



# Conference guide

## Your guide to EGF 2024

30th General Meeting  
Why grasslands?

The Netherlands 9-13 June



# EGF

# 2024



The Netherlands 9-13 June



**EGF**  
**2024**



Nederlands -Vlaamse vereniging voor Weide- en Voederbouw

# Welcome

We would like to welcome all delegates of the 30th General Meeting of the European Grassland Federation to Leeuwarden, the Netherlands. The Dutch-Flemish Society for Grassland and Fodder Crops (NWWV) is very pleased to organise this meeting for you. Together with partners and many volunteers from the Netherlands and Flanders, we have been preparing for your arrival in Leeuwarden.

Why grasslands? This question lies at the heart of our meeting here in Leeuwarden, June 2024. The role of animals in net food security is a topic of ongoing debate. Europe's vast grassland areas are facing unprecedented threats, with urbanization, conversion to other crops, and other factors leading to their gradual disappearance. The loss of these grasslands may also result in loss of the benefits these grasslands provide. The General Meeting of the European Grassland Federation in 2024 will address this crucial issue, exploring why grasslands are important.

There will be five subthemes:

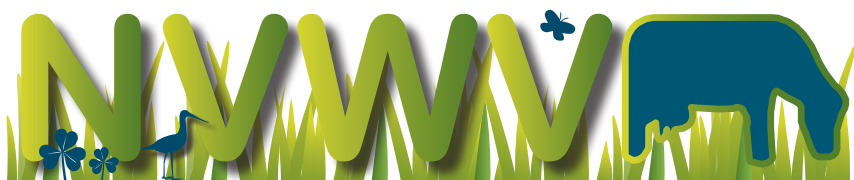
- Grasslands: What? What is the role of grasslands in net food security?
- Grasslands: How? How do we balance ecosystem services?
- Grasslands: Which? Which methods can be used to monitor, evaluate and steer grassland management?
- Grasslands: Where? Where should we focus on which ecosystem services?
- Grasslands: Whom? For whom are grasslands important?

In the concluding session at the end of the meeting, the question “Why grasslands?” will be answered based on the contributions of the participants.

At EGF2024, we anticipate lively debates, insightful presentations, interesting mid-conference tours and social activities, and above all fruitful exchanges of ideas among researchers, practitioners, and stakeholders from across Europe and beyond. Together, we will explore the multifaceted roles of grasslands and seek innovative solutions to the challenges they face.

We encourage you to actively contribute to the meeting and we wish that the 30th General Meeting of the European Grassland Federation will lead to many new insights and connections!

*Agnes van den Pol-van Dasselaar* President  
*Cindy Klootwijk* Chair Scientific Committee  
*Wiepk Voskamp-Harkema* Chair Organising Committee



Nederlands -Vlaamse vereniging voor Weide- en Voederbouw

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# Practical information

## Venue

De Harmonie Stadsschouwburg Leeuwarden  
Ruiterskwartier 4  
8911BP Leeuwarden  
+31 582330230

Website: [www.egf2024.com](http://www.egf2024.com) for the latest information.

Travel planner: <http://9292.nl/en#>

## Contact persons

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Oane de Hoop, event coördinator	+31 6 1249 2712

## EMERGENCY: 112

**Dokterswacht Friesland (in case you urgently need medical assistance outside conference hours – it is only open in the evening and night and only for urgent medical assistance): +31 9001127112**

**Police: +31 9008844**

## Organisation EGF 2024

Agnes van den Pol-van Dasselaar  
Cindy Klootwijk  
Wiepk Voskamp-Harkema

President  
Chair Scientific Committee  
Chair Organising Committee



## Scientific Committee

Cindy Klootwijk, chair  
Martine Bruinenberg  
Mathias Cougnon  
Nyncke Hoekstra  
Raimon Ripoll Bosch  
Stephanie Schelfhout  
René Schils  
Thijs Vanden Nest  
Nick van Eekeren  
Wiepk Voskamp-Harkema  
Agnes van den Pol-van Dasselaar

**Sponsor Committee:** Robin Wolf, Couzijn Bos, Jeroen Nolles

**Support team:** Oane de Hoop, Joke Scholte, Caroline Verhoeven

**Excursion team:** Numerous members of the Dutch-Flemish Society for Grassland and Fodder Crops (NVWV)

**Accompanying delegates program:** Cor Kwakernaak

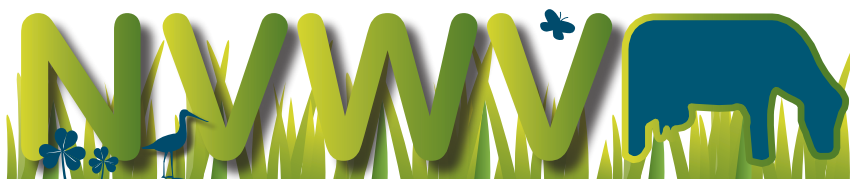
**Post-conference tour:** Thijs Vandennest, Wiepk Voskamp

**Board** of the Dutch-Flemish Society for Grassland and Fodder Crops

**Special thanks to everyone who contributed to the organisation of the conference, especially the numerous members of the Dutch-Flemish Society for Grassland and Fodder Crops (NVWV) who voluntarily took on tasks to ensure its success!**

# DUTCH-FLEMISH SOCIETY FOR GRASSLAND AND FODDER CROPS

The 30<sup>th</sup> General Meeting of the European Grassland Federation is hosted by the Dutch-Flemish Society for Grassland and Fodder Crops (Nederlands-Vlaamse Vereniging voor Weide- en Voederbouw; NVWV). Since 1961, the NVWV is a Dutch-speaking platform for students, researchers, advisors, teachers, industry representatives, farmers, policy makers and other people interested in grass and forage. The NVWV organises meetings on current topics related to grassland and forage crops, ranging from research results to practical applications on farms. The members are interested in everything related to grasslands and forage crops, such as fertilisation, grazing, biodiversity, cultivation measures, breeding, and feed production.



Nederlands -Vlaamse vereniging voor Weide- en Voederbouw

# Sponsors and supporters

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## Platina

provinsje fryslân  
provincie fryslân 

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## Gold



## Silver



## Bronze



Knowledge grows

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## Other



## Organisation





# Conference Schedule

## Sunday June 9<sup>th</sup>

09:30 - 17:00	Working Group “Grazing”
17:30 - 19:30	Registration

## Monday June 10<sup>th</sup>

08:00 – 10:00	Registration / posters setting up
09:00 – 10:30	Opening ceremony
10:30 - 11:00	Coffee break
11:00 - 12:00	Theme 1: Grasslands, what? – plenary papers
12:00 - 13:25	Lunch, followed by poster session Theme 1
13:25 - 14:25	Theme 2: Grasslands, how? – plenary papers
14:30 – 16:00	Parallel theatre presentations Theme 1 and Theme 2
16:00 – 17:00	Coffee break and poster session Theme 2
17:00 – 17:45	City walk to Welcome Reception
17:45 – 19:15	Welcome reception

## Tuesday June 11<sup>th</sup>

09:00 - 10:00	Theme 3: Grasslands, which? – plenary papers
10:00 – 10:30	To the buses
10:30 – 18:00	Mid-Conference Tours
18:00 – 21:00	Frisian Elfsteden Tour/Scientific Food event at Dairy Campus

## Wednesday June 12<sup>th</sup>

09:00 – 10:00	Theme 4: Grasslands, where? – plenary papers
10:00 – 10:30	Coffee break
10:30 – 12:00	Parallel theatre presentations Theme 3
12:00 – 14:00	Lunch, followed by poster session Theme 3
14:00 – 15:00	Theme 5: Grasslands, whom? – plenary papers
15:00 – 16:00	Coffee break and poster session Theme 4 and Theme 5
16:00 – 17:30	Theatre presentations Theme 4 and Theme 5
17:30 – 18.00	To the buses
18:00 – 23.15	Conference dinner

## Thursday June 13<sup>th</sup>

09:00 – 10:30	“Grasslands, why?” Conclusions EGF Business Meeting Closing ceremony
10:30 – 11:00	To the buses
11:00	Start post-conference activities



CRV

## Grass-fed genetics to transform the grazing world

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programme design. Farmers can select from a range of breeds, benefiting from our focus on health & efficiency to fit their challenges and unique conditions, to drive profitability.

