

A Growing Kent & Medway and BAPL funded study showed reduced canker development in newly planted orchards by amending the soil with arbuscular mycorrhizal fungi (AMF) and/or Trichoderma based products.

RESEARCH SUMMARY

The roots of newly planted apple trees were amended with AMF (RootGrow, PlantWorks) and two Trichoderma-based biocontrol products – Trianum-P and Vintec*.

Gala trees amended with the combination of Vintec and AMF had five times lower tree mortality on all sites compared to an unamended control. Single or other combined treatments reduced tree mortality by about 20%.

The reasons for tree death may differ across sites, and not all trees died of canker.

AMF alone reduced the number of branch cankers found on the trees three years after planting by around 25%, compared to the unamended control.



AMENDMENT PROCEDURE USED IN THE RESEARCH PROJECT

Planting holes were dug and trees positioned in or next to the hole. AMF (RootGrow supplied by PlantWorks UK) were applied to pre-wetted roots by sprinkling 50 ml of inoculum granules per tree. Trichoderma based products were prepared for 50 trees at a time by mixing:

- Trianum-P (Koppert) 5 g of product in 5 l of water in a 10 l bucket
- Vintec (Belchim) 10 g of product in 5 l of water in a 10 l bucket

Tree roots were briefly dipped in Trichoderma solution for two to three seconds while mixing the solution in the bucket.

Inoculated trees were positioned in the planting holes and the remaining inoculum was poured directly onto the tree roots in the planting holes at around 80-90 ml per tree. This process can be simplified by applying Trichoderma inoculum directly on the roots and soil in the planting hole with a knapsack sprayer using the same dose and applying around 100 ml of spray per tree root.

Planting was completed by covering the roots with soil, attaching trees to the supports and installing rabbit guards etc.

* Neither Trianum-P nor Vintec are currently authorised for use in this way in commercial orchards, although work is in progress to secure EAMU authorisations for this use. Trianum-P (*Trichoderma harzianum*) is authorised (2026) for use on permanently enclosed soft fruit. Vintec (*Trichoderma atroviride*) is authorised on apple (2026) as a foliar application

This information has been compiled from the results of a research project funded by Growing Kent & Medway, British Apples and Pears Ltd, Agrovista, AM Fresh and The East Malling Trust. The research was carried out by Niab with support from Agrovista and AM Fresh.