TRANSPLANTING CONTAINER-GROWN PLANTS INTO THE FIELD

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INTRODUCTION

There are many advantages in growing plants in lightweight mixes compared to those containing a large proportion of soil. These are:

— Easier management (e.g. better drainage, greater moisture holding capacity)

— Disease and weed problems are usually less, and

— Significant savings can be made in handling and transport costs

However, many landscapers and nurserymen believe that plants grown in "heavy mixes", i.e. those containing a large proportion of soil establish more quickly when transplanted into the field — especially into soils containing a large percentage of clay (otherwise known as the interface problem). There is also much argument as to whether tubes or advanced plants should be used.

A series of experiments were done to answer these questions, with particular attention being paid to the penetration of roots from the original potting mix into the surrounding soil and water usage by the plants in the field situation.

MATERIALS AND METHODS

(a) Soil types used were —
  (i) light sandy soil
  (ii) heavy clay soil

The soils were either in adjacent fields or in large (200 liter) containers.

(b) Potting media used were:
  (i) lightweight medium — 50% composted hardwood sawdust, 25% pine bark, 15% coarse sand, 10% pasturized loam.
  (ii) heavy medium — 50% of medium (i), 50% pasturized loam.

(c) container sizes used were:
  (i) tubes (15 cm deep, 5 cm diam)
  (ii) 5 liter plastic bags
  (iii) 10 liter plastic bags

Plants were grown for 6 weeks after being transplanted

into the field. Plants were watered when a gypsum block in the rootball indicated a preset moisture content. A range of shrubs and trees were used in these experiments.

RESULTS

1. Provided that plants transplanted into the field are watered just before they show signs of wilting (about −13 bars), extra watering has little effect on the establishment of plants in the field.

2. Tube-grown plants require only about half the number of waterings when transplanted into the field compared to plants grown in 5 liter or 10 liter containers.

3. Roots from plants grown in tubes tend to grown downwards after transplanting, and those from larger containers tend to grown outwards (Figure 1).

