Performance summary

While Adafuel produced larger trees and high production efficiencies early (2017) this did not translate into cumulative yields that were significantly higher than Nemaguard, potentially due to variability within the trial. Root-knot nematode was detected on Adafuel rootstock in moderate levels and Adafuel is reported to have low to medium susceptibility. Adafuel brought forward flowering start dates and flowering duration compared to Nemaguard.

Key observations

Tree Habit

Using trunk circumference as an indicator of tree growth, Nonpareil trees grown on Adafuel (600.2mm) were significantly larger than Nemaguard (549.8mm) and had similar circumferences as high performing rootstocks Monegro (608.8mm), Felinem (605.4mm) and Hansen 536 (619.6mm).

In 2020, Adafuel produced strong canopy growth of 4.56m wide with heights (4.93m) significantly higher thanNemaguard (4.65m) but not significantly higher than the spareNemaguard (4.83m). Most growth was in the lower part of the canopy with some limbs extending apically in the upper canopy.

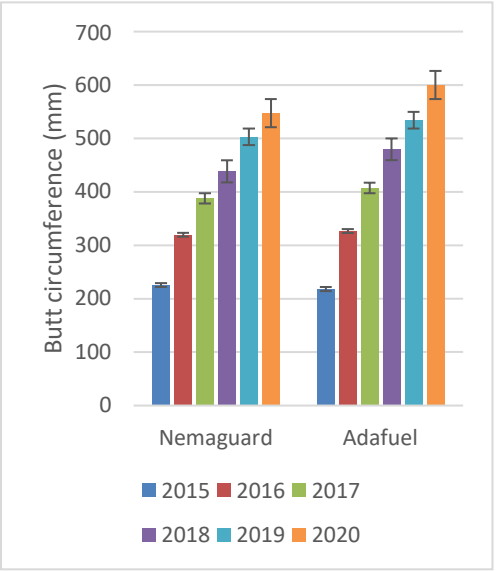

Figure 45. Average trunk circumference.

Production

Seasonal yields on Adafuel were similar to Nemaguard (Table 18). Early high production efficiency seen in 2017 did not translate into significantly higher cumulative yield than Nemaguard potentially due to the variability within the trial. In 2019, Replicate 2 did not have harvest data therefore the average annual yield was based on 3 data sets. An outlying low yield in Replicate 3 in 2020 combined with a declining trend in Replicate 1 meant the cumulative yield by 2021 was not significantly higher than Nemaguard.

Table 18. Average annual yields (kg/ha).

Rootstock	2016	2017	2018	2019	2020	2021	Cumulative
Adafuel	274	1,074	2,127	2,648	3,357	3,106	12,588
Nemaguard	508	731	1,831	2,919	3,377	2,373	11,738

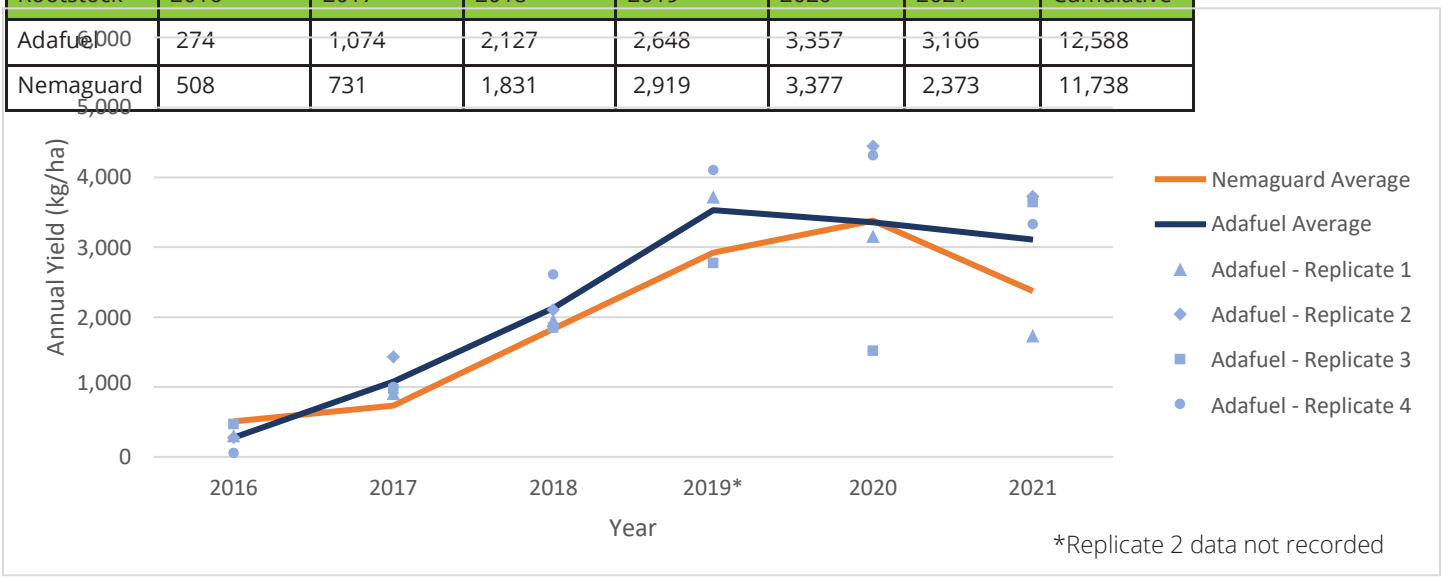

Figure 46. Average annual yields 2016 to 2021 (3rd to 8th leaf).

Rootstock characteristics

Root Knot was detected on Adafuel rootstock in moderate levels and Adafuel is reported to have low to medium susceptibility. On average Adafuel brought forward the start of flowering two days earlier than Nemaguard with a shorter flowering period from 26 days to 24.75 days (Figure 2).

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Table 19. Rootstock characteristics.

Root knot Nematode	Lesion Nematode	Ring Nematode	Crown Gall	Armillaria	Phytophthora	Salt exclusion	Chlorosis	Vigour	Propagation by cuttings
Characteristics are unpublished for Adafuel.									

Figure 47. Juvenile tree - 2017.

Figure 48. Mature tree - 2021.

Figure 49. Graft union - 2021.

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