Introduction and Matrix -

The purpose of developing the silvicultural matrix in COST E42 was to provide a vehicle whereby information on silviculture of valuable broadleaved species could be gathered from as many participating countries as possible. The aim of this matrix is to determine what are considered the optimum silvicultural treatments for each of our target species in countries across Europe. In many cases only one or two countries will have experience of a particular species. Also it must be realised that, for many of the larger countries in Europe, there are different climatic regimes and no single matrix can encapsulate the recommendations for that country. In this case a number of climatic regional matrices would be preferable. For this reason, not all countries felt in a position to contribute a matrix and preferred to provide a narrative discussion on various species.

As an illustration of how the matrix can provide a guideline for farmers wishing to plant, the example of ash (Fraxinus excelsior L.) in Ireland is taken. Based on the research we carried out, we developed a set of guidelines to assist farmers in making critical decisions. These guidelines now form the basis for government support to farmers.

Irish silviculture of *Fraxinus excelsior* L. -

Ireland does not have a history of broadleaf forest management. Broadleaf forestry in Ireland is plantation-based. The majority of the broadleaf plantations have been planted by private owners during the last 15 years with government support. Ash is the predominant broadleaf species. One of the main reasons that ash is a popular choice of species, other than its vigorous growth rates in Irish conditions, is that Ireland is in the enviable position of being able to realise early returns from a proportion of ash thinnings which can be used to produce hurley sticks for hurling, a very popular national sport.

Irish silvicultural recommendations for ash include:

**Planting**
- using 1u1 transplants from certified seed sources or known provenance
- plant 3,300 stems ha\(^{-1}\), 2m x 1.5m spacing
- control weed competition, especially from grasses

**Formative shaping**
- formatively shape 800 – 1100 stems when 1 – 2.5m height
- only shape those stems greater than average height
- shape 700 – 800 stems when 2.5 – 4m height
- shape in early June and July

**Tending**
- when average height is 8m, select 350 Potential Crop Trees (PCTs) ha\(^{-1}\)
- permanently mark PCTs and potential hurley butts
- remove 2 stems per PCT and hurley butt that are competing in the crown
- remove diseased stems
- install extraction racks 1:7 – 1:10 lines in suitably large plantations
- extract by quad bike, tractor or forwarder, depending on size of plantation
- prune PCTs to 6m height

**1st Thinning**
- when average height is 12 – 15m, select 300 PCTs ha\(^{-1}\)
- remove 2 – 3 competitors per PCT

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**The COST E42 silviculture matrix**

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**Extension activities** -

Teagasc plays an active role in plantation silviculture research, education and advising Irish forest owners on the management of their plantations. Numerous demonstration days are held throughout the year on all aspects of plantation silviculture. Teagasc also has a network of 9 forestry advisors throughout the country that are freely available to owners for advice.

Because there has been little history of broadleaf forest management in Ireland, there is a perception by many owners that management of broadleaves is complicated and beyond their skills. However, the Tending demonstration days have proven to us that forest owners can become proficient in selecting Potential Crop Trees and their competitors after only a few minutes training. This bodes well for the future management of broadleaves in Ireland.