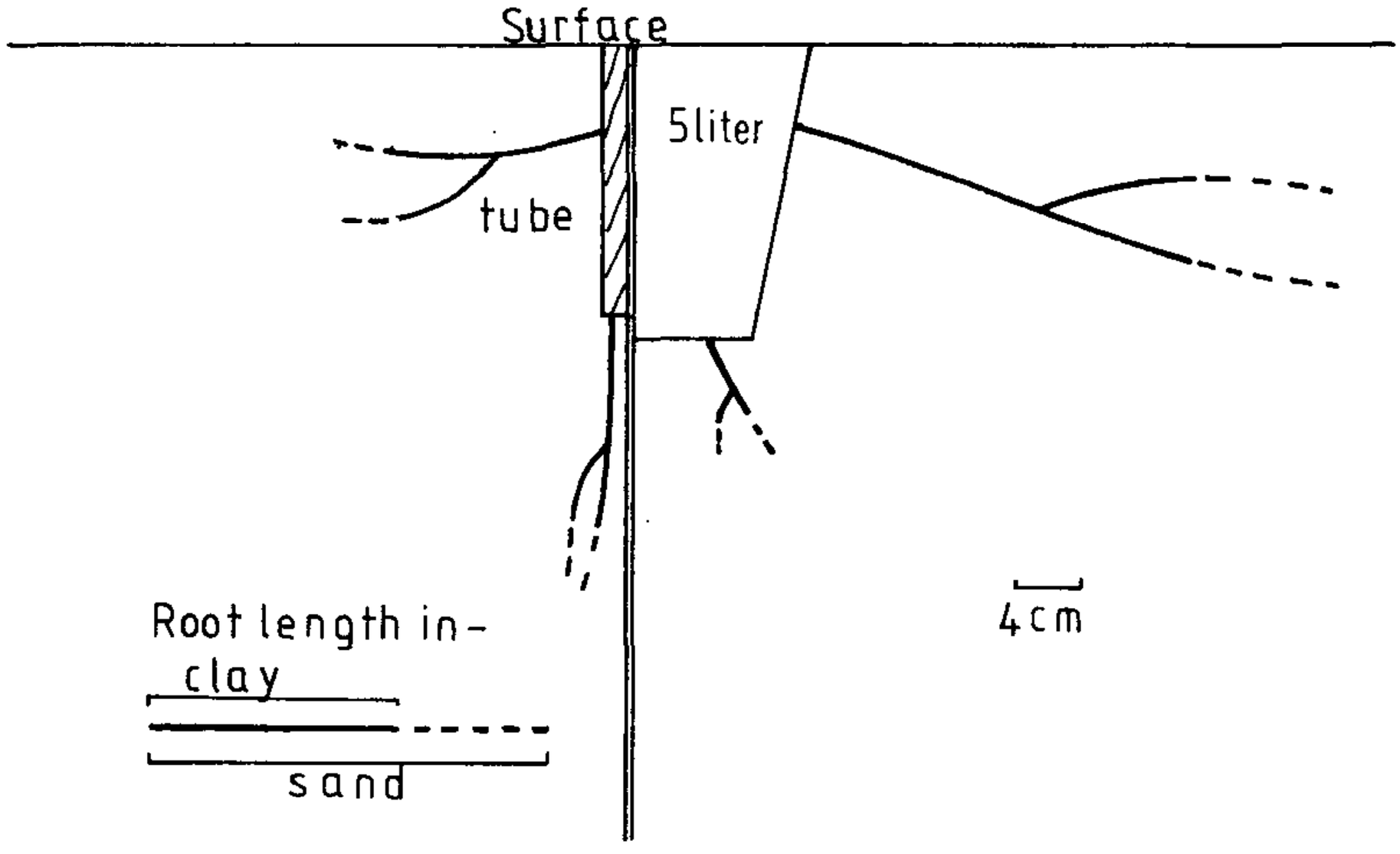

Figure 1. Average root penetration for trees and shrubs into surrounding soil from tubes and from 5 liter containers 6 weeks after transplanting.

4. Plants grown in a "lightweight" medium generally required fewer waterings than those grown in heavy mixes when transplanted into the field (Table 1). This was mainly due to the low level of available moisture in the heavy weight medium — despite the two media having similar total moisture holding capacities.

Table 1. Average number of waterings over a 6-week period for liquidambar, in either a light or heavy potting medium, and transplanted into a sandy or clay soil.

Treatment	Number of waterings
Potting Mix	
light	1.9
heavy	6.0
Soil	
sandy	3.0
clay	4.8

5. Root penetration from a lightweight medium into surrounding light or heavy soils was at least as good as that from a heavy medium, i.e. if plants receive adequate water, an "interface problem" does not exist. (Figure 2) In all instances plants were well established (as determined by root penetration) 6 weeks after transplanting in the field.

