

*A Guide to Forest Tree Species and Silviculture in Ireland.* Ted Horgan, Michael Keane, Richard Mc Carthy, Michael Lally and David Thompson. Ed. Joe O'Carroll. COFORD. X+ 255 pp. Price €30.

Choosing the appropriate species for a given site can be regarded as a fundamental tenet in the establishment of sustainable forests. The choice of species is one of the most important decisions the tree grower/forester has to make. Selecting the species suited to the site will help to ensure the healthy development and growth of the crop and go a long way to achieve the objectives of the grower. If these objectives are financial it is all the more important that the species requires the minimum input of resources and grows to produce a crop at the end of the rotation that is readily saleable and of maximum value. To achieve the maximum return on a forest investment therefore requires careful consideration of all the factors involved, such as soil type, fertility, climatic exposure and drainage. All too often a species that is very soil and site demanding, such as ash, is planted on unsuitable sites just because the end product is in great demand. Although the early growth stage may be satisfactory such crops will rarely achieve the intended objective at maturity. It is therefore imperative to match the species to the site. This latest publication from COFORD will repay careful study in this regard.

The authors bring with them a wide spectrum of expertise, spanning decades of forest research in the Forest Service and Coillte, ranging from soil science through silviculture to forest genetics. An early chapter deals briefly with the three main functions of forests; economic, environmental and social, with a short discourse on the inputs required and the future value of the investment. This is followed by a lengthy chapter on site productivity which deals with factors of climate and site and is one of the key features of the book. The section on soils and forestry potential is particularly informative and could serve as a useful primer for students and the forestry enthusiast. The text is presented in simple language that is easy to understand and is complemented by tables, figures and photographs. The soil groups covered range from the dry mineral soils such as the brown earths, podzols and intergrades to the wet mineral soils and peatland. While it is unlikely that the poorer podzols and peatland will ever assume the same importance in afforestation as in the middle of the last century their inclusion is to be welcomed from the point of view of the difficulties involved in growing a crop on such poor sites. The view that trees will prosper where everything else fails to grow is long outmoded.

A short chapter on species selection guidelines is presented mainly in the form of tables that are intended to simplify the matching of tree species to sites. They are colour coded tabular summaries of species match to soil type showing their suitability from 'optimal to unsuitable' on a range of sites. This is supplemented by a further table which ranks silvicultural characteristics and site suitability factors for each species on a scale of 1-5. While the tables provide a useful overview the authors warn that they are not intended as a 'quick fix' solution to species selection. They should be read only in conjunction with the other chapters in the book.

The authors make a strong case for mixed plantations. There are many sound reasons for planting mixtures among them aesthetics and biological diversity and the shelter effect provided for some species in early stages of development. The latter is particularly noticeable in the establishment of broadleaves species and this is illustrated by some classical trials in Ballyhooley Forest. Details of the various mixture types are provided for both conifers and broadleaf species and conifer/broadleaf mixtures with figures illustrating group and band options for the latter. Some require more silvicultural attention than others

but even the more robust mixtures will demand a greater degree of management than single species crops. Before embarking on the establishment of mixed species plantations it is vitally important that the advantages and disadvantages of each mixture type are understood. This chapter will be a considerable help in that regard.

The final chapter providing 'notes' for each of the tree species, referred to in previous chapters, occupies more than half the book. Beginning with broadleaves it describes the requirement of each species (in alphabetical order) in relation to climate, site suitability, provenance, planting, spacing, growth and yield, rotation length and wood properties etc. Conifers are treated in similar fashion and the chapter concludes with notes on native trees and shrubs. In all, the characteristics of some sixteen broadleaves and nineteen conifers are described. Silvicultural information on many of the species, such as alder and birch, which were considered minor species in the past but have now assumed greater prominence, is to be welcomed and this chapter will provide the reader with a quick reference as to their characteristics.

The book is beautifully presented with numerous colour photographs, and colour is used liberally throughout to highlight figures and tables. Every effort seems to have been taken to avoid technical terms but for those with any difficulty there is a comprehensive glossary. The more scientific minded will find the common and botanical names of tree species, native shrubs and vegetation species in the appendices. Surprisingly there is no index. Evidently the authors concluded that it would be superfluous given the detailed table of contents. The early section on economic aspects is somewhat sketchy and the internal rate of return (IRR) for Sitka and Norway spruce, with afforestation and premium grants in Table 2.2, appear to be overly optimistic at 11.8% and 10.0% respectively. However, the book does not purport to be a text on forest economics; its theme is the selection of tree species and their silviculture and as such it will be of particular interest to the tree grower and tree enthusiast whose wishes to improve his/her knowledge of forest trees and native shrubs without recourse to more advanced and less readable texts.

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