



Transition paths to sustainable legume-based systems in Europe

## Intercropping pea and barley for improved cereal mineral nutrition

Intercropping is the growing of two or more crop species simultaneously in the same field during a growing season. This technique can be applied to a mix of non-legume and legume crops, helping to improve crop yield while reducing chemical input costs and supporting sustainable agricultural practices.

In this study, pea and barley were intercropped to test the potential role of pea in improving barley’s mineral nutrition. The field trial was repeated for two consecutive years and compared against a monocrop system and against the application of fertilisers. In the first year, the provision of several mineral nutrients of barley was positively impacted by intercropping, namely, the concentrations of nickel (Ni), manganese (Mn), calcium (Ca), iron (Fe), zinc (Zn), magnesium (Mg), phosphorus (P) and potassium (K) was increased 90%, 50%, 49%, 39%, 24%, 16%, 13% and 9%, respectively. In the second year, only Ni concentration was significantly different (increased).

Hence, barley mineral-nutrition qualities are not compromised and may even be greater when intercropped. Intercropping barley (with pea) therefore presents a more resource use-efficient strategy (as no fertiliser was added) to provide mineral nutrient provisions which are greater than those provided by monocrops.

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### Country/Region

Portugal, United Kingdom

### Keywords

Intercropping, pea, barley, mineral nutrition



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Figure 1. Various legumes and pulses . Photo credits ©: Mariana Duarte



### About TRUE

The EU funded project "TTransition paths to sUustainable legume based systems in Europe" (TRUE) is a balanced practice-research partnership of 24 institutions, which aims to identify the best routes, or "transition paths" to **increase sustainable legume cultivation and consumption across Europe** and includes the entire legume feed and food value chains.

April 2017 – September 2021



TTransition paths to sUustainable legume-based systems in Europe (TRUE) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727973

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