

Appreciation of the functions of grasslands by European stakeholders

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Abstract

The European project MultiSward aimed to increase the reliance of farmers on grasslands and on multi-species swards for competitive and sustainable ruminant production systems. Active participation of stakeholders was one of the key objectives of the project. The aim of the current study was to get an insight into the importance of grasslands for stakeholders in Europe. An on-line questionnaire on the functions of grasslands was developed in eight languages and 1959 valid responses were obtained. Belgium, France, Ireland, Italy, the Netherlands and Poland were the countries with the highest responses. All of the stakeholder groups that were identified as being important in the stakeholder analysis responded to the questionnaire. When asked about the importance of different aspects of sustainability, stakeholders, on average, valued economic aspects the highest, followed by ecological aspects and finally, social aspects. There were, however, differences between countries and stakeholder types. The results of the questionnaire show that individual functions of grasslands are highly recognized and appreciated by all relevant stakeholder groups. We conclude that the large European grassland area is considered by all stakeholders to be a valuable resource that is essential for economy, environment and people.

Keywords: grasslands, multifunctionality, stakeholder, sustainability, questionnaire

Introduction

Grasslands, with their multifunctional roles, can provide a good basis for developing sustainable production systems in the long term (Peyraud *et al.*, 2010). The project MultiSward (www.multisward.eu, 2010-2014) aimed to secure optimal acreage and utilization of grasslands in Europe, to highlight the benefits of grasslands and to conceive, evaluate and promote sustainable ruminant production systems, based on the use of grasslands with a high level of multi-functionality, to increase simultaneously the competitiveness of ruminant production systems and provide environmental goods and biodiversity preservation.

During the last 40 years the European grassland area has significantly reduced, by 15 M ha in favour of the production of fodder maize and other annual crops (FAOSTAT, 2011). Even marginal grasslands tend to be abandoned, particularly in mountainous and Mediterranean areas, where they can be of crucial importance for preserving biodiversity, protecting soils against erosion and maintaining the local population density. The reduction has differed between countries. Losses were high in Belgium, France, Italy and the Netherlands while the grassland area remained almost stable in Luxembourg and the United Kingdom. In 2007, permanent grasslands covered over 57 million ha in the EU-27 and temporary grasslands about

10 million ha, which represents 33% and 6%, respectively, of the total utilized agricultural area (UAA) in the EU-27.

In order to contribute to the overall objective of MultiSward, stakeholder requirements and expectations with respect to multi-functionality of grasslands within Europe should be known, because a better understanding of stakeholders' perspective of grasslands leads to a better understanding of the importance of grasslands. Prior to the MultiSward project, the requirements and expectations of stakeholders with respect to the multi-functionality of grasslands in Europe were not known. Therefore, an active participation of stakeholders was one of the key objectives of the MultiSward project. An initial inventory was made of the requirements and expectations of stakeholders with respect to the multi-functionality of grasslands in Europe (Van den Pol-van Dasselaar *et al.*, 2012 and 2013). The aim of the current study was to give new insights into the importance of grasslands for stakeholders in Europe.

Materials and methods

An international team of representatives from Ireland, the Netherlands, France, Italy and Poland was established representing Atlantic, Mountainous, Mediterranean and Continental regions. The work started with a stakeholder analysis (Pinxterhuis, 2011). The identification of stakeholders is an important first step in stakeholder consultation. Stakeholders are usually defined as those who either affect or are affected (e.g. Freeman, 1984). In the case of grasslands, this means that stakeholders are those who affect grasslands or are affected by grasslands. Both aspects were taken into account when prioritizing the stakeholders in the stakeholder analysis. A good stakeholder analysis is essential (Reeda *et al.*, 2009), since only by understanding who has a stake in grasslands, can the appropriate stakeholders be effectively involved in the stakeholder consultation. The stakeholder analysis was undertaken to identify the people or institutions having a clear stake in the multi-functional use of grasslands, or being in the position to play an important role in the development and implementation of new management options for multi-species swards (e.g. can directly benefit, has political power, is executing governance, is economically dependent, *etc.*). The most important stakeholders were the foursome of primary producer, policy maker, researcher and advisor. NGOs for nature conservation and for protection of the environment were also considered important, together with industry (mainly processing and seed industry) and education. Following the initial stakeholder analysis, the international stakeholder team undertook several studies, including national and international meetings.

