

SoildiverAgro project

Adoption of new management practices to increase crop production and quality



THE WHAT AND WHY

Potential of clover undersowing in wheat production in the continental region to promote fungivorous soil animals and reduce fungal pathogens

As part of the EU project SoildiverAgro, new management practices are being investigated in 15 case studies in 6 pedoclimatic regions of Europe. The focus is on the reduction of external inputs as well as the promotion of soil biodiversity and the optimal utilization of the ecosystem services it provides to ensure future sustainable production on healthy soils. For this purpose, a survey of various stakeholders was conducted in advance to identify the main problems in agricultural production in individual regions and to inquire about acceptance with regard to various measures. In the continental region, favoured by climate change, the increasing infestation with phytopathogenic and mycotoxin-producing fungi (e.g. *Fusarium*) poses particular challenges to farmers. Against this background, the potential of

clover undersowing to promote antagonistic fungivorous soil animals in wheat cultivation was investigated in this region. The results demonstrate that clover undersowing significantly increases, for example, the individual numbers and biomasses of earthworms, as the main antagonists of plant pathogenic fungi. However, to achieve optimal bioregulation by soil animals and maximum benefit in controlling fungal pathogens, attention must be paid to the composition of clover species. While yellow clover and birdsfoot trefoil are suitable clover species, white clover and red clover can, under certain conditions, serve as host plants for some fungal pathogens such as certain *Fusarium* species, thus further increasing infestation pressure. If possible, these species should therefore be avoided.



1. Clover undersowing after harvest of wheat (CS11)



2. Important antagonist against phytopathogenic fungi: the earthworm species *Lumbricus terrestris*

KEYWORDS

Clover undersowing, phytopathogenic fungi, antagonists

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