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Analysis of the attitude of farmers towards innovations in the management of grasslands in Poland

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Key words: barriers; drivers; grassland; innovation

Abstract

Innovations in the management of grasslands in Poland are important to preserve them as a source of different ecosystem services. In the farmers point of view the most promising is forage production for herbivores, particularly dairy cows. Individual farmers have different opinions about innovations. To stimulate innovations in grassland-based farming systems in Poland, it is important to determine the drivers for their promotion and to define the barriers to overcome problems by their implementation. Analysis of the attitude of Polish farmers towards innovations on grasslands were conducted within the H2020 Inno4Grass project. The majority of respondents were young and had relatively well-developed farms. An on-line questionnaire on innovations on grassland was developed using SurveyMonkey. The questionnaire studied the attitude of grassland farmers towards innovations, e.g. their importance, factors influencing decisions of their adaption, barriers and drivers. Answers were scored on a Likert scale. Furthermore, some general questions were asked: available grassland area, main type of animal, farmer age, etc. The questionnaire was available from winter 2017/2018 onwards and closed at the end of June 2018. At the time of closing the questionnaire, 157 valid responses were obtained. Dairy cows were the most common animal type in grassland farms, followed by beef cattle. The majority of respondents indicated that innovations are important or very important in general, in grassland and in grazing, respectively 92%, 88% and 62%. The most important influencing factors on farmer's decisions with respect to grasslands (>60%) were own values and norms, image of the farm/the sector, family, consumers and advisors. Farmers pointed out that the most important driver for innovation is money/profit/better income (17.5%), followed by time saving/improved labour conditions (14.2%) and animal health (11.6%). In the opinion of the respondents, the main barriers to innovations in grasslands are money/costs too high/benefits too low (23.9%), too little technology on farm (15.0%) and risk (13.6%).

Introduction

Innovations for grasslands need to consider the connection and potential trade-off between productivity and provision of public goods, in particular, ecosystem services. Moreover, these connections and trade-offs are often context- and place-specific (Krause et al. 2018). Local farmers, also in Poland, often have relevant place-specific knowledge that is essential not only for implementation but can also form the basis of innovations and learning. Innovations in the management of grasslands are important to preserve them and to obtain different ecosystem services. In the Polish farmers point of view the most promising is forage production for herbivores, particularly dairy cows (Goliński and Golińska 2019), but many other provisioning, regulating, cultural or support services are important as well (Goliński et al. 2014). Individual farmers have different opinions about innovations depending on age of the farmer, risk adoption, financial issues, policy, etc. Such attitudes can be managed by innovation brokers and opinion leaders who have an impact on the acceptance of innovation by risk-averse and risk-taking farmers (Yosua et al. 2019). In the process of stimulating the adoption of innovations in grassland-based farming systems in Poland, it is important to determine the drivers for their promotion and to define the barriers to overcome problems by their implementation. The objective of this paper was to analyse the attitude of farmers towards innovations in the management of grasslands in Poland. In the study, the majority of respondents were young and had relatively well-developed farms.

Methods and Study Site

Analysis of the attitude of Polish farmers towards innovations on grasslands was conducted within the H2020 Inno4Grass project entitled "Shared innovation space for sustainable productivity of grasslands in Europe" (Krause et al. 2018). It was an international and multi-actor project bringing together outstanding agricultural organizations, extension services, education and research institutions from eight EU countries. An on-line questionnaire on innovations on grassland was developed using SurveyMonkey (www.surveymonkey.com). The questionnaire studied the attitude of grassland farmers towards innovations, e.g. their importance, factors influencing decisions of their adaption, barriers and drivers. Answers were scored on a Likert scale: very unimportant - unimportant - neutral - important - very important. In the driver and barrier parts, farmers could

choose 1-4 categories from a predefined set of potential drivers and barriers. Furthermore, some general questions were asked: available grassland area, main type of animal, farmer age, etc. The questionnaire was spread either via direct mail or via social media and was available from winter 2017/2018 onwards and closed at the end of June 2018. Only respondents that had grasslands in farm were considered. At the time of closing the questionnaire, 157 valid responses were obtained.