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# Scientific Program June 9<sup>th</sup>-13<sup>th</sup>

## Why grasslands?

The role of animals in net food security is under debate. In connection with this, Europe's vast grassland areas are at risk. Already, a large area of grassland has disappeared in the last decades due to urbanization, conversion of grass to other crops, etc. This pressure on the land area has further increased in recent years. With the loss of grasslands we lose the associated benefits. Is this, however, a real problem? The General Meeting of the European Grassland Federation in 2024 will focus on the role of grasslands. The main theme revolves around the question whether grass is important, and if so, why.

## Sunday June 9<sup>th</sup>

<b>09:30 - 17:00</b> <i>Van Hall Larenstein Agora 1 Leeuwarden</i>	<b>Working Group “Grazing”</b> The theme of the 8 <sup>th</sup> Working Group meeting is ‘Grazing for AgroEcology’. As well as producing high quality food, grazed pasture-based ruminant production systems offer a range of ecosystem services including economic, ecological, cultural and societal services. The Working Group meeting is set to stand out due to the collaboration in the afternoon with young European farmers that are focussing on the combination of grazing and agroecology ( <a href="http://www.grazing4agroecology.eu">www.grazing4agroecology.eu</a> ).
<b>17:30 - 19:30</b> <i>De Harmonie, Grote Foyer</i>	<b>Registration 30<sup>th</sup> General Meeting EGF</b>

# Monday June 10<sup>th</sup>

08:00 – 10:00 <i>Grote Foyer</i>	<b>Registration / posters setting up</b>
09:00 – 10:30 <i>Grote Zaal</i>	<p><b>Opening ceremony 30<sup>th</sup> General Meeting EGF “Why grasslands?”</b></p> <p>Agnes van den Pol-van Dasselaar (President EGF) Wiepk Voskamp (President NVWV)</p> <p>“Why grasslands?": Insights from Farm Case Studies in the Netherlands and Flanders. <b>Klootwijk C.W., Cougnon M., Bruinenberg M., van Eekeren N., Frijlink M., Philipsen A.P. and van den Pol-van Dasselaar A.</b></p>
10:30 - 11:00 <i>Grote / Boven Foyer</i>	<b>Coffee break / posters setting up</b>
11:00 - 12:00 <i>Grote Zaal</i>	<p><b>Theme 1: Grasslands, what?</b> (chaired by Bettina Tonn &amp; Nick van Eekeren)</p> <p>What is the role of grasslands under a feed-no-food scenario? <b>Pfeifer C. and Winterberg R. (Switzerland)</b></p> <p>What can we do to improve the contribution of grassland to net food security? <b>Hennessy D. (Ireland), Delaby L. (France), Eriksen J. (Denmark) and Rinne M. (Finland)</b></p>
12:00 - 13:25 <i>Grote / Boven Foyer</i>	<b>Lunch, followed by poster session Theme 1</b>
13:25 - 14:25 <i>Grote Zaal</i>	<p><b>Theme 2: Grasslands, how?</b> (chaired by Piotr Stypiński &amp; Martine Bruinenberg)</p> <p>Balancing competing ecosystem services requires stakeholder involvement and actions on different spatial scales. <b>Klaus V.H. (Switzerland), Bloor J.M.G. (France), Cozzi G. (Italy), Le Clec’h S. (the</b></p>

	<p>Netherlands), Peter S. (Germany) and Huguenin-Elie O. (Switzerland)</p> <p>Assessing the economic value of cultural ecosystem services from grasslands using choice experiments. <b>Jitea I.-M., Mignon S. and Dumitras D.E. (Romania)</b></p>
<p><b>14:30 – 16:00</b> Bovenzaal</p>	<p><b>Parallel theatre presentations Theme 1 Grasslands, what?</b> (chaired by Mathias Cougnon &amp; Nick van Eekeren)</p> <p>Intake and growth of steers offered perennial ryegrass and perennial ryegrass-red clover silage. <b>Byrne N., Grealis R., Flynn D., Dineen M. and O'Driscoll J. (Ireland)</b></p> <p>Grasslands' yield gap and its impact on the contribution to food security of dairy farms. <b>Battheu-Noirfalise C., Mertens A., Curnel Y., Froidmont E., Stilmant D. and Beckers Y. (Belgium)</b></p> <p>Land-use efficiency of grass-based versus maize-based dairy cattle to protein production in France. <b>Allix M., Rouillé B. and Baumont R. (France)</b></p> <p>Microclimate, grass growth and herbage quality of peat grassland under free field photovoltaic modules. <b>Zinken L., Hamidi D., Tegtmeier P., Kayser M. and Isselstein J. (Germany)</b></p> <p>Greenhouse gas emissions and feed-food competition on Swiss dairy farms. <b>Ineichen S., Elmiger N., Flachsmann T., Grenz J. and Reidy B. (Switzerland)</b></p> <p>Drought impact on dynamics of red clover and birds-foot trefoil ratio in mixtures. <b>Kemešytė V., Statkevičiūtė G., Čapaitė G., Šidlauskaitė G., Norkevičienė E. and Jaškūnė K. (Lithuania)</b></p>
<p><b>14:30 – 16:00</b> Grote Zaal</p>	<p><b>Parallel theatre presentations Theme 2 Grasslands, how?</b> (chaired by Martine Bruinenberg &amp; Raimon Ripoll Bosch)</p>

	<p>Ecosystem services of temperate grasslands under climatic extremes: a literature review. <b>Wang Y.</b>, Klaus V.H., Gilgen A.K. and Buchmann N. (Switzerland)</p> <p>The impact of limited grazing on milk production and methane emission in dairy cattle. <b>Van De Gucht T.</b> (Belgium), Thys M. (Belgium), Delagarde R. (France), Ampe B. (Belgium), Peiren N. (Belgium) and Vandaele L. (Belgium)</p> <p>The effect of grassland management intensity on earthworms and leatherjackets. <b>Jansma A.P.</b>, <b>Hoekstra N.J.</b>, Van Eekeren N. and Baars R.M.T. (the Netherlands)</p> <p>Carbon balance in grassland ecosystems: case studies of 35 Portuguese farms. <b>Almeida J.P.F.</b>, Mira Potes J., Teixeira A. and Matos C. (Portugal)</p> <p>Can we increase grassland biodiversity by means of renewal without a loss of yield and forage quality? <b>Hejduk S.</b> (Czechia)</p> <p>Permanent grasslands on peat soils managed for dairy production and biodiversity. <b>Bufe C.</b>, Ozinga W., Geerts R., Plomp M., Klootwijk C., Veraart M., Bloem J., Schils R., Westerink J. and Kampen J. (the Netherlands)</p>
<b>16:00 – 17:00</b> Grote / Boven Foyer	<b>Coffee break and poster session Theme 2</b>
<b>17:00 – 17:45</b>	<b>City walk to Welcome Reception</b>
<b>17:45 – 19:15</b> Fries Museum Leeuwarden	<b>Welcome reception</b> Welcome by Provinsje Fryslan

