Interactions Between Farm Managers and Information Systems with Respect to Yield Mapping

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Developments in the area of Precision Farming have led to many of the hardware requirements being available. The target of further activities is to develop an interactive information system which supports the use of this hardware. ISO 11783 Part 9 (1994) is a data dictionary which specifies mobile data communications in agriculture. In addition, Hansen (1994) describes an interface for the communication between management information systems and mobile process control systems.

Alongside this kind of interactive information flow there appears to be a second kind of interactive information flow which takes into account the data transfer between information systems on farm computers and farm managers. Since an information system has to support farm managers in their decision making process the information has to be customized. Decision analysis must be carried out as part of the development of an information system. Farm managers must be able to use this information system for: (i) Data entry, organization and storage; (ii) Data analysis and interpretation; (iii) Data integration and implementation.

For the data entry a data dictionary was developed, which defines a structure for naming files according to their content. The files are organized in a database and stored in a normal Directory / File structure. Due to the fact that spatial data relies on visual analysis, guidelines for map presentation were established, as they provide a straightforward visual comparison. In order to perform automated map interpretation, AI tools have to be employed. For the integration and implementation of spatial and temporal data, methodologies are rare and need further development. In this study four different yield maps from one field were combined. The authors conclude that further developments especially in the software area have to consider farm managers decision making processes.

INTRODUCTION

To date, farm managers have always tended to treat their fields as a whole unit although they have been fully aware that variability (spatial and temporal) exists within their fields. Nowadays, technologies such as DGPS and spot sensors offer the possibility to quantify some of these variabilities.

Precision Farming is mainly concerned with managing variability by using information technology tools to acquire and handle information.