

2024 NC140 NJ Hard Cider/Rootstock Trial Update with ‘Porters Perfection’ Cultivar

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In 2023 an apple rootstock trial with the scion ‘Porters Perfection’ was established as part of the NC-140 Regional Rootstock Research Project. This trial is replicated at 16 sites throughout the United States, and one site in Canada, including at the Rutgers University, Snyder Research and Extension Farm in Pittstown, New Jersey.

The variety ‘Porters Perfection’ is an apple utilized primarily for pressed juice and hard cider production and is characterized as a bittersharp variety. It is the first hard cider variety to be included in an NC-140 rootstock trial.

In 2023, NC140 ‘Porters Perfection’ rootstock/Hard Cider trial was planted at the Snyder Research Farm in Pittstown, NJ. The trial was planted at a spacing of 645 trees per acre in a modified tall spindle system. The trial consists of 7 rootstock genotypes which include G.969, G.890, G.41, G.213, G.210, G.202 and G.11. <http://nc140.org/plantings/2023appleroostock.html>.

Data was collected from the trial in the fall of both 2023 and 2024 on trunk cross sectional area (cm²). Additional data was collected on yield per tree(kg) for the first time in 2024. Trunk

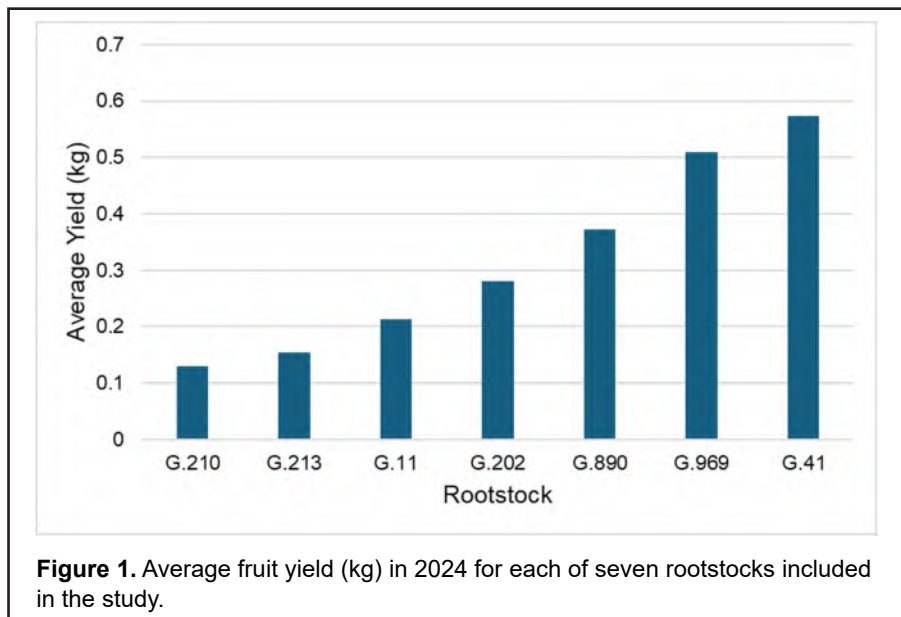
cross sectional area and 2024 yield were used to calculate the yield efficiency of each rootstock (kg/cm²).

By the end of the 2024 growing season the 2023 Porters Perfection trial was thriving and differences in rootstock TCSA are already evident (see Table 1). The rootstock G.890 had the largest TCSA at 7.8 cm² and G.213 had the smallest TCSA at 4.3 cm². The growth in TCSA was also calculated between the 2023 and 2024 growing season. The greatest growth in TCSA occurred in the G.210 rootstocks (~1 cm), while the smallest change in growth occurred in the G.41 rootstocks (~0.6 cm).

