

CITIZEN SCIENCE AND PARTICIPATORY BREEDING ACTIVITIES WITHIN THE HARNESSTOM PROJECT

FUMELLI L.*, SILIGATO F.*, MENGHI V.*, PICARELLA M. E.*, FARINON B.*,
TRINGOVSKA I.**, BARONE A.***, DIEZ M. J.****, GRANELL A.*****,
CASALS J.*****, MAZZUCATO A.*

*) Department of Agriculture and Forest Sciences (DAFNE), Università degli Studi della Tuscia, Viterbo, Italy

**) Maritsa Vegetable Crops Research Institute (MVCRI), Plovdiv, Bulgaria

***) Department of Agricultural Sciences, University of Naples Federico II, Portici, Italy

****) Instituto de Conservación y Mejora de la Agrodiversidad Valenciana (COMAV-UPV), Universitat Politècnica de València, València, Spain

*****) Instituto de Biología Molecular y Celular de Plantas (IBMCP). Consejo Superior de 26 Investigaciones Científicas (CSIC), Universitat Politècnica de València, València, Spain

*****) Department of Agri-Food Engineering and Biotechnology/Miquel Agustí Foundation, UPC- BarcelonaTech, Campus Baix Llobregat, Esteve Terrades, 8, 08860 Castelldefels, Spain

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The recent EU policies toward a sustainable dealing of food production, processing and consumption promote the engagement of growers and consumers into scientific and technical aspects of the food chain. Thus, in several EU-funded projects, specific tasks call up farmers into selection schemes (participatory breeding) and consumers into the evaluation of new breeding materials (citizen science). In the “HARNESSTOM: harnessing the value of tomato genetic resources for now and the future” project, one work-package is dedicated to implement several participatory strategies. In Task8.3, a sub-collection of 25 promising accessions (landraces and breeding lines) selected from previous projects (TRADITOM, TOMGEM, G2PSOL, ROOTOPOWER, BRESOV) is being evaluated by farmers and citizens by means of Participatory Variety Selection (more than 70 farmers) and Citizen Science (more than 500 citizens) trials. These trials are ongoing in Bulgaria,

Italy, and Spain with shared protocols. Strategies to “fidelize” the participants and stimulate their feedback have been set up using social media. Task8.5 is dedicated to the participatory selection of two multi-parental populations, obtained in previous research by admixing the seed of ten and five F2s from crosses of genotypes, predominantly with yellow and orange fruits. Such populations were grown in two different organic farms in the province of Viterbo (Italy) in Barcelona (Spain), in combination with controls of the same colour type. Plants were phenotyped by researchers for qualitative (growth habit, green shoulder, inflorescence type, fruit colour and shape, fruit skin colour) and quantitative (flowering date, fruit weight, estimated yield) traits. At maturity, plants were scored for preference (score 1 to 4) by non-professional evaluators (farmers, technicians, and consumers), to select the best 20 genotypes in each field. Preference scores revealed field-specific selections; regression analysis of mean and single evaluator scores revealed traits with higher or lower objective judgment. Results of participative selection in the two countries will be also compared. Overall, this project is evaluating different participatory methodologies to speed up the transfer of results from European research projects to the farmers’ fields.