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# PROGRAM AND ABSTRACTS

## THE FIRST GLOBAL **SOIL BIODIVERSITY** **CONFERENCE**



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**Strategy to manage AMF biological diversity within the cropping system**

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Despite the great biological diversity of arbuscular mycorrhizal fungi (AMF) and its functional consequences on the host plant, a strategy to manage this diversity within the cropping system is still missing. The importance of this strategy is reinforced by the fact that commercial inocula are too expensive to be used in a large scale and only contain a single or few AMF species.

When high levels of botanical hierarchy are considered, such as grasses and forbs, there are evidences of strong preferential associations between some AMF and host plants, that can even superimpose the environmental conditions.

To investigate the AMF biological diversity associated to different host plants in a non-sterilized soil with a diverse indigenous AMF population, a 454 pyrosequencing technique was used. When spores and root fragments were the propagule source, the results showed that the AMF species present, in the two dicot plant species (*Ornithopus compressus* and *Trifolium subterraneum*) and in the two monocots (*Lolium rigidum* and *Triticum aestivum*) used in this study, were similar within each plant species group and clear differences could be detected between the two botanical groups. However, when a monocot was planted after a dicot or vice-versa, keeping the extra-radical mycelium (ERM) associated with the first plant intact in the soil, functioning as the preferential source of AMF propagule, the AMF community present in the second plant correspond to the one in the first plant of the succession, independently of their botanical group. Therefore in a succession of plants (cover crops or crop rotation) the choice of the first plant and the use of appropriate tillage technique in order to keep the ERM associated to the first plant intact can be used as a strategy to manage AMF biological diversity within the cropping systems.

Keywords: AMF diversity, cropping system, management, 454 pyrosequencing