

Cover crops as relay intercropping in wheat-based systems

Legume cover crops established by undersowing in winter wheat and grown until the year after

Readiness for use: 

Efficacy: 

How it works

- Cover crops can be undersown as living mulch in a winter cereal crop (e.g., wheat) in early spring and then kept growing until the sowing of the following spring crop
- Undersowing can be done by broadcast sowing followed by one flex-tine harrow pass to cover the seeds, or alternatively on narrow rows by drilling machine with disc coulters
- To avoid wheat plant damage, undersowing should be done before stem elongation phase of winter cereals
- As intercrop, choosing a biannual, annual self-reseeding or perennial legume will allow avoiding competition with wheat (instead, some N can be supplied to the wheat through N_2 -fixation), ensuring continuous soil cover and preventing from weed infestation until the following spring
- If legumes are undersown in winter cereals, late post-emergence herbicide application against dicot weeds should be avoided in wheat due to phytotoxicity against the cover crop (better pre-emergence or early post-emergence applications)
- Legumes should not be climbing species and should grow underneath the wheat plants until harvest
- Wheat harvest should be performed by keeping far from soil the cutting bar of the combine to avoid damages to the legumes
- In the following spring, the legume can be terminated either as a green manure (soil incorporation) or as a dead mulch for the no-till or strip-till sowing of the following cash crop
- A strip-tillage machine or a no-till sowing machine are needed to establish the cash crop on the dead mulch provided by the legume cover crop
- Incorporate the cover crops into the soil instead of terminating them as dead mulch if their biomass is too low



Figure 1. Alfalfa undersown in organic emmer wheat



Figure 2. A drilling machine with disc coulters can be used to establish the intercrop in cereals at tillering stage



Figure 3. The regrowth of subterranean clover in the following spring can be managed by mowing

Read more

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CONTACT

Daniele Antichi & Christian Frascioni, University of Pisa
daniele.antichi@unipi.it
Anna-Camilla Moonen & Federico Leoni, Scuola Sant'Anna, Pisa
Camilla.Moonen@santannapisa.it



UNIVERSITÀ DI PISA
Centro di Ricerche
Agro-Ambientali
Enrico Avanzi