A small amount of fruit was left on the trees in 2024 and hand thinned down to 3 fruits/cm² TCSA. The fruit set was far more significant than expected Table 1 and Figure 1. The largest yield (0.57 kg) was collected from

Table 1: Average Trunk Cross Sectional Area for 2023 and 2024 growing seasons, Average yield and Average Yield Efficiency 2024 of trees in the 2023 Porters Perfection Rootstock Trial.

Rootstock	Average TCSA cm ² (2023)	Average TCSA cm ² (2024)	Average Yield kg (2024)	Average Yield Efficiency kg/cm ² (2024)
G.11	2.39	4.9	0.2	0.04
G.202	3.3	7.0	0.8	0.04
G.210	2.8	6.8	0.1	0.02
G.213	1.9	4.3	0.2	0.04
G.41	3.3	5.7	0.6	0.13
G.890	3.7	7.8	0.4	0.05
G.969	2.8	5.5	0.5	0.11



G.41, while the smallest yield was collected from G.210 (0.1 kg).

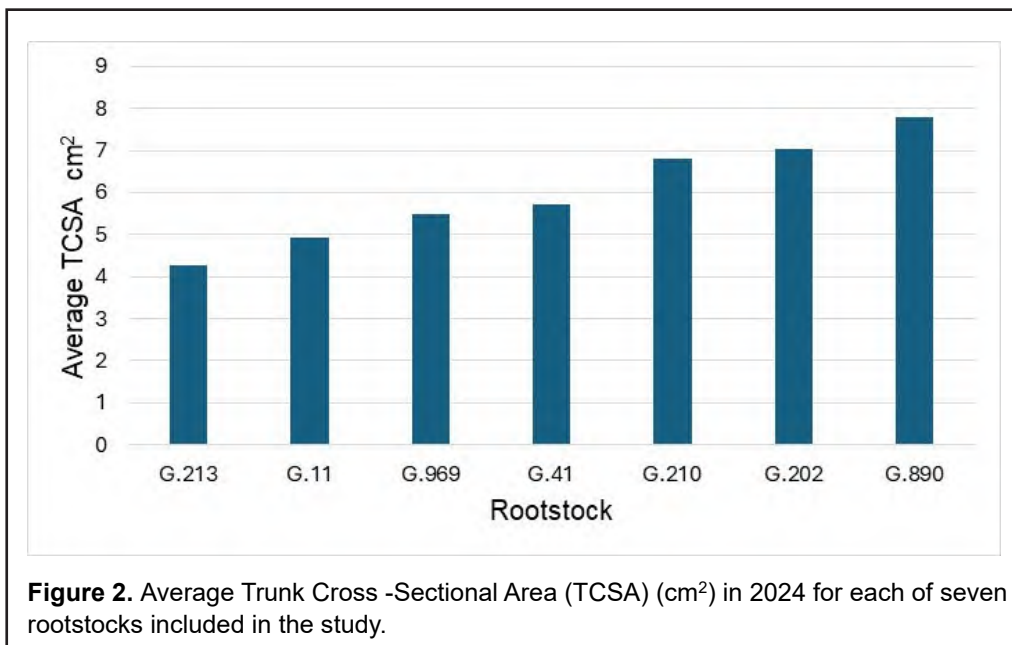
Although there was not a significant amount of fruit harvested in 2024 there was a nearly 10-fold difference in yield efficiency between the lowest yield efficient rootstock (G.210 with 0.02 kg/cm²) and the most yield efficient rootstock (G.41 with 0.12 kg/cm²).

The results are still preliminary regarding the TCSA and yield efficiency. However, to date all rootstocks have resulted in vigorous, precocious well adapted trees and appear to have the potential to yield significant fruit yields for ‘Porters Perfection’ (Figures 2, 3, 4).

For additional information on [NC140 Rootstock Trials](http://nc140.org/), locations of other trials and annual state reports of trials, and hundreds of final publications, see our official NC140 Website: <http://nc140.org/>

Support

Thank you to the NJ State Society for research grant support to enable this long term project, to the NJ Agricultural Experiment Station, to the Hunterdon County Board of Chosen Freeholders and to the staff at the Rutgers Snyder Research and Extension Farm.