## Tuesday June 11<sup>th</sup>

<b>09:00 - 10:00</b> <i>Grote Zaal</i>	<b>Theme 3: Grasslands, which?</b> (chaired by Michael O'Donovan & Thijs vanden Nest)  The long path from data collection to sustainable grassland management. <b>Buchmann N.</b> (Switzerland), <b>Korhonen P.</b> (Finland), <b>Malisch C.S.</b> (Denmark) and <b>Newell Price J.P.</b> (United Kingdom)  Which steps are needed to go from data collection to actual management decisions? <b>Jouven M., Michaud A. and Carrère P.</b> (France)
<b>10:00 – 10:30</b>	<b>To the buses</b>
<b>10:30 – 18:00</b>	<b>Mid-Conference Tours</b> <ul style="list-style-type: none"><li>• Grass production in a national bocage landscape</li><li>• Exploring Wageningen</li><li>• Innovation Expedition</li><li>• State of the Art</li><li>• Frisian Peat Meadows</li></ul> <p><b>You can find your mid-conference tour on your badge. Please note that last changes are not possible.</b></p>
<b>18:00 – 21:00</b> <i>Dairy Campus</i>	<b>Frisian Elfsteden Tour / Scientific Food event</b>

## Wednesday June 12<sup>th</sup>

<b>09:00 – 10:00</b> <i>Grote Zaal</i>	<b>Theme 4: Grasslands, where?</b> (chaired by Johannes Isselstein & Nyncke Hoekstra)  Spatial differences of ecosystem services provided by grasslands in Europe. <b>Kyriazopoulos A.P.</b> (Greece)
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	<p>Diverse grassland and diverse benefits: the different roles and purposes of grassland. <b>Kominda M.</b> (Germany), <b>Fernández-Habas J.</b> (Spain), <b>Fernández-Rebollo P.</b> (Spain), <b>Isselstein J.</b> (Germany), <b>Kulik M.</b> (Poland) and <b>Lind V.</b> (Norway)</p>
<p><b>10:00 – 10:30</b> Grote / Boven Foyer</p>	<p><b>Coffee break</b></p>
<p><b>10:30 – 12:00</b> Bovenzaal</p>	<p><b>Parallel theatre presentations Theme 3</b> (chaired by Thijs vanden Nest &amp; Branko Kramberger)</p> <p>Why and when to give concentrate to dairy cows in a grass-based system? <b>Delaby L.</b>, <b>Gaborit M.</b>, <b>Leloup L.</b> and <b>Launay F.</b> (France)</p> <p>The influence of defoliation method on perennial ryegrass variety evaluation. <b>Tubritt T.</b> (Ireland), <b>Delaby L.</b> (France) and <b>O'Donovan M.</b> (Ireland)</p> <p>Finding a needle in a haystack: case-control studies can identify measures to prevent weeds in grassland. <b>Klötzli J.</b>, <b>Suter M.</b> (Switzerland), <b>Beaumont D.</b> (UK), <b>Kolmanič A.</b>, <b>Leskovšek R.</b> (Slovenija), <b>Schaffner U.</b> Switzerland, <b>Storkey J.</b> (UK) and <b>Lüscher A.</b> (Switzerland)</p> <p>Organic manure fertilization effect on phosphorus availability in permanent meadows. <b>Campdelacreu Rocabruna, P.</b>, <b>Domene, X.</b> (Spain), <b>Matteazzi, A.</b>, <b>Figl, U.</b>, <b>Fundneider, A.</b> and <b>Peratoner, G.</b> (Italy)</p> <p>Drying autumn grass to improve protein quality. <b>Van Wesemael D.</b>, <b>Van den Bossche T.</b>, <b>Goossens K.</b>, <b>Vandaele L.</b> and <b>De Boever J.</b> (Belgium)</p> <p>From the Surface to Space: Combining Multiscale Observations of Semi-Natural Grasslands in Ireland. <b>Hayes S.</b>, <b>Cawkwell F.</b>, <b>Bacon K.L.</b>, <b>Lynch Milner O.</b>, <b>Halpin E.</b> and <b>Wingler A.</b> (Ireland)</p>



<p><b>10:30 – 12:00</b> <i>Grote Zaal</i></p>	<p><b>Parallel theatre presentations Theme 3</b> (chaired by Nyncke Hoekstra &amp; Michael Egan)</p> <p>Methods and tools to routinely obtain comprehensive insight into the soil health of grassland. <b>Reijneveld J.A.</b>, <i>Poot N. (the Netherlands), Holst-Kjellingbro N. (Sweden), Kaartinen M. (Finland), Robinson D. (UK) and Oenema O. (the Netherlands)</i></p> <p>Validating and improving the Carnegie-Ames-Stanford Approach (CASA) for remote sensing of perennial grass biomass. <b>Zhang S.</b>, <i>Lærke P.E., Neumann Andersen M., Jørgensen U. and Manevski K. (Denmark)</i></p> <p>Solar grazing – spatial distribution of sheep in free-field-photovoltaic systems on grassland. <b>Hamidi D.</b>, <i>Sieve F., Siede C., Wilms L., Zinken L., Kunz F., Kayser M., Hamidi M., and Isselstein J. (Germany)</i></p> <p>Grazed multispecies swards: herbage production and sward botanical composition in year 4 post-sowing. <b>Dolan K.</b>, <i>Hearn C., Hennessy D. and O'Donovan M. (Ireland)</i></p> <p>Virtual herding: Current trends and future prospects for grazing livestock. <b>Horn J.</b>, <i>Riesch R., Komainda M., Riedel P. and Isselstein J. (Germany)</i></p> <p>Genetics at a landscape level for better conservation of seminatural grasslands in the Karkonosze National Park, Poland. <b>Szymura T.H.</b>, <i>Konowalik K., Urbaniak J. and Szymura M. (Poland)</i></p>
<p><b>12:00 – 14:00</b> <i>Grote / Boven Foyer</i></p>	<p><b>Lunch, followed by poster session Theme 3</b></p>
<p><b>14:00 – 15:00</b> <i>Grote Zaal</i></p>	<p><b>Theme 5: Grasslands, whom?</b> (chaired by Luc Delaby &amp; Stephanie Schelfhout)</p> <p>The intricate pathway for the future grasslands; who comes first, people or policy? <b>Guimarães M.H.</b>, <i>Ferraz-</i></p>

