POSITIVE OUTCOME AREAS

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TECHNICAL GUIDE

Tree shelter for lambing time

What is tree shelter for lambing time?

Trees can reduce lamb mortality by integrating hedgerows, shelterbelts, woodland edges or scattered trees into sheep systems to provide shelter during lambing. The aim is to reduce lamb losses linked to exposure, cold stress and poor ewe–lamb bonding, particularly in outdoor and early lambing systems. Reducing weather-related losses with effective shelter can also protect output and improve margin stability in more exposed years.

Trees act as natural shelter, reducing wind speed and wind chill, and creating more stable microclimates at ground level. This helps newborn lambs conserve body heat and improves ewe comfort, encouraging lying behaviour, which supports successful bonding. Well designed shelter can also reduce mismothering and the need for intervention during poor weather.

This practice builds on existing landscape features wherever possible. Many farms already have hedgerows or woodland that can be better managed or positioned to protect lambing paddocks. New planting can be targeted to fill gaps, aligned with prevailing winds and lambing areas.

Trees are not a replacement for good lambing management, but a supporting tool that reduces weather-related risk. They can provide a durable, low input form of shelter that improves animal welfare while also delivering wider environmental benefits.

What the science says about shelter for lambing time – the proof/impacts and evidence

Across temperate livestock systems, exposure to cold, wind and wet conditions is a leading cause of lamb mortality. Research from the UK, northern Europe, New Zealand and Australia shows that wind chill, rather than air temperature alone, drives heat loss in newborn lambs. With limited energy reserves, lambs are highly vulnerable in the first 24 hours, particularly in exposed conditions.

Shelter reduces wind speed and improves microclimate at ground level. Well designed tree shelter can reduce wind speeds by 30–60%, increasing near ground temperatures by 1–3°C in cold conditions. This significantly lowers heat loss, improving lamb vigour, mobility and survival.

Across temperate systems, effective shelter has been associated with reductions in lamb losses of around 10–30% during adverse weather, with the greatest benefits seen in cold, wet and windy lambing periods. Shelter also improves ewe behaviour, increasing lying time and reducing disturbance, which supports bonding and reduces mismothering.

Woody shelter, such as trees and hedgerows, provides durable, landscape scale protection, functioning across variable conditions and delivering consistent long term benefits for lamb survival and welfare.

Making Outdoor lambing work on your farm

Whole farm system

Integrating tree shelter to reduce lamb mortality works best when considered at a whole farm scale, rather than focusing on individual fields in isolation. Start by assessing what shelter already exists across the farm, including hedgerows, woodland edges or boundary trees that can provide valuable protection at lambing. Often, small changes in management will improve how this shelter is used, such as saving the most sheltered fields or parts of fields for lambing, prioritising ewes with twins, or by adjusting hedgerow cutting regime to increase hedge height and density.

It is also important to consider how shelter is distributed across the whole grazing plan. Ewes should be able to access protection wherever they lamb, not just in isolated areas. Linking existing features can create more consistent shelter, particularly in exposed fields. Where gaps exist, targeted planting can extend or connect these areas, focusing on boundaries and natural shelter lines. Over time, this builds a network of shelter, improving protection, flexibility and resilience during challenging lambing conditions.

How do I make sure it will work for me?

Be clear about your main objective, whether that is reducing exposure losses, improving ewe behaviour or supporting outdoor lambing will shape where and how you use tree shelter.

Understanding your site is key. Consider prevailing wind direction, slope, soil type and drainage, as these affect where shelter will work best and where trees will establish successfully. Focus on exposed fields, especially those used for early or outdoor lambing. Smaller trees or species that coppice would reduce the risk of creating habitats for corvids and other potential predators of young lambs.

Make the most of what is already there. Improving hedgerow height and structure, or prioritising sheltered fields in the grazing plan, can deliver quick gains. Where planting is needed, focus on strategic placement, such as field boundaries or gaps in existing shelter.

Keep design simple:

Orientation: place shelter across the prevailing wind.

Density: aim for porous shelter that slows wind without creating cold, damp conditions.

Layout: improve existing shelter first, then target planting to fill gaps and link shelter across the grazing plan.

Measuring and monitoring

Start by establishing a simple baseline before making changes. Many farms will already be recording useful lambing data, including overall lamb mortality and likely causes such as exposure, mismothering or poor vigour. It is also worth noting which fields are used, the worst weather events, and where ewes tend to lamb most successfully.

Ongoing monitoring does not need to be complicated. Compare lamb survival rates year on year, especially in fields where shelter has been improved or introduced.

