Farm Woodlands Information Sheet

Quick Guide to Conifer Tree Species

Farm Advisory Service
National Advice Hub
T: 0300 323 0161
E: advice@fas.scot
W: www.fas.scot

Common name(s) *Scientific name*		Climate	Soils	Exposure tolerance	General yield class*	Typical rotation length	Timber properties and uses
Douglas fir *Pseudotsuga menziesii*		Fastest growing in wetter western areas but tolerates drier conditions than Sitka.	Well-aerated, moderately dry to moist, moderate fertility. Avoid heather.	Very low	8-24	50-65 years	Heartwood naturally durable. Knot-free beams and clear wood for carpentry and veneers highly valued.
Has the potential to replace Sitka spruce in eastern areas as the climate becomes drier. Less affected by drought but vulnerable to exposure and late frosts. Produces strong timber favoured for construction and there is a premium market for transmission poles and large beams. Ecological value as food source for red squirrels.							
Larch, European/ Japanese/hybrid *Larix decidua/ kaempferi/ x eurolepis*		Grows in a wide range of climatic conditions. Does best in dry, sunny areas and up to high elevations sheltered. Vulnerable to frosts.	Freely draining. Very moist to moderately dry (European), wet to slightly dry (Japanese); poor to very rich fertility.	Low	6-14	50-70	Naturally durable timber well suited to outdoor uses such as fencing and cladding.
Fast to establish, shading out competing vegetation after the first two years if early weeding is done. As the only major deciduous conifer species in UK forestry, larches can play a key role in the landscape. The hybrid is a cross between the European and Japanese larches. The fungal disease *Phytophthora ramorum* is currently causing high mortality in Japanese larch, although the susceptibility of European and hybrid larch is uncertain. Dumfries and Galloway is the core disease management zone in Scotland, although localised incidences have been reported all over Scotland. Three risk zones for *P. ramorum* on larch have been defined. Larch should not be planted within Zone 1, may be planted with caution in Zone 2, and may be planted in Zone 3, provided it is not near any sites known to be infected.							
Fir, grand *Abies grandis*		Grows best in cool and moist conditions but tolerates lower rainfall than Sitka spruce. Broad temperature range but intolerant of frost and snow.	Well-drained soils but prone to drought-crack. Fresh to very moist; poor to rich fertility. Avoid peats and heather.	Low	8-34	40-60 years	Very high yielding. Suitable for treated fencing as it soaks up preservatives better than Sitka spruce. Pallets, particle board, woodfuel and pulp.
Best suited to lower slopes and valley bottom. Strong disease resistance. Quick to establish so competes well in species mixtures (with western hemlock and western red cedar in native range). Growth can be rapid in even-aged stands so careful thinning is needed to produce good quality timber, or grow more slowly in continuous cover systems. Naturally regenerates well so may not need to be under-planted/replanted once established.							

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Fir, noble *Abies procera*		Tolerates heavy snowfall and hard frosts but vulnerable to drought. Grows best in north and west where precipitation is high.	Tolerates well-drained soils better than Sitka spruce. Fresh to very moist, poor to rich fertility. Avoid heather.	High	8-34	40-60 years	High yielding with good stem form. Self-processing larger diameter logs may be more lucrative than selling to sawmills. Pallets, particleboard, pulp.
Well suited to higher elevations than most conifers but avoid south and south-east facing aspects. Suitable alternative where disease risk is high for lodgepole pine and Japanese larch. Good alternative to Sitka spruce at high elevation and exposure. Establishes well on new planting sites. Moderate thinning is important. Pruning to maximise knot-free timber can provide income as the foliage is in high demand for floristry and wreath-making.							
Japanese red cedar *Cryptomeria japonica*		Warm, wet oceanic west coast climates ideal but will grow in drier locations. Intolerant of frost or wet snow.	Can grow on a wide range of soils. Avoid peaty or very dry sites and heather. Very moist to slightly dry poor to very rich fertility.	Moderate	14-26	50-70 years (in native range)	High volume. Very strong and construction material from native range has very high value. Naturally durable.
Likely to become more suited to Scotland as climate warms. Although experience of this species in Britain is limited it has potential to produce valuable timber. Rapid growth means good thinning is essential to avoid ‘beanpole’ trees. Pruning may be necessary to produce high-value clearwood. Can be coppiced.							
Lawson cypress *Chamaecyparis lawsoniana*		Thrives in wetter western areas but also grows well in drier locations. Frost hardy but can be damaged by snow.	Best suited to brown earths. Fresh to moist, poor to rich fertility. Avoid peaty soils and heather.	Low	8-20	50-70 years	Very stable and durable timber. Suitable for outdoor uses and sought-after for log cabins.
Plant only trees bred for forestry – seed from hedge or garden plants will not produce viable timber trees. Will naturally regenerate well. Both are suited to underplanting thinned or mature canopies such as pine or larch that provide suitable shelter for saplings. Very pollution tolerate compared to other conifers.							

