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How optimising growth conditions for Maize?

MSc Project Proposal

Establishing Maize in highly even spatial patterns to optimise crop growth and weed suppression

The cultivation of maize has a great perspective today and in the near future. The idea of the proposed project is to create a maize cropping system in realising highly even spatial establishment of the crop plants in order to optimise crop growth and yield. By arranging maize plants in very regular grid patterns it

- optimises the utilisation of available resources (nutrients, water, light and space)
- increases the ability of the crop to suppress weeds and it
- makes it easier to conduct mechanical or physical weeding treatments.

Advanced highly automated seeders and weeders have been technically developed and tested to be ready to establish crops in uniform patterns and to control weeds within agricultural fields. Crop growth and yield but furthermore weed suppression by the crop itself and the effectiveness of precision mechanical weeding will be greatly improved by establishing the crop in spatially more uniform patterns.

The objectives of the project are to

- investigate high precision grid seeding
- monitor the crop establishment in the field
- describe the ecological effects of the improved cropping system
- assess the weed suppression by the crop
- evaluate the improved possibilities of mechanical weeding
- propose and design a highly automated seeding machine based on the findings and results.

The objectives can of course be modified and adapted to individual interests!

Keywords: maize growth optimisation, spatial distribution of crop plants, weed suppression, weed control, lab experiments, data analyses and machine design.

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