

SoildiverAgro project

Adoption of new management practices to increase crop production and quality



THE WHAT AND WHY

Evaluating Economic Viability of Tillage Practices for Soil Biodiversity in Boreal Regions

The Soil DiverAgro project, initiated experiments in 2020 at Kilpiä Farm in southern Finland, and at Tyynelä farms in southeastern Finland, aimed to study the effects of different tillage practices on soil diversity in boreal regions. The main crops were spring wheat and autumn wheat, and the fields were managed organically with continuous plant cover and minimal tillage. In the experiment half of the plots were ploughed, while the control plots used reduced tillage. Minimum tillage is seen as a key practice to enhance soil biodiversity and functioning, though it is not commonly used.

The technical characterization of crop production processes was developed using data from farming operations, with prices for inputs like fertilizers and fuels based on commercial suppliers and average statistics in Finland. Wages for agricultural workers and producer prices were also based on national averages.

The cultivation experiment showed that plowing resulted in higher costs due to the greater amount of work compared to reduced tillage. Overall, the plowed fields produced higher revenues due to better yields, but also higher costs, so the accumulated gross margin over the entire cultivation cycle was about €50/ha lower with plowing than with reduced tillage. Therefore, reduced tillage was economically more justified due to the slightly higher accumulated gross margin in the cultivation cycle. However, the superiority of the methods in terms of gross margins varied between the test years and farms. Variations in producer prices significantly affected the results, but using long-term averages in the calculations did not change the order of the results. The short duration of the study and price fluctuations suggest that longer-term studies are needed to obtain more reliable results.



1. Reduced tillage produced lower revenues, but also lower costs due to less work costs.

KEYWORDS

Production costs, gross-margin, revenues, input prices

AUTHORSHIP

Timo Karhula, Natural Resources Institution Finland (Luke), Finland
Eija Pouta, Natural Resources Institution Finland (Luke), Finland



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817819

This factsheet is produced as part of the SoildiverAgro project. Although the author has worked on the best information available, neither the author nor the EU shall in any event be liable for any loss, damage or injury incurred directly or indirectly in relation to the project.