



Transition paths to sustainable legume-based systems in Europe

Intercropping legumes with cereals to improve pest and weed control

Problem: Legumes provide multiple benefits in arable systems, but are prone to weed, pest and disease infestation and suffer from inconsistent yields. Intercropping legumes with cereals can overcome some of these agronomic challenges.

Research findings: Large plots (120 m x 3 m) of spring pea cv. ‘Daytona’ and spring barley cv ‘Laureate’ were sown as pea-barley mixtures (at 40% and 60% of the standard sowing densities, respectively) and crop monocultures in Scotland (near Dundee) in 2018 and 2019. Pest and disease damage was generally low in both years. Weed pressure (weed %cover or biomass) varied between years and was generally higher in monocultures compared with mixtures due to better crop cover and light interception in mixtures. Aphid abundance on pea was highest in monocultures and was reduced in mixtures; aphid abundance on barley was low. Aphid suppression in mixtures could be due to the lower density of pea plants (creating a physical barrier to aphid spread). Total intercrop biomass and grain yields were highest in mixtures compared with monocultures.

Practical recommendation: Intercropping with cereals can reduce weed and pest infestation in legume crops and increase overall crop productivity. This is particularly relevant for low input and organic systems where crop protection products are not used. Cereal-supported intercropping of grain legumes could help to reduce production risks and input dependencies associated with growing grain legumes as monocultures.

Author(s)

Alison Karley, Pietro Iannetta

*James Hutton Institute,
Invergowrie Dundee DD2 5DA
Scotland, UK*

Contact

Ali.Karley@hutton.ac.uk;
Pete.Iannetta@hutton.ac.uk

Country/Region

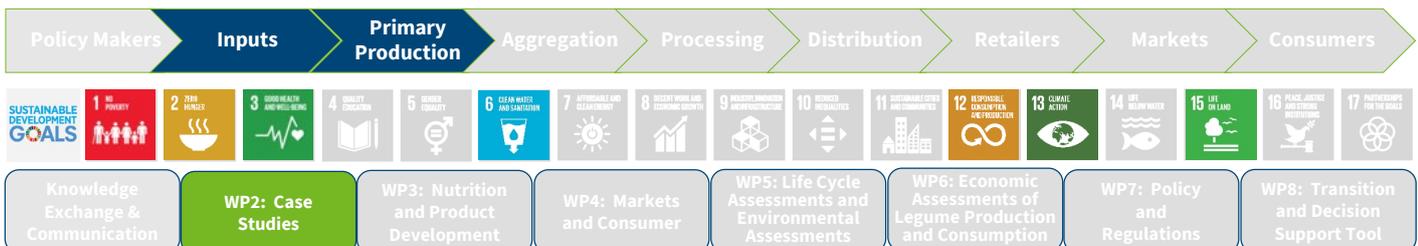
United Kingdom

Keywords

Intercropping, legumes, cereal, spring pea, spring barley, pest control, weed control

More information about intercropping:

www.plant-teams.org/infohub/



All Practice Abstracts prepared by the TRUE Project in the EIP-Agri common format can be found here: <https://ec.europa.eu/eip/agriculture/en/find-connect/projects/transition-paths-sustainable-legume-based-systems>





TTransition paths to sUustainable legume-based systems in Europe

Intercropping legumes with cereals to improve pest and weed control



Figure 1. Intercrops of spring pea and spring barley grown in Scotland.
Photo credits ©: Alison Karley, Adrian C. Newton



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

All Practice Abstracts prepared by the TRUE Project in the EIP-Agri common format can be found here: <https://ec.europa.eu/eip/agriculture/en/find-connect/projects/transition-paths-sustainable-legume-based-systems>

