

SoildiverAgro project

Adoption of new management practices to increase crop production and quality



THE WHAT AND WHY

Effect of soil tillage on the promotion of soil biodiversity by undersowing

Undersown crops can play an important role in sustainable agricultural production. They ensure extensive soil cover, protect against drying out and erosion, keep the soil microclimate stable and store nutrients in the system. They also have a positive effect on soil biodiversity, as their rhizosphere provides additional habitat and root exudates and organic matter represent additional sources of nutrients. This positive effect has been demonstrated in the SoildiverAgro project in case studies in potato and wheat crops in the continental region for springtails, mites and earthworms. The promotion of these organisms is also accompanied by a promotion of the functions they perform and the services they provide. For example, the soil fauna is involved in the provision of nutrients, soil

structure formation and infiltration, and suppression of pests and pathogens. However, tillage plays an important role in the duration of the promotion of soil fauna and its performance. The case studies show that with conventional tillage, a positive effect can be demonstrated primarily in the year of cultivation. This effect decreases with the use of the plough. With conservation tillage, on the other hand, the positive effect often only becomes apparent in the following year, but is maintained over several years, depending on the undersown crop. Clover undersowing, for example, is particularly noteworthy in this context. In the studies the clover mixture used continued to grow in the third year without reseeding and sustainably promoted soil biodiversity and its performance.



1. Clover undersowing in wheat cultivation



2. Soil tillage with cultivator

KEYWORDS

Undersowing, soil biodiversity, soil tillage

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