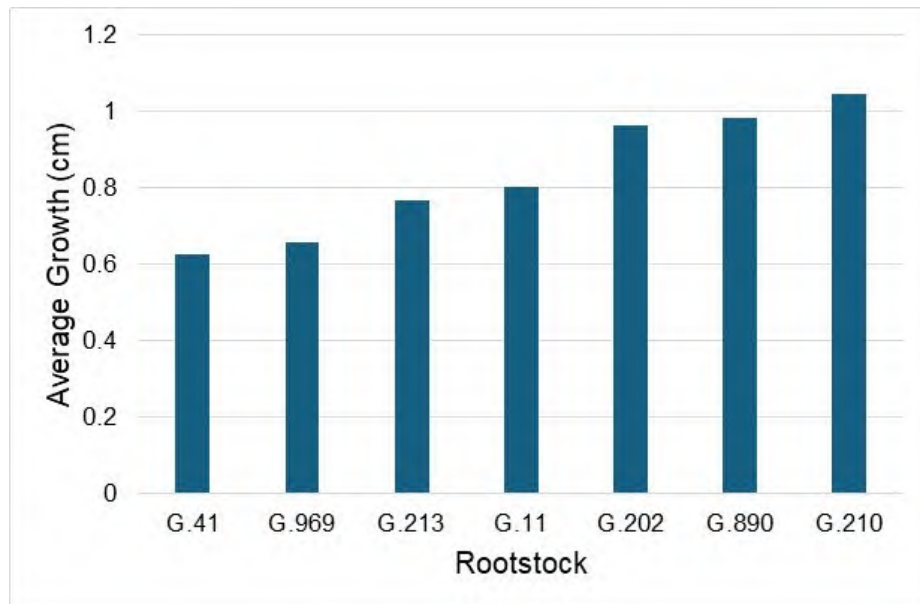


Figure 3. Average Growth (cm) of rootstocks between 2023 and 2024 growing seasons.

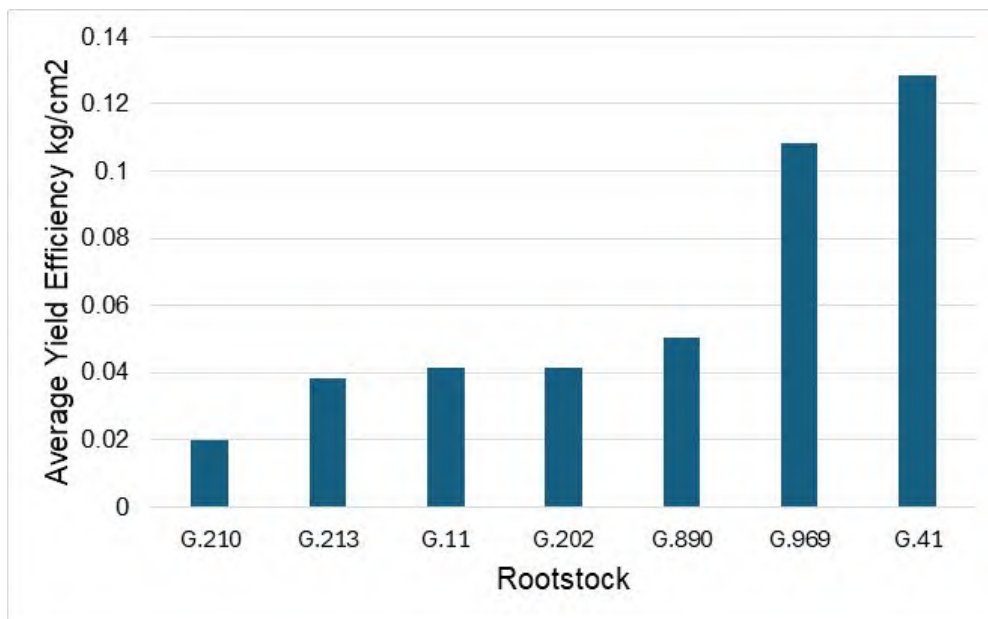


Figure 4. Average Yield Efficiency (yield (kg)/ trunk cross sectional area (cm²) of all seven rootstocks included in the study.

