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CHARACTERIZATION AND VALORIZATION OF MAIZE LANDRACES FROM VALLE D'AOSTA

LEZZI A.*, STAGNATI L.*, SOFFRITTI G.*, LANUBILE A.*, MADORMO F.**, CHABLOZ D.**, LETEY M.**, ZAMBIANCHI S.*, MAROCCO A.*, BASSIGNANA M.**, BUSCONI M.*

*) Dipartimento di Scienze delle Produzioni Vegetali Sostenibili, Università Cattolica del Sacro Cuore, Via Emilia Parmense 84, 29122 Piacenza
**) Institut Agricole Régional – Reg. La Rochère 1/A – 11100 Aosta

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During 1949-1950 in Italy begun a formal investigation to characterize maize (*Zea mays* L.) cultivation. In 1954, started a project for the sampling of all Italian maize landraces; this work ended with the collection of 562 different accessions collected in all regions with the exception of Valle d'Aosta, even if historical cultivation of maize in this Region is well documented.

In Italy maize landraces have been extensively grown until the mid of the XX century when the cultivation of hybrid took place due to their significant agronomic performances. Despite that, being Valle d'Aosta a mountain region where intensive maize cultivation never started, it was possible to preserve the presence of some landraces. These local materials, which are still cultivated, mainly at domestic level, have high importance from a genetic and historical point of view. Recently, 5 maize landraces from Valle d'Aosta and 2 landraces from the adjacent Canavese (Piedmont) have been collected and subjected to historic, morphologic and genetic characterization. These landraces were named after the sampling location as it follows: Arnad, Arnad-Crest, Chatillon, Entrebin, Perloz, Bianco Canavese, and Rostrato Canavese.

Firstly, on these 6 varieties the historic characterization has been carried out. Information and photographs have been searched in local archives and this was crucial to prove their long presence in all the sampling sites under study. From this historic reconstruction, the variety

Entrebin resulted as the one that is better historically characterized.

To study the variability and differentiation of landraces from Valle d’Aosta, the genetic characterization was performed by the means of 10 SSR markers tested on 20 samples from each landrace. This study highlighted a significant genetic variability among the landraces and, especially, a good level of differentiation between the accessions under investigation. This last result may be explained by the long reproductive isolation experienced by these materials. Complete morphological characterization is actually ongoing. Preliminary morphological observations revealed that these landraces have, generally, flint kernels with the exception of Bianco Canavese (dent) whose color is variable from white (Bianco Canavese) to dark red (Chatillon). Arnad landrace showed 8 kernel rows, probably being an Eight-rowed Flint while the others presented more rows, like many Derived Races. Interestingly, Perloz and Rostrato Canavese showed kernels with an apical beak which was more pronounced in the latter. This suggest that these two landraces belong to the “Rostrata” group, which is common in mountain areas.

The present work confirms the importance of mountain areas in conserving biodiversity and increases the rich Italian maize germplasm with materials well adapted to marginal areas. Such new genetic variability may be used to breed new materials for a more resilient agriculture.