

Producing Trees for Different Market Segments at Flannery's Nurseries[©]

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INTRODUCTION

Flannery's Nurseries was established in 1979. The soil is a medium loam and the site has a good sloping aspect, which helps the natural soil drainage during the winter months, although we have invested in drains where necessary to improve conditions further. We located the main dispatch shed centrally within a grid system of 1-ha growing plots and cut-stone roadways throughout the site for easy access. Originally the nursery's tree production consisted of transplants, feathered whips, standards and extra heavy standards, together with roses. Currently on our 24-ha field we concentrate on growing 2-year whips for potting to produce trees from 6/8-cm to 14/16-cm standards. Concentrating on one product has enabled us to improve production systems and quality. The end result is a crop of compact, well-balanced trees suitable for all segments of the market. We aim to supply trees with a fibrous root system, strong stem, and well-branched crown.

PRODUCTION SYSTEM

Traditionally our system of producing standards was to use a bed system to produce 1-year-old maidens. They were then transplanted out in a two-line system for growing on to standards. However, our current production method is to plant our rootstocks in a two-line system, 1 m apart with 1.5-m tractor path. The change was made to maximize output within the land available. Our intention is to bud the crop in situ and lift them as 6/8-cm to 8/10-cm standards. This is a system we have seen used on other nurseries in the U.K. and Europe. All our rootstocks are chip budded. We bud 20,000 rootstocks of *Sorbus*, *Malus*, *Prunus*, *Crataegus*, and *Cotoneaster* annually. All budding is done in house by our own staff.

All our rootstocks and whips are root pruned to encourage as many fibrous roots as possible. Our whips are lined out in the field and topped at 1.8 m or 2 m depending on the taxon. *Sorbus*, *Malus*, *Quercus*, and *Fagus* are caned using 3-m canes while *Acer*, *Fraxinus*, *Betula*, and *Alnus* require 3.6-m canes. All our whips are tied to the cane using a 17.5-cm yellow rose tie — the bright colour means they can be seen easily in the summer for loosening or removal. These ties can easily be put on, loosened, or removed as needed. They can be reused and typically last for at least two crops. They offer significant savings on time and materials as other ties can only be used once. We use green or yellow gut on larger trees if they require additional support.

When taping leaders into the cane we use 40- or 26-m Max Tape depending on the tree variety. On more difficult trees such as *Fraxinus* we use 5-cm masking tape on buds intended to make the leading shoot. This is cheap and efficient when compared to other methods as the tape stays in place until the shoot is well established and then bursts off.

A well-balanced crown is something we put a lot of emphasis on and our winter pruning is designed to give the optimum quantity of branches while preventing

gaps within the crown. Side branches are pruned to two or three sets of buds and leading shoots to four sets of buds on *Acer* and *Fraxinus*; side branches to four or five buds and leaders to five buds on *Sorbus*, *Malus*, and others.

Trees grown in the field unit are transplanted or winched at least every 3 years, especially difficult species such as *Fagus* and *Quercus*. Winching will add 1 year on to the crop before it is harvested. This allows a strong fibrous root system to develop, essential for trees that develop large taproots. This minimises losses after transplanting into the final position in the customers' gardens and landscape schemes.

Residual herbicides are used to control weeds during the growing season. We use Stomp (pendimethalin) at 3 L·ha⁻¹ and Butisan (metazachlor) at 1.5 L·ha⁻¹ in the spring after planting; Butisan at 1 L·ha⁻¹ as a summer top up and, in the autumn, Stomp at 4 L·ha⁻¹ and Butisan at 2 L·ha⁻¹. This combination of products is intended to prevent the build up of herbicide residue in the ground. Basta (herbicide glufosinate) is used to spot treat weeds that may not have been controlled by the residual herbicides.

We have invested in mechanisation over a number of years including caning machines, pruning platforms, and various lifting machines. This has reduced the need for very heavy manual labour within the nursery. As the capital investment in machinery is expensive we have purchased machines that can perform a combination of tasks, such as machines that can be used as a select lifter during the lifting season with a caning machine attachment for caning in the summer months. Pruning platforms offer significant savings in time and effort when pruning and taping trees. Operators can work at a comfortable level with the trees, which reduces fatigue and increases workrate.

MARKETS

Our main markets are landscapers, garden centres, local authorities, golf clubs, and stud farms. We produce more than 100 taxa of standard trees. As our main sales season is still the winter, we lift large batches of trees in various sizes and types. They are tied in bundles of three or five depending on the size and heeled-in beside our dispatch shed so they are close at hand. This is more efficient for the lifting teams when several large orders are dispatched at the same time and means trees can be dispatched from the heeling-in area if soil conditions are unfavorable for lifting. All bare-root trees are bagged before dispatch to ensure the roots are given the maximum amount of protection. Trees are dispatched directly from the field unit using our own transport or by customer collections.

Our biggest demand on standards trees is for small- and medium-sized ornamental taxa. Landscapers use our trees on roadsides, open spaces, and in gardens. Garden centres are now purchasing standard trees for customers requiring the instant effect of the larger trees. Over the last few years demand has increased for containerised standards for sales during the summer. We have developed a container nursery for growing-on standards in large pots to supply this demand.