

Forest Service requirements for nursery stock

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Successive governments for a considerable period have adopted an expansionist policy towards forestry in Ireland. After the foundation of the state, resources were mainly channeled into state forestry, but private forestry was also encouraged through the introduction of planting grants in 1932. However, it was not until the introduction of the Western Package in 1981 and particularly the introduction of annual premiums in 1989 to compensate for income foregone, that private forestry began to develop.

Irish nurseries produce approximately 75 million plants annually to service the afforestation programme, the reforestation programme, the Native Woodland Scheme planting and other schemes. They now produce approximately 90% of the total plant requirement.

To put the current afforestation and reforestation programmes into perspective it is necessary to consider the 2004 programme and the species content. The final afforestation outturn for 2004 was just short of 10,000 ha - 50% of the target. However, a full reforestation programme of over 9,000 ha was achieved. It is likely that the afforestation programme will increase slightly for 2005 with the reforestation decreasing to 8,000 ha.

For both programmes there is currently a high demand for quality broadleaf transplants. This is as a result of the EU imposed broadleaf requirement of 30% of new planting to be achieved by 2006, and also the certification requirement on Coillte which requires that they increase the broadleaf forest *in* their estate from 4 to 10%. A further consideration is the better quality of land available for afforestation in the private sector and the higher level of grants for planting broadleaves.

The broadleaf component of the 2004 private afforestation programme was 29%.

Accepting that broadleaf stocking rates are much greater than that for conifers, the increase in the broadleaf plant requirement over the last number of years has put increased pressure on

nurseries to produce broadleaf growing stock.

Government policy is committed to sustainable forestry and as a result there are environmental, economic and social elements to be considered in the current planting programme.

There is one important common factor between the major stakeholders involved in the planting programme: the landowner, the forestry contractor and the Forest Service. All three players want to see satisfactory end results, with good quality plantations established which in time will fulfil an important objective of the national planting programme which is the production of raw material for industry.

PLANT QUALITY

The basic building block of plantation forestry is quality plants, and while the great majority of plants used are bare-rooted transplants, both freshly lifted and front cold-store facilities, there is likely to be an increase in demand for containerised planting stock in the future as we move towards greater mechanisation of the planting process,

While there are often diverging opinions on the ideal size or type of plant which should be used on a particular site, there is generally agreement among foresters regarding plant quality. Quality transplants should have the following characteristics:

- (a) A straight stem with a definite leader.
- (b) A well balanced stem with healthy foliage and a good fibrous root system.
- (c) A specified height to provide for size above ground when planted.
- (d) A specified root collar diameter to provide for hardiness.
- (e) An accepted root/shoot ratio.
- (f) Age must not exceed a specified maximum.

The quality limits set by the Forest Service in respect of age, root collar diameter and stem

size for the most common species are set out in Tables I and 2.

PROVENANCE REQUIREMENTS

The importance of correct provenance choice in a forestry programme cannot be overstated. The Irish afforestation programme has suffered greatly in the past from the use of incorrect provenance sources. Examples include Lulu

Island lodgepole pine, Scandinavian birch and Scots pine, while more recently difficulties have been experienced with some European provenances of oak, ash and cherry.

When available and where possible, home-collected seed from registered Irish seed stands should be the first choice at all times. The seed origins/provenances acceptable to the Forest Service for grant purposes are shown in Table 3.

Table 1. Broadleaves - Quality requirement limits for transplants.

Species	Maximum Age (years)	Min. Collar Diameter (mm)	Stem Height (cm)
Ash	3	7	50-75
	4	12	60-90
Oak/Spanish chestnut/Beech	4	6	45-75
	4	7	55-70
	5	9	70-85
Sycamore	3	7	45-75
Alder	3	4	30-60
Other broadleaves	5	4	40-75

Table 2- Conifers - Quality requirement limits for transplants

Species	Maximum Age (years)	Min. Collar Diameter (mm)	Stem Height (cm)
Sitka spruce	4	6 (4*)	31-65 (20-30')
Norway spruce	4	6 (4*)	31-50 (20-30')
Lodgepole pine	2	3	10-20
Scots pine	3	4	20-40
Corsican pine	3	3	10-30
Japanese larch	3	5 (4*)	36-60 (25-35*)
European and hybrid larch	3	5	35-60
Douglas fir	4	8	40-60
Western red cedar/Western hemlock	4	4	25-45

(*) These are Size 2 Category Plants and apply only to Sitka spruce, Norway spruce and Japanese larch. They are suitable for sites without the potential for the vigorous growth of competing vegetation, provided the site is not liable to frost,

Table 3: Provenances of conifer and broadleaf species approved by the Forest Service and acceptable for grant support in Ireland.

