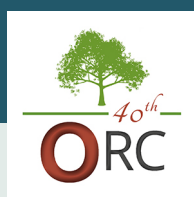


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CROP DIVERSITY & AGRONOMY

# Intercropping pulses and cereals

Experiences from research and practice

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Growing pulses in organic and low input systems can be challenging due to weed pressures and risk of lodging. Can intercropping pulses with a cereal help solve these problems?

- **Intercropping is a tool for integrated weed management.** Trials at Wakelyns in 2012 showed that weed abundance was negatively correlated to the sowing density of wheat intercropped with field beans. On-farm trials on an organic farm in Wiltshire demonstrated that weed biomass (mostly wild oat) was reduced by over 70% in wheat-bean intercrops compared to monocrop beans in 2017/18 (175 kg/ha beans and 125 kg/ha wheat) and in 2018/19 (200kg/ha beans and 100 kg/ha wheat). The interpretation is that wheat fills the niche of the weed whilst being less competitive against the pulse.
- Cereals can **provide scaffolding** to prevent pulses from lodging and **enhance harvestability**. On farm trials in Shropshire in 2017/18 compared different relative densities (RD) of triticale (10, 20 and 30% of the monocrop sowing density) with 200 kg/ha carlin peas. Although in low lodging season, harvestability was notably better in the 30% RD triticale. Similar results were obtained with lentils and oats in Kent in 2019/20: oats drilled at 30 plants/m<sup>2</sup> significantly reduced lodging and combine losses of lentils. The intercrop also halved the harvest costs, as monocrop lentils required two passes.
- Other benefits observed include greater **yield stability** – likely due to the lower weed burden, increased **land use efficiency** (Land Equivalent Ratio of one or greater) and improved **cereal grain quality** (protein content and Hagberg falling number).



Harvesting lentil and oat. Credit: Andy Howard

Intercropping a cereal with the pulses can, thus, reduce weed pressure and enhance harvestability of the pulse. These benefits can be optimised acting on sowing rates and variety selection.

## FURTHER READING

1. Fradgley *et al.* (2013) [tinyurl.com/y2ymlqgc](https://tinyurl.com/y2ymlqgc)
2. Agricollogy Intercropping Virtual Field Day video: [tinyurl.com/y599355x](https://tinyurl.com/y599355x)
3. Bliss (2019) [tinyurl.com/y6egggwh](https://tinyurl.com/y6egggwh)
4. Bickler (2019) [tinyurl.com/y44sz4bv](https://tinyurl.com/y44sz4bv)