

RECOVERY AND CHARACTERISATION OF EMILIA-ROMAGNA LOCAL MAIZE GERMPLASM AFTER 65 YEARS FROM SAMPLING

STAGNATI L.*, SOFFRITTI G.*, MARTINO M.*, LANUBILE A.***, ROSSI G.***, RAVASIO A.***, MAROCCO A.**, BUSCONI M.**

*) Department of Sustainable Crop Production, Università Cattolica del Sacro Cuore, Via Emilia Parmense 84, 29122 Piacenza

**) BioDNA Research Centre, Università Cattolica del Sacro Cuore, Via Emilia Parmense 84, 29122 Piacenza

***) Department of Earth and Environmental Sciences, Università degli Studi Pavia, Via S. Epifanio 14, 27100, Pavia

maize germplasm, 1954 sampling, ex situ conservation, Emilia Romagna, genetic characterisation

In the years 1949-50 a survey was carried out to characterise maize (*Zea mays* L.) cultivation in Italy. From 1954, the systematic collection of samples of local varieties was organised; the accessions collected were classified into 11 groups differentiated by ear and grain type. The different agroecotypes, well established in the different agroclimatic situations, belong mainly to the *indurata* (flint) and *indentata* (dent) groups or to intermediate forms. All the collected samples have been conserved *ex situ* at the CREA-CI of Bergamo since the year of sampling.

Sampling resulted in the collection of 562 accessions from all over Italy, including 42 accessions from Emilia-Romagna, 21 of which were recovered and characterised: province of Forlì-Cesena, Dente di cavallo Nostrano (Va211), Ottofile (Va212), Cinquantino (Va213), Locale Rocca di S. Casciano (Va214), Giallo Nostrano (Va215), Giallo Comune (Va216), Spinato (Va217) and Nostrano (Va218); province of Modena, Nostrano or Locale (Va219) and Cinquantino Bianco (Va220W); province of Parma, Turco (Va221), Ferragostano (Va222), Piacentino/Nostrano (Va223) and Nostrano (Va224); province of Piacenza, Nano Precoce (Va225), Agostano (Va226), Agostano 16 File (Va227), Ottofile (Va228), Piacentino (Va229), Nostrana (Va230) and Nostrano ottofile (Va231).

The varieties were characterised morphologically, through UPOV descriptors, and appear rather uniform at the level of the ears, often conical and, to a lesser extent, cylindrical. Kernels are generally yellow or orange in colour, with the exception of Va220W which is white and they are mainly flint or flint-like (15 accessions) and dent for Va211, Va216, Va217, Va218, Va219 and Va223. Va217 is morphologically very different from the others, being characterised by tall plants, large and curved leaves, big ears and long vegetative cycle.

Agronomic trials showed that the materials under examination are characterised by: different maturity groups, mainly early, with the exception of Va217 which is very late compared to the others; good yields, that for Va217, Va211, Va222 and Va218, is higher than a modern short-cycle (FA0300) hybrid. The evaluation of the resistance to *Fusarium verticillioides* ear rot revealed that Va214 and Va221 are very tolerant to ear rot. Concerning fumonisin accumulation in kernels, only Va211 was found to be particularly resistant. All the tested varieties showed high susceptibility to lodging.

The genetic characterisation, considering an average of 60 plants per accessions, was carried out using 10 SSR markers. Results showed good levels of heterozygosity and very high levels of intra- and inter-accession variability that make possible a clear separation of the accessions by considering the average data of each population.