

**MINIMUM SPECIFICATION FOR SCREENING BELTS AND SHELTER BELTS
FOR FARMYARDS AND FARM BUILDINGS**

The receiving of this specification does not imply approval of a grant application. However, if written approval is issued, then this specification becomes part of the contract between the applicant and the Department of Agriculture, Fisheries and Food.

This is a minimum specification. Where the word “SHALL” is used, then that standard (at least) must be followed in grant-aided buildings. Where a procedure is “RECOMMENDED”, this is advice only on good practice.

Note that all references to other Department Specifications are to the current edition of that specification [available on the Department of Agriculture, Fisheries and Food Website (www.agriculture.gov.ie) under Farm buildings]. Similarly, references to Standards are to the current edition of the Irish, British or European Standard, as appropriate.

This specification describes the installation and maintenance of trees to screen or shelter a single farm building, or collection of buildings. **Screening** belts refer to rows or groups of trees planted to hide obtrusive buildings, or to soften their impact, particularly in scenic landscapes. **Shelter** belts may also screen buildings, but have the particular purpose of moderating strong winds around buildings and farmyards.

1. Safety

APPLICANT'S RESPONSIBILITY FOR SAFETY

Applicants are reminded that they have a duty under the Safety, Health, and Welfare at Work Act 2005 to provide a safe working environment on the farm, including farm buildings, for all people who may work on that farm. There is a further duty to ensure that any contractor, or person hired to do building work, provides and/or works in a safe environment during construction. It is the farmer's responsibility to provide a construction stage project supervisor.

SAFETY DURING CONSTRUCTION

Farmer/Applicant Responsibility: Certain construction dangers may be encountered in the course of building or conversion work. Neither the Minister or any official of the Department will be in any way liable for any damage, loss or injury to persons, animals or property in the event of any occurrence related to the development and the applicant shall fully indemnify the Minister or any official of the Minister in relation to any such damage, loss or injury howsoever occurring during the development works.

Dangers: If any or all of the work is undertaken by the applicant/farmer he/she should seek competent advice and undertake all temporary work required to ensure the stability of excavations, superstructure, stanchion foundations and wall foundations,

also to divert any drains, springs or surface water away from the works, and to guard against possible wind damage, or any other foreseeable risk.

Power lines: Farm buildings shall not be constructed under or nearer than 10m to an overhead power supply. If advice is required, or if power lines need to be diverted, it is the applicant's responsibility to contact, in writing, the local ESB supervisor before construction commences, and then to follow the ESB conditions.

Danger to children: It is the applicant's responsibility to prevent children from playing or spending time in the vicinity of any building work.

2. Design and Layout of Screening Belts

Factors which influence the layout and the design of a **screening belt** are:-

- The direction from which obtrusive buildings have the greatest impact. This would frequently be the public road, but could also be a scenic viewing place, a neighbouring house or houses, or even the applicant's farmhouse.
- The fact that buildings are on a height or on a ridge making them highly visible from a distance.
- The likely future development of the farmyard:
Trees should not block any obvious or useful sites for possible new buildings.
- Possible root damage to structures. Trees should be set about 20 metres or more from buildings, yards, concrete tanks, silos, etc.
- Buildings on adjoining property. No belts of trees should be planted within 30 metres of neighbouring dwellings or farm buildings.

When trying to soften the impact of obtrusive buildings it is not necessary to surround buildings or yards completely. One or two stands of reasonably tall trees can entirely change the appearance of a farmyard, and integrate it into the landscape, even if some buildings remain visible.

A single row of trees is not an effective screen, and usually looks unnatural. Two to three rows of trees should normally be planted, though informal groups of trees can be just as effective. Very long straight lines of trees should, where possible, be avoided by introducing curves or breaks.

3. Design and Layout of Shelter Belts

Factors which influence the design and layout of a **shelter belt** are:-

- The direction of prevailing winds, and of winds, which are particularly strong because of "funneling" along valleys or around hills.
- The position of buildings or structures, which particularly need shelter (calf or sheep houses, animal yards, etc.)
- Future development of the farm, and distance from existing buildings or neighbouring buildings, as above.