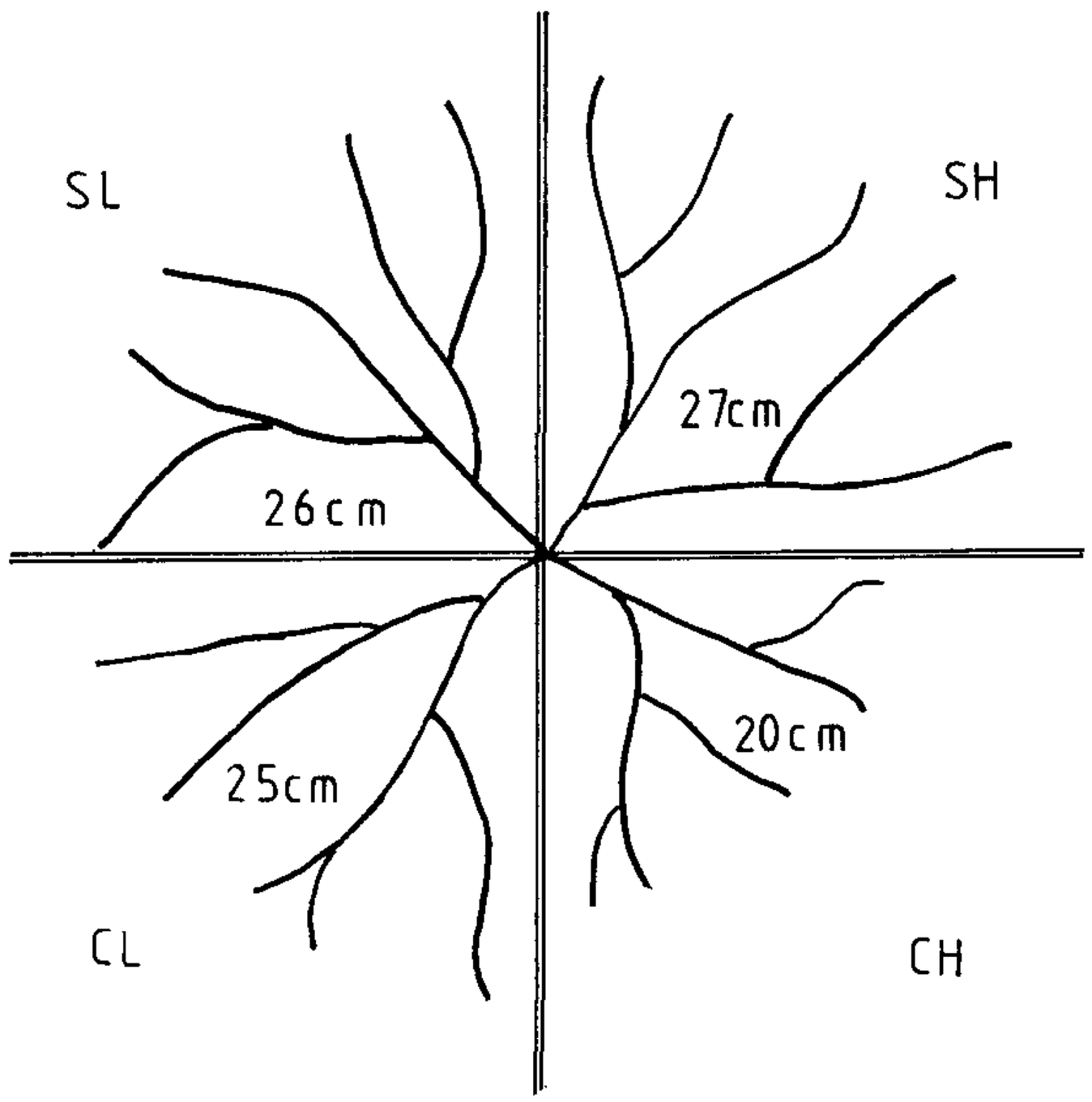

Figure 2. Average root penetration for liquidamber into sand (S) or clay (C) soils from lightweight (L) or heavy medium (H) 6 weeks after transplanting.

6. Water usage by plants transplanted into the field depends on the potting medium, pot size, soil types, species (Table 2), and weather (although for some species it

is not directly related to weather measurements, e.g. evaporation). This makes prediction of the number of waterings required by plants transplanted into the field very difficult. A better approach may be to actually measure the amount of water left in the root ball, using a relatively inexpensive device such as a gypsum block.

Table 2. Average number of waterings over a 3-week period for plants transplanted into a field soil.

Genus	Number of waterings
Ficus	2.8
Cupressus	3.1
Eucalyptus	3.5
Grevillea	3.0
Melaleuca	4.2

CONTAINER-GROWN ROSES: FIVE MONTHS FROM CUTTING TO FLOWERING

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Abstract. We have developed a method for producing rose bushes to a flowering stage in less than five months under greenhouse conditions. It can be done at any time of the year. *Rosa multiflora* cuttings are rooted and budded to required cultivars, then grown on to flowering. The percentage of saleable bushes was about the same as for field conditions. Because there is control of the environment there is considerable scope for improving the product and the method. The rose bushes produced were an attractive item, flowering in a container, and were suitable for planting.

INTRODUCTION

Rose bushes are mostly produced in the field and their production includes a significant labour component performed under uncomfortable conditions. Among the reasons for looking at the alternatives to field production are: the percentage of saleable bushes is often low (60%); garden centres and supermarket outlets probably could use an alternative product to bare-rooted dormant roses bushes, such as roses bushes already flowering in a container and suitable for planting out. Initially the method we describe was developed because we needed rapid production of disease-free, uniform rose bushes for use as test plants in experiments.

METHODS AND RESULTS

Experiment 1

Producing the rootstock. Cuttings of *Rosa multiflora* were