



Improving legume agronomy with cereal-legume intercropping

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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). Crop 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.