EFFECT OF THE DISTANCE BETWEEN TWO COMPLEMENTARY AVOCADO CULTIVARS ON OUTCROSSING RATE IN SOUTHERN SPAIN

M.Librada Alcaraz and J.I. Hormaza
Estación Experimental la Mayora – CSIC. 29750 Algarrobo-Costa, Málaga, España.

Outcrossing rate has been estimated with microsatellite markers in two experimental avocado plots where 'Hass' and 'Fuerte' trees are planted at different distances. Both cultivars are clearly distinguishable using some selected microsatéllite loci. Thus, using just a single microsatéllite, AVAG21, it was possible to distinguish the fruits derived from self and cross fertilization. In the first experimental plot, a monovarietal 'Hass' orchard is planted contiguously to a monovarietal 'Fuerte' orchard. The outcrossing rate was determined at harvest time on several 'Hass' trees situated in rows at different distances from the 'Fuerte' orchard during two consecutive years (2005 and 2006). The outcrossing rate ranged from 0.24 to 0.75 with and average of 0.50. The outcrossing rate decreased significantly from the first row (nearest to the pollen source) to the rest of the rows. Regarding yield, a significant decrease was recorded while increasing distance between both complementary cultivars. Moreover, the paternity of abscised fruits was weekly recorded from June to harvest. In the two months following the blooming season, a high abscission of small fruits was recorded and most of them resulted from self-fertilization. In the following months, both self and cross-fertilized fruits abscised. In the second experimental plot, 'Hass' and 'Fuerte' trees are interplanted in the same orchard. In this case, outcrossing rate was evaluated in both cultivars. The outcrossing rate was higher in 'Hass' (ranging from 0.58 to 0.90) than in 'Fuerte' (ranging from 0.14 to 0.45). The results are discussed in terms of their implications for avocado production in Southeast Spain.