

## Performance summary

GF677 was among the top seven highest performing rootstocks in terms of cumulative yield. Results are specific to the soil characteristics and management practices applied to this trial site. GF677 produced trees with similar trunk circumferences to Nemaguard and tree canopies were upright with open upper canopies. GF677 is susceptible to root-knot nematode and low levels detected in the trial will need to be monitored to determine if these populations increase and what effect (if any) they have on future yields. Of the top seven rootstocks GF677 rootstock is commercially available as a grafted tree in Australia.

## Key observations

### Tree Habit

Using trunk circumference as an indicator of tree growth, Nonpareil trees grown on GF677 (570mm) were not significantly larger than Nemaguard (549.8mm) in 2020.

In 2020, GF677 produced upright tree canopies (Figure 33) that were narrower (4.72m) than their height (4.93m) and significantly higher than Nemaguard (4.65m) but not significantly higher than the spare Nemaguard (4.83m). The upper part of the canopy is slightly less dense than the lower parts, leaving room for more growth in the future years.

Early canopy areas and light interception (canopy densities) were higher for GF677 than Krymsk 86 but not significantly different than other rootstocks. These differences were lost by 8th leaf.

### Production

GF677 produced seasonal yields that were similar and slightly higher than Nemaguard each year resulting in a cumulative yield significantly higher than Nemaguard but similar to spare Nemaguard (Table 1). achieving over 3 tonnes per hectare by 2019. In 2020 an outlying yield was observed in Replicate 4 reducing the average annual yield harvested in that year.

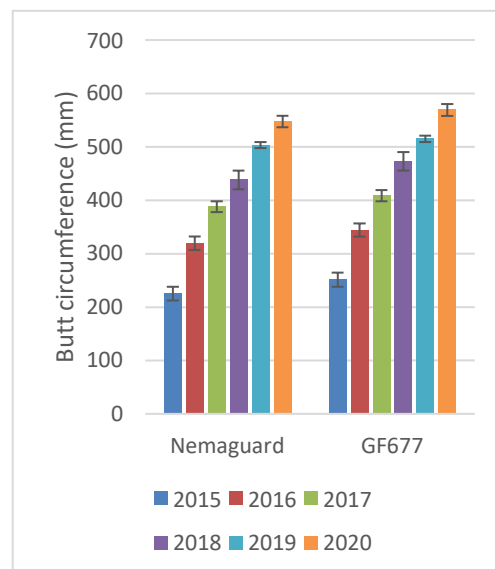


Figure 30. Average trunk circumference.

Table 12. Average annual yields (kg/ha).

Rootstock	2016	2017	2018	2019	2020	2021	Cumulative
GF677	549	1,010	1,829	3,803	3,433	3,464	14,089
Nemaguard	508	731	1,831	2,919	3,377	2,373	11,738

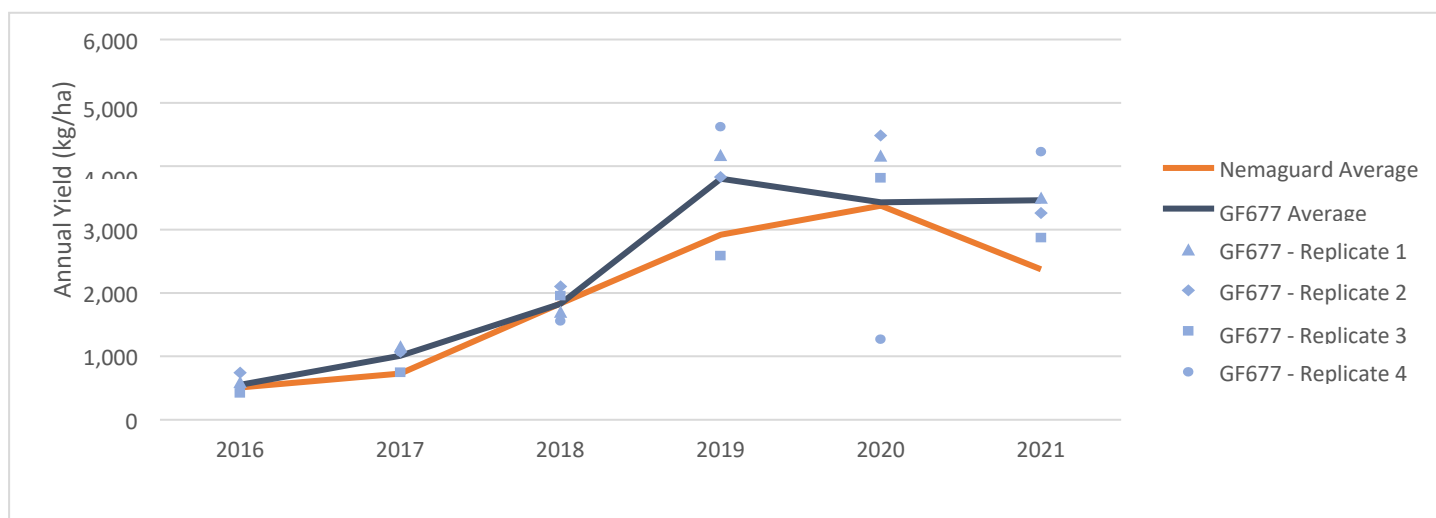


Figure 31. Average annual yields 2016 to 2021 (3rd to 8th leaf).

## Rootstock characteristics

Root knot nematode was observed in the soil at low levels for GF677. Given GF677 is susceptible to root-knot nematode continued monitoring will determine if population increases at this site impact on future yield.



Table 13. Rootstock characteristics.

Root knot Nematode	Lesion Nematode	Ring Nematode	Crown Gall	Armillaria	Phytophthora	Salt exclusion	Chlorosis	Vigour	Propagation by cuttings
Susceptible	Susceptible	Susceptible	Susceptible		Susceptible	Excluder	Tolerant	High	Poor



Figure 32. Juvenile tree - 2017.



Figure 33. Mature tree - 2021.



Figure 34. Graft union - 2021.