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Lodgepole pine *Pinus contorta*		Grows in a wide range of conditions but well suited to uplands and damper conditions than tolerated by Scots pine.	Different provenances suit different conditions, from very wet to very dry, and very poor to very rich, although stem form can be poor on very fertile soils.	High	6-14	50-70 years	Similar timber to Scots pine. Frequently poor stem form in older stands reduces proportion of sawlog and the overall value of the crop.
Once widely planted in extreme conditions where no other trees would grow. Susceptible to red band needle blight and other pests and disease when stressed eg when growing in inappropriate locations such as dried out peat. Skeena provenance best for pure stands.							
Macedonian pine *Pinus peuce*		Wider range of suitable site conditions than many other conifers. Frost hardy, cold tolerant.	Flushed peats (<50cm deep), podzols, sandy soils. Wet to moderately dry, very poor to rich fertility, although poorer stem form likely on moist, rich soils.	Hardy	~10	~70 years	High timber volume compared to other pines. Not particularly strong but very stable, suitable for indoor joinery and carpentry, chipwood and pulp.
High girth-to-height ratio makes it stable where windthrow risk is high. Good resistance to red-band needle blight and other diseases seriously affecting Scots pine and other pine species. See Species Focus in FWN Issue 31. Compared to other conifers it is more difficult to grow from seed and can take several years longer to reach planting size in the nursery. Slow to establish but then grows more rapidly after five or six years.							
Scots pine *Pinus sylvestris*		Adaptable but grows best in drier eastern areas. Frost hardy and drought tolerant. Exposed sites should be avoided if growing for timber.	Best on well-drained sands or gravels. Can grow with heather. Very moist to very dry, very poor to very rich fertility. Stem form can be poor on very fertile soils.	Low (for timber production)	8-14	50-70 years	Strong and lightweight timber. Pines are second most abundant timber species after spruce so commercial markets are well established.
Scots pine is the only UK native conifer species suitable for commercial timber production. It is also ecologically important as a component of the native pinewood habitat. The Forestry Grant Scheme (FGS) supports planting of Scots pine both as a productive timber crop, or to create or expand native pinewood habitat. It is important to choose the right provenance: use a local seed source for native woodland planting, and plants bred for straight stemmed productive trees if growing a timber crop. Susceptible to red band needle blight.							

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Coast redwood *Sequoia sempervirens*		Ideally suited to mild, moist areas with summer fogs. Frost and cold intolerant.	Freely draining, moist to fresh soils, with medium to very rich fertility. Intolerant of drought or waterlogging.	Low	12-26	60-90 years (for premium logs)	High volume, strong very stable wood. is Naturally durable heartwood. More fire-resistant than most conifers. Highly valued for house-building, decorative uses.
Currently its lack of cold-hardiness limits this species to south-western Scotland but range likely to increase as climate warms. Can grow faster than Sitka spruce on the best sites. Saplings require good weed control until established. Pruning beneficial to produce clearwood as dead knots have a tendency to fall out after sawing. Can be coppiced.							
Norway spruce *Picea abies*		Moist climates ideal but tolerates drier conditions than Sitka.	Slightly dry to wet, medium to high fertility. Avoid shallow soils and heather.	Low	6-22	55-60 years	Sawmills accept timber as equivalent to Sitka spruce. Some construction grade, particle board and chipwood.
Already relatively widespread and well understood. Has the potential to replace Sitka spruce in eastern areas as the climate becomes drier. More frost tolerant than Sitka spruce but requires more sheltered sites. Ecological value as food source for red squirrels.							
Sitka spruce *Picea sitchensis*		Tolerates a wide range of conditions but grows best and fastest in wetter western areas. Avoid drier eastern areas (<1000mm annual rainfall).	Can grow on most soils and does best on deep freely draining soils. Slightly dry to wet, poor to very rich fertility.	High	10-32	35-45 years	Highly favoured by commercial sawmills. Can produce construction grade timber but there is a wide market for lower strength wood and pulp.
The most widely planted timber tree in Britain due to its high yielding productivity and wide range of suitable site conditions. Favoured species in windbreak and shelterwoods for livestock due to dense canopy and rapid establishment. Genetically improved lines are widely available for planting; these have been bred for even faster growth and superior timber quality.							

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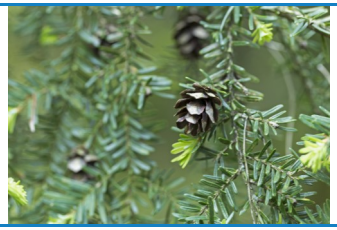
Western hemlock *Tsuga heterophylla*		Mild, damp. Thrives with regular fog and rain during the growing season but also productive in drier conditions.	Deep, well-aerated acid brown earths. Slightly dry to moist; poor to medium fertility.	Low	12-24	70-90 years	Strong and workable, suitable for indoor and outdoor construction and joinery, as well as pulp.
Can grow in a fairly wide range of conditions but produces the best timber on sheltered sites. Highly shade tolerant and very good natural regeneration so underplanting/ replanting not required once established. Ideal for continuous cover systems							
Western red cedar *Thuja plicata*		Wide climatic range. Ideally suited to warm, moist climate of the west coast, but can also grow well in drier eastern areas.	Can grow in a relatively wide range of conditions from free-draining to poorly-drained gleys. Optimum is very moist to fresh, medium to very rich fertility.	Low	12-26	70-90 years	High yielding. Naturally durable heartwood suitable for outdoor uses. Better suited to processing by small-scale millers as the stringy bark can cause problems for peeling machinery at sawmills.
Suitable geographic range likely to increase with climate change. Naturally regenerates well, offering potential for mixed-species woodlands, continuous cover systems and restocking without planting. Respacing of natural regeneration is important to avoid 'beanpole' trees. Natural durability of heartwood offers alternative to larch for fencing and other outdoor uses.							

*General yield class is a measure of productivity. It is the average annual gain in timber volume per hectare per year over the rotation. For example, a yield class of 16 indicates an average annual timber volume gain of 16m^3/ha/yr. Yield class varies between species (some grow faster than others) and site conditions. A tree species planted on an unsuitable site will have a lower yield class than the same species growing in more suitable conditions. Yield class ranges are based on trees grown in pure, single-species stands and are indicative only.