among consumers seeking ethically and sustainably produced food. Transitioning to organic certification can further enhance marketability. Secondary income streams include the sale of fruit, nuts, or timber from the trees and specialty products like honey from flowering trees or mushrooms cultivated in the understory. Fruit and nut trees, particularly apple and hazel, are highly suited for these systems and offer dual benefits of shade and harvestable products. To reduce the risk of any avian disease from wild birds, it is recommended that any soft fruits be harvested and not be left on the ground. Timber from fast-growing species like poplar and willow can also be harvested for biomass.

HOW THE CHALLENGE IS ADDRESSED

“How to establish a silvopoultry system”

Establishing a silvopoultry system involves integrating trees, shrubs, and poultry into a productive agroforestry system. Begin by assessing the site's soil type, climate, existing vegetation, and topography to select appropriate species and determine the layout.

Trees and shrubs such as *Morus* spp. (mulberry), *Elaeagnus umbellata* (autumn olive), *Malus domestica* (apple), *Pyrus communis* (pear), *Aronia melanocarpa* (aronia berry), *Sambucus nigra* (elderberry), and *Pinus pinea* (stone pine) can provide shade, shelter, and supplementary feed for poultry. Nitrogen-fixing species like *Robinia pseudoacacia* (black locust) or *Elaeagnus* spp. (autumn olive) improve soil fertility.

Plant trees during the dormant season, using guards or fencing to protect young saplings, and establish ground cover with resilient grasses and legumes to prevent erosion. Subdivide the area into paddocks for rotational grazing, using portable fencing to manage poultry access and prevent overgrazing while allowing vegetation recovery. Poultry manure enhances soil fertility but must be managed to avoid nutrient overloads.

Select hardy poultry breeds suited for outdoor systems and provide mobile or static coops for shelter and predator protection.

Keywords: Ireland, Silvopoultry, Welfare, Biodiversity, Productivity

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ADVANTAGES

Animal welfare

Trees provide natural shade and shelter, reducing heat stress and offering protection from predators. A more diverse and stimulating environment improves the overall well-being and health of poultry.

Feed cost reduction

Poultry can forage on fallen fruits, seeds, insects, and vegetation, lowering reliance on commercial feed. Trees like *Morus* spp. (mulberry) and *Elaeagnus umbellata* (autumn olive) provide high-protein fruits and leaves.

Increased Productivity

Healthier, less stressed birds produce higher-quality eggs and meat. Poultry manure enhances soil fertility, supporting tree growth and increasing long-term productivity.

Environmental benefits

Trees reduce ammonia emissions by absorbing gases, improving air quality around poultry units. Tree roots stabilize soil, reduce erosion, and improve water infiltration. Biodiversity is enhanced by supporting insects, birds, and other wildlife.

Marketing

A silvopoultry system offers premium branding through sustainability, animal welfare, and diversified outputs like eggs, meat, and fruits. It attracts eco-conscious consumers, supports certifications (e.g., organic), and opens access to niche markets such as farm-to-table and agritourism.

Mobile House Design Considerations

Plant rows of trees with pasture alleys wide enough for the mobile house to move and turn, ensuring the alley width matches poultry netting for efficient enclosures. In wetter areas, use wooded paddocks with clear fence paths along a central roadway for house movement. Train laying birds to use nest boxes before introducing tree cover.

Static House Design Considerations

Plant trees downwind of static houses to absorb ammonia but far enough away to encourage birds to range farther, reducing nutrient buildup. Maintaining sight lines between the house and tree rows helps birds explore the range more evenly.

HIGHLIGHTS:

- **Trees give poultry shade, shelter, and cover from predators, reducing stress and improving egg and meat quality. Birds also forage on fruits, seeds, and insects, cutting feed bills, while their manure boosts soil and tree growth.**
- **Mulberry, autumn olive, apple, pear, and elderberry supply protein-rich fruits, extra feed, and nitrogen fixation. Trees also soak up ammonia, hold soil, and improve water use.**
- **A mix of eggs, meat, fruit, nuts, timber, and honey can create premium branding opportunities, supports organic certification, and opens access to eco-conscious markets.**



Poultry hens on a recently established silvopoultry site

Further Information:

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