

Pollination of the Hass Avocado Cultivar

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Abstract. The prevailing opinion has been that the Hass cultivar does not need a pollinator. However, trials in 3 different orchards planted purely to 'Hass' next to an orchard of 'Ettinger' showed during 4 years a significant yield increase with trees closer to that of 'Ettinger'. This effect was significant on trees up to 18 m, and it became less as distance increased. The 'Hass' rows bordering 'Ettinger' produced 17 to 20 tons/ha annually. At a distance of 50 meters, the yield decreased to a level of 8 to 10 tons/ha. Beyond 50 m from 'Ettinger', the yield decreased to 5 tons/ha. This effect was observed in all three orchards for all years. In order to confirm the pollination effect of 'Ettinger' on 'Hass', isoenzymatic analysis was carried out. The findings showed a definite cross-pollination with 90% of the 'Hass' fruit being generated from pollination by 'Ettinger' during 3 years. With the objective of finding not only a better 'Hass' pollinator, we started to carry out field trials. Laboratory analysis conducted in the Volcani Center by Professor Shmuel Gazit and Dr. Chemda Degani showed pollination effects from 'Navel', 'Reed', '0028', and 'Horshim' on 'Hass' yields, but less effect than on 'Ettinger'. These analyses proved the weakness of 'Hass' as a self-pollinator. The trials started in 1987 by grafting pollinator cultivars at a rate of one pollinator tree in the center of 36 'Hass' trees arranged in 3 concentric circles. The trials are being carried out in 8 different orchards representing a wide range of climatic conditions. The orchards are at Nachshon, Guivat-Brener, Zikim, Mishmar David, Yavneh, and M. Itzchak. The pollinators include 'Semil 43', 'Teeg', and 'Day' (West Indian cultivars); 'Gwen' and 'Whitsell' (University of California/Professor Bergh cultivars); '12/15' (Israeli cultivar); and 'Ettinger' and 'Hass' as controls. Thanks to the previous orchard planting by the author as one-cultivar blocks, it is possible to carry out these trials according to the described model. The research is being carried out in 10 'Hass' blocks each. The first findings were obtained in 1989 as weights of fruit from each tree, fruit size measurements, and isoenzymatic tests.

Similar experiments were begun in 1988 with the pollinator 'Ardith' (OA28) and in 1990, 'Ettinger' and 'Reed'. The pollination trial on 'Fuerte' begun in 1984 will end in 1991. The tested pollinators for 'Fuerte' include 'Ettinger', 'Topa-Topa', 'Semil 43', 'Pinkerton', 'Teeg', and 'Gwen'. The Topa-Topa and 'Teeg' cultivars as pollinators show a clear-cut advantage in comparison to the others.