



Nursery-based rootstock compatibility trials for the production of suitable planting material for the southern KwaZulu-Natal cultivar evaluation trial

CHALLENGE

- During the establishment of some of the earlier SAMAC cultivar evaluation trials, a significant number of trees were lost during the first year in both the nursery and the field. These losses were especially prevalent in some of the new scion cultivars.
- The new scion cultivars were all grafted on clonal 695 rootstocks, and it was hypothesized that incompatibility between clonal 695 rootstocks and certain scion cultivars might be the cause of the losses.

AIM

- The aims of this study were to propagate all new cultivars on multiple rootstocks, and to evaluate rootstock/scion compatibility in the nursery.
- Compatibility was assessed through quantifying graft take, vegetative shoot growth, visual assessment of graft unions and roots as well as dye uptake and mismatches between scions and rootstocks through the graft union for selected cultivars.
- The scion cultivars 1/40B, 2/5Mc, 2/18Mc, 4/7Mc, 4/44Mc, 856, 863, 887, A16, A38, A203, A268, Nelmac 2, TS108, TS110, TS111, TS112 and TS113 were established on clonal 695 and Nelmac 2 seedlings. Control cultivars included 695, 816 and A4 on clonal and seedling 695, as well as Nelmac 2 seedlings.
- The best (or all suitable) trees were then used to establish the southern KwaZulu-Natal cultivar trial site in Paddock.



RESULTS

- Clonal 695 rootstocks showed very good graft take and scion growth, and incompatibility between clonal 695 rootstocks and scion cultivars were not observed.
- Clonal 695 rootstocks exhibited the highest average graft take and scion growth, followed by 695 seedling rootstocks and then Nelmac 2 seedling rootstocks. Kindly refer to the full-length final report for performance of specific scion-rootstock combinations.
- The clonal rootstocks used in this study were planted in slightly bigger bags than the seedling rootstocks, and in a sand-bark mix as opposed to pure bark for the seedling rootstocks as the trees originated out of different nurseries. As the aim of this project was to assess cultivar compatibility and not to compare seedling and clonal rootstocks, these results should be interpreted with these limitations in mind.

WHAT DOES THIS MEAN?

- For the scion and rootstock cultivars tested in this study, rootstock / scion compatibility was not the cause of tree losses, but rather nursery practices such as bag size, planting medium, transplanting practices, budwood preparation and grafting technique.
- Best practices, especially for newer cultivars may need to be investigated. Practices such as the timing between budwood cincturing and cutting, contact between the scion and the rootstock and matching the thickness of scions and rootstocks are important.