Shelter belts work best when they allow about 50% of the wind to pass through. The wind should be slowed rather than blocked as for instance, by Lawson Cypresses which simply cause turbulence. A mixture of species including spruces, pines, firs, and broad leaves will provide a naturally porous belt, providing good shelter.

Shelter belts should have about five or six rows of trees, though ten or more rows may be necessary where winds are very strongly funnelled. To be effective, shelter belts should extend in both directions well beyond the line of the structure(s) they are protecting.

Unless protection from strong south winds is essential, the area directly to the south of the building(s) should not be planted to ensure adequate sun and light.

4. Site Preparation

The site should be cleared of any scrub and furze and graded to blend with the immediate surroundings. As young trees establish more easily with some initial protection, all existing barriers such as hedges and stone walls should be retained, where possible.

5. What to Plant

The choice of species will be based on the following considerations:-

1. The suitability of different species for physical conditions on the site, i.e. -soil type, drainage, exposure etc.
2. The suitability of different species for the landscape. In general deciduous trees are more appropriate than most evergreens. Very narrow tall evergreens (Leyland and Lawson Cypresses) should not be used. They draw attention to buildings and look alien in the Irish landscape. The best indicator of the most suitable species for an area are the trees already grown there successfully and look well (see appendix attached).
3. For both screening and shelter a mixture of species is recommended. Generally one species should predominate at about, 60-70% of planting, with one or two other species, grouped irregularly, providing the remainder. A mixture of too many species should be avoided, as should the use of different species placed in a regular alternating pattern in a long row.

6. When to Plant

Planting is carried out when the trees are dormant from October to April. Autumn planting is preferred for deciduous trees, while Spring planting March/April is best for evergreens.

7. Handling and Planting

Ensure that all preparatory work is completed before the trees are delivered. Tree roots must never be allowed dry out. Weather permitting; planting should commence immediately the trees arrive.

8. Pit Planting

This method is used on dry mineral soils. The young tree is inserted in a hole 150mm x 150mm x 150mm to the depth it was in the nursery soil. The roots should be teased prior to careful back-filling.

9. Ploughing and Mounting

Here planting is done by making a slit on the inverted sod/ribbon and inserting the tree so that the roots are between the two grass layers.

10. Spacing

Trees are spaced at two metres apart each way. This works out at 2,500 trees per hectare.

11. Fertilizer

Areas enclosed as fields and previously used for intensive farming normally require no further fertilizer. Other poorer areas may require a dressing of 400 kg/ha of rock phosphate. Some midland sites may require 200kg/ha of potash. A top dressing of nitrogen is beneficial to sitka spruce as growth rate is slow.

12. Fencing

All stock must be completely excluded from the new plantings. Fences must conform to specification S148. They should be kept close to the edge of the plantation to reduce their obtrusive impact on the landscape. In order to protect the young trees the fence should consist of a minimum of three strands of barbed wire plus one metre high sheep wire.

13. Maintenance of Screening Belt

It is essential to control growth of grass and weeds around the young trees during the first four years. Unchecked vegetation growth will result in poor tree establishment. Grass and weeds can be controlled by treading or by the use of suitable herbicides. Failures should be replaced each year.

Note: Herbicides shall not be used in close proximity to watercourses, field margins or wildlife habitats.

14. Minimum and Maximum Planting Areas

This specification refers **only** to the screening or shelter of farm buildings and farmyards.

The **minimum** area of planting for which this specification shall be used is 0.2ha. The **maximum** area that will be grant-aided is 2ha.

Shelter belts to protect herds or crops, or other forestry plantings on the farm, come under the responsibility of the Forest Service of this Department.

