

# EVALUATION OF THE PHENOTYPICAL VARIATION OF THE CALABRIAN SWEET CHERRY GERMPLASM

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## Introduction

The Calabria region is characterized by its extraordinary variety of microclimates that favor the cultivation of a wide variety of fruit trees, including the sweet cherry. Until the middle of last century, the sweet cherry was widely represented in all the territories, cultivated at altitudes ranging from 200 to 1000 meters above sea level. Unfortunately, in recent decades, the drastic abandonment of the countryside caused a gradual process of decline and the abandonment of ancient landraces and cultivars.

The objective of this work was to study the diversity of indigenous sweet cherry genetic resources, for planning their conservation and improvement.



## Materials and methods

The research started in 2008 with a preliminary screening of the Calabrian sweet cherry genotypes still present in orchards and gardens. The indigenous genotypes were marked, georeferenced and characterized morphologically, following the descriptor proposed by Bellini *et al.*, (2007).



## Results and discussion

35 indigenous sweet cherries from Calabria, cultivated at altitudes ranging from 200 to 1000 m a.s.l., were identified and characterized.

- Full blooming time was restricted to about 2 weeks (2nd-18th of April). Regarding the ripening time, most of the accessions were harvested during the month of June. However, "Maiolina" genotypes, were early ripening (third decade of May); 'Abenevoli nero', 'Carrammendula 2', 'Lombardune' were late ripening (Tab. 1).
- The fruits had small or medium-size with weight ranging from about 3 to 8 g (Fig. 1), the shape was generally spherical, in some case cordate; the stalk was short. A considerable variability was recorded about the color of the epicarp (from light red to black) and flesh (from yellow to dark red).

Among the Calabrian germplasm, 12 local genotypes showed superior traits (Tab. 2).

Tab. 1 - Time of ripening of 35 Calabrian sweet cherry accessions.

Accessions	Time of ripening
Abenevoli bianco	second ten days of June
Abenevoli nero	second ten days of July
Bombardune	thirt ten days of June
Cannamele	second ten days of June
Cappucciarica Cardeto	first ten days of June
Cappucciarica San Lorenzo	thirt ten days of June
Carraffune	first ten days of June
Carraffune bianco	first ten days of July
Carraffune blondo	second ten days of July
Carraffune nero	first ten days of June
Carrammendula 1	second ten days of June
Carrammendula 2	second ten days of July
Citra	second ten days of July
Cuore Aspromonte	second ten days of June
Cuore Serre	second ten days of June
Grammendula 1	first ten days of June
Grammendula 2	first ten days of June
lancuzza napoletana	first ten days of June
Lombardune	second ten days of July
Maiaica rossa	thirt ten days of May
Maiolina Piana	second ten days of May
Maiolina Serre	second ten days of June
Moddacchia	second ten days of June
Napoletana	first ten days of June
Niredda	second ten days of June
Piede corto	second ten days of June
San Pietro Cardeto	first ten days of June
San Pietro San Lorenzo	first ten days of June
Santa Nutrice	second ten days of June
Semenzale durone	first ten days of June
Semenzale morbido	first ten days of July
Vallescura 1	thirt ten days of June
Vallescura 2	thirt ten days of June
Zuccaredda	thirt ten days of June
Zuccarigna	second ten days of June

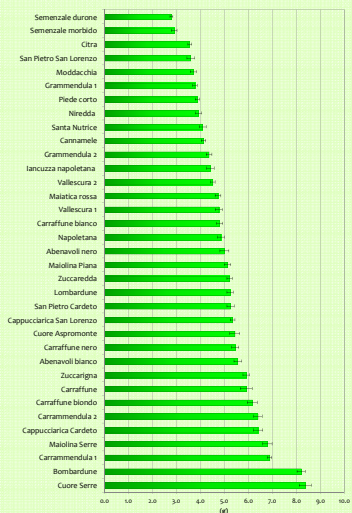


Fig. 1 - Fruit weight of 35 Calabrian sweet cherry genotypes analyzed.

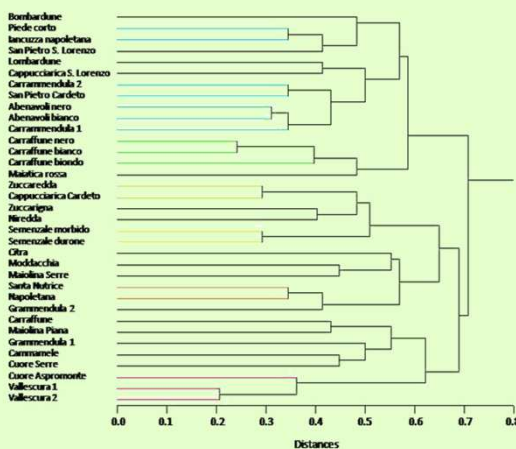


Fig. 2 - Morphological distances between 35 sweet cherry genotypes.

The dendrogram showed a high grade of variability among local genotypes, correlated to characteristics of the tree, flower, leaf, fruit and stone (Fig. 2).



Tab. 2 - Main fruit characteristics of the 12 most interesting accessions of sweet cherry from Calabria.

Accessions	Shape longitudinal section	Shape transversal section	Color of skin	Firmness of flesh	Juiciness of flesh
Abenevoli bianco	spherical	round	red-orange	medium	medium
Bombardune	conic-truncate	round	red	medium	medium
Carraffune	cordate	oblate	red	medium	medium
Carraffune blondo	spherical	oblong	red-orange	medium	high
Carraffune nero	spherical	oblong	dark red	medium	medium
Carrammendula 1	spherical	round	red-orange	firm	high
Carrammendula 2	cordate	oblong	dark red	firm	medium
Cuore Aspromonte	conic-truncate	oblong	dark red	medium	medium
Cuore Serre	conic-truncate	oblate	red-brown	medium	medium
Maiaica rossa	spherical	elliptic	red	very firm	medium
Maiolina Serre	conic-truncate	oblate	dark red	soft	medium
San Pietro Cardeto	spherical	oblong	red	firm	medium

## Conclusions

This research showed the richness of the indigenous genetic heritage of sweet cherry in this region and encouraged us to continue with actions in order to preserve and improve best genotypes. Although, fruits of most local accessions did not fully meet the quality standards required by today's market, some of them (e.g. 'Maiaica rossa' genotype) (Tab. 2) deserve attention for having traits of interest, such as early ripening, low chilling requirement, firm flesh, good taste and great rusticity. Therefore, they should be safeguarded from the risk of extinction and employed in breeding programmes.

### References:

Bellini E., Giannelli G., Giordani E., Picardi E., 2007. Descriptor List *Prunus avium* L. in "Le specie legnose da frutto - Liste dei caratteri descrittivi". Asia - Agenzia Regionale per lo sviluppo e l'innovazione nel settore Agricolo-forestale, Firenze.