

SoilCare project BSc / MSc / PhD Research Information

Research level

MSc

Research Title

Long-term effects of liming and phosphorus application on the root growth conditions for Spring Barley on a sandy soil

Abstract

The long-term use of contrasting levels of liming and phosphorus fertilizer applications influence the grain yield production, and hence must be reflected in the root growth. In a study in the long-term field experiment in St. Jyndevad, located in Denmark, contrasting levels of lime and phosphorus fertilizer have been practised since 1942. Using minirhizotrons during the growing season and the core-break method shortly after harvest, clear differences in root growth among the treatments were observed. Increased root growth was observed with increasing levels of liming application. The grain levels was described by a quadratic model with optimum at 6.4 tons lime/ha corresponding to a soil pH of approximately 5.8.

Objectives of the research

The objectives of this study is to investigate the effect of contrasting use of different levels of liming and phosphorus fertilizer on root growth. Furthermore, to see how these possible changes are reflected in the grain yield.

SOIL CARE study site

Denmark, using the Long-term experiment at St. Jyndevad

SoilCare project BSc / MSc / PhD Research Information

Research level

PhD

Research Title

Enhancing phosphorus utilization by adapting the use of cover crops to soil type and P status

Abstract

In Denmark, cover crops are used as a mitigation tool to reduce nitrate leaching, but there might be potential to enhance the phosphorus utilization at field scale by adapting the use of these. Different cover crop species have different strategies for P uptake and P accumulation which, when managed optimal, might be beneficial for increasing the P availability for the subsequent crop.

Objectives of the research

The objectives of the project is to investigate if and how cover crops can increase the P utilization by increasing P availability for the subsequent crop. The study will focus on how different cover crops species under different soil P statuses can enhance the P utilization.

Collaboration is established with the German SoilCare study site (Ellen Kandeler and Moritz Hallama)

SOIL CARE study site

Denmark.

Including also studies on soils from the long-term experiment in St. Jyndeved,

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