	<p><i>de-Oliveira I., Sales-Batista E. and Pinto-Correia T. (Portugal)</i></p> <p>Putting grassland at the heart of animal farming. <b>Carlsson A.C., Nilsson-Linde N. and Carlsson H.A. (Sweden)</b></p>
<p><b>15:00 – 16:00</b> <i>Grote / Boven Foyer</i></p>	<p><b>Coffee break and poster session Theme 4 and Theme 5</b></p>
<p><b>16:00 – 17:30</b> <i>Grote Zaal</i></p>	<p><b>Theatre presentations Theme 4 and Theme 5</b> (chaired by Stephanie Schelfhout &amp; Vibeke Lind)</p> <p>Dairy Campus: Living Lab for biodiversity and precision Agriculture. <b>Ferwerda-van Zonneveld R.T., Plomp M., Walvoort G.A., Migchels G., van Schooten H.A., Oenema J. and Voskamp-Harkema W. (the Netherlands)</b></p> <p>The role of legume forage crop on nitrous oxide (N<sub>2</sub>O) emissions from a boreal grassland. <b>Bhattarai H.R. (Finland), Manninen P. (Finland), Ruhanen H. (Sweden), Wanek W. (Austria), Hallin S. (Sweden) and Shurpali N.J. (Finland)</b></p> <p>Agro-ecological indicators to assess the effect of grazing at farm level. <b>Looney C. (Ireland), Schetelat S. Caraes C. (France), Krause A., Klinck L. (Germany), Huyghe C. (France), O'Donovan M. (Ireland), Van den Pol-van Dasselaar A., Ankersmit E. (the Netherlands), Peratoner G., Fracchetti L. (Italy), Ramos C. (Portugal), Jitea I.M. (Romania), Nilsson-Linde N., Hessel A. (Sweden) and Blanc-Jouvan L. (Ireland)</b></p> <p>Stakeholder perception of nutrient-poor meadows in the Trudner Horn Nature Park (South Tyrol, Italy). <b>Moser M., Tasser E. and Peratoner G. (Italy)</b></p> <p>Multi-actor approach to explore information sharing opportunities to promote emission reduction on grazing dairy farms. <b>Browne N., Moloney S. and Hennessy D. (Ireland)</b></p>

	Understanding drivers of farmers' intention to implement livestock protection measures against wolves in Bavaria, Germany. <b>Riesch F.</b> , Möck M., Feindt P.H., Zetsche M. (Germany), Gerber N. (Switzerland), van Beeck Calkoen S.T.S., Bojarska K., Herzog S., Balkenhol N. and Isselstein J. (Germany)
<b>17:30 – 18.00</b>	<b>To the buses</b>
<b>18:00 – 23.15</b> <i>Mystery location</i>	<b>Conference Dinner</b>

## Thursday June 13<sup>th</sup>

<b>09:00 – 10:30</b> <i>Grote Zaal</i>	<p><b>“Grasslands, why?” Conclusions</b> <i>Van den Pol-van Dasselaar A., Klootwijk C.W. and Voskamp-Harkema W.</i></p> <p><b>EGF Business Meeting</b></p> <p><b>Closing ceremony</b></p>
<b>10:30 – 11:00</b>	<b>To the buses (for those that booked one of the post-conference activities)</b>
<b>11:00</b>	<p><b>Start post-conference activities</b> Excursion via Aeres Farms to Schiphol (arrival 16:30) Post-conference tour to the Netherlands and Flanders 13-15 June</p>



Barenbrug wishes you an interesting and inspiring congress filled with valuable insights and fruitful discussions.

 **BARENBRUG** | **120**  **YEARS**

## Mid-Conference Tours June 11<sup>th</sup>

During the Mid-Conference Tours, you will have the opportunity to visit typical Dutch grassland landscapes, activities and innovations. You can find your mid-conference tour on your badge. Please note that last changes are not possible. Departure for all tours 10:30 from Leeuwarden (close to the conference venue). Arrival between 18:00 and 19:00 at Dairy Campus, Boksumerdyk 11, 8912 CA Leeuwarden

### Exploring Wageningen

The city of Wageningen is known for its agricultural university and research institutes. It is the central city of Food Valley, which is a leading Agro-food centre in Europe. To visit Wageningen, the bus makes a journey from Leeuwarden to the south.



The first stop will be at the Eurofins Agro international competence centre, the global research and innovation organization of Eurofins Agro. It is the scientific backbone of the 600.000 annual analyses of soil, plant, food, feed, fertilizer, water, manures, and wastes. Established in 1927 and currently located at Agro Business Park in Wageningen.

Experts will show us how they set standards in the international Agro lab community with constant innovation and developing tools to improving crop productivity, crop quality, nutritional security, and environmental sustainability. We are offered the opportunity to look inside the laboratories.

After we have been well taken care of, we continue our way to Wageningen University Campus. A guide will come on board to tell us everything about the origins and development of Wageningen University & Research.

From there, our journey continues in the beautiful surroundings of Wageningen. Wageningen is located in the Dutch river delta. The area around Wageningen was created between the two moraines Utrechtse Heuvelrug and the Veluwe under the influence of the river Rhine: 'Het Binnenveld'. Het Binnenveld is a beautiful area between the cities

Wageningen, Ede and Veenendaal that used to be dominated by hay meadows and where we find the so-called “blue grasslands”. To maintain this landscape and plant communities, Het Binnenveld is now a protected area where government, provinces, farmers, municipalities, nature conservation organisations and civilians work together to achieve this goal. We will hear about the initiative “Mooi Binnenveld” in which money was collected by crowd funding and 50 ha farming land was bought in Het Binnenveld. In the afternoon, volunteers of “Mooi Binnenveld” will guide us (on foot) through the “blue grasslands”. After that, the bus will take us back to Leeuwarden, to arrive at Dairy Campus around 19:00.

*Contact person: Marcia Stienezen +31 6 20374630*

### **Innovation Expedition: Barenbrug and Vredo on the road**

For the Innovation Expedition, Barenbrug and Vredo join forces. Barenbrug is globally renowned for its innovative approach and expertise in the field of grass. With over 100 years of experience, the focus is daily on investing in new technologies, new partnerships, and the needs of end-users. Because that’s what Barenbrug does every day: actively think about grass solutions for tomorrow’s challenges. Vredo is a family business that started in 1947 with a self-designed overseeder. The double-disc principle is the core of this invention. It was conceived in response to the market need to successfully overseed in very dry times. Vredo remains faithful to this principle with double discs. The focus on field results, combined with solid quality, means that Vredo’s overseeders have been used worldwide for many years. During the interactive Innovation Expedition, we will take participants into the world of Barenbrug and Vredo.

What does the Innovation Expedition look like?

In the morning, the bus departs from Leeuwarden towards a Barenbrug FIF (Forage Innovation Farm) practical farm, where a dairy farmer shares his vision. The main topic of this visit is the diverse crop rotation with grass as a base. How does the European agricultural transition at the local level fit according to the dairy farmer in his future farming operation? The farmer will guide the participants through his daily practice. What are the important choices and challenges in managing grass and legumes as the basis for a diverse crop rotation?

Second stop: the idyllic trial location in Homoet from Barenbrug. Here lies the complete European range of grass species and concepts that were sown in 2023. In 2024, these grasses, alfalfa, and clovers are in perfect condition to be felt and viewed.



Barenbrug proudly shares what is happening in the Research Area in the development of grasses and legumes. Piet Arts, Global Research Director, will share his vision on Global Research within Barenbrug. Topics of conversation include Nitrogen Efficiency and DNA Technology in grass breeding.

Then the bus departs for Vredo. In Dodewaard, we will be guided through Vredo's production location where all innovations can be admired. Here, the overseeders, self-propelled fertilizing vehicles, and sod spreaders can be examined in detail. This visit concludes with a live demonstration by Vredo. After the tour, the bus departs again towards Leeuwarden to arrive at Dairy Campus at 19:00.

*Contact person: Suzan Nicolassen +31 653368354*

### **Frisian Peat Meadows Tour**

The EGF2024 General Meeting is situated in the heart of the province of Friesland with its typical meadows and church towers, dunes and dikes, forests and beaches, lakes, and swamps. Nowhere else will you find so many different landscapes together as in Fryslân. If you appreciate the typical Dutch landscape with polder grasslands, dairy cows, meadow birds and windmills and enjoy water, you must visit the beautiful green Frisian peat areas. The Frisian peat meadow area covers 89,000 hectares and forms a unique landscape with its vast grasslands, plenty of water and typical dairy farming activities.

