



# Great Lakes Fruit, Vegetable & Farm Market EXPO Michigan Greenhouse Growers EXPO

December 10-12, 2019

DeVos Place Convention Center, Grand Rapids, MI



## Tree Fruit Rootstocks

**Moderator:** Amy Irish-Brown, Michigan State University

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|----------|---|
| 9:00 am  | Cherry Rootstocks <ul style="list-style-type: none"><li>• Dr. Amy Iezzoni, Michigan State University Department of Horticulture</li><li>• Gregory Lang, Michigan State University Horticulture Department</li></ul> |
| 9:20 am  | Peach and Other Stone Fruit Rootstocks <ul style="list-style-type: none"><li>• Bill Shane, Michigan State University</li></ul>  |
| 9:40 am  | Apple Rootstocks <ul style="list-style-type: none"><li>• Philip Schwallier, Michigan State University Extension</li><li>• Dr. Todd Einhorn, Michigan State University Department of Horticulture</li></ul>          |
| 10:00 am | Pear Rootstocks <ul style="list-style-type: none"><li>• Dr. Todd Einhorn, Michigan State University Department of Horticulture</li></ul>  |
| 10:20 am | Replant Considerations <ul style="list-style-type: none"><li>• Dr. Julianna Wilson, Michigan State University Department of Entomology</li></ul>  |
| 10:30 am | Discussion  |

## PEACH AND OTHER STONE FRUIT ROOTSTOCKS

Bill Shane

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The need for better rootstock for peach, plum, and apricot for the Michigan and similar climates is well recognized. Challenges for the Michigan peach industry has been the lack of a good dwarfing rootstock for peach with hardiness, compatibility, and resistance to common soil-borne pathogens and nematodes.

Peach rootstock is grown from seed or from vegetative propagation. For peaches and nectarine, the general rootstock recommendation for many years has been seedling rootstock of Bailey, Lovell, Halford, and Tennessee Natural. The rootstocks Chui Lum Tao, and Tzim Pee Tao from the Canadian Harrow breeding program of Richard Layne have been tried but have not offered any significant advantage over the standards. Use of Nemaguard, Siberian C, and Citation rootstocks for the mid central to northeastern United States is generally not recommended due to tree hardiness problems.

Bailey is maintained by some nurseries as the preferred seedling rootstock for the mid-central and northeastern US. It is an old selection from Iowa in the early 1900s. Bailey is a very hardy peach which produces late ripening, small, mealy, white-fleshed, freestone fruits. Pits generally germinate readily and are compatible with peach and nectarine. Cultivars budded to Bailey seedlings develop into uniform trees that are medium to large in size. Fair to decent root lesion nematode resistance, has shown some slight suckering tendency, good seedling uniformity, medium vigor is slightly less than Lovell, relatively good cold hardiness.

Lovell is a processing peach from the 1880s that has been used extensively over the years as a peach rootstock, especially in the southeast due to its moderate resistance to peach tree short life. It is slightly more vigorous than Bailey and like Bailey is susceptible to root lesion and rootknot nematodes. Red-leaf strains of Lovell are available. It is generally considered a bit less reliable than Bailey for Michigan growing conditions.

Tennessee Natural is commonly used by southeastern nurseries. Several seedling selections are available including 281-1 and Starks Redleaf Seedling, both with vigor like Lovell. Hardiness and productivity under Michigan conditions have generally been good.

Other older rootstock used occasionally in Michigan include Halford, a lower vigor canning clingstone type and Rutgers Redleaf, both considered generally satisfactory as a rootstock for Michigan conditions but offering no advantage over Bailey and Lovell.

Pumiselect is a dwarfing rootstock that can result in a very small tree in sandy conditions. Trees are shallow rooted and tend to tip during windstorms.

Guardian is a newer rootstock developed for the SE United States to combat peach short life problems common in this region. Guardian has performed generally okay so far in Michigan, but we have only limited experience. Vigor is generally greater than Lovell, and no compatibility problems have been

reported for peach and nectarine. There are a few observations that indicate winter hardiness problems in a Michigan-type climate. So far this rootstock has not offered any advantage for the Michigan grower.

#### New rootstock under test

M-29 is an interspecific peach-plum hybrid clonal rootstock developed by the USDA program in Byron, GA. MP-29 was selected for resistance to Armillaria root rot and peach tree short life, common problems in the SE United States. Initial tests show dwarfing effects as rootstock, approximately 70% of Guardian. Very little information is available for the Michigan climate. The rootstock has a tendency to lean in the budding nursery, which is annoying at budding time.

Krymsk 1 (VVA-1) is a Nanking cherry x myrobalan plum clonal rootstock cross developed in Russia. It is compatible with peach and plum. It is a very dwarfing and has a tendency to have rootsuckers. Initial tests at SWMREC have not been promising.

Krymsk 86 (Kuban 86) is a myrobalan plum x peach hybrid with vigor similar to Lovell. It is reputed to be susceptible to root-lesion and ring nematode and very susceptible to rootknot nematode. We have about eight years of experience with Krymsk 86 in Michigan. Use of this rootstock for peach has been on the upswing by western nurseries due to its popularity as an almond rootstock, and as peach rootstock for the western growing areas having heavy soils with high pH, especially on replant sites.

Controller 5, 7 and 8 are from the University of California. Controller 5 is an interspecific peach-plum hybrid and is very dwarfing. Studies indicate that fruit from Controller 5 trees tend to be somewhat smaller. Controller 7 and 8 are of peach origin from Harrow Blood x Okinawa cross. Both 7 and 8 are semi-dwarf rootstock, about 70% of Lovell, reportedly with little or no suckering, good anchorage, and with some tolerance to nematode problems.

#### References

Reighard, G. L. 2005. Stone Fruit Rootstocks: Current status and overview for the future. New York Fruit Quarterly 13:21-24.