Results

The majority of farmers participating in the online survey represented individual well-developed farms. The average grassland area of farms considered in the analysis was 22.7 ha. Dairy cows were the most common animal type in the farms (49%), followed by beef cattle (33%). The average size of the cattle herd in the farms was 61.4 heads. Other grass-based herbivores identified in the survey – horses, sheep and goats – represented 17% of farms. Grasslands farms where the grass is harvested and sold and not used by any animal were present among only 1% of the respondents. In 56% of farms, grasslands were used exclusively by cutting and in 44% by full or periodical grazing.

It is worth to underline that mostly young farmers took part in the analysis. The majority of the responses came from the age category under 26 years old (Figure 1). This group together with farmers from the age category 26-35 years reached the percentage of 72% in the study. The results of the survey show that the attitude of Polish farmers towards innovations is in majority positive. Answering questions on the importance of innovations, 92% respondents indicated that, in general, innovations are important or very important to them. Concerning innovations on grassland, the scores for important or very important were slightly lower (88%). In turn, innovations in grazing management (62%) were considered less important than innovations in grasslands. The reason for this is probably the relatively large percentage of farms that use indoor feeding systems based on conserved forages on their farms. The respondents were also asked whether it is possible to innovate on their farm. Figure 2 shows that the majority of the respondents (63.7%) were positive about the opportunities to innovate. However, attention should be paid to the large group of farmers who see barriers or many barriers in introducing innovations on their farms, 23.6% and 3.8%, respectively.

