B.9, M.9, and M.26 Strains and New Polish and PiAu rootstocks in the 2002 NC-140 Apple Rootstock Trial

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As part of the 2002 NC-140 Apple Rootstock Trial, a planting of Gala on 11 rootstocks was established at the University of Massachusetts Cold Spring Orchard Research & Education Center in 2002. The planting included seven replications in a randomized-complete-block design. This trial was planted in several locations throughout the United States, Canada, and Mexico, but only Massachusetts data are reported here. Means from 2005 (4th growing season) are included in Figure 1 and Table 1.

This trial was planted with several objectives in mind. There are two strains of B.9 in commerce, one propagated by Treco and commonly used in the United States and the other commonly used in Europe. It is hoped to begin understanding differences between them with this trial. Also, an alternative strain of M.26

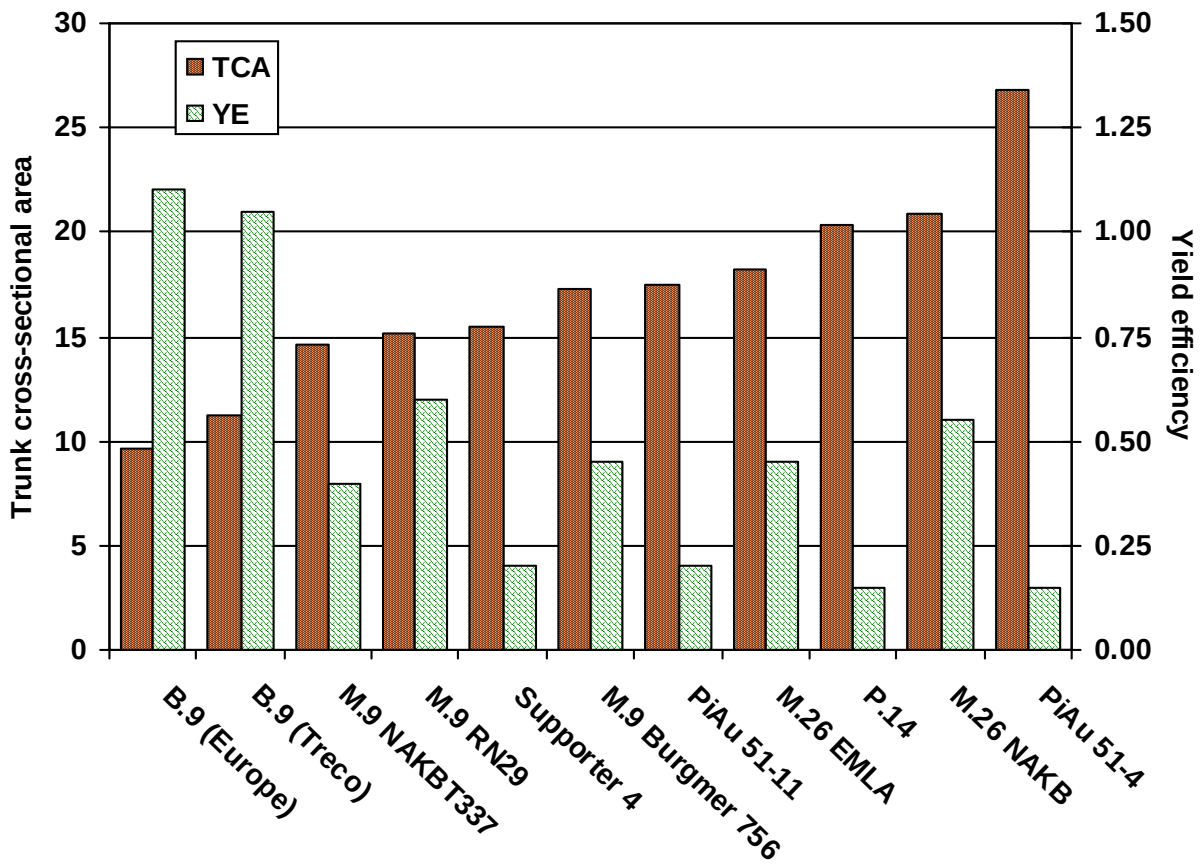

Figure 1. Trunk cross-sectional area and cumulative yield efficiency of Gala trees on several rootstocks in the 2002 NC-140 Apple Rootstock Trial (after four growing seasons).

