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A four nation survey of farm information management and advanced farming systems: A descriptive analysis of survey responses

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ABSTRACT

The aim of this paper is to present the descriptive results of the survey responses that explore the perception of advanced information systems among four European countries: i.e. Denmark, Finland, Germany and Greece. The study evaluates the potential time savings associated with office tasks for information management and the likely adoption of advanced farming systems and precision farming practices. The survey results suggest that there are differences in weekly hours allocated to office tasks and its distribution across countries. However, there seems to be a potential benefit for introducing labour saving farm information management systems in relation to budgeting procedures, field planning and paperwork to deal with subsidy applications and public authorities. More than 40% of the respondent farms from Germany, Denmark and Finland seem to be unsure about usefulness of computers in dealing with official institutions and consumers. The extent to which the finding is linked to the budgeted time allocated to office tasks is worth pursuing.

1. Introduction

In recent years, the development of automated systems in agriculture has gained an increased interest, which has led many researchers to start exploring the possibilities to develop more rational and adaptable systems based on a behavioural approach (e.g. Sørensen et al., 2010b). A combined application of new communication technology, sensor systems, more powerful computing power, positioning systems (GPS) and geographical information systems (GIS) have enabled the development of new systems for cultivating and harvesting crops (e.g. Slaughter et al., 2008) and to improve indoor animal feeding management and milking systems (e.g. Wathes et al., 2008; Meijering et al., 2004).

Research into autonomous vehicles in agriculture started in the early 1960's by mainly developing automatic steering systems (Wilson, 2000). Robotic applications in agriculture, forestry and horticulture have been developed for various applications (Kondo and Ting, 1998; Hollingum, 1999). In terms of fully autonomous vehicles in agriculture, a limited number of applications like the automated harvesting system Demeter (Pilarski et al., 2002) as well as in semiautonomous tractors (Freyberger and Jahns, 2000; Billingsley, 2000) have been developed. There are a number of field operations that can be executed by autonomous vehicles and being more profitable than conventional machines (Sørensen et al., 2005; Pedersen et al., 2007). In recent years the development of autonomous vehicles in agriculture has experienced an increased interest. There are a number of prototypes that have been reported in horticultural crops, such as oranges (Hannan and Burks, 2004), strawberries (Kondo et al., 2005) and tomatoes (Chi and Ling, 2004). For field crops there are also a number of prototypes, such as the autonomous Christmas tree weeder (Have et al., 2002), the API platform for patch spraying (Bak and Jakobsen, 2003) and the hortibot vehicle for high-tech plant nursing (Jørgensen et al., 2006). A study by Reinemann (1998) indicate that there was about 5 milking robotic systems in Denmark in 1998, 50 systems in Germany

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