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# Factsheet

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## 2009 NC-140 Peach Rootstock Trial in Massachusetts

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A number of new peach rootstocks from throughout the world are becoming available to growers in the United States. The NC-140 Rootstock Research Committee has included some newly released and as yet to be released rootstocks in its new trial, planted spring 2009 at several locations in North America. In Massachusetts (at the University of Massachusetts Cold Spring Orchard Research & Education Center in Belchertown), we have one of these trials, including 15 rootstocks (Table 1). Rootstocks vary greatly in their genetic origins and vary in their size-controlling capabilities from the dwarfing Krymsk 1 to the vigorous Viking.

Six of the rootstocks are peaches. Lovell was first selected in the late 1800's in California as a drying peach. Later, the processing companies were the source of seeds to be grown for

rootstocks. It still is produced from Lovell seed, so some variation exist in the genetics of the rootstock. It is the closest thing to a standard among rootstocks used in the U.S. Guardian also is a seedling but from a more controlled cross. Guardian was commercialized because of its ability to experience reduced amounts of peach tree shortlife in the Southeast. HBOK 10 and HBOK 32 are both from the University of California at Davis and are reported to provide some degree of dwarfing. KV010-123 and KV010-127 are from Ralph Scorza's breeding program at USDA's Appalachian Tree-fruit Research Station in Kearneysville, WV.

*Prunus americana* is an American plum selected by Bailey's Nurseries in Newport, Minnesota and has some potential for dwarfing. Penta is a European plum from Italy. It

Table 1. Rootstocks included in the 2009 NC-140 Peach Rootstock Trial planted at the UMass Cold Spring Orchard Research & Education Center. All trees are Redhaven and were planted on May 6 with eight replications.

Rootstock	Genetics	Source	Origin	Vigor (relative to Lovell)
Lovell	Peach	California (1882 selection drying cultivar)	USA -- CA	100%
Guardian	Peach	USDA/Clemson University	USA -- SC	100%
HBOK 10	Peach	University of California Davis	USA -- CA	65%
HBOK 32	Peach	University of California Davis	USA -- CA	65%
KV010-123	Peach	Ralph Scorza, USDA Kearneysville	USA -- WV	?
KV010-127	Peach	Ralph Scorza, USDA Kearneysville	USA -- WV	?
<i>Prunus americana</i>	American Plum	Bailey's Nurseries	USA -- MN	70%
Penta	European Plum	Istituto Sperimentale per la Frutticoltura	Italy	110%
Controller 5	Japanese Plum x Peach	University of California Davis	USA -- CA	65%
Krymsk 86	Myroblan Plum x Peach	Krymsk Breeding & Research Station	Russia	100%
Krymsk 1	Nanking Cherry x Myroblan Plum	Krymsk Breeding & Research Station	Russia	60%
Bright's Hybrid #5	Almond x Peach	Bright's Nursery	USA -- CA	100%
Mirobac	Myroblan Plum x Almond	Agromillora Catalana	Spain	?
Atlas	Peach x Almond x Flowering Plum	Zaiger's Genetics	USA -- CA	110%
Viking	Peach x Almond x Flowering Plum	Zaiger's Genetics	USA -- CA	110%

Table 2. Trunk size and growth of Redhaven peach trees at the end of the 2009 growing season in the Massachusetts planting of the 2009 NC-140 Peach Rootstock Trial.<sup>2</sup>

Rootstock	Trunk cross-sectional area (cm <sup>2</sup> )		Incremental growth in 2009	
	At planting	End of season	cm <sup>2</sup>	%
Atlas	1.1 defg	6.4 ab	5.3 abc	503 b
Brights Hybrid #5	1.2 defg	6.1 abc	4.9 bc	415 bc
Controller 5	1.1 defg	1.9 d	0.9 d	87 e
Guardian	0.9 fg	7.8 a	6.9 a	793 a
HBOK 10	1.4 def	7.0 ab	5.6 ab	401 bcd
HBOK 32	1.6 cd	7.4 ab	5.8 ab	355 bcd
KV010-123	1.2 defg	6.2 abc	5.0 abc	422 bc
KV010-127	1.1 defg	6.0 abc	5.0 abc	470 b
Krymsk 1	0.8 g	4.1 cd	3.3 c	413 bcd
Krymsk 86	1.0 efg	5.4 bc	4.4 bc	474 b
Lovell	1.0 efg	6.0 abc	5.0 abc	542 b
Mirobac	1.5 de	7.2 ab	5.7 ab	375 bcd
<i>Prunus americana</i>	3.2 a	7.6 a	4.4 bc	143 e
Penta	2.7 ab	7.9 a	5.3 ab	220 de
Viking	2.2 bc	7.7 a	5.5 ab	256 cde