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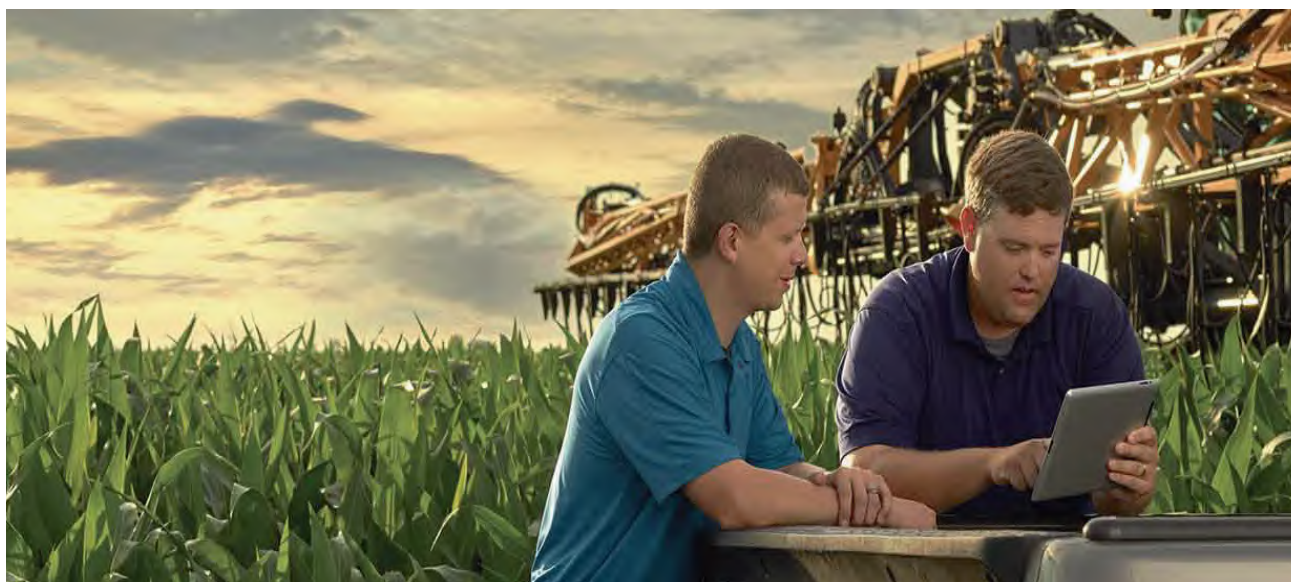
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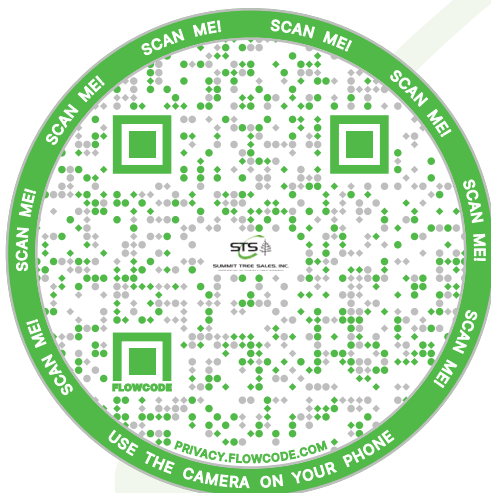
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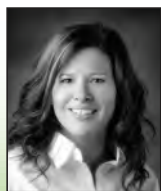


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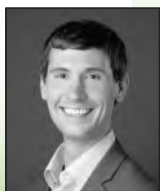
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