

Research Project

Using millet-legume model intercropping systems to establish mycorrhiza-facilitated bioirrigation in dryland agriculture

Third-party funded project

Project title Using millet-legume model intercropping systems to establish mycorrhiza-facilitated bioirrigation in dryland agriculture

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Project Website <https://ppe.duw.unibas.ch/en/biofam/>

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Probable end 30.11.2023

Status Active

In the years to come, sustainable land use is one of the big challenges for plant science. One promising low-input strategy is to make use of the potential of intercropping. In dryland agriculture, deep-rooting plants, intercropped within shallow-rooting ones, may act as "bioirrigators" that can transfer water from deep soil layers to the topsoil for the benefit of the system. Our recent experiments have shown that bioirrigation is facilitated by the presence of arbuscular mycorrhizal fungi (AMF), which connect the intercropped plants by a common mycorrhizal network (CMN). The ambition of the research that we propose in this project is to identify the morphological, physiological and competitive traits that make plants ideal bioirrigators in CMN facilitated intercropping systems.

With this research we seek to establish the basic knowledge that will allow establish effective CMN facilitated bioirrigation in intercropping systems as a measure to stabilize and increase the yield of small holder or subsistence farmers in dryland agriculture.

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Follow-up project of [6281 ISCB - Genetic diversity and RNAi-based control of cassava mosaic geminiviruses in India.](#)

[2730023 ISCB: Biofertilization and bioirrigation for sustainable mixed cropping of pigeon pea and finger millet](#)

[3395596 ISCB: Biofertilization and bioirrigation for sustainable mixed cropping of pigeon pea and finger millet](#)

[4354679 Indo-Swiss Collaboration \(ISCB\) - BIOFI Phase V](#)

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