



## CITRUS IMPROVEMENT SCHEME - TREE SIZE STANDARDS

To conform to certification standards, batches of trees delivered to growers and presented for certification should be a uniform selection of trees according to the following categories, which must be described as such to the grower by CIS nurserymen.

### **Standard CIS nursery tree:**

**Whip tree** This is the general tree standard that should be supplied to growers, unless a deviation from the whip tree standard has been agreed between grower and nursery. The whip tree does not have any scaffold-branches, and the stem must be hardened off, preferably with round wood, at the intended topping height. Trees may be topped at 50-80 cm height, or as specified by the grower. A whip tree should not need a stake to support it, although it is good practice to stake all trees after planting, especially in windy areas.

### **Deviations from tree standard (specific agreement between grower and nursery required)**

**Scaffold tree** A tree that has formed scaffold branches at a height required by the grower, with a stem thick enough (not requiring additional support) to support the scaffold.

**Mini-tree** A tree with hardened-off scion growth of at least 15 cm. A mini-tree typically needs a stake to support it. *A mini-tree may only be delivered to a grower and presented for certification based on a written agreement between the grower and nursery stating that the grower will accept a uniform batch of mini-trees.*

**Root development.** The root system of trees must be well developed and should fill the complete profile of the container (photo on right). Roots must be without any symptoms of root rot.



**Bench rooting (or 'Kromwortel').** Severe goose-neck or bench-rooting of the main tap root and major lateral roots is not acceptable when the goose-neck or bench occurs within 10 cm from the collar of the tree, or when no major lateral roots (that are not benched) were formed above the goose-neck or bench. Severe goose-neck or bench-rooting is defined as major roots that are bended/folded at a tight angle; roots that bend upwards; or roots that form a complete curl/loop. Below are examples of acceptable (photo on left; straight to non-severe bends) and unacceptable (photo on right) bench or goose-neck root development in young seedlings, and unacceptable bench-rooting in older trees (photos below).



**Schematic description of the CIS nursery tree standards**

