

# Rootstocks offered for residential apple trees

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Rootstock	Size	Main Traits
Seedling	Vigorous	Seedling is a standard against the vigor of other rootstocks is measured. The size is designated as 100%.
M.9 EMLA	Dwarf	35% to 45% of a standard. EMLA indicates that the rootstock has been cleaned from viruses. It is precocious and productive. Extremely sensitive to fire blight. Tolerant to collar and rot rots and Armillaria.
Bud.9	Dwarf	35% to 45% of a standard. Very winter-hardy. Tolerates extremely low winter temperatures. Very precocious, high yielding capacity. Compatible with most cultivars. It is susceptible to collar rot, moderately tolerant to fire blight and powdery mildew.
NIC 29	Dwarf	40% to 45% of a standard. Stronger root system than M.9 EMLA and higher yielding capacity. Suckers profusely.
G.41	Dwarf	40% to 45% of a standard. Winter-hardy. It is highly tolerant to fire blight, collar and root rot, woolly apple aphids and replant disease. It is very precocious and productive. Fruit size is excellent. Trees on G.41 require support, trellis or individual tree support and irrigation on light soils.
G.11	Dwarf	45% to 50% of a standard. Winter-hardy. Shows moderately high tolerance to fire blight and good resistance to collar and root rot but there is no resistance to woolly apple aphids. Requires support and irrigation on light soils.
G.935	Semi-dwarf	45% to 55% of a standard. It shows good winter-hardiness. It is precocious, very good crop efficiency and fruit size, like in M.9. Highly tolerant to fire blight and collar and root rot, but sensitive to woolly apple aphids.
G.202	Semi-dwarf	50% to 55% of a standard. It has very good resistance to fire blight, collar and root rot, and woolly apple aphids.
G.890	Semi-dwarf	60% to 65% of a standard, about the size of M.7. It is very precocious and highly productive.
G.969	Semi-dwarf	60% to 65% of its size or about the size of M.7. Winter-hardy. Good yielding potential. It has low suckering and burr knot potential. Highly tolerant to fire blight, collar rot and woolly apple aphids.

<b>Rootstock</b>	<b>Size</b>	<b>Main Traits</b>
<b>Bud.118</b>	Semi-dwarf	75% to 85% of a standard. Extremely winter-hardy. It is very precocious and very productive with a good fruit size. Adopted to variety of soils. It has high tolerance to collar and root rot. Tolerance to fire blight is yet to be determined.
<b>MM.111 EMLA</b>	Semi-dwarf	85% to 90% of standard. It is a self-standing tree. Slow to get into fruit production. It takes seven years before it reaches full production. Moderately productive once established. It is highly tolerant to collar rot and woolly apple aphids. Well adopted to various types of soils.
<b>MM.106</b>	Semi-dwarf	60% to 75% of a standard. Trees on MM.106 are well anchored; does not require support. It is widely compatible. It is precocious and productive. It is highly susceptible to root rot and collar rot; does not tolerate poor drainage. It does not sucker. Moderately tolerant to woolly apple aphids, moderately tolerant to fire blight and highly tolerant to Armillaria spp. Cultivars grafted on this rootstock grow late in a season and go into dormancy very slowly resulting in heightened susceptibility to cold injury.
<b>M.7 EMLA</b>	Semi-dwarf	M.7 infected with viruses is about 60% to 65% of a standard. Virus-free material is more vigorous, more like MM.111 or 80% to 90% of a standard. It is widely compatible with different cultivars. Tolerates wide range of soils, but it should not be planted in heavy clay. Susceptible to collar and root rot, highly tolerant to Armillaria sp. and has good tolerance to fire blight. It is shallow-rooted rootstock and needs support, particularly on heavy soils and windy sites. Will tip over without support. Suckers profusely. It is not precocious. It is moderately productive once established.

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