Conifer species	
Sitka spruce (<i>Picea sitchensis</i>)	Registered Irish and British seed stands and material from Danish and British seed orchards. Seed imports under EU derogation from the Queen Charlotte Islands, coastal Washington and Oregon. Rooted cuttings derived from genetically improved Washington or Queen Charlotte island material. South Washington and North Oregon origins,
- most sites (low to mid elevation sites of less than 300 m, except low lying midland bogs)	
- cold frost prone sites (above 300 m elevation and low lying midland bogs)	Queen Charlotte Islands (QCI) origins.
Norway spruce (<i>Picea abies</i>)	Registered Irish and British seed stands and registered seed stands in the low elevations of Denmark and Germany (north of Frankfurt). Seed imports under EU derogation from Sudetan and Beskid regions of the Czech Republic, Tatra Mountains of Slovakia, north east and lowlands of south Poland.
Serbian spruce (<i>Picea omorika</i>)	Irish and British stands and seed imports from Serbia.
Lodgepole pine (<i>Pinus contorta</i>)	Irish and British seed orchards and stands.
- in mixture with Sitka spruce	Alaskan and North Coastal (including QCI and Vancouver Island origins).
- exposed, infertile sites	QC1, Vancouver Island and Interprovenance hybrids.
- less exposed, mineral soils	Interprovenance hybrids, Lower Skeena River (Terrace, Kalun Lake and Hazelton) and South Coastal seed orchard material.
Scots pine (<i>Pinus sylvestris</i>)	Irish and Scottish seed orchards and registered seed stands.
Austrian pine (<i>Pinus nigra</i> var. <i>nigra</i>)	Registered Irish and British seed stands.
Corsican pine (<i>Pinus nigra</i> var. <i>maritime</i>)	Registered Irish. British and Corsican seed stands.
Monterey pine (<i>Pinus radiata</i>)	Guadalupe Island (Mexico) or seed stands derived from this origin and home-grown Irish healthy, non-yellowing trees.
Douglas fir (<i>Pseudotsuga menziesii</i>)	Registered Irish and British seed stands and seed imports under EU derogation from coastal Washington and northern Oregon.
Grand fir (<i>Abies grandis</i>)	Irish and British seed stands and imports from Olympic peninsula, Puget sound (Washington), Washington and Oregon coast range mountains and Vancouver island,
Western hemlock (<i>Tsuga heterophylla</i>)	Irish and British seed stands and seed imports from Puget Sound region of Washington state and the coast range and Cascade Mountains of Washington and Oregon.
Western red cedar (<i>Thuja plicata</i>)	Irish and British seed stands and seed imports of seed from Vancouver Island (British Columbia) and coastal Washington and Oregon.
Japanese larch (<i>Larix kaempferi</i>)	Registered Irish, British and European seed stands. Seed imports under EU derogation from Hokaido Island (Japan) and stands derived from this source as well as material from the Suwa region of the Nagano Prefecture (on Honshu Island) between 1,300 and 2,000 m elevation and seed stands derived from these sources.
European larch (<i>Larix decidua</i>)	Registered Irish, British, German (Schlitz) and low elevation Austrian (Wienerwald) seed stands. Seed imports under EU derogation from Southern Poland, Czech Republic (Sudetan Mountains) and Slovakia (Tatra Mountains).
Hybrid larch (<i>Larix eurolepis</i>)	Irish, British, French, Belgian, Dutch, Danish, German, Swedish and Polish seed orchards.
Monterey cypress (<i>Cupressus macrocarpa</i>)	Irish and British seed stands and seed imports from coastal southern Oregon and northern California.
Coast redwood (<i>Sequoia sempervirens</i>)	Irish and British seed stands and seed imports from coastal southern Oregon and northern California.
Lawson cypress (<i>Chamaecyparis lawsoniana</i>)	Irish and British seed stands and imports from coastal southern Oregon and northern California.

