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POSTER - A joint Laimburg – FEM molecular markers project for apple fruit quality traits using the Pedigree Based Analysis strategy

Corresponding author: Lidia.Lozano-Luis@provinz.bz.it

Lidia Lozano¹, Mario Di Guardo², W. Eric van de Weg³, Marco C.A. M. Bink⁴, Ricardo Velasco²,
Fabrizio Costa², Walter Guerra¹.

¹ Research Centre for Agriculture and Forestry Laimburg, Posta Ora – 39040 Vadena (BZ), Italy

² Department of Genetics and Biology of Fruit Crops, Research and Innovation Centre, Fondazione Edmund Mach, Via Mach 1, 38010 Trento, Italy

³ Plant Breeding, Wageningen UR, Droevendaalsesteeg 1, P.O. Box 16, 6700 AA Wageningen, The Netherlands

⁴ Biometris, Wageningen UR, Droevendaalsesteeg 1, P.O. Box 16, 6700 AA Wageningen, The Netherlands

Abstract: In apple breeding fruit quality is a crucial aspect to guarantee commercial success of new varieties. Among the several quality attributes, individual sugars and acid components, as well as texture, are considered important features due to their significant contribution to sensory quality and consumer's acceptance. In traditional breeding, selection for these particular traits is a very time consuming process, due to the long unproductive juvenile phase of seedlings. This step can be assisted by the use of molecular markers, an important diagnostic tool useful to anticipate and assist the identification of novel apple varieties characterized by superior fruit quality. However, the routinely implementation of molecular markers in breeding programs is still limited.

In this study a new approach named Pedigree Based Analysis will be used on six full-sib progenies and their pedigree (15 varieties), in order to target the main set of QTLs related to acid and sugar components and texture. This strategy will allow the identification of most favourable alleles present in the breeding activities of both Italian institutes. In this investigation phenotyping will be focused on individual sugars and acid components, assessed through HPLC technique, and texture, acquiring both mechanical and acoustic profiles with high resolution equipment.

The ultimate goal of the Laimburg – FEM joint project is the identification and validation of molecular markers as a suitable tool for Marker Assisted Breeding in the two on-going apple breeding programs.