<sup>2</sup>Mean within a column not followed by a common letter are significantly different at odds of 19 to 1.

produces a vigorous tree which may be tolerant of wet, heavy soils. Controller 5, from the UC Davis breeding program is a Japanese plum x peach cross and provides dwarfing. The Krymsk Breeding & Research Station in Russia released both Krymsk 1, a nanking cherry x myrobolan plum cross, and Krymsk 86, a myrobolan plum x peach cross. Both may be able to tolerate particularly cold climates and heavy, wet soils. Krymsk 1 may provide some dwarfing.

Bright's Hybrid #5, an almond x peach hybrid from Bright's Nursery in California, produces a vigorous tree. The dwarfing capability of Mirobac is uncertain. This myrobolan

plum x almond cross is from Spain. Atlas and Viking produce vigorous trees. Both are peach x almond x flowering plum crosses from Zaiger's Genetics in California.

In the first growing season, trees on Guardian grew the most vigorously, and those on Controller 5, *Prunus americana*, Penta, and Viking were the least vigorous (Table 2). Obviously, several additional years of observation will be required to be confident of vigor differences caused by these rootstocks.

These trees will be grown under commercial conditions for the next 10 seasons. Tree size, fruiting, and survivability will be the primary observations during this time.

		Planted 5/6/09							
		NORTH				Spacing 13.1 x 16.4 ft			
		Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8
		Controller 5	Controller 5	Bright's Hybrid 5	Controller 5	Controller 5	Bright's Hybrid 5	Controller 5	Controller 5
jersey peach	KV010-123	Krymsk 1	Guardian	Lovell	Krymsk86	Krymsk 1	KV010-127	Krymsk86	
	Mirobac	Controller 5	Atlas	Guardian	P.americana	Atlas	Mirobac	Lovell	
	HBOK 10	HBOK 10	Mirobac	Krymsk 1	HBOK 32	Penta	Lovell	Viking	
	KV010-127	Bright's Hybrid 5	Bright's Hybrid 5	Penta	Viking	HBOK 32	Atlas	Controller 5	
	Penta	Atlas	KV010-123	Mirobac	Bright's Hybrid 5	Controller 5	HBOK 32	Bright's Hybrid 5	
	Bright's Hybrid 5	Krymsk86	HBOK 32	HBOK 10	Atlas	HBOK 10	KV010-123	KV010-127	
	Guardian	Penta	Krymsk86	Viking	KV010-123	Lovell	Guardian	HBOK 10	
	Krymsk 1	HBOK 32	Krymsk 1	KV010-127	Controller 5	Viking	Controller 5	Guardian	
	Controller 5	Viking	Lovell	P.americana	Lovell	Krymsk86	HBOK 10	Krymsk 1	
	Lovell	Guardian	HBOK 10	Bright's Hybrid 5	Mirobac	P.americana	Viking	KV010-123	
	Krymsk86	KV010-127	Viking	HBOK 32	Krymsk 1	Mirobac	Krymsk 1	Atlas	
	Atlas	P.americana	Controller 5	Atlas	KV010-127	Bright's Hybrid 5	P.americana	Penta	
	P. americana	Mirobac	P.americana	KV010-123	HBOK 10	KV010-123	Bright's Hybrid 5	Mirobac	
	HBOK 32	Lovell	KV010-127	Krymsk86	Guardian	KV010-127	Krymsk86	HBOK 32	
Viking	KV010-123	Penta	Controller 5	Penta	Guardian	Penta	P.americana		
	Controller 5	Bright's Hybrid 5	Controller 5	Controller 5	Controller 5	Bright's Hybrid 5	Controller 5		

SOUTH

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