

**2nd European Fruit Research
Institutes Network
Nut Tree Working Group Meeting**

Book of abstracts



15 - 17 October 2019.



**Research Institute for
Horticulture and Alimentary
Technologies**



Chisinau, Republic of Moldova

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Organizing Committee:

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TOWARDS THE VALORIZATION OF THE ITALIAN WALNUT PRODUCTION: THE EXAMPLE OF THE PROJECT NOBLE

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Juglans regia (L.), commonly named Persian or English walnut, is cultivated for nut production and is one of the oldest food sources known. Native to the mountain valleys of Central Asia, *J. regia* is grown worldwide in temperate areas. Walnut world production keeps increasing, exceeding three million tons since 2011, with China, USA and Iran as leading producing countries (FAOSTAT data - <http://www.fao.org/faostat/>). In Italy, despite the constantly growing demand, walnut cultivation went through a strong decline in the last decades. However, the climate and environmental conditions of the Italian peninsula are well suited to walnut cultivation, and still few local unique Italian varieties and ecotypes have survived. This is the case of the 'Bleggiana' variety, present in a restricted area of the mountainous region Trentino in the north of Italy that is still propagated by grafting. Important Italian ecotypes are Feltrina, present only in the mountainous area of Feltre in the Veneto region, and Sorrento, which is represented by at least eight different ecotypes distributed across the Sorrento peninsula and Campania region. Additionally, international commercial varieties, such as Lara, Franquette and Chandler, showed to adapt well to the Italian variegated landscape and have already been introduced also in regions previously not dedicated to the walnut culture. The current context is therefore favorable to reintroduce the walnut cultivation on the Italian territory heading towards a local, high-quality production, however initiatives promoting this action are still lacking.

We tried to undertake one step in the valorisation of the Italian walnut production through a multidisciplinary project, the NoBle project, which aims to a full characterization of the local Italian walnut accessions defining a unique and typical profile by means of: genetic profiling, H, O, C, N, and S stable isotope ratios definition, metabolic compounds analysis and sensory analysis. The use of a high density array (AxiomTM *J. regia* 700K) allowed to identify the Italian germplasm as a distinct cluster among the worldwide accessions. The metabolic and the sensory analysis conducted on the locally grown varieties highlighted differences in the nutritional composition (polyphenol and lipid content) and consumer acceptance. Finally, the stable isotope ratio analysis could provide a successful approach to determine and protect the origin of local walnuts.