However, the special character of this area is under pressure. Draining the peat to make habitation and agriculture possible, causes land subsidence and releases greenhouse gasses. It also leads to further desiccation of surrounding nature reserves. Measures are being taken to slow down greenhouse gas emissions and soil subsidence and desiccation, such as higher groundwater levels and infiltration. However, these measures also

have effects on biodiversity, soil and water quality, water consumption and on the technical and economic uses of the land and result in other grass species, reduced carrying capacity resulting in fewer grazing days, and lower net yield. These side effects partly determine the feasibility of applying climate measures. The aim is to implement area-specific measures that fit in with current land use. Innovations in the areas of water, soil, land use and integrated business operations are necessary to maintain the special character, agricultural function, and quality of life of the Frisian peat meadow area.



The Peat Meadows Program Fryslân was established to continue living, working, and recreating in the peat meadow area. The program addresses the challenges of the area based on a jointly shared vision and development of knowledge with the support of scientists and experts. They carry out various research projects together with local parties. Many of these are focused on agricultural management at a higher groundwater level. Research is also conducted into themes such as water management, soil management, nature, and cultural history. All this often happens in collaboration with residents and entrepreneurs in the areas.

During the tour, we will explore peat areas where the Frisians work on innovations for dairy farming with higher groundwater levels. In the morning, we will visit Dairy farm 'De Gelder'. During a guided tour, we will learn about cheese: How to make it and how to taste it! After that we continue the journey to Veenpolder 'De Hegewarren'. After a picnic, we will visit a test location to learn about how to develop flexible water levels, create a high-water farm, manage grassland, measure soil bearing capacity, growth roughage, measure greenhouse gas emissions, restore biodiversity and grow wet crops. Of course, we will have a cup of coffee at the lake site in Oudega. After that, we will go back to Leeuwarden, to arrive at Dairy Campus at 18:00.

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## Grass production in a National Bocage Landscape I

The 'Noardlike Fryske Wâlden' National Landscape is a scenically attractive and unique area between Dokkum and Drachten, in the northeastern part of Friesland. The area of more than 25,000 hectares owns the title 'National Landscape', due to the unique combination of housing and agricultural activities in balance with nature and cultural history. Here you will find thousands of kilometres of hedgerows and alder banks, meadows, lakes, swamps, and many sandy paths. The large number (hundreds) of pingos and floats (lakes) is striking. Rows of trees with blackberry bushes underneath line the meadows.



This has created a fine-meshed pattern with a closed character. Due to its location on the border between sand and clay, the natural value and biodiversity are particularly high. The centuries-old bocage landscape with alder banks and hedgerows has remained intact and farmers maintain this special landscape. That makes it unique throughout Europe.

Farmers and private individuals are organised in an association 'Noardlike Fryske Wâlden' that ensures the preservation and development of this special landscape and the farmland birds through (agricultural) nature and landscape management. The association

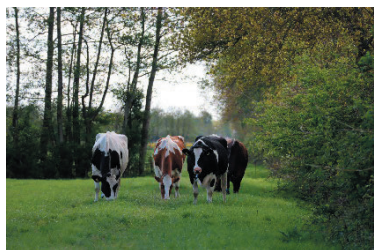
considers attention to biodiversity and circular agriculture to be of great importance for the survival of the agricultural sector that ensures food production, employment, and the quality of life in the area. In addition, the preservation and development of the (cultural) historical value and nature of the National Landscape makes the area attractive for residents and visitors. The morning starts with a visit to a research plot at a farm where the impact of herb-rich grasslands on local biodiversity is investigated. After a picnic, we will pay a visit to a research/demo plot at a typical dairy farm (Surhuizum) within the National Landscape, where native biodiversity and grass

production for dairy go together successfully. The impact of hedgerows on soil moisture, grass production and feed quality in adjacent pasture plots are being measured over the season. From there, we will continue our way to Wâldpleats farm, where we will stay a while for coffee. At Wâldpleats farm they make local dairy products that are sold in the farm shop. From there we return to Leeuwarden with final destination Dairy Campus (18:00).

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## **Grass production in a National Bocage Landscape II**

This tour resembles the previous one and it also takes place in The 'Noardlike Fryske Wâlden' National Landscape.



In the morning we will visit a research/demo plot at a typical dairy farm (Drogeham) within the National Landscape, where native biodiversity and grass production for dairy go together successfully. The impact of hedgerows on soil moisture, grass production and feed quality in adjacent pasture plots are being measured over the season. Around lunchtime, we will stay a while at dairy farm Wâldpleats (Burgum), where they make local dairy products that are sold in the farm shop. In the afternoon, we will pay a visit to a research plot at a farm where the impact of herb-rich grasslands on local biodiversity is investigated. From there, we will continue our way to CRV Breeding Centre (Wirdum) to have a look at the feed efficiency system of the nucleus herd. At 18:00, we will arrive at Dairy Campus.

*Contact person: Robin Wolf +31 646117106*

## **State of the Art Tour: CRV and Lely**

During this Tour you can take a look behind the scenes at two leading international companies that contribute to efficient use of grass. With innovative solutions and targeted services, they support dairy farmers

(owning the largest area of grassland in the Netherlands) with the daily care for efficient production of milk out of grass. One of those companies is CRV, a globally operating cooperative cattle improver that has its origins in the Netherlands and Flanders. The other one is Lely an international family business in the agricultural sector that has its origins in the Netherlands. CRV has multiple locations for each part in the process of cattle improvement. From breeding and testing to production and innovation. The heart of CRV's Holstein breeding programme is in Wirdum in Friesland, the Netherlands. CRV's Dairy Breeding Center (DBC) is home to some 350 young female animals with the highest genetic predisposition for health and efficiency. They have been chosen from among very best animals in the European Holstein population and are used as donors for the breeding programme. The next generation of bulls and bull dams will be selected on health, efficiency, and lifetime production, from the calves produced by their embryos. With CRV FeedExcel, CRV offers milk producers a breeding strategy promising a feed-efficient herd with higher margins and lower methane emissions.




Lely is an international family business in the agricultural sector and works incessantly on innovative solutions and targeted services for dairy farmers. It offers solutions and advice for almost all activities outside and in the barn. Lely is guided and inspired by vision and the wishes and choices of dairy farmers. Lely has been doing this since 1948: the year in which brothers Cornelis and Arij van der Lely entered the market with the rake: one of the first inventions that broke through the traditional way of working on the farm. Many more innovations followed, each with one goal: to make the lives of farmers worldwide easier and to work together towards a sustainable, profitable, and pleasant future in the agricultural sector. A current example of this is the Exos, with which Lely introduces the first autonomous solution for harvesting and feeding fresh grass.

The State of the Art Tour starts in Leeuwarden. First, we will visit CRV's Dairy Breeding Center in Wirdum, close to Leeuwarden. After a warm welcome and introduction, you will receive an overview of the Breeding activities. This is followed by a guided tour where you can see behind glass how the animals are cared for, how roughage intake is measured, what is involved in embryo production, and how CRV combines the work with the animals and embryos at this location.

At lunchtime, the bus leaves for Noord-Holland, heading for a welcome at a modern dairy farm in Sloodorp. There, the Lely Exos will be demonstrated, the new fresh grass concept of Lely. Lely Exos is the first autonomous solution that harvests and feeds fresh grass multiple times a day, 24/7. By autonomously

mowing, transporting, feeding, and fertilising grass, the Exos maximises the efficiency of the roughage from own farmland with minimal labour requirement. Then the bus goes back to Leeuwarden, via the 'Afsluitdijk', a 32km long dike that has been protecting large parts of the Netherlands against flooding by the sea since 1932. The tour ends at Dairy Campus (18:00).