Useful indicators include lamb mortality in poor weather, likely exposure-related losses, intervention rates at lambing, and whether ewes are choosing sheltered areas and lying more during bad conditions.

What "good" looks like is fewer losses in cold, wet or windy spells, more consistent survival across different fields, and less need for intervention. Tracking a few simple trends over time will show whether shelter is reducing weather-related risk and where further improvements are needed

Timescales

Trees can reduce lamb mortality over short, medium and long timescales, and planning across all three is key to success.

Short term gains come from a better understanding and use of existing shelter. This includes identifying sheltered fields, observing how livestock use them, and making simple management changes, such as prioritising these areas for lambing or adjusting hedge cutting to encourage taller, denser hedgerows.

In the medium term, targeted planting helps address gaps. This may include filling hedgerow gaps, allowing hedgerows to thicken, establishing hedgerow trees, or planting small, strategically placed shelter blocks. These begin to provide useful protection within 3–5 years, particularly with good establishment.

In the long term, the focus shifts to active management of the treescape. The aim is to maintain effective, porous shelter while balancing grass growth and access for grazing. At this stage, trees can also provide additional value, for example through timber or biomass for on farm use, alongside continued improvements in lamb survival and system resilience.

Improved shelter helps lambs maintain body temperature, increasing vigour and survival in the critical first hours after birth.

Impact

Integrating trees for shelter can deliver clear and measurable improvements at lambing. The most immediate impact is a reduction in lamb losses linked to exposure, particularly during cold, wet and windy conditions. Improved shelter helps lambs maintain body temperature, increasing vigour and survival in the critical first hours after birth.

Better shelter also improves ewe behaviour, with animals more likely to lie in protected areas, lamb undisturbed and bond successfully with their lambs. This can lead to fewer mismothering issues and a reduced need for intervention, particularly during poor weather.

In practical terms, this often translates to less labour pressure at lambing and more consistent outcomes across different fields.

Outdoor lambing is valued for its lower labour requirements, reduced housing costs and simpler system, but it relies on good shelter to manage weather risk effectively. Over time, a well-designed shelter network increases system resilience while also delivering wider benefits, including biodiversity, soil protection and potential outputs such as timber or biomass.

Costs, savings and improvements

On farms with existing tree cover an increased focus on shelter doesn't need to cost anything. Small management changes like reducing hedgerow cutting intervals can actually save money whilst delivering benefits.

Where there is limited shelter, tree planting typically requires upfront capital investment, predominantly in the first year. This includes the cost of trees, guards, planting labour and, often most significantly, fencing. Planting smaller areas each year rather than all at once, will allow learning from experience and improve establishment success, especially in dry spring conditions.

Ongoing costs are comparatively low. Establishment maintenance (e.g. weed control and replacing failed plants) typically applies for the first 3–5 years, followed by light management such as pruning or thinning. Land taken out of production is usually small, but poorly placed shelter can reduce grazing flexibility or compete with grass growth, so layout needs to be planned carefully.

