

# ANNUAL REPORT TO NC-140



## 2002 Massachusetts/New Jersey 'Cameo' Dwarf Rootstock Trial

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*'Cameo' fruit*

### Planting description and protocol

In 2002 semi-formal NC-140 plantings were established at the University of Massachusetts Cold Spring Orchard Research and Education Center in Belchertown, MA and at the Rutgers Snyder Research and Extension Farm in Pittstown, NJ. 'Cameo' apple trees (Willow Drive Nursery) on three dwarfing rootstocks – Geneva (G.) 16, M.9-337, and B.9 – were planted in a randomized complete block design (10 replications) spaced at 1.2 X 3.6 m. (Massachusetts) and 2.4 X m. (New Jersey). All trees are trickle irrigated and have been trained to a vertical axis.

Annual measurements of trunk circumference, tree height and spread (2006 only), suckering, fruit yield (beginning in 2003), and fruit size (NJ only 2004-05) have been made.

It is anticipated similar data collection will continue for another five growing seasons. An article on the preliminary performance (2002-2006) of these three commercial dwarf rootstocks will be published in 'Fruit Notes' this winter.

### Results

This report presents data from the 2006 (5<sup>th</sup> leaf) growing season, and results are presented on page 2. in Tables 1. – 3.

Over both states, G.16 produced the largest tree, followed by M.9 and B.9. (Table 1.) In Massachusetts, G.16 was larger than both M.9 and B.9 except in tree height. (Table 2.) In New Jersey, G.16 and M.9 are both larger than B.9.

In Massachusetts and over both states, M.9 has the most root suckers. (Tables 1. and 2.) There was no difference in suckering between the rootstocks in New Jersey. (Table 2.)

In 2006 there was no overall difference in fruit yield per tree between the rootstocks, however, B.9 has the highest yield efficiency. (Table 1.) Cumulative yield is greatest for G.16 but B.9 again has the highest cumulative yield efficiency.

In Massachusetts in 2006, G.16 yielded the most fruit compared to B.9 and M.9, while in New Jersey, B.9 out-produced G.16. M.9 was in the middle and did not differ from either of the other two. But cumulative yield (2003-06) of the three rootstocks was not different in New Jersey, whereas in Massachusetts G.16 out-yielded both B.9 and M.9 during the first four years of bearing.

Yield efficiency in 2006 in Massachusetts was higher for G.16 and B.9 compared to M.9, while in New Jersey, B.9 was the most yield-efficient rootstock this year. Similarly, cumulative yield efficiency gives the edge to B.9 in both states although in New Jersey it did not differ from G.16.

Across both states, fruit harvested in 2006 from M.9 were larger than those from G.16 while B.9 fruit were somewhere between. (Table 1.) Within states, fruit picked from M.9 trees in Massachusetts were significantly larger than both G.16 and B.9, while in New Jersey fruit picked from both M.9 and B.9 were larger than G.16. (Table 3.)

Table 1. Overall tree size, suckers, yield, and fruit size in 2006 of ‘Cameo’ apple trees on three rootstocks in the 2002 MA/NJ NC-140 Cameo Dwarf Rootstock trial.

Rootstock	Trunk cross-sectional area (cm <sup>2</sup> )	Tree height (m)	Tree spread (m)	No. root suckers	Yield per tree (kg)	Cum. yield (2003-06) per tree (kg)	Yield efficiency (kg/cm <sup>2</sup> TCA)	Cum. yield efficiency (2003-06) (kg/cm <sup>2</sup> TCA)	Fruit weight (g)
G.16	26 a	3.1 a	2.5 a	0 b	13.1	41.2 a	0.6 b	2.1 b	215 b
M.9-337	20.8 b	3.1 a	2.3 b	0.7 a	11.1	32.2 b	0.5 b	1.9 b	242 a
B.9	14.9 c	2.6 b	2.1 c	0.2 b	13.9	35.5 b	0.9 a	2.8 a	229 ab

Mean separation within column by Duncan’s MRT ( $P=0.05$ )

Table 2. Tree size and suckers by state in 2006 of ‘Cameo’ apple trees on three rootstocks in the 2002 MA/NJ NC-140 Cameo Dwarf Rootstock trial.

Rootstock	Trunk cross-sectional area (cm <sup>2</sup> )		Tree height (m)		Tree spread (m)		No. root suckers	
	Mass.	New Jersey	Mass.	New Jersey	Mass.	New Jersey	Mass.	New Jersey
G. 16	17.6 a	34.4 a	2.8 a	3.5 a	2.2 a	2.7 a	0 b	0
M.9-337	11.7 b	29.9 a	2.8 a	3.5 a	1.9 b	2.7 a	1.2 a	0.2
B.9	9.8 b	20 b	2.3 b	3 b	1.7 b	2.4 b	0 b	0.3

Mean separation within column by Duncan’s MRT ( $P=0.05$ )

Table 3. Yield and fruit size by state in 2006 of ‘Cameo’ apple trees on three rootstocks in the 2002 MA/NJ NC-140 Cameo Dwarf Rootstock trial.

Rootstock	Yield per tree (kg)		Cum. yield (2003-06) per tree (kg)		Yield efficiency (kg/cm <sup>2</sup> TCA)		Cum. yield efficiency (2003-06) (kg/cm <sup>2</sup> TCA)		Fruit weight (g)	
	Mass.	New Jersey	Mass.	New Jersey	Mass.	New Jersey	Mass.	New Jersey	Mass.	New Jersey
G. 16	12.7 a	13.5 b	32.4 a	49.9	0.7 a	0.4 b	1.5 b	2.6 a	200 b	230 b
M.9-337	5 b	17.3 ab	16.4 c	48.1	0.4 b	0.7 b	1.7 b	2.0 b	227 a	254 a
B.9	6.1 b	21.7 a	22.1 b	50.3	0.6 a	1.1 a	2.6 a	3.0 a	198 b	260 a

Mean separation within column by Duncan’s MRT ( $P=0.05$ )