Contact person: Jeroen Nolles +31 618099697




**Maximising  
the potential of  
fresh grass**

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Did you know that fresh grass is easier for cows to digest? As a result, it produces less intestinal methane, so it is beneficial for both cow health and the environment.

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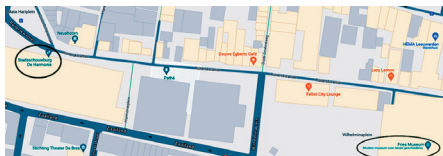
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# Knowledge grows

# Social Program

On Monday evening June 10, we will be warmly received and welcomed by the Province of Fryslân (Friesland). After a stroll through the inner city of Leeuwarden, we will come together at the Fries Museum, while enjoying a drink and finger food. Adress: Fries museum, Wilhelminaplein 92, Leeuwarden



On Tuesday evening June 11, directly following the Mid-Conference Tours, you are invited to join us for a Frisian Elfsteden Tour at Dairy Campus (Boksumerdyk 11, Leeuwarden). In a typical Frisian setting, researchers will offer you a 'scientific menu'. Busses will take you back to Leeuwarden after the event.

EGF Walking Dinner at Dairy Campus June 11th 2024

1 Skybox feeding research	5 Drone BFWW
2 Biodiverse Milk	6 Graze-E
3 Virtual Fencing	7 GreenFeed
4 Grassa	

- Leeuwarden Start: Welcome drinks – soup  
Finish: icecream – coffee and drinks
- Ulst: Frisian Cheesesalad
- Stavoren: Spring Hotchpotch
- Workum: Brewbread with a vegetable burger
- Harlingen: Bun with pulled pork/pulled jackfruit

Route Around the North  
 Route Around the South

On Wednesday evening June 12, conference participants are invited to join the Conference Dinner at a place to be announced at the conference. Certainly this special location has to do with grass and its functions. Busses will take you back to Leeuwarden after the event.



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## Accompanying delegates program

For accompanying delegates, a journey through nostalgic Friesland and the scenic city of Leeuwarden has been organised.

On Monday, after the Opening Ceremony, you will visit many sights in the convivial city of Leeuwarden, like the birthplace and residence of Mata Hari (1876-1917), and 'Blokhuispoort', the self-sufficient Special Penal Prison (1477-2007), turned into a vibrant cultural centre. The day ends at the Welcome Reception.

On Tuesday you will join one of the Mid-Conference Tours that will end at Dairy Campus (Frisian Elfsteden Tour).

On Wednesday morning you will board a boat at the Harmonie quay. The boat will take you along typical cultural places in the scenic Frisian landscape. Back in Leeuwarden, you will visit the cultural hotspot Fries Museum, where you will be guided around and enjoy a choice of beautiful exhibitions. In the evening, you will join the Conference Dinner.

Naturally, the program also considers free time for shopping in the nicest boutiques and Frisian specialty shops spread across the centre of the city. The Tour ends on Thursday with the Closing Ceremony.

*Contact person during the program: Cor Kwakernaak +31 640639024*





# Post-conference activities

## Post-conference excursion

### Thursday 13<sup>th</sup> June

If you are planning to head to Schiphol on Thursday, this short post-conference excursion will take you there by bus. Aeres University of Applied Sciences in Dronten will welcome you with lunch and a guided tour. We will visit Aeres Farms. This experimental farm and learning facility has approximately 340 hectares of land and focuses on dairy farming, both conventional and organic, arable farming, pigs, poultry, sheep and horses. The “Weidebedrijf”, part of Aeres Farms, focuses on maximum grazing and milk from grass. While you are shown around Aeres Farms and the “Weidebedrijf”, we will discuss challenges and opportunities of Dutch dairy farming in practice. The bus will arrive at approximately 16:30 at Schiphol Airport.



## Post-conference tour

### Thursday 13<sup>th</sup> June

The first part of the program will be identical to the above-described post-conference excursion. After this excursion, we will visit the dairy farm ‘De Verwondering’ of Jan and Hermineke Vonk in Goudriaan. Jan and Hermineke have a dairy farm with 110 dairy cows on peat soil and consider their grassland as the most important production factor. Jan won the competition ‘Best Grassland Farmer of the Year’ in 2020. Dinner and overnight stay in Breda.

### **Friday 14<sup>th</sup> June**

Visit of the dairy farm of Karel D'Hooghe and Sofie Isebaert. This is a dairy farm of 70 dairy cows in the sandy soil region between Antwerp and Ghent. Karel was one of 5 dairy farmers in Flanders to test the KLIMREK climate scan, developed by ILVO. After the lunch, we will visit 'Gentse gronden', an exhibition at the STAM city museum. This 'Ghent's Lands' exhibition is a history of land ownership, of the relationship between city and countryside, of care for the poor and sick, and of food security. It also provides food for thought in the here and now. The day ends with a visit to the historical centre of Ghent. A 1,000-year-old fortress, three medieval towers and the most beautiful double row of houses in Europe, on each side of the river, are all within walking distance from one another.

### **Saturday 15<sup>th</sup> June**

Visit of ILVO: a guided tour on the newly installed HYDRAS open access research infrastructure, a tour of the dairy research stable and gas emission chambers, the grass and clover breeding program and the compost site of ILVO. The tour ends with a visit of Gouda and the Gouda cheese experience. Gouda Cheese is one of the best known and most eaten cheeses in the world. It owes its name to the fact that this Dutch cheese has been traded for centuries in the city of Gouda. The bus is expected to arrive at Schiphol Airport approximately 17.00.

# List of posters

## **Theme 1. WHAT? What is the role of grasslands in net food security?**

1. Sustainability assessment of three highly contrasting farming systems using the IDEA4 method - Bellanger Q.
2. Italian ryegrass or silage rye as precrop for silage maize in Flanders - Vanden Nest T., Pannecoucq J. and Vandaele L.
3. Yield and shoot traits of five tropical grasses in response to N and distance to trees - da S. Pontes L. and Laca E.A.
4. Mineral concentrations in grasses and legumes change during a 2-week growth period in summer - Elgersma A., Eriksen J. and Sehested J.
5. Restoration of relict farmland to improve the environment and food security in Ukraine - Kurhak V., Kaminsky V., Janse L., Kolomiets L., Janse J.D., Zhuk M. and Neimet I.
6. Grasslands: an asset to secure livestock feed in the face of heatwaves? A literature search - Cera A., Brunel-Muguet S. and Lemaux-Lavenant S.
7. Impact of clover inclusion on feed intake and milk production in a tall fescue-dominated ration - Cromheeke M., Vandaele L., Van Wesemael D., Baert J., Cougnon M., Reheul D. and Peiren N.
8. Is milk  $\delta C_{13}$  a suitable sustainability indicator for grassland-based feeds in dairy herd diets? - Birkinshaw A., Sutter M., Kreuzer M. and Reidy B.
9. Beef production systems with dairy×beef heifers based on forage and semi-natural grasslands - Hessele A., Dahlström F., Lans J., Karlsson A.H. and Carlsson A.
10. Potential of grass silage as a source of nutrients in poultry production - Abbas H., Hornick J. and Dufresne I.
11. Including plantain in grazing mixtures supports milk production of dairy cows in early lactation - Minogue C.T., Boland T.M., Vigors S., Etxeberria I., Walsh N., Dineen M. and McKay Z.C.
12. Grass-based feeding strategies for organic growing-finishing pigs - Stødkilde L., Jørgensen E.T. and Eskildsen M.
13. Effect of daily grazing time of dairy cows. I: Milk yield and composition - Veiga M., Resch-Zafra C., González L., Pereira-Crespo S., Botana A., Martínez-Diz M.P., Dagnac T., Valladares J., Lorenzana R. and Flores-Calvete G.
14. Effect of daily grazing time of dairy cows. II: Milk fatty acid profile - González L., Resch-Zafra C., Veiga M., Pereira-Crespo S., Botana A., Martínez-Diz M.P., Dagnac T., Valladares J., Lorenzana R., Flores-Calvete G.
15. Grasslands for a greater protein autonomy: lessons from Cap Protéines programme - Hardy D., Pavie J., Brocard V. and Launay F.
16. Winter grazing for dairy and beef animals: an opportunity to grasp? - Brocard V., Boré R., Fortin J., Tranvoiz E., Caraës C., Trou G., Lepeltier F. and Morin L.
17. Herbage nitrogen yield in grass and grass-white clover swards receiving zero nitrogen - Murray Á., Delaby L., Burchill W., Fitzpatrick E., McCarthy B. and Hennessy D.
18. Effect of white clover in perennial ryegrass swards with reduced nitrogen inputs on milk production - Murray Á., Irish H., Delaby L., O'Donovan M. and Hennessy D.

