

Choosing the Right Rootstocks for SnapDragon and RubyFrost

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SnapDragon is a very precocious and weak growing scion similar to and often weaker than its 'Honeycrisp' parent. SnapDragon's ability to set a heavy crop load in years two and three coupled with its low vigor can challenge your need to fill the tree spacing while producing marketable fruit. SnapDragon blooms slightly ahead of 'Honeycrisp', ahead of 'RubyFrost' and overlapping with 'Empire'. SnapDragon will do best at close spacings (3ft) using the more vigorous M.9 clones (Pajam 2, Nic 29), or G.41 (comparable to the large M.9 clones, fire blight resistant). G.41 will be especially useful when orchards are replanted on old orchard sites. An additional option is G.935 for weaker soils or where growers prefer slightly wider spacings of 4ft. **RubyFrost** is a very precocious, moderate vigor scion with potential for high yields of large size fruit. RubyFrost is more vigorous than SnapDragon but not as vigorous as McIntosh. This cultivar has performed well at either 3 or 4 feet spacings using the weaker clone of M.9 (M.9T337). It will also do well with B.9 or the fire blight resistant G.11 rootstock. If trees will be planted on replanted soil then G.41 will be an excellent choice.

The following list is a brief review of the most promising Cornell Geneva rootstocks. **Geneva® 214:** It is a super-dwarf Geneva® apple rootstock. It was released in 2010. It has excellent stoolbed propagation characteristics which may make it easier to introduce quickly. **Geneva® 969:** It is a new semi-dwarf Geneva® apple rootstock. It was released in 2010. It has excellent stoolbed propagation characteristics which may make it easier to introduce quickly. It performs well in northern climates and is free standing. It may be an excellent stock for weak growing cultivars in northern climates like Honeycrisp and MN1914. **Geneva® 890:** It is a new semi-vigorous Geneva® apple rootstock. It was released in 2010. It has excellent stoolbed propagation characteristic, is free standing, precocious and productive. It is intended for the processing orchards of NY, PA, VA, NC and MI. **Geneva® 11:** It is fire blight resistant but is not immune. It also has good resistance to *Phytophthora* root rot, but it is not resistant to woolly apple aphids or apple replant disease. G.11 has good layerbed and nursery characteristics. It is proving to be an excellent replacement for M.9. **Geneva® 41:** It is the most efficient and top performer Geneva® apple dwarf rootstock in our trials. It has excellent fruit size and induces wide branch angles. It is highly resistant to fire blight and is also resistant to *Phytophthora* and woolly apple aphids. It appears to have some tolerance of apple replant disease and has good winter hardiness and appears to have less tendency for biennial bearing with Honeycrisp than other stocks. In the stoolbed, G.41 is a shy rooter and requires specialized rooting. **Geneva® 935:** It is similar in size to M.26 but is more productive. It induces wide branch angles, is highly resistant to fire blight and *Phytophthora*, and appears to have some tolerance of apple replant disease. It also appears to be very winter hardy, but it is not resistant to woolly apple aphid. Fruit size has been slightly smaller than M.9. It is an excellent new rootstock for weak growing cultivars like spur-type 'Delicious', 'Honeycrisp' 'Sweet Tango' or 'NY1'.

Production and Availability of Cornell Geneva Rootstocks. G.11: Its production in 2010 was about 175,000 liners. Substantial new stoolbeds have been planted which should increase production to 300,000 liners in 2011 and 800,000 liners in 2012. **G.41:** Its production in 2010 was only 10,000 liners. Substantial new stoolbeds have been planted which should increase

production to 100,000 liners in 2011 and 300,000 liners in 2012. G.935: Its production in 2010 was only 30,000 liners. Substantial new stoolbeds have been planted which should increase production to 100,000 liners in 2011 and 300,000 liners in 2012.

Table 1. Summary of rootstocks and spacing recommendations for new Cornell apple varieties

Apple cultivar	Recommended Spacing	Recommended Rootstocks	Other considerations
SnapDragon Honeycrisp Delicious, Empire Idared, Jonamac	3ft X 12ft	M.9 Pajam 2 M.9 Nic 29 G.935 G.41	<ul style="list-style-type: none"> • Virgin soils • Fertile soils
RubyFrost Gala, Fuji, Golden Delicious	3-4ft X 12ft	M.9 (T337) B.9 G.11	<ul style="list-style-type: none"> • Weak soils • Low soil fertility • Replanting conditions