NSW GOVERNMENT
Department of Primary Industries
primefact

Swingle citrumelo

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NSW DPI Citrus Team

Advantages

- ✓ *Phytophthora* resistant
- ✓ drought tolerant
- ✓ nematode resistant
- ✓ tristeza tolerant
- ✓ cold tolerant
- ✓ highly polyembryonic

Disadvantages

- X dislikes high pH soil
- X dislikes clay soil
- X sensitive to salinity and waterlogging
- X sensitive to calcareous soils
- X overgrows orange scions

Origin

A hybrid of Duncan grapefruit and Poncirus trifoliata produced in 1907 in Florida and released by the United States Department of Agriculture in 1974. Several introductions of Swingle citrumelo have been made into Australia, where it is a relatively new rootstock that has rapidly increased in popularity.

Tolerance to environmental and soil conditions

Swingle citrumelo is sensitive to high chloride levels in soil and irrigation water but is more salt tolerant than other trifoliate hybrids such as Carrizo and Troyer citranges. Swingle is sensitive to high pH soils and is unsuitable for highly calcareous soils. Trees on Swingle show chlorosis problems on highly calcareous soils. Soils with a clay content greater than 25–30% might restrict root growth. Swingle is unsuitable for heavy clay soils and is also sensitive to over-watering. Swingle has moderate drought tolerance and is highly cold tolerant.

Pest and disease

Swingle citrumelo has some resistance to Phytophthora root and collar rots but is less resistant than Poncirus trifoliata. Tolerant of citrus nematode. Trees have good tolerance to citrus tristeza virus (CTV). Trees propagated on Swingle citrumelo are susceptible to exocortis (scalybutt). Budwood for propagation should be obtained from the Auscitrus propagation scheme to ensure freedom from citrus exocortis viroid (CEV).

Field performance

Phytophthora and nematode tolerance of Swingle citrumelo makes it suitable for replant sites. Trees grown on Swingle are vigorous,

large and produce intermediate to high yields depending on cultivar. High early yields with navel oranges have been reported in southern Australia. In Queensland growing conditions, Washington navel trees on Swingle had 50% less yield than trees on Troyer citrange. Ability to hold fruit on the tree is good. Other anecdotal evidence suggests less albedo breakdown of Navelina on Swingle citrumelo compared to Troyer and Carrizo citranges.

Nursery performance

Vigorous nursery stock that is highly nucellar. Seedlings require slightly higher rate of culling than Troyer and Carrizo citranges.

Fruit quality

The predominant experience with Swingle citrumelo in southern Australia has been with navel oranges in replant sites over the last 10 years. Navel trees on Swingle have produced medium to large sized fruit with a smooth, thin rind. Washington navel fruit grown on Swingle in Queensland are poor quality. Swingle rootstock produces fruit with high juice and soluble solids content and mid-range acidity. Fruit matures mid-late season and rind colour development of navel oranges on Swingle is delayed. Swingle might not be a good choice for early season navel oranges due to its late maturing characteristics.

Scion compatibility

Swingle citrumelo is a superior rootstock for grapefruit producing high yields of large, excellent quality fruit with high juice content. There is some anecdotal evidence in southern Australia of a yellow ring at the bud union with some navel orange scions. Swingle tends to overgrow most orange scion cultivars. Valencia yields on Swingle are moderate. Swingle is incompatible with Eureka lemon and is not recommended for Imperial mandarin due to cincturing and overgrowth at the bud union. It is incompatible with Meyer lemon. Swingle has been used as a rootstock for Murcott tangor in Queensland.

Extent of plantings

Swingle citrumelo has rapidly increased in popularity over the last 10 years in Australia and now accounts for 10% of Auscitrus rootstock seed sales. Only Troyer citrange, Carrizo citrange and Poncirus trifoliata are currently more popular than Swingle citrumelo. Demand for Swingle seed is expected to increase over the next 10 years.

Overseas experience

Orange trees on Swingle in Florida have declined as early as 6 years of age in soils with restrictive layers that limit vertical root development and lead to perched water tables. Experience in Spain indicates that Swingle has good tolerance to soil waterlogging. Swingle is tolerant of blight and stubby root nematode in Florida but these are not major problems in Australia. Minneola tangelo is reported to produce good fruit quality on Swingle citrumelo in Florida. Around 50% of all trees propagated in Florida are on Swingle citrumelo.

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