19. Yield potential of tall fescue compared to perennial ryegrass in Belgium - Verbrigghe N., Cougnon M., De Swaef T. and Pannecouque J.
20. Changes in herbage productivity of winter fodder in the first cut over four years - Šidlauskaitė G., Jaškūnė K., Kemešytė V., Šarūnaitė L. and Kadžiulienė Ž.
21. Increasing soil phosphorus content increased spring barley yield while it had no effect on grass yield - Louhisuo A., Termonen M., Järvenranta K. and Virkajärvi P.
22. Potential health value of alternative plant resources explored as feed for ruminants - Maxin G., Graulet B., Novak S., Mesbahi G., Signoret F., Glinec J-F, Laurent E., Drusch S., Farruggia A. and Durant D.
23. Effect of formic acid treatment of grass liquid fraction on protein separation efficiency - Stefański T., Ayanfe N. and Rinne M.
24. Grass for biorefinery: Effects of N fertilization and harvest time on liquid yield and composition - Stefański T., Ayanfe N., Niemeläinen O., Raiskio K. and Rinne M.
25. Energy requirements and energy supply of dairy cows during early lactation in pasture-based systems - Walsh S., Delaby L., McKay Z.C. and Egan M.
26. Effects of foliar fertilization on sward yield and quality of grass-legume mixtures - Golińska B., Orešković M. and Goliński P.
27. Sustainability of rose veal in organic beef production - Mertens A., Faux A.-M., Lorant N., Mathot M., Stilmant D., Decruyenaere V.
28. Effect of silage inclusion and silage species on milk production of late lactation, grazing dairy cows - Chaize M., Egan M., Murphy J.P., Ikoyi A.Y., Byrne N., O'Callaghan T.F. and Dineen M.
29. Effect of concentrate crude protein on milk production of early lactation, grazing dairy cows - Van Emmenis R., Chaize M., Fitzgerald R. and Dineen M.
30. Effect of pasture type on dairy-beef heifer production efficiency - Fitzpatrick E., Fox R., Cardiff J. and Byrne N.
31. Effect of pasture species and inorganic nitrogen fertilisation on intake, digestibility and milk production of cows - Wims E., McCarthy B., Flynn D., Murphy J. P., O'Callaghan T.F. and Dineen M.
32. Long-term analysis of climate and management effects on grassland yield - Klingler A., Resch R., Gaier L., Schaumberger A., Bohner A., Herndl M. and Krautzer B.
33. Can a ley grazing dairy system compete with high yielding dairy farms in northern Germany in terms of environmental impact and eco-efficiency? - Fenger F., Loges R., Reinsch T. and Taube F.
34. Long-term study on the effect of nitrogen fertilization on the growth of perennial ryegrass - Dolan K., Delaby L., Hennessy D. and O'Donovan M.
35. Defining Grasslands' Role in Net Food Security: Policy ≠ Science - Ballerstedt P.J.
36. Effect of forage-to-concentrate ratio in dairy cow diets on estimated milk carbon footprint - Sairanen A., Kajava S. and Hietala S.

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38. Seed hydropriming effects on tall fescue plant growth, water status and chlorophyll content under drought - Ellouzi H., Al-Ghumaiz N.S., Alzoheiry A.M., Motawei M.I. and Rabhi M.

39. Better valorization of dairy products from permanent grasslands to balance ecosystem services: A review - Sénécal J., Morvan-Bertrand A. and Lemauviel-Lavenant S.
40. The influence of grasses and legumes as a forecrop on the biological activity of the soil - Szkutnik-Sroka J., Kacorzyk P. and Szewczyk W.
41. Sward species diversity impacts on pasture productivity and botanical composition under grazing - Jezequel A., Delaby L., Finn J.A., McKay Z.C. and Horan B.
42. Milk production from grass-white clover and grass-white clover-plantain swards - Tubritt T., Delaby L., Lahart B. and O'Donovan M.
43. Methane emissions from spring calving dairy cows grazing perennial ryegrass swards with or without white clover - Dwan C., Shalloo L., Hennessy D., Buckley F., Irish H. and Lahart B.
44. Milk production and methane emissions of cows fed either grass or red clover-grass silage - Pitkänen O., Sigurðardóttir Þ.H., Halmemies-Beauchet-Filleau A., Rissanen P., Lamminen M., Kokkonen T. and Vanhatalo A.
45. Adaptive multi-paddock grazing increases soil organic carbon stocks in temperate Canadian pastures - Mehre J., Schneider K., Jayasundara S., Gillespie A. and Wagner-Riddle C.
46. On-farm indicators for surplus-value assessment on alpine mountain farms - Pabst S., Selva D., Fritz C., Ressi W. and Herndl M.
47. In vitro evaluation of grassland adaptation strategies: mitigating potential of herbs and legumes - Van Mullem J., Jeyanathan J., Vandaele L., Peiren N., Cougnon M. and Fievez V.
48. *Lolium perenne* populations effects on nitrogen concentration, use and uptake efficiency when grown on peat - Pijlman J., Hoekstra N.J., Deru J.G.C., Erisman J.W. and van Eekeren N.
49. High yields, low fertiliser requirements and low nitrate leaching: win it all with grass-legume mixtures - Nyfeler D., Huguenin-Elie O., Frossard E. and Lüscher A.
50. Effects of slurry application method on grassland yield, nitrogen utilisation and silage quality - Latsch A., Huguenin-Elie O., Wyss U. and Nyfeler D.
51. Maize in permanent grassland: effects of strip tillage and mechanical weeding on soil properties and yields - Deru J., Struyk P. and Pol H.
52. Subsoiling to remediate compacted grassland soils - Vanderhasselt A., D'Hose T., Vanden Nest T. and Cornelis W.
53. Analysis of the role of agroecology in the sustainability of the Dutch dairy system using the - Business Model Canvas approach - de Souza Silva A.F., Namanda E., Meijer A., Lewak K. and Sura-de Jong M.
54. The Farming Tree as an assessment tool for ecological and social sustainability - Methorst R.G., Koom B., de Groot D. and Gerrits S.
55. Carbon sequestration potential of permanent grasslands compared to grass-clover leys - Zhartybayeva A., Jensen J.L. and Eriksen J.
56. The present situation of grazing in Flanders - Schellekens A., Cloet T., Piccart K. and Van Rumst P.
57. Effect of twice-daily Bovaer supplementation on enteric methane of grazing dairy cows - Costigan H., Shalloo L., Kennedy M., Dwan C., Walsh S., Egan M. and Lahart B.