Broadleaved species

Pedunculate oak (<i>Quercus robur</i>)	First Choice: Registered Irish material. Otherwise registered British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands,
Sessile oak (<i>Quercus petraea</i>)	First Choice: Registered Irish material. Otherwise registered British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands.
Red oak (<i>Quercus rubra</i>)	Registered Irish, British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands.
Beech (<i>Fagus sylvatica</i>)	Registered Irish, British, French (north of Paris), Belgian, Dutch, German (north of Frankfurt) seed stands.
Ash (<i>Fraxinus excelsior</i>)	First Choice: Irish native material. Otherwise Registered British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish German (north of Frankfurt) seed stands.
Sycamore (<i>Acer pseudoplatanus</i>)	Irish, British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands.
Norway maple (<i>Acer platanoides</i>)	Irish, British (English and Welsh), French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands.
Common alder (<i>Alnus glutinosa</i>)	First Choice: Irish native material. Otherwise British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands.
Cherry (<i>Prunus avium</i>)	First Choice: Irish native material. Otherwise British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands. Not seeds resulting from fruit processing.
Southern beech (<i>Nothofagus procera/N.obliqua</i>)	Irish and British seed stands and <i>Nothofagus procera</i> imported from Chile (Malleco and Llanquihue). <i>Nothofagus obliqua</i> from Chile (Fruittillar).
Lime (<i>Tilia cordata/T.platyphyllos</i>)	Irish, British, French (north of Paris), Belgian, Dutch, Danish, German (north of Frankfurt) seed stands,
Spanish chestnut (<i>Castanea saliva</i>)	French seed orchard material (not nuts collected for consumption).
*Birch (<i>Betula pubescens</i>) (<i>Betula pendula</i>)	First choice: Irish native material. Otherwise British material.
*Rowan (<i>Sorbus aucuparia</i>)	First choice: Irish native material, Otherwise British material.

Up to 5% of these species may be planted for a variety of environmental enhancing reasons.

EU FOREST REPRODUCTIVE MATERIAL REGULATIONS

On 1 January 2003 a new single EU Directive, Council Directive 1999/105/EC on the marketing of forest reproductive material, was introduced to all EU Member States,

Forest reproductive material (FRM) is a collective term used to describe seeds, plants and other propagating material which are important for forestry purposes. The new marketing directive updates the legislation to take account of the accession of new Member States since 1975, the internal market, and scientific advances including the availability of new material. It is also compatible as far as possible with the revision of the current

Organisation for Economic Co-operation and Development (OECD) scheme for the control of

FRM moving in international trade. In Ireland, the Forest Service, Department of Agriculture and Food, is the national authority with responsibility for the implementation of the directive. The new directive has been transposed into Irish legislation by the European Communities (Marketing of Forest Reproductive Material) Regulations 2002.

The new directive applies to production with a view to marketing of species which are important for a range of forestry purposes including, but not exclusively, the production of wood. It covers a much wider range of species important for forestry in Ireland, including ash,

alder, birch, sycamore, cherry and lodgepole pine, Significantly, a new category of material 'Source Identified' is included. This is FRM derived from basic material which may be either a seed source or stand located within a single region of provenance. This will allow collection and marketing of seed from outside of 'Selected' registered sources, subject to official control and labelling.

A key principle of the directive is that FRM remains clearly identifiable through the entire process, from collection to delivery to the end user. Under the new directive there is a legal requirement for suppliers of FRM throughout the EU to be officially registered. All seed collectors, seed suppliers, nurseries, plant suppliers/brokers etc. must be registered with the Forest Service. All seed collections must be notified in advance following which a Master Certificate of Provenance will be issued. Seed and plants should only be purchased from registered suppliers and material must be accompanied by an approved Supplier's Document. These rules provide traceability and assurance to the end user regarding the origin and suitability of the planting stock. Details of the provenance/origin of planted material also provide an essential forest management record.

For the purpose of the Forest Service grant schemes, all planted material must be covered by a Supplier's Document in the form of a Provenance Declaration Form.

A Provenance Declaration Form Supplier's Document must be completed for all the species listed in Table 3. Only the origins/provenances listed in this table are acceptable for grant purposes, Part A of the Provenance Declaration Form is completed by the Nursery/Supplier supplying the plants. The Nursery/Supplier must declare that the origin/provenance complies with the accepted list of origins/provenances. Part B of the form is completed by the Contractor or Applicant applying for the grant.