JOHN DEERE

Bachelor/Master Thesis, Internship

"Agronomic optimization of crop production based on individual plant treatment"

Advisors: Dipl.-Ing. Roland Werner, Dipl.-Ing. agr. Claire B. E. Rogge
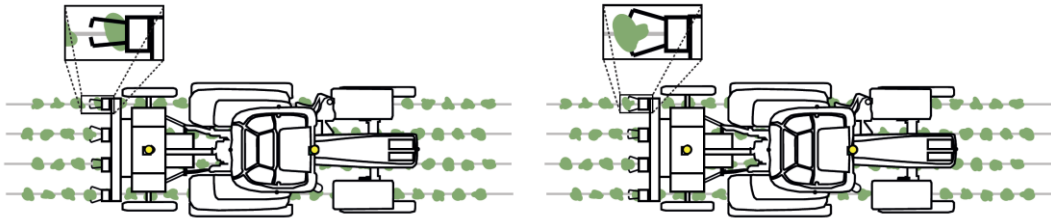

Fig. 1. Individual plant treatment targeting or omitting predefined plant locations.

Motivation

Sustainable and efficient agricultural practices lay the foundation for feeding a growing world population from limited resources. Advances in sensor technology and machine control allowed for automatic guidance and variable rate application systems addressing the needs of particular zones within a field. Currently these zones cover areas of several square meters. With continuing technological improvements, however, interest is now shifting towards treatment of smallest zones down to individual plants.

Objectives

This work comprises researching the potential for agronomic optimization of crop production based on individual plant treatment. A first step is to get an overview of existing research and products considering treatment of zones down to individual plants (e.g. camera based weeding). A second step is to identify promising examples of crops and jobs within the crop production cycle that lend themselves towards individual plant treatment. Subsequently these examples will serve as a basis for agronomic optimization assuming individual plant treatment. In addition to theoretical considerations there is an opportunity to validate assumptions and results in discussions with customers and expert panels.

Contact

Dipl.-Ing. Roland Werner
John Deere GmbH & Co. KG
Intelligent Solutions Group
Straßburger Allee 3 • 67657 Kaiserslautern • Germany
Tel.:+49 631 36191 832 • Fax: +49 631 36191 241
E-Mail: WernerRoland@JohnDeere.com