

The Need For Shelter When

Ash and sycamore have been planted in farm forestry plantations throughout Ireland, especially in the west where they are chosen for sites with mineral soils not considered suitable for beech and oak. The Western Forestry Co-op has been involved in the establishment and maintenance of a lot of ash and sycamore plantations in the last 10 years. Their foresters have noticed that establishment of these two species was not always easy, with problems of poor shape and

A review of the relevant research suggested there would be problems with the provenance of the planted material and with competition from herbaceous vegetation, especially grasses. Pierre and Philip carried out an environmental survey of a range of ash and sycamore plantations around Sligo. They chose to do this in late spring to test if the timing of bud burst was significant. Some environmental factors were also assessed, such as soil type, altitude, composition of competing vegetation and shelter. Finally the tree's extension growth rates in each of the last 4 years were measured, as were the percentage annual bud death and the young tree's branch architecture. All the sites had been planted in late 1993 or '94, and their management history was known. When the data was analysed, the most obvious result was that the amount of shelter recorded on the site

was strongly associated with the amount of extension growth that the trees put on. There were no sites that were very exposed (i.e. where the hedgerows were wind pruned), nor were there any very sheltered sites; nevertheless, there was a ten fold increase in growth rates between trees growing on sheltered sites, often close to an old field hedge or wall, and those growing on open, mid-field sites. This reaction to shelter was similar in both ash and sycamore, and dwarfed the tree's response to any other environmental factor measured. There is a consensus among foresters that both these species are tolerant of exposed sites; they are often seen growing close to the sea where they are exposed to the most severe gales. It appears that, while they can survive in exposed sites, ash and sycamore need some shelter if they are to thrive and produce a good crop of timber.

Two other results were obvious from the data. Ash was much more likely to have been damaged by frost than sycamore. It seems that most of the seed for the ash recently planted in Ireland was collected from trees growing in Holland. The resulting seedlings come into leaf about 3 weeks earlier than our own native ash and, as you would expect, they get hammered by late frosts. There is very little variability in these seedling ash trees, and this means that all the trees in the crop are affected in the same way. The history of Irish forestry is littered with refer-

ences to the need for suitable provenances for the trees we grow. It would appear that ash in particular, is a species where the present source of seeds is not suitable for our local conditions.

The leading shoots of ash are vulnerable, not only to late frost damage, but also to attack from the ash bud moth. It was not surprising that ash was twice as likely as sycamore to lose its leading shoot in any one year. While it was not possible to identify the causes of shoot death on site, it was possible to identify the failure rate of the leading shoot in each of the last 4 years. This is important in ash because, once the tree loses its leading shoot, it usually produces 2 or more competing branches which, unless singled, will spoil the potential for producing a sawlog from the tree. About 20% of the ash lost its leading shoot every year, compared with less than 10% of sycamore. After 4 years, more than half the ash trees needed to be pruned if they were to produce a usable log (some trees lost their leading shoots in successive years). Worse still, was that the trees which were losing their leaders were the ones which were growing fastest. It seems clear that ash will need to be pruned to be sure of growing a high quality crop of timber.

Being a Swiss national, Pierre Binggeli is fluent in a number of European languages. This allowed him to review the way ash and sycamore are grown on the European mainland. Both



Dr. Pierre Binggeli reviewing extension growth on a young sycamore growing near Sligo.

species are considered as gross feeders, thriving on highly fertile soil which supports plants like nettles and cleavers. Where they are planted in ground which is supporting a fine grass or healthy vegetation, there is an absolute need for an application of a compound fertiliser containing nitrogen, as well as phosphate and potash.

Ash is often grown at a wide spacing (similar to that used in modern agroforestry) and is pruned hard every year, the aim being to produce a straight pole 6m high. Once it gets to 6m, the ash is stopped by pruning the leading shoot. Thereafter it is kept growing strongly by encouraging a bushy crown and by feeding and thinning. This produces a clean, straight stem with wide, even growth rings.

Sycamore, on the other hand, is planted closely together and is not necessarily pruned. Thinning is delayed for as long as possible to keep the trees from



It is possible to grow high quality hardwoods in Ireland, as this stand in Co. Antrim demonstrates.

Growing Ash & Sycamore

growth on many of their plantations. This was disappointing, as both ash and sycamore appear to thrive in the hedgerows and natural woodlands in the west of Ireland. Ray Gallagher, Manager of Western Forestry Co-op, approached Pierre Binggeli, a visiting academic at the University of Ulster and a leading authority on sycamore, and Philip Blackstock, a consultant arboriculturist, to suggest how this problem could be investigated and solved.

flowering. When they are thinned, the thinning is light to keep the trees from producing epicormic shoots. Ash and sycamore are managed in a completely different way, and are not therefore suitable for planting together in mixtures.

Ash and sycamore are both

good forestry crops which can provide farm foresters with a good investment. When they are well grown, they have a variety of high value added uses and are likely to retain their value as a consequence. Both species do however, need to be managed. This manage-

ment includes the provision of some form of shelter, regular fertilising, and the formative pruning of ash. Farmers who have the support of an organisation like a farm forestry co-op and are taught to manage their trees, are probably best positioned to grow high quality ash and

sycamore. They will have an advantage in the market when they come to realise their investment. Where they have planted these trees in exposed conditions or in mixtures, they will need to put in more effort to realise the true potential of their timber crop.

