

## Appreciation of the functions of grassland by Dutch stakeholders

Van den Pol-van Dasselaar A. and Stienezen M.W.J.

Wageningen UR Livestock Research, P.O. Box 65, 8200 AB Lelystad, the Netherlands

Corresponding author: agnes.vandenpol@wur.nl

### Abstract

The European project MultiSward studied the appreciation of different functions of grasslands by European stakeholders. This paper describes the importance of grasslands for stakeholders in the Netherlands. There is currently 1 million ha of grassland in the Netherlands, which is 40-45% of the total agriculturally utilized area. Dutch stakeholders appreciate the different functions of grasslands, especially high quality forage, dairy cow milk production, low cost animal feed and grazing. Functions that are less relevant for the Netherlands, like sheep and goat production, fire control and avalanche control, are also less appreciated. We conclude that stakeholders appreciate grasslands in the Netherlands as a valuable resource for many ecosystem services.

Keywords: grassland, stakeholders, the Netherlands

### Introduction

Grasslands cover almost 1 million ha in the Netherlands, which is 40-45% of the total agricultural area. The majority of these grasslands (75%) are permanent grasslands; 20% consists of temporary grasslands and 5% is natural grasslands (CBS, 2014). Grasslands are usually intensively managed and dominated by perennial ryegrass (*Lolium perenne* L.). The grasslands are used as feed for dairy cattle. The Dutch dairy sector is characterized by relatively high levels of supplementation, mainly silage maize and concentrates. Silage maize covers about 10% of the total agricultural area in the Netherlands (CBS, 2014) and is fully used for dairy feed. About 70% of the dairy cattle are grazing for at least part of the grazing season (CBS, 2014). The aim of the current study was to obtain an insight into the importance of grasslands for stakeholders in the Netherlands.

### Materials and methods

An on-line questionnaire on the appreciation of functions of grasslands was distributed throughout Europe. A detailed description of the method can be found in Van den Pol-van Dasselaar *et al.* (2014, this volume). This paper describes the results for the Netherlands. In the Netherlands, the questionnaire was distributed to members of the Netherlands Society for Grassland and Fodder Crops and the Dutch farmers' association LTO. In addition, it was distributed via social media, like LinkedIn.

### Results and discussion

At the time of closing the questionnaire, 206 valid responses had been obtained. The majority of these responses came from farmers (90 responses, which equals 44% of total response), followed by advisers (34; 17%), researchers (30; 15%), industry (29; 14%), policy makers (8; 4%), education (8; 4%) and NGOs (5; 2%). Students were not included, since only 2 students responded. Tables 1 to 4 show the appreciation of the functions of grasslands by the different stakeholders. The functions are grouped into the four groups of ecosystem services: provisioning services, regulating services, supporting services and cultural services. Many provisioning services are highly appreciated by Dutch stakeholders but a number of them, such as sheep and goat production, are less relevant under Dutch conditions. This is also true for some regulating functions like fire control and avalanche control. Cultural services, such as the contribution of grasslands to the beauty of the landscape and the perception of animal production systems, are seen as important. With respect to supporting services, animal health

is valued highly, especially by farmers. Farmers and policy makers consider feed protein supply at farm-level also to be an important function of grasslands.

Table 1. Importance of provisioning services of grasslands according to the respondents of the questionnaire (1 = not important; 5 = very important).

	Advice	Edu- cation	Far- mers	Indus- try	NGO	Policy maker	Research
High quality forage	4.4	4.0	4.8	4.6	4.0	4.0	4.5
Dairy cow milk production	4.6	4.3	4.5	4.6	4.2	4.6	4.7
Low cost animal feed	4.4	3.8	4.6	4.3	3.2	3.9	4.1
Nutritional quality of animal products for human consumption	3.9	3.6	3.9	4.0	3.2	3.8	3.9
Beef meat production	2.9	2.8	3.0	3.7	2.8	2.4	3.3
Global food production	3.6	3.8	4.0	4.2	2.6	3.5	3.7
Region of origin of animal products	3.5	3.4	2.9	3.6	3.6	3.5	3.1
Honey production	2.4	2.8	2.0	2.3	2.8	2.6	2.1
Sheep meat production	2.1	2.6	2.1	2.9	3.2	1.9	2.3
Biomass for energy production	1.8	2.3	1.5	2.3	2.0	1.8	2.1
Sheep milk production	2.1	2.4	1.7	2.6	3.2	1.5	2.0
Goat milk production	2.3	2.1	1.8	2.8	2.8	1.8	2.0
Wool production	1.8	2.0	1.7	2.2	2.8	2.1	2.0
Goat meat production	1.8	1.6	1.4	2.3	2.6	1.3	1.7
Production of plant fibre	1.8	1.8	1.5	2.2	1.8	2.3	1.9

Table 2. Importance of regulating services of grasslands according to the respondents of the questionnaire (1 = not important; 5 = very important).