General Guide to Tree Species for Irish Farm Conditions

NATIVE BROADLEAVES

| SPECIES | OPTIMUM SITE | CHARACTERISTICS | TIMBER QUALITY | REMARKS |
|---|---|---|---|---|
| Pedunculate Oak <i>Quercus Robur</i> | Well-aerated deep fertile loams. Will do well on heavier soils | Slow growing, long lived tree once the climax vegetation over most of the country | Very high quality timber suitable for many uses. Subject to timber defects when grown on adverse soils | Major forest species. One of our few native broadleaved trees. Very high amenity value |
| Sessile Oak <i>Quercus Petraea</i> | Tolerates less rich and lighter textured soils than <i>Q. robur</i> | Oaks will not produce good timber on excessively drained or sandy soils | Reputedly slightly better timber than <i>Q. robur</i> but site should determine choice | Major forest species. Native to Ireland. Now designated as Irish national tree |
| Ash <i>Fraxinus Excelsior</i> | A very exacting species demanding good soil conditions, preferably sheltered, moist well-drained fertile loam soils | A fast growing species regarded as not being suitable for large scale planting | Very high quality timber. Suitable for veneer, furniture and implement handles. High shock resistance | Major forest species. Native tree. Its wide distribution belies the difficulty in producing good quality timber |
| Wild Cherry <i>Prunus Avium</i> | Fertile deep well-drained mineral soils. Preference for slightly acid soils but will do well on deep loams over limestone | Fast growing, light demanding, requiring considerable space. The only commercial broadleaved tree with attractive blossoms | Produces one of the most valuable furniture and veneer timbers with a reddish brown sheen. Also used for quality turnery products | Major forest species. Native tree. High quality timber production requires good silvicultural management. A very good farm forestry tree. May suffer from bacterial canker and aphid attack |
| Alder <i>Alnus spp</i> | Common alder is a very hardy accommodating species suitable for wet sites. Good wildlife species. Grey and Italian alders will tolerate and grow well on drier sites. Italian alder is has a preference for more alkaline sites | Fast growing nitrogen fixing tree. Suitable broadleaf for even the wettest sites | Durable general purpose timber with a coarse texture. Less used in recent times | Minor forest species. Common Alder is a native tree. Coppices freely and can be used in mixtures on very infertile sites. Valuable shelter tree |
| Birch <i>Betula spp</i> | Pioneer species suited to very acid soils and peats | Fast growing, hardy species, withstands exposure and frost well. Useful as a nurse crop in mixtures but must be kept under control or it will smother a slower growing tree species | Not regarded as a timber tree in Ireland. Is used for pulp in Scandinavia | Minor forest species. Native tree. Young trees coppice freely. May be used as a soil improver. Can be mixed into shelterbelts |
| Willow <i>Salix spp</i> | Useful species for wet sites and streamsides | Fast growing useful for conservation and amenity but rarely for timber production. Willow can be used in a variety of ways as a shelterbelt system | Willow rods are regularly used for basket-making and decorative craftwork | Minor forest species. Native tree. Willow is currently being intensively studied as a suitable species for Short Rotation Forestry (Biomass) as an energy source |
| Whitebeam <i>Sorbus Aria</i> | Most fertile mineral soils | Attractive amenity tree also suitable for shelter | Not a timber tree | Minor forest species. Native tree. Tolerant of exposed and coastal sites |
| Rowan <i>Sorbus Aucuparia</i> | Suitable for lowland and hill acidic sites. Will tolerate even alkaline sites | Hardy tree suitable for exposed sites. Widely used amenity tree | Not a timber tree | Minor forest species. Native tree. Offers good support for wildlife |