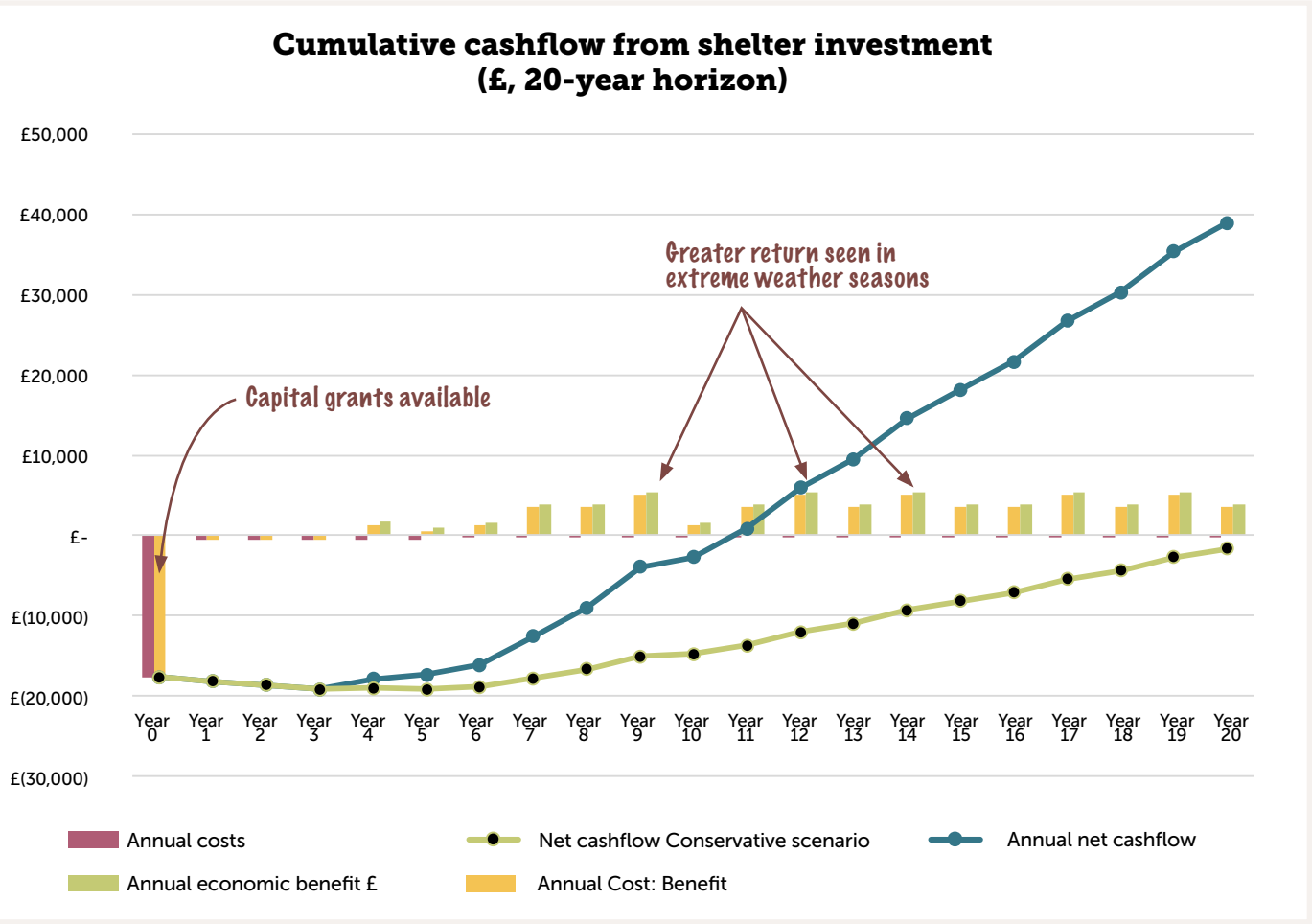
Typically, there is funding for tree planting available across the four nations. These can help offset the sometimes-large upfront costs; however, grant schemes can add complexity and cost. Shelter should be planned as a long-term investment rather than relying solely on scheme payments.

Savings and returns

The primary financial return comes from improved lamb survival, this will vary from year to year, but the graph below shows what this might look like for an 800-ewe flock. The uplift from shelter is delivering between 15–70 additional lambs a year, with best results in the years with the worst weather conditions. At a net margin of £75 per lamb, this represents a potential additional return of £1,000–£5,000 per year once shelter is established.

There are additional indirect savings such as reduced labour and fewer interventions at lambing and improved ewe performance due to shelter. These are harder to quantify but are consistently reported as important benefits in outdoor systems.

The main benefit of tree shelter for lambing is to reduce risk of lamb mortality. Tree shelter stabilises lamb survival especially in poor weather, reducing year-to-year variability in lamb mortality and improves overall system resilience.



Modelling the economic performance of shelter

This model illustrates the potential economics of shelter using a set of practical assumptions. It is based on an 800-ewe outdoor flock, with a lambing percentage of 1.3, reflecting an exposed lowland system.

Key assumptions include:

Shelter impact: It models two different scenarios of 3% (conservative) & 6% (moderate) uplift in lambs per ewe, though other studies have suggested up to 20% increases in survival.

Establishment time: Shelter begins to deliver benefits from year 4, increasing as trees mature.

Design: ~600 metres of optimum shelterbelt, sufficient to influence the whole flock.

Climate variability: Returns are highest in cold, wet and windy seasons.

The model assumes shelter is well designed and correctly positioned, protecting lambing paddocks at critical times.

In practice, farmers could phase planting over several years to reduce upfront costs and Improve establishment success and learn over time. There are increased financial support for planting and maintaining agroforestry across the UK.

As climate variability increases, the importance and value of shelter is likely to grow, helping reduce risk and deliver consistent long-term returns earlier than you might think.

Useful information

Farm Woodland Forum: agroforestry.ac.uk

Woodland Trust: woodlandtrust.org.uk

Tree Council: treecouncil.org.uk

Organic Research Centre: organicresearchcentre.com

Optimum Shelter Belts The Shelterbelt Initiative - Tree Nursery UK

National Sheep Association - National Sheep Association | NSA