

Avocado Rootstocks

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Subtropical Horticulture

Rootstocks in California

- Commercial avocados are not grown from seedlings...all are grafted onto rootstocks that have been selected for some characteristic
- In California, all rootstocks are from the Mexican or Guatemalan race, the West Indian is too sensitive to cold
- Most rootstocks are 'Topa-Topa' or 'Zutano' because they germinate uniformly in the nursery and provide thick stems for tip-grafting
- Both are susceptible to root-rot fungus and salinity

The Program to Select a Rootstock

- Started by Dr. George Zentmyer at UC Riverside in the early 1950's
- Screened seed from Central America and Mexico, collected seed from 'escape' trees in California
- Starting in 1990 Dr. John Menge crossed these trees in 'isolation' blocks and tested these seed
- Duke 7, G 1033, G6, G755, Barr Duke, Thomas, Zentmyer and breeding material for the future
- Imported Dusa from S. Africa

What about other Horticultural Characteristics?

- High yield, salt tolerance etc?
- G755 was highly tolerant to root rot, but gave the Hass top almost no production in the first five years, very little after that
- Now we are testing salt-tolerant West Indian selections from Israel, and Dusa looks good for salt-tolerance and root rot tolerance
- See Table 1 (p. 47) - Characteristics

Things to do to Assure Success During Replanting

- Drench the root-ball with a solution of buffered phosphorous acid, plant in a mound to increase drainage, mulch with wood chips, apply gypsum (calcium sulfate)
- Water correctly (can be tricky!)

Cloning Rootstocks

- Root rot tolerance usually does not pass through to the seedling from the mother tree
- Avocado cuttings will not root
- **Cloning process:** budwood from Duke 7 is grafted onto a seedling rootstock
- After 6-8 weeks, young plant is placed into a dark greenhouse for 10 days
- Etiolation of young shoot occurs, rooting hormone applied to young shoot, re-potted so bottom of Duke 7 is buried, placed into light
- Hass grafted onto Duke 7
- Constriction ring placed around Duke 7 to eventually constrict off roots

Highest Yielding Rootstocks

- See Figure 1, p. 49
- Borchard and Duke 7 highest yielding
- G755, Thomas, G1033 lowest yielding
- Dusa was not included in the trial

Somatic Hybrids

- Embryos can be created on a Petri plate, but have not been brought back into a plant