

## The Use of Wild Species for Increasing Apple Diversity and Genetic Found

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### SUMMARY

In order to enlarge genetic diversity and increase the possibility to exploit useful variability for selecting new valuable apple genotypes, including resistance to apple scab (*Venturia inaequalis*) and powdery mildew attack (*Podosphaera leucotricha*), interspecific pollination was made. Consequently, five wild crab-apple species (*Malus coronaria*, *M. floribunda*, *M. niedzwetzkyana*, *M. zumi* and *M. prunifolia*) were crossed with several apple cultivars, including well-known ones like 'Jonathan' and 'Golden Delicious'. 1650 F<sub>1</sub> hybrids of these combinations were studied, from which 53 elite were selected, on the base of acceptable quality of fruits for dessert apple; therefore, on the data mentioned, the intensity of selection was of only 2.42% (Sestras *et al.*, 2010). Part of the elites were open pollinated on the hybrid field (intercross among all F<sub>1</sub> interspecific hybrids), while the others were artificial pollinated with valuable genitors, including 'Prima', 'Rosu de Cluj', 'Ancuta' in a "backcross modified" pattern, to obtain F<sub>2</sub> generation and apply recurrent selection (Crosby *et al.*, 1992; Janick, 2002; Oraguzie, 2003). Inside the F<sub>2</sub> generation, represented by 1400 hybrids, the chances for identifying ornamental selections were higher likely elites to become dessert cultivars. Selection intensity was 2.7% for dessert selections and 5.9% for the ornamental ones. While some elites have the perspective to become directly cultivars, the biological material represent a valuable genetic found, useful to increase apple potential and genetic diversity for future recurrent selection and apple breeding programmes.

**Keywords:** crab apple, elites, generations, interspecific hybrids, selection, variability

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