Cover Crops in Cereals
better companions than weeds?

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Introduction

The research-network PRODIVA* focuses on a better utilization of crop diversification for weed management. Cover/Catch crops have gained popularity being one of the subsidized measures in agri-environmental schemes of the EU. Cover crops are widely used to increase soil fertility as well as to minimize nutrient leaching but their applicability for weed management is less known.

Objectives and Methods

Combinations of crop and cover crops including crop sequencing are important components for weed management in organic farming. We have studied the competitiveness of cover crops against weeds in long-term field experiments in Denmark, Finland and Latvia. Weed biomass production and weed community associations with cropping factors have been investigated. We aim at understanding the main factors driving weed pressure and weed community assemblies in organic cropping systems.

Results

Oilseed turnip rape (Brassica campestris) was used as a model weed in Finnish field experiments with spring barley and under-sown cover crop mixtures. Cover crop establishment of clovers and grass species and their early growth was too slow to suppress the growth of early-emerging tall-growing annual weed species. Not only cover crop species but also their varieties are of interest in Northern conditions.

Grass-clover as a full season cover-crop for green manuring can reduce problems with Cirsium arvense (Fig. 1). In Danish experiments, the effect was, however, only achieved if the grass-clover was mown 3-4 times during the season1. Elytrigia repens thrives in grass-clover unless mowing is taking place frequently with short intervals. Post-harvest cover crops that do not produce a dense canopy can augment E. repens growth because mechanical interventions are restricted2.

A two-years grass-clover phase in cereal-dominated rotations in Latvia was more suppressive against weeds than a one-year phase (Fig. 2).

Conclusions: Clover species (Trifolium spp.) are suitable for cereal-dominated crop rotations and thrive well in the Nordic/Baltic agroclimate. Cover crop establishment, their early-phase growth and management during the growing season are key factors in successful weed management.

References:


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