

P35- Reproductive biology in cultivars 'Abate Fetel' and 'Williams': characterization of the compatibility and parthenocarpic capacity

Carolina Fasiolo, Instituto Nacional de Investigación Agropecuaria, Ruta 48 km 10, Las Piedras 90200, Uruguay; cfasiolo@inia.org.uy

Roberto Zoppolo, Instituto Nacional de Investigación Agropecuaria, Ruta 48 km 10, Las Piedras, Uruguay; rzoppolo@inia.org.uy

Alfredo Gravina, Garzón 780, Montevideo, Uruguay; agravina@fagro.edu.uy

Danilo Cabrera, Instituto Nacional de Investigación Agropecuaria, Ruta 48 km 10, Las Piedras, Uruguay; dcabrera@inia.org.uy

Pear (*Pyrus communis*) tends to have erratic productions in Uruguay, presenting self-incompatibility and floral inter-compatibility, with an estimated important role of parthenocarpy in Williams. Causes of variability in production are numerous, being the variation of rate in pollination a determining factor. The objective of this work was to characterize reproductive biology and evaluate genetic compatibility of cultivars 'Abate Fetel' and 'Williams' with other pollen sources, for Uruguayan agroclimatic conditions. Flowers of each cultivar were analyzed starting when sepals opened and flower petals were closed and visible (E2 according to Fleckinger). In 'Abate Fetel', 60 flowers were bagged with a mesh (self-pollinated), 60 were emasculated and bagged (unpollinated), and another 120 were emasculated, manually pollinated and then bagged (cross-pollinated). Pollen from BP1 rootstock (*Pyrus communis*) was used for 60 flowers, and 'Early Bon Chretien' was pollinator for the other sixty. In 'Williams' the pollinator was 'Packam's Triumph'. Simultaneously, flowers of each treatment were sampled at 2, 4, and 6 days after treatment application and fixed in formaldehyde-acetic acid (FAA), to study the germination of pollen grains and pollen tube growth. This was observed in a fluorescence microscope with ultraviolet light after staining with aniline blue. In the field, fruit set was evaluated biweekly starting at petal fall; and at harvest the presence of seeds and the size of fruits was determined. The results allowed to confirm that 'Abate Fetel' presents self-incompatibility of the gametophytic type, stopping the growth of its pollen tube halfway through the style. For this cultivar, treatments of self-pollinated and unpollinated flowers resulted in 0% fruit set evaluated 30 days after treatment application. Manual pollination (cross-pollinated) achieved 58% (BP1) and 76% (Early Bon Chretien) of fruit set. In 'Williams' the treatment of self-pollinated and unpollinated, resulted in 13% and 14% fruit set respectively, while cross-pollinated flowers reached 40%.

Keywords: self-incompatibility, fruit set, pollination, *Pyrus communis*