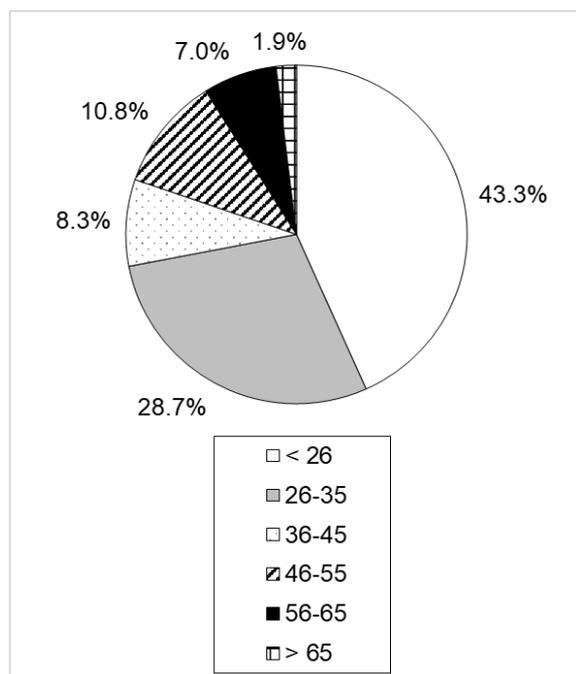


Figure 1. Age of farmers in the study

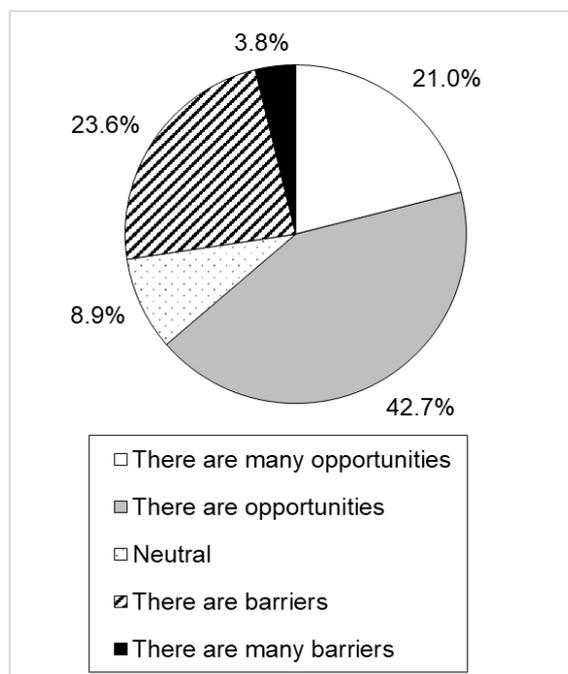


Figure 2. Possibility to innovate on the farm

In the analysis of the attitude of Polish farmers towards innovations in the management of grasslands, it is interesting to determine the drivers and the barriers in their implementation. The respondents indicated many drivers for innovations on grasslands. Figure 3 shows that most important were financial issues – to earn more money or to be more profitable (17.5%), followed by time saving/improving labour conditions (14.2%) and animal health and welfare (11.6%). Apart of other drivers shown in Figure 3, the farmers indicated also consumer demands, curiosity, his own attitude, interaction between farmer, advisor and researcher, environmental engagement, law and regulations and farmer's status as drivers. In total, this group of drivers reached the level of 30.9% of the responses. The results showing main barriers for innovations on grasslands

(Figure 4) clearly indicated that too high costs or too low benefits are the main barriers in their implementation (23.9%). Farmers also recognized as important barriers for innovations the low technological preparation of their farms (15.0%), risk associated with the use of innovation (13.6%), law and regulations (13.4%) as well as time/labour issues (13.2%). Other barriers indicated by respondents were farmer's age, willingness to change, lack of conviction that development of farm is possible and farmer's social environment (15.4%).

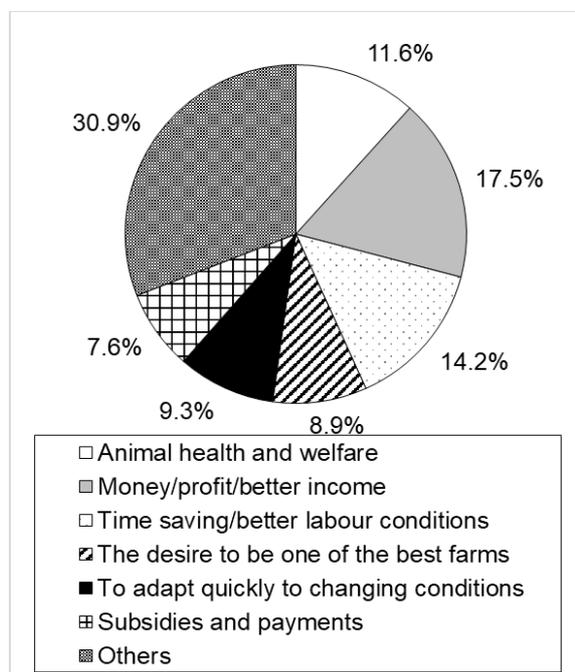


Figure 3. Main drivers for innovations

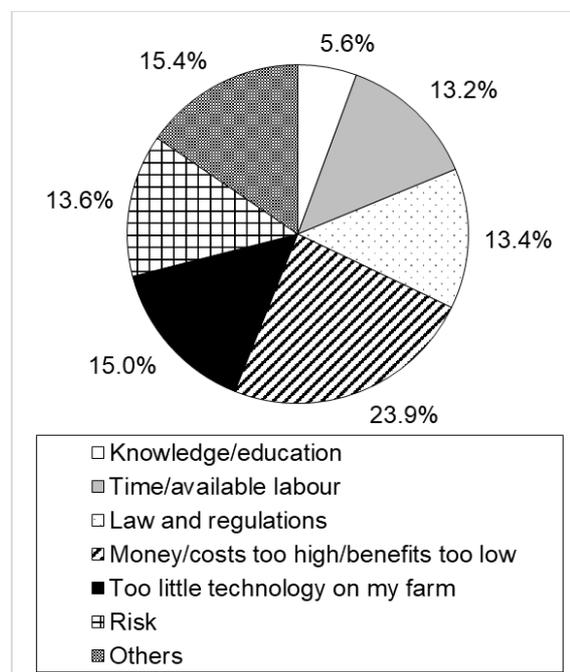


Figure 4. Main barriers for innovation

Next to drivers and barriers, the most important influencing factors on farmer's decisions towards innovation on grasslands were defined. Figure 5 shows that within these factors own values and norms scored the highest, because 91.1% of farmers indicated it as very important or important. Image of the farm/the sector, family, consumers and advisors were also considered to be important for decisions with respect to grasslands (> 60%). NGOs, government and the media had less influence on farmers' decisions regarding grassland innovation.

