

Short description of the project

<p>Project short name and title</p> <p>Crop diversification and weeds Acronym: PRODIVA</p>
<p>Project summary</p> <p>PRODIVA will produce the information required for a better utilization of crop diversification for weed management in North European organic arable cropping systems. The goal is not to eradicate weed problems, which is unlikely to happen in any arable farming system, but to maintain a diversified and manageable weed flora that can support beneficial organisms. The partners in PRODIVA will focus on synthesizing knowledge from terminated and running research projects including new experiments on crop rotation, cover crop growing, and crop and variety mixtures. This will provide a coherent picture and help closing important knowledge gaps. It will be investigated whether detrimental weed communities can be disrupted through strategic diversification of crop rotations without compromising species diversity and over-all crop production. And whether perennial weeds can be suppressed in the post-harvest period by improved cover crop establishment and pertinent selection of cover crop species. PRODIVA will seek to clarify the potential of crop mixtures and variety mixtures as weed management tools for the suppression of weeds. The investigations made in PRODIVA are finally interpreted in relation to on-farm practices of crop diversification and its effects on weed pressure and species composition. PRODIVA will interact with partners from farming practice and extension services in organic agriculture. Regional fields will be surveyed for weeds to safeguard the relevance of the experimental research. Current cropping practices and their influence on weed pressure and diversity will be identified together with the on-farm implementation and future potential for further diversification of the cropping systems. In addition, the project will involve relevant stakeholders from the participating countries throughout the project period to ensure the relevance of the research undertaken. Scientific and applied papers will be produced to support further development and research into sustainable and diversified North European organic crop production systems.</p>
<p>Aim, objectives and hypotheses</p> <p>The over-all aim is to support organic agriculture with knowledge and tools for the exploitation of crop diversification methods to improve weed management and still maintain a diverse weed flora. This will be achieved through the objectives:</p> <ul style="list-style-type: none">– to strengthen the scientific foundation for the employment of crop diversification– to survey the weed situation in practise region-wise and link it to the agronomic measures applied– to bridge the information from the surveys with the scientific groundwork– to disseminate important results and recommendation to extension services and growers <p>It is hypothesised that crop diversification can improve weed management while ensuring a diverse</p>

weed flora by the employment of:

- pertinent crop sequencing that mitigates noxious weed species
- improved cover crop establishment with selected competitive cover crop species
- crop mixtures utilizing the resources better than sole crop species resulting in more weed suppression
- variety mixtures exerting a stronger pressure on weed development than the sole varieties

Expected results and their impact/application

The overall goal of PRODIVA is to create the scientific and technical foundation for the employment of crop diversification for weed management purposes in arable organic crop production systems. Existing knowledge is collected, synthesised and interpreted with inputs from supplementary studies to gain a coherent picture and understanding of feasible options for crop diversification. More specifically PRODIVA will:

- create the understanding of crop sequencing (main crops and cover crops) as an important tool for manipulating weed growth. Main principles of crop sequencing and cover crop practices (plant species, timing, tillage) to mitigate specific weed species or weed groups will be produced in a user-friendly form for growers, advisers and educators.
- identify and describe the traits in crops and cover crops which determine crop-weed interactions and may become useful components in diversification program to suppress weeds. It also assists in the identification of major crop management measures which co-determine the competitive effects of crop mixtures against weeds.
- produce ‘ready-to-use’ information on variety attributes providing weed suppression and how varieties can be mixed for optimal manipulation of weed growth. A catalogue will serve as a guideline for growers and extension services.
- yield results from weed surveying that reveal similarities and differences between the participating regions. Background field management data (including crop diversification methods) will deliver sources of variation, detected by appropriate statistical analyses. Comparisons with the experimental results on crop sequencing, cover crops and crop and variety mixtures are expected to unravel similarities or differences with the survey data, which enable stakeholders to judge the practical relevance.

Coordinator, partners and countries involved

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