COMBINING PIGS WITH FORESTRY

ESTABLISHING A SILVOPASTORAL PIG SYSTEM

1. Kunekune pigs in a recently established silvopastoral site 2. Pigs grazing in an immature oak woodland
3. A contrast between woodland grazed and ungrazed by pigs 4.The effect of pig's foraging behaviour on the forest floor

WHAT AND WHY

"Why pigs and forestry can be mutually beneficial"

A silvopastoral pig system in Ireland, which integrates trees, forage, and pigs, can provide a sustainable farming approach that supports ecological health, economic productivity, and animal welfare. Pigs, with their natural rooting and foraging behaviours, thrive in systems where trees offer shade in the summer and shelter in the winter.

Research shows that pigs can reduce the need for mechanical soil aeration by naturally rooting and improving soil structure. A single sow can root up to 20 hectares of ground in a year if left unmanaged, underscoring the importance of rotational grazing. Managed effectively, pigs can stimulate nutrient cycling, as their dung contributes to organic matter and soil fertility, which can increase pasture productivity by 10–20% in rotational systems.

From an environmental perspective, a silvopastoral pig system can provide multiple benefits. Trees act as nutrient sinks, reducing nitrate leaching by up to 30% compared to conventional pasture systems. The deep root systems of trees stabilize soil, reduce erosion risk, and improve water infiltration, which is critical for Ireland's wetter climate. These systems enhance biodiversity by creating habitats for insects, birds, and small mammals, increasing overall ecosystem resilience.

A silvopastoral pig system offers farm income diversification by combining livestock, tree, and forage production. High-quality pork from sustainably raised pigs often can fetch up to 30% higher prices in premium markets according to the Irish Agroforestry Forum. *Quercus* (oak) trees, commonly integrated into these systems, can produce up to 3,000 acorns annually, reducing pig feed costs by up to 40% during the autumn pannage season i.e. autumnal feeding time.

HOW THE CHALLENGE IS ADDRESSED

"How to establish a silvopastoral pig system"

Integrating pigs with existing and new fruit/nut orchards and woodlands creates a mutually beneficial system. Pigs benefit from shade, shelter, and access to dropped fruits, nuts, and leaves, reducing feed costs and allowing natural behaviours. Their foraging cleans the orchard floor, disrupting pest and disease cycles, while their manure enriches soil fertility.

Key trees include *Juglans regia* (walnut), which provides nuts, emits juglone (a natural insect repellent), and has leaves that combat intestinal parasites. *Morus* spp. (mulberry) is highly productive, dropping fruit for up to 90 days and thriving on the added fertility from pigs. Other excellent species include *Quercus* spp. (oak), *Corylus avellana* (hazel), *Fagus sylvatica* (beech), *Juglans cinerea* (butternut), *Castanea sativa* (sweet chestnut), *Malus domestica* (apple), and *Pyrus communis* (pear).

Select fruit cultivars that drop fruit easily and plant a mix of species for a continuous food supply throughout the season. This system enhances orchard health, supports pigs' welfare, and improves long-term soil productivity.

Pigs generally do not intentionally harm young trees but may accidentally uproot or bury them during foraging. They may also damage bark, expose roots, or scratch on tree trunks. Protecting young trees for the first 4–5 years is essential to ensure proper establishment. Stocking the mainly grazing Kunekune pig, from New Zealand originally, has always proved effective in reducing damage to trees.

Tree protection is vital; guards or fencing shield young trees from pig damage, while hardy species like *Quercus* spp. (oak) and *Corylus avellana*(hazel) are preferred for their resilience. Fencing off small groups of young trees can effectively keep pigs at a safe distance. Tree tubes, especially when staked with fiberglass rods, provide additional protection and discourage scratching. For highly active or destructive pigs, combining tree tubes with electric fencing or netting offers robust defence, ensuring the long-term success of a pig-integrated silvopastoral system.

Effective silvopasture management includes rotational grazing, with pigs moved every 5–10 days to prevent over-rooting and compaction. Research suggests rest periods of 30+ days per paddock to allow forage regrowth. Seasonal adjustments, such as providing well-drained paddocks during wet months, help maintain soil integrity and prevent erosion.

Keywords: Ireland, Silvopasture, Pigs, Shelter, Grazing, Nutrient recycling

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ADVANTAGES

Soil enhancement and pasture establishment

Their rooting aerates soil, enhances structure, and incorporates organic matter, while manure enriches fertility. Establishing a pasture can involve natural sod formation, broadcasting multispecies seed mixes to improve diversity and soil stability, or sowing seasonal cover crops for quick soil recovery and high-protein forage.

Biodiversity and economic benefits

Pigs reduce pests and weeds by consuming seeds and invasive plants, disrupting pest cycles and reducing chemical inputs. This enhances biodiversity, promotes wildlife habitats, and lowers wildfire risks. Economically, silvopasture integrates pork, timber, and forage production while reducing labor costs associated with land clearing. Managed pig rotations and appropriate ground cover establishment optimize soil health and long-term system productivity.

Understorey clearance

Pigs effectively convert existing scrubland and woodland into silvopasture by clearing woody understory and disturbing soil, increasing light penetration to the forest floor. This disturbance supports the establishment of a resilient pasture layer, improving photosynthetic activity and soil protection compared to shaded understories.

HIGHLIGHTS:

- **Pigs boost pasture by 10–20% with rooting and manure, while trees cut nitrate loss by 30%, hold soil together, and improve water soakage.**
- **Oak trees can drop up to 3,000 acorns a year, reducing bought-in feed needs by as much as 40%.**
- **Silvopasture pork can earn 30% more in premium markets, especially when managed with short (5–10 day) grazing and long (30+ day) rests to avoid damage.**

The view from the forest floor

Further Information:

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JOHN CASEY

John.casey@teagasc.ie

Forestry Development Department, Teagasc,
Athenry, Galway, Ireland H65 R718
Irish Agroforestry Forum (IAF)

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