A questionnaire on the functions of grasslands was developed in eight languages: Polish, Dutch, Italian, French, English, German, Danish and Swedish, using SurveyMonkey (www.surveymonkey.com). The questionnaire included two main questions on the importance of grasslands in Europe. First, respondents were asked for their opinion on sustainability. This term covers economic, environmental and social issues (profit, planet, people). Respondents to the questionnaire were asked to divide 10 points across these three aspects of sustainability, giving most points to the one they considered the most important aspect (e.g., 4, 3, 3 if they considered that ecological and social aspects are of equal interest and that economy is slightly more important). Second, the respondents were asked to score 42 predefined functions of grasslands for importance in their region (1 = not important; 5 = very important). These functions are examples of the ecosystem services that grasslands deliver. The concept of ecosystem services provides a good insight into the benefits that humankind gains from its interaction with natural resources, in this case with grasslands. The Millennium Ecosystem Assessment report (MEA, 2005) distinguishes four groups of ecosystem services: (i) provisioning services: products obtained from ecosystems, e.g. production of food, water, (ii) regulating services: benefits obtained from the regulation of ecosystem processes, e.g. control of climate and disease, (iii) cultural services: non-material benefits that people obtain from

ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences, e.g. recreation and beauty of the landscape, and (iv) supporting services: ecosystem services that are necessary for the production of all other ecosystem services, e.g. nutrient cycles, crop pollination.

Research partners of MultiSward actively distributed the questionnaire in Europe to stakeholders. Furthermore, several relevant associations with members from different stakeholder groups were approached, such as the national Grassland Societies in the respective countries. The questionnaire was available online from spring 2013 and closed at the end of 2013.

The sustainability results were analysed using GenStat (VSN International, 2013). The observed points out of a total score of 10 have been treated as pseudo-binomial data, taking the variance to be proportional to binomial variance (McCullagh and Nelder, 1989). Differences between countries, stakeholder type, gender and age in preference of the respondents have been assessed by linear logistic regression analysis of the observed points using a logistic model with main effects. Main effects have been tested with approximate F-tests; differences between countries, stakeholder type, gender and age have been tested with approximate t-tests on all pairwise differences of fitted marginal means on the underlying logistic scale.

Results and discussion

At the time of closing the questionnaire, 1959 valid responses had been obtained for the question on sustainability aspects. The majority of respondents (1798) also provided answers to the question on the different functions of grasslands. The respondents originated from 27 different countries in Europe. There were six countries with more than 200 responses: France (21% of the total responses), Italy (17%), Ireland (13%), Poland (12%), Belgium (11%) and the Netherlands (11%). The remaining countries in the rest of Europe were grouped (15%). All the relevant stakeholder types described in Pinxterhuis (2011) responded to the questionnaire. Responses from researchers, advisers and farmers accounted for a high proportion of the total: 22%, 19% and 17% of the total responses, respectively. The contribution of policymakers was much lower (6%), but given the fact that there are obviously fewer policy makers and they are often less eager to respond, we were satisfied with this percentage. Other groups were students (16%), educators (6%), industry (5%), e.g. feed industry, dairy industry, seed industry, and finally NGOs (3%). The remaining group, which mainly consisted of people who identified themselves as consumers, press, in between jobs *etc.* was 6%. Some people identified themselves as belonging to two groups. In those cases, they were classified into the group which they mentioned first. With respect to age and gender, responses were obtained from all age categories. One-third of the respondents were female and two-thirds were male. The percentage of female respondents in the younger age groups was higher than the percentage of female respondents in the higher age groups. Finally, it was observed that the majority of the respondents had received a high level of education, as two-thirds of the respondents had attended university. It is to be expected that respondents in a number of stakeholder groups have a position that requires a relatively high level of education. The groups 'farmers', 'students' and the 'rest' group had a lower level of education. A further explanation might be that well educated people may be more willing to respond to a questionnaire.

