

The Right Rootstock for a Good Graft Stick

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INTRODUCTION

Propagation by grafting is expensive in terms of resources and labour input and is justified only because of the potential for enhanced returns for the finished, often highly desirable, plant. Failure of grafts can therefore be very costly and must be avoided.

Use of the correct understock is fundamental to success but there is such a confusing range of terminology applied to planting stock that while propagators know the size and type of stock required, they cannot be certain of asking for it correctly, let alone receiving it. There is, therefore, a need for a simplified and generally accepted specification for stocks and planting material. The aim of this short paper is to address some of the misunderstandings current within the trade and to propose the adoption of specifications and definitions already used in forestry.

TERMINOLOGY AND DEFINITIONS

Stocks are produced either vegetatively or from seed and are used at various ages and differing sizes in a wide range of grafting and budding techniques. It is this diversity of practice that has given rise to the range of descriptive terms in common use and misuse. Terms such as stocks and bedded stocks, seedlings and undercuts, transplants and liners, plugs and potted liners, stems etc., which in themselves give little indication of age, size, and usage could be made more meaningful if combined with the simple definitions commonly used for forestry and hedging, giving age and cultivation type (Table 1).

With the application of a little further specification refinement and detail, all types of understocks and liners could be more accurately described and identified (Table 2).

SPECIFICATIONS

The girth of the rootstock or stem to be worked is the most important consideration and is usually expressed as "collar diameter". An indication of working height should be given and this is essential for top working.

Grading to stem diameter is normally to a tolerance of 23 mm depending on species and can range from 4 to 6 mm for seedlings for potting; through the normal 6 to 8 mm (7 to 10 mm), or 8 to 10 mm for lining out stocks; up to 10 to 12 mm and even 15 to 20 mm for the heavy stocks for bench work.

Specification should also take account of growth and development during the preparation for working. This is particularly important when producing pot-grown stocks for later bench working as quite small seedlings will often make a considerable girth increase during establishment. The same applies to stocks for summer field budding. Plants for immediate bareroot, bench, or top working must be secured in the exact range of size required.

The practice of specifying stock by overall height, without reference to age or girth (except the statement "pencil thick") surely leads to problems.

The understock is the vital and first component of a quality grafted plant. We have scion and budwood from purpose grown, healthy mother plants, we provide good land and facilities to match our propagation skills. We must, therefore, use the right rootstock to ensure success.

Table 1. Plant specification for forestry and hedging.

Age specification	Type of Plant
0+1	1 year cutting
0+1+1	1 year cutting + 1 year transplanted
1+0	1 year seedling
2+0	2 year seedling
1 u 1	2 year seedling (undercut)
1+1	1 year seedling + 1 year transplanted
1+2	1 year seedling + 2 year transplanted
1/2u1/2	1 year seedling (undercut)

Table 2. Plant specification for understocks and liners.

Age specifications	Type of plant
0+1	1-year stock from stool bed or cuttings (normally graded 5 to 7 mm, 6 to 8 mm, or 8 to 10 mm)
0+1+1	2-year stock bedded for 1 year or transplanted (normally graded 6 to 8 mm, 7 to 10 mm, or 8 to 12 mm)
1+0	1-year seedling for potting or lining, (normally graded 4 to 6 mm or 6 to 8 mm, with leader if specified)
1 u 1	2-year seedling (undercut at end of first year) normally stocks 5 to 7 mm, 6 to 8 mm, and 8 to 10 mm (or plants with leader for lining to grow on)
1+1	1-year seedling + 1-year transplanted stocks 5 to 7 mm, 6 to 8 mm, 8 to 10 mm, or 10 to 12 mm (or plants with leader for lining to grow on)
1+2	1-year seedling + 2-year transplanted, heavy stocks 8 to 10 mm, 10 to 12 mm or larger stems for top-working at 60 to 150 cm.
1+1P	1 year seedling, potted for 1 year, normally in P9 or 1-litre pot for grafting or lining
1+0P	1-year seedling pot grown for grafting or lining