

Legume companion crops for winter cereals



What is it?

In arable crops, to use a legume species to produce a double cash crop or to establish a living mulch together with the winter cereals. This intercropping technique is done to exploit the ecosystem services and the general related advantages.

How does it work?

Weed control

Soil fertility

Low input agriculture

In Mediterranean environments, winter cereals are best suited as cash crops and legume species are best suited as companion crops (both as cash crops and living mulch) to establish an intercropping system. The establishment of the companion crop could be done with contemporary sowing (autumn) or with relay sowing (end of winter) and with direct drilling or broadcast seeding. The legume companion crop established in the cereal inter-row can compete for space and nutrients with the weeds and improve soil fertility (N-fixation, soil erosion control, higher biomass production).

Results

By using legume species intercropped with winter cereals, the grower is able to produce two cash crops harvested together in the same field and separated post-harvest or have a living mulch covering the soil after the winter cereal, harvesting in summer with the objective of establishing a forage crop one year in advance.

Cost – Cost-efficiency

The cost of intercropping is related to the seed cost of the companion crop (from 100 to 300 € euros per ha) and the sowing operation cost (about 70 € per ha) plus the eventual post-harvest cleaning operation.

Depending on the companion crop used, some costs can be saved in the crop management e.g. less N fertilizers required, cereal weeding (mechanical or chemical) is not required, summer soil tillage for seedbed preparation is not needed. Moreover, there are specific CAP payments for the farmers applying the technique (about 200 € euros per ha).

The technique is better tailored on organic or low-input farms which use less fertilizers and do not use or limit chemical weeding.

Winter cereal yields are generally comparable with or without the companion crop.