

HORTICULTURAL CHARACTERISTICS OF HASS AVOCADO ON COMMERCIAL CLONAL AND SEEDLING ROOTSTOCKS

A-171

Larry S. Rose

Brokaw Nursery, Inc. 4818 Lirio Avenue, Saticoy, California 93007, USA. E-mail:
larry@brokawnursery.com

Clonal avocado rootstocks have been commercially planted in California since 1977. By 1981 clonal rootstocks predominated commercial plantings. Through the 1990s, 95% of trees sold by Brokaw Nursery were on clonal rootstocks. In spite of a 50% price premium of clonal trees versus trees on Mexican seedling rootstocks, avocado growers recognized the potential of various clonal rootstocks for greater productivity, uniformity and benefits of adaptability to soil stress factors. During this current boom of avocado planting in California, nurseries are supplying trees for at least 3,500 new acres per year, with clonal trees representing approximately 75% of that market.

Growing avocados in arid Southern California is never as simple as dealing with a single stress factor. Typically *Phytophthora cinnamomi* infested soils can lack important aeration due to finely textured soils, poor soil structure or impervious layers in the soil profile. Heavy winter rains on cold soils can compound the problems of soil saturation and root asphyxiation. Faced with these factors rootstock selection has generally been limited to Mexican race cultivars due to their adaptability to poor aeration and cold winter temperatures. However, Mexican rootstocks are generally highly sensitive to chloride and sodium toxicity thereby complicating planting choices where poor drainage precludes leaching of salts. Although initial clonal rootstocks were selected for tolerance to *Phytophthora cinnamomi*, they also demonstrated consistent growth and canopy uniformity. In addition to tolerance of *P. cinnamomi*, some cultivars also possess resistance to other fungal diseases, reduced absorption of salts and resistance to lime-induced chlorosis. Most importantly, select clonal rootstocks have greater fruit productivity when grafted to the Hass fruiting cultivar.

Over the years, the formal research and screening of potential commercial rootstocks in California has been broadened from its focus on *P. cinnamomi* to include tolerance to other diseases, salinity, tree size, productivity and a tendency to begin bearing early in the life of the tree. However, field experience with trees on clonal rootstocks ultimately defines the range of tolerance to soil stress factors inherent in various cultivars, their benefits and limitations. No commercial clonal rootstock today is perfect for all situations but since clonal rootstocks have come to dominate orchard plantings in California, growers and nurseries alike have come to a better understanding of custom-selection of the best rootstock cultivar for each situation.