	Advice	Edu- cation	Far- mers	Indus- try	NGO	Policy maker	Research
Biodiversity	3.6	4.1	3.2	3.3	4.4	3.5	3.7
Conservation of ecosystems quality	3.8	4.0	3.3	3.4	4.6	3.9	3.4
Water catchment	3.3	2.8	2.4	3.2	2.8	3.3	3.2
Erosion control	2.6	2.9	2.3	3.0	3.5	2.4	2.5
Carbon sequestration	3.3	2.8	2.9	3.2	4.0	3.9	3.5
Mitigating greenhouse gas emissions	3.3	3.8	2.9	2.9	4.0	3.9	3.2
Adaptation to climate change	3.5	2.7	2.8	2.8	3.4	3.6	3.2
Flood plains rivers	3.0	3.6	2.3	3.3	3.4	4.6	3.2
Pathogen control in cropping system	3.5	3.3	3.1	3.4	3.2	3.3	3.2
Fire control	1.9	1.8	1.7	2.2	2.4	1.6	1.8
Avalanche control	1.4	1.8	1.3	1.6	2.0	1.1	1.7

Table 3. Importance of cultural services of grasslands according to the respondents of the questionnaire (1 = not important; 5 = very important).

	Advice	Edu- cation	Far- mers	Indus- try	NGO	Policy maker	Research
Beauty of the landscape	3.9	4.1	3.8	3.6	4.2	4.0	4.1
Positive perception of animal production systems	4.4	3.8	4.1	3.9	4.2	4.3	3.9
Rural development	3.3	3.1	3.3	3.3	3.6	3.0	3.2
Maintaining population in rural areas	3.5	3.8	3.7	3.6	4.2	3.6	3.5
Cultural values	3.6	3.3	2.9	3.2	3.4	4.0	3.6
Tourism / recreation	3.1	3.9	2.7	3.1	3.2	3.3	3.4
Supporting horses for equestrian sport and recreation	2.1	2.1	1.7	2.8	3.3	2.0	2.3

Table 4. Importance of supporting services of grasslands according to the respondents of the questionnaire (1 = not important; 5 = very important).

	Advice	Edu- cation	Far- mers	Indus- try	NGO	Policy maker	Research
Grazing	4.5	3.8	4.2	4.3	4.0	4.8	4.3
Animal health	4.0	3.9	4.4	4.1	3.8	3.9	4.0
Animal welfare	3.9	3.9	4.0	4.0	4.2	4.1	3.7
Conservation of soil structure and fertility in cropping systems	4.1	4.1	4.0	3.9	3.6	4.0	4.0
Feed protein supply at farm level	4.4	3.9	4.7	4.3	3.8	4.8	4.4
Competitiveness of farming systems	3.5	3.3	3.7	3.6	2.8	3.9	3.9
N fixation via legumes	3.4	4.1	3.2	3.4	3.4	3.9	3.3
Availability of water	3.4	3.8	3.5	3.6	3.8	3.4	3.3
Crop pollination	2.6	2.7	2.4	2.6	3.6	2.8	2.3

## Conclusion

Dutch stakeholders appreciate the different functions of grasslands, especially high quality forage, dairy cow milk production and grazing. Functions that are less relevant for the Netherlands are also less appreciated. We conclude that stakeholders appreciate grasslands in the Netherlands as a valuable resource for many ecosystem services.

## Acknowledgements

The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/ 2007-2013) under the grant agreement n° FP7-244983 (Multisward) and n° FP7-314879 (Autograssmilk) and from the Dutch ministry of Economic Affairs (KB-12-006.04-003 and BO-22.04-005-002).

## References

- CBS (2014) StatLine databank, <http://statline.cbs.nl/>.
- Van den Pol-van Dasselaar A., Goliński P., Hennessy D., Huyghe C., Parente G. and Peyraud J.L. (2014) Appreciation of the functions of grasslands by European stakeholders. *Grassland Science in Europe* 19 (this volume).