NON-NATIVE BROADLEAVES

| SPECIES | OPTIMUM SITE | CHARACTERISTICS | TIMBER QUALITY | REMARKS |
|---|---|---|---|---|
| Beech <i>Fagus Sylvatica</i> | Well drained, loamy, fertile soils with a preference for soils derived mainly from limestone | Tolerant of shade when young. Creates dense shade and suppresses ground vegetation as it reaches maturity | Excellent timber. Wide range of uses including veneer, furniture, flooring and panelling | Major forest species. Non-native tree. Benefits from a nurse on exposed sites. Useful for under-planting. Grey squirrels can be very destructive particularly to young beech |
| Sycamore <i>Acer Pseudoplatanus</i> | Prefers a moderately fertile free draining soil. Tolerant of calcareous soils | Fast growing tree that seeds easily. Withstands exposure and smoke pollution very well | Tough, durable, white timber with a range of uses. Figured sycamore is much sought after for veneer and furniture manufacture | Major forest species. Non-native tree. Grey squirrels can be very harmful. A windfirm tree. Rich in wildlife value. Valuable for shelter |
| Poplars <i>Populus</i> Hybrid clones | Very exacting species requiring deep, well drained moderately fertile sites | Very fast growing, light demanding tree. Some species susceptible to bacterial canker, select disease resistant clones only | Light hardwood timber with many uses. Suitable for veneer, furniture, joinery, plywood, palletwood and fruit boxes | Potentially major forest species. Non-native tree. Offers great prospects as Short Rotation Forestry species for pulpwood, paper and particle board |
| Red Oak <i>Quercus Rubra</i> | Grows well on poor sandy soils | A fast growing tree, less suited to heavy soils | Yields good pale reddish brown timber. Straight grained and easy to cleave but not quite so strong as Q.robur | Minor forest species. Non-native tree. High amenity because of its red and russet colours in the autumn |
| Horse Chestnut <i>Aesculus Hippocastanum</i> | Thrives on all except waterlogged sites but has a preference for fertile soils | An excellent amenity tree used mainly for avenues or as a specimen tree | Timber is soft, weak and of limited use | Minor forest species. Non-native tree |
| Walnut <i>Juglans spp</i> | Deep, well drained, loam textured, moderately fertile soil. Suitable for well sheltered sites with a southerly aspect | <i>J. nigra</i> grows somewhat faster than <i>J. regia</i> but timber may not be as highly figured. Worth pruning to give a clean stem | Strong, tough elastic, high value timber. Valuable decorative timber much used for furniture and veneer | Potentially major forest species. Non-native tree. Abnormal growths called "burr walnut" are much sought after for veneer, an example of diseased or malformed wood being more valuable than healthy timber |
| Lime <i>Tilia spp</i> | Grows on a wide range of sites, but prefers moist fertile limestone soils | Relatively fast growing. Suitable for planting as an amenity tree. Attracts swarms of aphids in summertime causing sticky "honeydew" to cover foliage that drips off to ground vegetation | A very soft, light, white or yellow timber of limited use, although can be used for turnery and wood carving | Minor forest species. Non-native tree. Tree flowers are strongly scented and a great attraction for many insects and a rich source of nectar for bees |
| Norway Maple <i>Acer Platanoides</i> | Prefers a deep, moist, alkaline soil. Tolerates less fertile and drier sites than sycamore. Avoid exposed sites and frost hollows | Fast growing tree when young. An attractive amenity tree. Greenish yellow flower makes a beautiful sight in early spring. Brilliant red, green and gold coloured leaves in the autumn | Same as sycamore and used for similar purposes, but slightly inferior and not as attractively grained | Minor forest species. Non-native tree. Grey squirrel can be very damaging |

CONIFERS

| SPECIES | OPTIMUM SITE | CHARACTERISTICS | TIMBER QUALITY | REMARKS |
|---|--|--|---|--|
| Sitka Spruce <i>Picea Sitchensis</i> | Prefers wet mineral soils and peats with previous agricultural use. Well suited to high rainfall areas. quite tolerant of exposed sites | Very fast growing tree. Avoid low rainfall areas, very dry and frost prone sites. Do not plant in single rows for shelter | Reasonably valuable whitewood. General-purpose timber known as "white deal". Used widely in the general building and construction industry | Major forest species. Non-native tree. An excellent pulpwood tree for paper, fibre and particle-board industries |
| Norway Spruce <i>Picea Abies</i> | Prefers less acid mineral soils and peats | Not as fast growing or as tolerant of poor sites and exposure as sitka. More suitable for planting in hollows than sitka, being more resistant to frost damage | Somewhat superior to sitka making it also suitable for joinery | Major forest species. Non-native tree. Good drainage is important to avoid windthrow. Poor wildlife tree because of its very dense shade. Suitable for shelter |
| Douglas Fir <i>Pseudotsuga Menziesii</i> | Prefers a moist deep well drained soil of moderate fertility | A fast grower on suitable sites. Ideally suited to sheltered valley slopes. Dislikes waterlogged and shallow soils | An excellent timber of good strength and quality, sometimes referred to as "Oregon pine" it is used for building, flooring, joinery and other uses. Much in demand for transmission poles | Major forest species. Non-native tree. Delayed thinning of crop may lead to windthrow. Poor wildlife value |
| Lodgepole Pine <i>Pinus Contorta</i> | Grows on the poorest of mineral and peat soils | A fast growing pioneering species. Withstands exposure better than most other species. Up to recent times was widely planted on even the most difficult of sites | A general-purpose timber, suitable for building, joinery and other uses | Minor forest species now. Non-native tree. Suffers greatly from "basal sweep" reducing the quality of the log. One of the best shelter tree species |
| Larch <i>Larix spp</i> | European larch prefers moist, well drained, moderately fertile loams while both Japanese and hybrid larch will tolerate a wider range of sites with a preference for high rainfall areas | Larches are strong, light demanding, deciduous conifers. First generation hybrid is normally faster growing than Japanese and both are faster than European | All larches produce dense valuable commercial timber which is both heavier and stronger than most other softwoods | Major forest species. Non-native tree. Larches have a high amenity and wildlife value. Produces light shade allowing ground vegetation |
| Scots Pine <i>Pinus Sylvestris</i> | Thrives on light textured or sandy soils. Tolerant of acid conditions. Avoid poorly drained or alkaline soils and exposure to coastal winds | A strong, light demanding slow growing tree. Can be used as a nurse species. Unsuitable for high elevations or shelter-belt | Good general-purpose softwood timber referred to as "red deal" in the trade. Suitable for construction, flooring, joinery and other uses | Major forest species. Once native but died out, now comes from imported sources. Regarded as the best conifer for both amenity and wildlife. Attracts insects, birds and red squirrels |

