

*International Conference*

**Advances in grain legume  
cultivation and use**

***BOOK OF ABSTRACTS***



**LEGumes for the Agriculture of TOmorrow**



*Translating Legume Research Into  
End-Users Reality*

**27-28 SEPTEMBER 2017  
NOVI SAD, SERBIA**

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cultivation and uses for a more  
competitive value-chain**

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### **Inoculation requirement of pea and faba bean and selection of Rlv strains**

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Legumes have the unique capacity to form N<sub>2</sub>-fixing symbiotic nodules with compatible rhizobia. However the level of their bacterial partner in the soil, their ability to form nodules in mixture with other bacteria, as well as their nitrogen fixation efficiency in the symbiotic organ may vary and therefore limit the benefit of symbiosis. Our objective is to assess the sufficiency and suitability of native field populations of rhizobia for biological nitrogen fixation of pea and fababean, and to predict the potential interest of inoculation to maximize nitrogen acquisition and performance of these crops. The *Rhizobium leguminosarum* bv *viciae* (Rlv) populations of 5 European experimental stations (INRA Toulouse, IFVCNS Novi Sad, SLU, Agritec, University of Cordoba) have been characterized. Soils from 9-13 plots at each site, representative of diverse cropping systems with or without pea and/or fababean, were used for (1) Rlv trapping experiments with pea and fababean and (2) quantification of Rlv diversity in soil using an NGS-metabarcoding method. Efficiency of isolates to fix nitrogen associated with their plant host has been estimated. One to three best Rlv isolates from each site have been used in mixtures for inoculation trails at the five experimental sites in 2017. Effects of the cropping system on abundance of the various classes of Rlv isolate in soils are investigated. The potential of NGS-metabarcoding method to predict the effectiveness of inoculation strategies is evaluated. This work has received funding from the European Community's Seventh Framework Program under the grant agreement n°FP7-613551, LEGATO project.