

Performance summary

Hansen 536 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. Hansen 536 produced trees with the largest trunk circumference and one of the larger tree canopies in the trial. Average annual yields followed a similar trend as Nemaguard. Hansen 536 had significantly higher leaf calcium (Ca) and magnesium (Mg) levels which correlated with other rootstocks with higher yields. Earlier start of flowering by 0.75 days was observed for Hansen 536 compared to Nemaguard.

Key observations

Tree Habit

Using trunk circumference as an indicator of tree growth, Nonpareil trees grown on Hansen (619.6mm) were significantly larger than Nemaguard (549.8mm) in 2020 (Figure 25) and significantly larger than all other rootstocks (Table 1).

Hansen produced one of the larger canopies, 5.83m wide and 4.9m high, significantly higher than Nemaguard (4.65m) but not significantly higher than spareNemaguard (4.83m). Early canopy areas and light interception were higher for Hansen 536 than Krymsk 86 but not significantly different than other rootstocks. These differences were lost by 2021.

Production

Hansen 536 larger canopy growth has assisted in producing average seasonal yields slightly higher than Nemaguard each year resulting in a cumulative yield significantly higher than Nemaguard. As seen in Figure 26 average seasonal yields follow a similar trend to that of Nemaguard.

Strong early growth meant Hansen 536 had a low production efficiency (0.04kg/cm²) not significantly different from the production efficiency for Nemaguard (0.057kg/cm²). Differences in production efficiency were no longer observed in 2020.

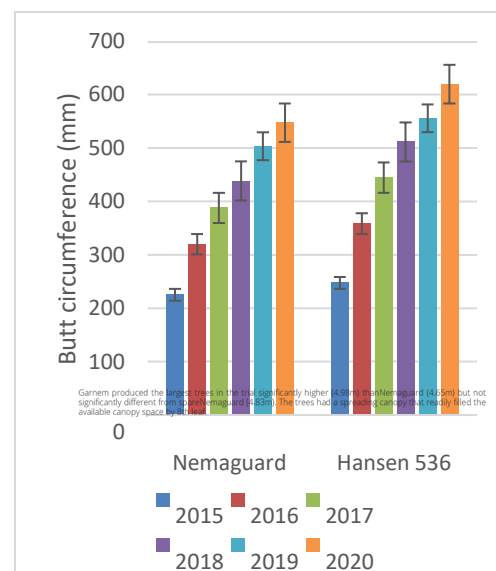


Figure 25. Average trunk circumference.

Table 10. Average annual yields (kg/ha).

Rootstock	2016	2017	2018	2019	2020	2021	Cumulative
Hansen 536	401	1,062	1,940	3,618	4,151	3,104	14,276
Nemaguard	508	731	1,831	2,919	3,377	2,373	11,738

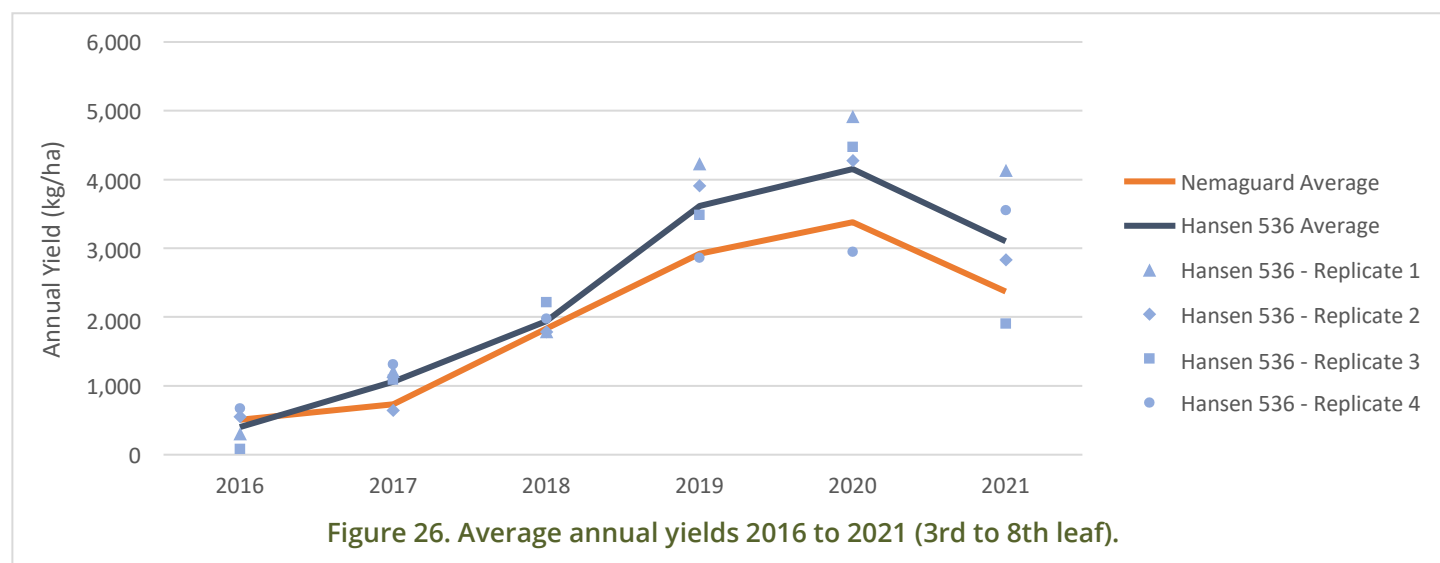


Figure 26. Average annual yields 2016 to 2021 (3rd to 8th leaf).

Rootstock characteristics

Leaf analyses indicated a highly significant correlation between yield and leaf calcium (Ca) and magnesium (Mg) levels with Hansen 536 having the highest uptake of both Ca and Mg.

On average Hansen 536 delayed the start of flowering by 0.75 days with full bloom and end of flowering also slightly later than Nemaguard (Figure 2).

Table 11. Rootstock characteristics.

Root knot Nematode	Lesion Nematode	Ring Nematode	Crown Gall	Armillaria	Phytophthora	Salt exclusion	Chlorosis	Vigour	Propagation by cuttings
High resistance	More tolerant than Nemaguard	Susceptible	Susceptible	Susceptible	Susceptible	Resistant/ Excluder	Tolerant	High	Poor



Figure 27. Juvenile tree - 2017.



Figure 28. Mature tree - 2021.



Figure 29. Graft union - 2021.