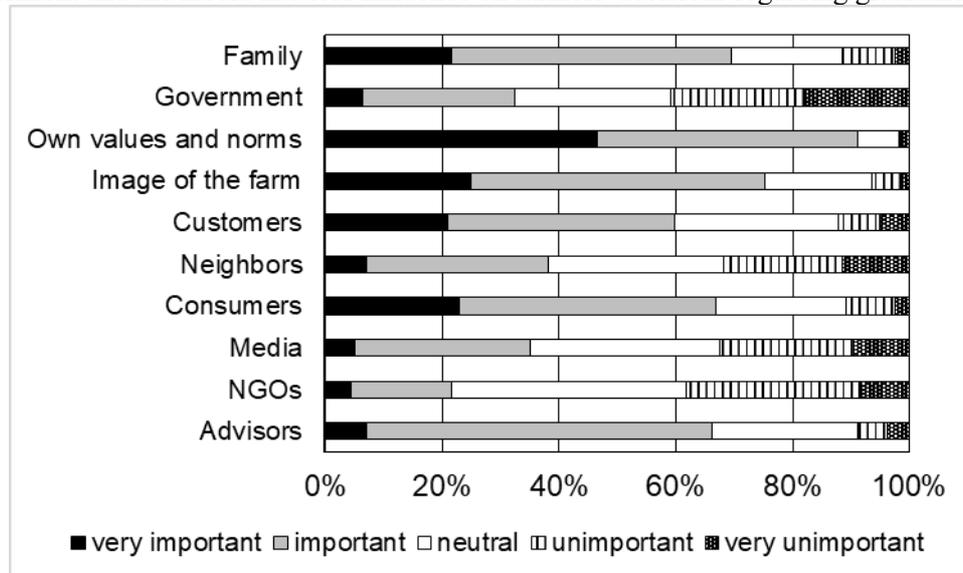


Figure 5. Most important influencing factors on farmer's decisions towards innovation on grasslands

Discussion

The results of the analysis show an overview of Polish farmers' attitude to implementing innovations in grassland management. The majority of respondents were young and had relatively well-developed farms. Innovations are an important factor in improving the productivity of grasslands, which are still an underestimated source of cheap and valuable feeds in animal nutrition in the country (Goliński and Golińska

2019). First of all, there is space for innovations on grassland in Poland. The majority of grassland farmers (ca. 90%), managing mostly dairy or beef farms, indicated that innovations are important or very important. Concerning the most important influencing factors on farmer's decisions towards innovation with respect to grasslands, the results were similar to the study conducted in the broader European farm community (Van den Pol-van Dasselaar et al. 2019). At European level, also own values and norms were the most important influencing factor. In the opinion of the authors, it would be interesting to use in-depth interviews to further study the background of the answers, e.g. on what factors do grassland farmers build their own values and norms, is it family traditions, agricultural education or something else.

For Poland, it is crucial to determine the drivers for promoting innovations and to define the barriers to overcome problems by their adoption. It can be particularly important for innovation brokers focusing on grassland-based systems (Goliński et al. 2018) and agricultural policy-makers (Yosua et al. 2019). Innovation acceptance and uptake on grasslands is complex and influenced by a variety of factors such as socio-economic and farm variables, cognitive variables (beliefs), and social-psychological variables (social norms), with these variables having different effects on adoption (Martínez-García et al. 2013). Further research in this area is needed not only in Poland but in other countries as well to improve management of grasslands and their status as a source of many ecosystem services.

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