

What do German Farmers think about Precision Farming?

Polls were taken at the Agritechnica Fairs in Hanover (2001, 2003 and 2005) to ascertain the acceptance level, as well as the future potential of Precision Farming (PF) in Germany. On the one hand, the results show that since 2001 a slightly increasing number of farmers apply several PF techniques. After overcoming a few initial problems, most of the farmers interviewed were very satisfied with this technology. On the other hand, the majority do not use PF techniques for various reasons.

Precision Farming offers the opportunity to deal with site-specific differences within a field in order to increase profitability and to reduce environmental impact. It is a system approach, which needs a lot of technologies. The concept of PF is mainly based on site-specific data collecting, data processing and variable rate application inputs [1]. Besides the costs for the technology, the use of PF assumes that the farmer has to modify his machines, adopt new computer technology and a coherent management structure. These are surely obstacles, which have to be overcome by the interested farmer. Although PF techniques have been commercially available since the early 90's, most of the farmers started with PF at the end of the 90's. Till today the adoption of PF has been less than expected [2]. In order to find out more about the adoption of PF in Germany, several surveys have been conducted at the Agritechnica fair in Hanover Germany in 2001, 2003 and 2005. The interviewed farmers have been asked about their attitude towards PF, their experiences with this technology and the difficulties with the use of this technology.

Method

The interviews with the fair visitors have been conducted spontaneously with the help of a digital standardized questionnaire with predominantly closed questions. Most of the questions allow more than one possible answer. Based on some key questions, the respondents have been subdivided into different groups and have been asked group specific questions. Depending on the group the farmer got between nine and fifty questions. The respondents have been subdivided into the following groups: Uninformed Farmers: farmers, who don't know the term PF; Informed Farmers: farmers, who know the term PF and who are informed about the different PF technologies; Informed Non-PF Users: farmers, who are informed about the different PF technologies, but still don't use any PF techniques on their farms; Potential

PF-Users: farmers, who intend to introduce PF within the next three years on their farms; Users: farmers, who already use PF-technologies; beginning PF-Users: farmers, who only use GPS-based area mapping.

Results

All three surveys are fully representative, as the interviewed farmers represent one percent of the German fair visitors at the Agritechnica fair in Hanover (2001 = 1742, 2003 = 2620 and 2005 = 2110).

In all three surveys about 50 % of the interviewed farmers belong to the group of Informed Farmers. Most of them belong to the group of Informed Non-PF Users, who still hesitate the introduction of PF. The main reasons for hesitating are in all three surveys economic ones, like the high costs for the technology and the low profitability of PF with a small farm size. Most of the farmers in this group manage farms with an average farm size between 90 ha (2001) up to 100 ha (2005), which is well below that of PF Users, which varies between 380 ha (2001), 250 ha (2003) and 345 ha (2005). Furthermore many of them want to wait until PF proves to be no longer problematic. Nevertheless the results of all three surveys show that there is a certain potential of new PF-Users, who intend to introduce PF within the next three years (8.5% (2001), 5.0% (2003) and 8.7% (2005)). The group of Potential PF-Users is in general well informed about the different types of PF-technologies, about the costs, as well as the problems, which occur especially during the introduction. So in all three surveys the main prerequisite for an introduction of PF is lower purchasing price for the technology. Furthermore they want a precise statement regarding the profitability of PF. Many of them also hope for financial support, especially during the introduction of PF. The percentage of the PF-Users slightly increased from 6.65 % in 2001 up to 7.95 % in 2005. Most of the PF-Users are located in the eastern part of Germany, in the area of the for-

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Keywords

Precision farming, acceptance

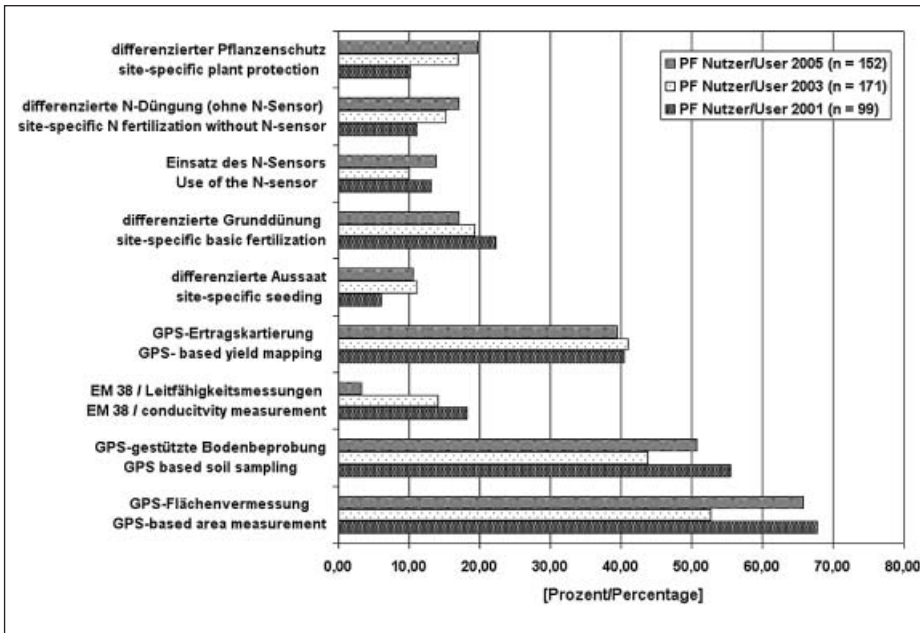


Fig. 1: Precision farming techniques applied by German farmers surveyed

mer German Democratic Republic. But since 2001 a slightly increasing number of PF-Users also come from the western part of Germany. This could be an evidence for the increasing confidence in this technology. The main reasons for introducing PF are in all three surveys economic ones, like the lowering of the costs for the machinery and an increasing profitability. Another important reason is the better knowledge of the field. Concerning the economic motivation for the introduction of PF, in all three surveys the majority of PF-Users gain financial benefit throughout the use of PF. Like other technical innovations the User of PF techniques also has to face various problems, especially during the introduction. Most of the PF-Users criticize the high amount of time

spent to get used to the technology and the missing compatibility between machines of different manufacturers. Furthermore the unreliability of the machines causes problems. Nevertheless, after overcoming the beginning problems, most of the PF-Users are very satisfied with the applied technologies and most of them would recommend this technology to other farmers.

But the results also show that still some obstacles exist, which prevent a wider use of the techniques. Thus a large number of PF-Users still use technologies that provide information regarding their whole fields. Only a few farmers already use technologies that help to react to the prior gained information, like for example site-specific fertilization or site-specific seeding (Fig. 1).

Conclusion

The multitemporal analysis of the fair results shows that the percentage of German farmers, who use PF technology, slightly increased since 2001. Though the user of PF techniques has to face various problems, especially during the beginning, later most of them are satisfied with their decision to introduce PF on their farms. Most of them gain financial benefit with the use of PF technologies. A lot of interested farmers with smaller farm sizes than that of the group of PF-Users intend to introduce PF within the next three years. This could be an evidence for the increasing confidence into this technology.

Literature

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