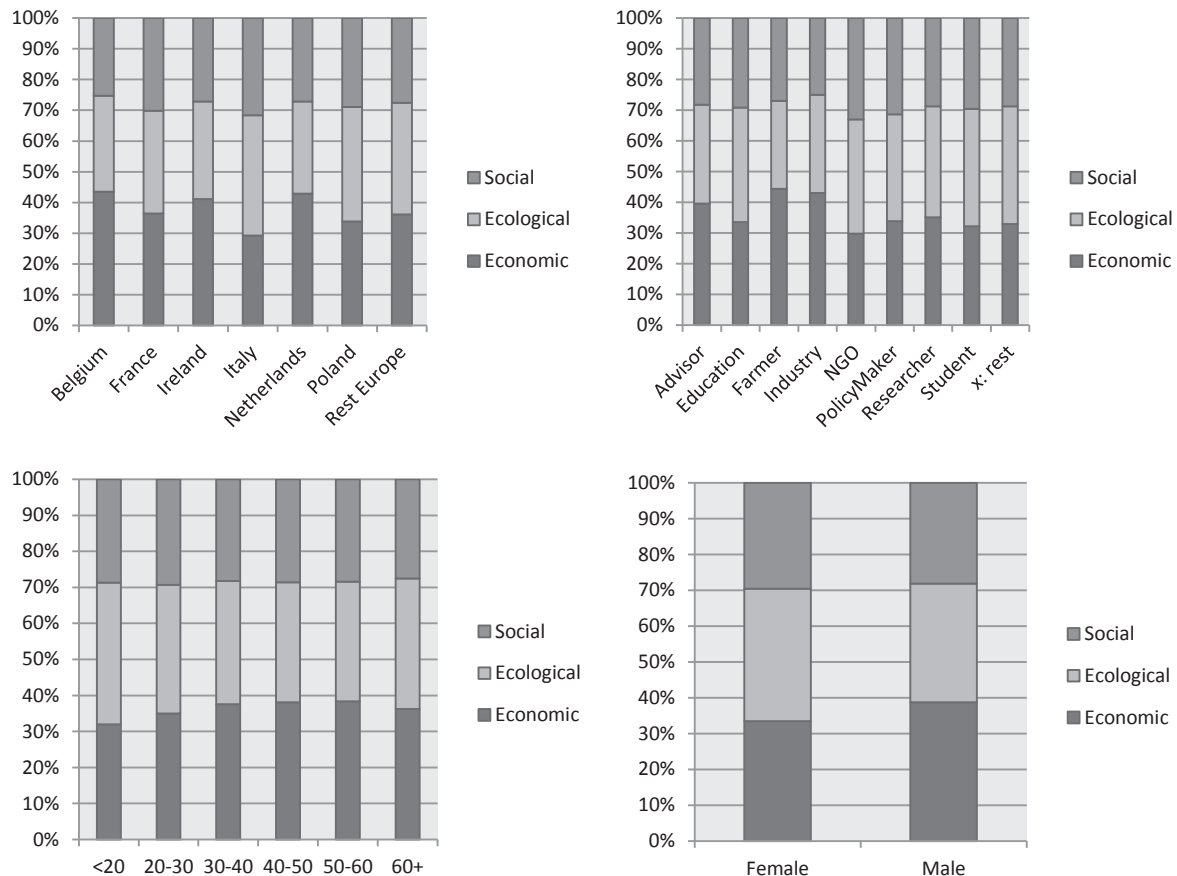


Figure 1. Importance of economic, ecological and social aspects of sustainability for a) different countries, b) different stakeholder types, c) different age and d) different gender (total of economic, ecological and social aspects equals 10 for each group) (n=1959).

When people were asked to divide 10 points over economic, ecological and social aspects of sustainability, on average, economy was valued the highest (3.7) followed by ecology (3.4) and social aspects (2.9). The differences were significant, but these means also show that all aspects of sustainability were considered to be important. The effect of country, stakeholder, age and gender is shown in Figure 1. Obviously, respondents only had 10 points to divide. This means that the effects on economic, ecological and social aspects are entangled. When a respondent, for instance, decides to give more points to social aspects, there will be fewer points left for the other two aspects. We therefore looked for pairwise significance. When analysing economic, ecological and social aspects, the effects of country and stakeholder type were significant ($P < 0.001$). The effect of age and gender was less consistent; after having accounted for the remaining main effects of country and stakeholder type, the age and gender effect was often no longer significant.

Italy showed the lowest ranking for economy, followed by Poland and France (Figure 1a). Belgium, Ireland and the Netherlands had a high ranking for economy. In accordance with this, Italy, France and to a lesser extent Poland, showed higher ranking for social aspects than the other countries. Ecological aspects were scored highest for Italy and Poland. Concerning the different stakeholder types (Figure 1b), farmers, industry and to a lesser extent advisers, showed the highest ranking for economy; the social aspects were valued the highest by NGOs and policy makers and lowest by industry. Ecological aspects were valued highest by education, research and students, and lowest by farmers. There was hardly any difference in the ranking of social aspects in relation to age (Figure 1c). It seems that economy is ranked a bit higher when people get older at the cost of ecological aspects. However, differences were not significant. Females ranked economy lower than males mainly to the benefit of ecological aspects (Figure 1d).

When people were asked to value different functions of grasslands, it was clearly shown that the different functions of grasslands are highly recognized and appreciated by all relevant stakeholder groups (see papers on appreciation of the functions of grassland by Belgian, Dutch, French, Irish, Italian and Polish stakeholders elsewhere in this volume, and Van den Pol-van Dasselaar *et al.* (2014) for a summary of all results). It is therefore important that future policies continue to support the conservation of grasslands. Scenarios with less grassland will lead to an overall decrease in total ecosystem services delivered, since grassland is the only land-use option which is capable of delivering that large a number of ecosystem services simultaneously.

Conclusion

MultiSward provided an insight into the appreciation of the different functions of grasslands in Europe. It clearly showed that the different functions of grasslands are highly recognized and appreciated by all relevant stakeholder groups. The large European grassland area appears to be essential for economy, environment and people. We conclude that all stakeholders consider grasslands to be a valuable resource in Europe. Maintaining or increasing the grassland area and thus securing the importance of the different functions and services of grasslands in Europe is a challenge for the coming years. It is, however, important since it will ensure the continuation of different ecosystem services being delivered simultaneously by multifunctional grasslands.

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