CONIFERS

| SPECIES | OPTIMUM SITE | CHARACTERISTICS | TIMBER QUALITY | REMARKS |
|--|--|---|---|--|
| Monterey Pine <i>Pinus Radiata</i> | Light to medium textured free draining loam soils. Can be used on infertile sandy soils. Not frost hardy | Very fast growing tree but often of poor coarse branched form. Requires careful attention to seed selection preferably from new Zealand. Early and heavy pruning helps to produce a worthwhile crop | Not much known about quality of Irish grown timber. Widely used general-purpose timber in southern hemisphere, New Zealand, Australia and Chile | Minor forest species. Non-native tree. A species with potential if quality seed stock can be produced. Suitable for shelterbelts in coastal areas |
| Western Red Cedar <i>Thuja Plicata</i> | Requires deep free draining fertile soil. Good on alkaline soils. Avoid poor or very acid soils and exposed sites | Shade tolerant moderately fast growing tree. Useful for under-planting | Produces a lightweight timber of moderate strength. Very durable in outdoor situations, suitable for greenhouses, decking and cladding | Minor forest species. Non-native tree. Regarded as good estate tree suitable for screens, mixtures and game cover |
| Western Hemlock <i>Tsuga Heterophylla</i> | Can tolerate acid mineral soils and the better peats. Suitable for low rainfall areas. Avoid planting on sites where previous conifer crop suffered from butt rots | Moderate growth rates. A strong shade bearer and excellent for under-planting. Probably best established under some shade | Good durable timber suitable for quality building purposes | Minor forest species. Non-native tree which has potential for greater use |
| Noble Fir <i>Abies Noblis</i> | Prefers well-drained mineral soils. Tolerates moderately acid soils and is less frost tender than other firs. Has a wide pH tolerance | A fast growing tree unsuitable for very poor and dry sites. Christmas tree production may require somewhat less fertile soils | Timber may be (unfairly) regarded as being of inferior quality. Now mostly grown for Christmas tree production and foliage | Minor forest species now developing multiple uses. Non-native tree. When grown for Christmas tree production need to be well managed to produce a compact well furnished tree |
| Corsican Pine <i>Pinus Nigra var. Maritima</i> | Wide range of soils from sands to heavy clays. Suitable for coastal areas | Moderate growth rates but a good tree for difficult areas such as exposed areas or sandy soil | Similar to scots pine but not quite as good | Minor forest species. Non-native tree. More resistant to smoke pollution than most conifers. Suitable shelter tree |
| Cupressus like species <i>Cupressus</i> <i>Chamaecyparis</i> <i>Cupressocyparis</i> | Tolerate a wide range of soils except very acid soils and raw peats | Moderate to fast growth rates but very poor stem form or coarse branching In most cases | General purpose softwood uses | Minor forest species. Non-native tree. Macrocarpa suitable for shelter in coastal areas. Leyland and Lawson although widely used for shelter-belting and screening are in most cases in-appropriate and an intrusion in the landscape |