Table 1. Trunk cross-sectional area, suckering, yield, yield efficiency, and fruit weight in 2005 of Gala trees on several rootstocks in the Massachusetts planting of the 2002 NC-140 Apple Rootstock Trial.[z]

Rootstock	Trunk cross-sectional area (cm^2)	Root suckers (no./tree, 2002-05)	Yield per tree (kg)		Yield efficiency (kg/cm^2 TCA)		Fruit weight (g)	
			2005	Cumulative (2004-05)	2005	Cumulative (2004-05)	2005	Average (2004-05)
B.9 (Europe)	9.6 c	0.0 a	8.1 a	11.2 a	0.80 a	1.11 a	126 ab	136 ab
B.9 (Treco)	11.2 c	0.1 a	8.9 a	11.2 a	0.82 a	1.05 ab	138 ab	149 ab
M.26 EMLA	18.2 b	0.3 a	6.7 ab	8.4 ab	0.34 b	0.43 bc	121 ab	126 ab
M.26 NAKB	20.9 ab	0.3 a	8.1 a	10.7 a	0.43 ab	0.57 abc	105 b	111 b
M.9 Burgmer 756	17.3 bc	0.3 a	5.5 ab	7.5 ab	0.33 b	0.45 bc	151 ab	154 a
M.9 RN29	15.2 bc	3.7 a	7.0 ab	9.7 ab	0.43 b	0.61 abc	153 a	158 a
M.9 NAKBT337	14.6 bc	0.0 a	4.6 ab	6.0 ab	0.31 b	0.39 c	158 a	154 a
P.14	20.4 ab	0.3 a	1.5 b	2.2 b	0.08 b	0.16 c	124 ab	125 ab
PiAu51-11	17.5 bc	0.2 a	2.8 ab	3.5 ab	0.16 b	0.21 c	129 ab	125 ab
PiAu51-4	26.8 a	0.0 a	3.8 ab	4.1 ab	0.13 b	0.15 c	130 ab	126 ab
Supporter 4	15.5 bc	0.0 a	1.9 b	2.8 ab	0.12 b	0.22 c	124 ab	126 ab

[z] Means within column not followed by the same letter are significantly different at odds of 19 to 1.

(NAKB) must be compared to the standard M.26 EMLA. NAKB is the virus indexing program in the Netherlands, and EMLA is a similar program in Great Britain. The Burgmer 756 strain (from Burgmer Nurseries in Germany) and the RN29 (Nic 29) strain (from Nicolai Nursery in Belgium) of M.9 may have value and are compared to the standard M.9 NAKBT337. Further, newly available rootstocks, P.14, PiAu51-11, PiAu 51-4 are included in this trial for their first NC-140 evaluation. The PiAu rootstocks and Supporter 4 were released from the Institut für Obstforschung Dresden-Pillnitz. P.14 is from the Research Institute of Pomology, Skierniewice, Poland.

After the 2005 growing season, largest trees were on PiAu 51-4 (Figure 1, Table 1). Trees on B.9 (Europe) and and those on B.9 (Treco) were similar and the smallest in the trial.

Cumulative (2002-05) root suckering was reasonably low and not affected significantly by rootstock (Table 1).

Yield in 2005 was greatest from trees on B.9 (Treco), B.9 (Europe), and M.26 NAKB and least from trees on P.14 and Supporter 4 (Table 1). All other rootstocks resulted in yield intermediate to the two groups. Cumulatively (2004-05), yield was greatest from trees on B.9 (Treco), B.9 (Europe), and M.26 NAKB and least from trees on P.14. All other combinations were intermediate.

Yield efficiency in 2005 and cumulatively (2004-05) was greatest for trees on B.9 (Treco) and B.9 (Europe) (Table 1).

Fruit size in 2005 and on average (2004-05) was greatest for the three M.9 strains and least for trees on M.26 NAKB.

At this point, no statistical differences in tree size, root suckering, yield, yield efficiency, or fruit size were seen between the two B.9 strains, between the two M.26 strains, or among the three M.9 strains.

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