58. Soil nutrient concentrations reveal nutrient transfer by wild red deer from grassland to forest - Riesch F., Signer J., Balkenhol N. and Isselstein J.
59. Effects of ribwort plantain on agronomy, biodiversity, animal health and behaviour — a grazing study - Klootwijk C.W., Hoekstra N.J., Antonis A.F.G. and Ferwerda-van Zonneveld R.T.
60. Mineral N fertilization rather than timing optimises P or N efficiency of slurry in grasslands - Kvifte Å.M. and Rivedal S.
61. Short-term biochar effects in cultivated forages: ecosystem services, soil characteristics, herbage yields, and nutritive value - Muir J.P., Taggart C.B., Hays K.N., Brady J.A., Kan E., Entio L. and Cooper C.P.
62. The effect of slurry-based intensive N fertilisation on yield and N leaching in a four-year-old ley - Termonen M., Kykkänen S., Järvenranta K., Louhisuo A., Korhonen P., Seppänen M. and Virkajärvi P.
63. Reed (*Phragmites communis* Trin.) hay as a potential feed source in drought - Csizi I., Varga K. and Halasz A.
64. How can algal extracts be used to help grasslands cope with climate change? - Grandin-Courbet A., Dehail M., Brébion J., Hennequart F., Morvan-Bertrand A. and Prud'homme M.-P.
65. Carbon footprint of grassland systems on non-equilibrium soils in Uruguay - Goycochea N., Perdomo F., Civit B. and Russi A.
66. Grazing system performance and environmental quality in relation to long-term stocking intensity - Komainda M. and Isselstein J.
67. The Ossekampen Long Term Grassland Experiment; yield responses to temperature and precipitation surplus - Schils R.L.M., Bufer C., Geerts R.H.E.M. and Schnabel S.K.
68. Use of digestate from anaerobic digestion of dairy cattle slurry as fertiliser in maize crop - Campo-Celada M., Vicente F. and Martínez-Fernández A.
69. Is there a future for grassland on peat soils in the Netherlands? - van den Akker J.J.H., Hendriks R.F.A., Hoving I.E. and Wils T.H.G.
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71. Grassland albedo: a climate change mitigation lever complementary to carbon sequestration - Mischler P., Cechia E. and Ferlicoq M.
72. Mixed effects of sward biodiversity and management regime on ecosystem services - Hoekstra N.J., De Long J.R., Jansma A.P., Iepema G., Manhoudt A., van Eekeren N.
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75. Management and vegetation affect grassland soil organic carbon stocks - Dămățircă C., Ravetto Enri S., Moretti B., Pittarello M., Zavattaro L., Lonati M. and Lombardi G.
76. Effects of potential evapotranspiration on condensed tannin and milk production potential in four grassland mixtures - Vitra A., Mesbahi G., Dittmann M., Steiner A., Thorne S., Hesselmann M. and Leiber F.

77. Herbage mass and herbage N yield in grass and grass-clover swards receiving zero N - Irish H., Fitzpatrick E. and Hennessy D.
78. Yield and qualitative evaluation of fodder crops in Mediterranean conditions, under a conservation agriculture technique - Carita T., Simões N., Carneiro J.P., Silva L., Conceição L., Martins M., Farinha N. and Santos-Silva J.
79. European expert opinions on implementation, viability and relevance of innovative grazing practices - Thielecke D., Riesch F., Fracchetti L., Isselstein J. and Peratoner G.
80. Effect of botanical composition and fertilisation on yield and quality of legume-grass mixtures - Meripõld H., Tamm U., Tamm S., Tamm S., Võsa T., Pechter P. and Aavola R.
81. The effect of nitrogen and phosphorus chemical fertiliser and slurry application on white clover establishment in grazed swards - Beamish F., Buckley F., Burchill W. and Egan M.
82. Effects of water infiltration on grass yields and soil nitrogen supply of Dutch peat soils - Hoving I.E., van Middelkoop, Massop H.T.L., van den Akker J.J.H. and van Houwelingen K.M
83. Conservation and promotion of genetic resources of native plants in Swiss grasslands — the RegioFlora project - Magnin O., Moehl A. and Reidy B.
84. Overseeding clovers and forbs in permanent grassland on peaty soils - Janssen P.W.L., Hoekstra N.J., De Wit J. and Van Eekeren N.
85. Long-term effect of increasing nitrogen level on plant species composition in an alluvial meadow - Pavlů L., Schaumberger A., Titěra J., Klingler A., Pavlů V. and Poetsch E.M.
86. Effect of ribwort plantain (*Plantago lanceolata* L.) inclusion on the performance of highyielding dairy cows at pasture - Holohan C., Chesney L., Rutherford N.H., Takahashi T., Gordon A. and Patterson J.D.
87. Delivering ecosystem services from permanent grassland: A qualitative analysis of farmer's perceptions and practices - Titterington F., Lively F., Mulvenna C., Klopčič M., Newell-Price P., Rankin J., Smith K. and Holohan C.
88. A farm level decision support tool to quantify ecosystem service delivery from permanent grassland - Titterington F., Báldi A., Lellei-Kovacs E., Newell Price P., Sagoo L., Aubry A., McConnell D., Patterson D., Rankin J., Annett N., Brown S., Abdalla M., Smith P., Bufe C., Almedia R., Bausson C., Hejduk S. and Lively F.
89. Regulation of farm groundwater table to sustain grass production: a case study in the Netherlands - Dekker C., Oenema J., Noij G.-J. and de Groot W.
90. Impact of grazing herb-rich pastures on milk fatty acid profiles at Dutch conventional dairy farms - van der Meer F., Zom R.L.G. and Strikwold M.
91. Farm-gate nutrient balance: comparative assessment of high-productivity and low-cost dairy farm systems in Uruguay - Gil Zibil L., Ortega G., Custodio D., Loza C. and Chilibroste P.
92. Effect of organic and mineral fertilization on root distribution in grassland - Hák J., Hrevušová Z. and Menšík L.
93. The importance of potential benefits of grasslands and livestock to stakeholders - Ankersmit E., Pfeifer C., Borek R., Espagnol S., Jurga P., Adams N., Tromp P. and Van den Pol-van Dasselaar A.
94. Effect of long-term mineral fertilization on soil carbon and nitrogen in grassland - Hrevušová Z., Fuksa P. and Hák J.

95. Farmer-led innovation in the use of multi-species swards on Northern Ireland farms - Rankin J.R., Hoy J., Brown S., Lowe D.E., Patterson J.D., Scollan N.D. and Lively F.O.
96. Introducing the anecic earthworm *Lumbricus terrestris* in grasslands to improve water regulation - van de Logt R., Versteeg C., Struyk P. and van Eekeren N.
97. Environmental factors determining biodiversity, productivity and fodder value of submontane grasslands - Szymura M. and Szymura T.H.

**Theme 3. WHICH? Which methods can be used to monitor, evaluate and steer grassland management?**

98. Minimum number of spot measurements required for quantifying enteric methane production in dairy cattle - Koning L., van Gastelen S., Burgers E.E.A., Klootwijk C.W., Bannink A. and Dijkstra J.
99. From an intensively managed agricultural grassland to an extensively managed grassland: the first years of transition - Vanden Nest T., Van Wesemael D., Cougnon M. and Vanempten E.
100. Impact of nitrogen fertilization on litter decomposition in temperate grassland—a tea bag study - Baumann K., Römermann O. and Kayser M.
101. Overseeding oat into limpopgrass: the effect of trees on animal performance - Pontes L.daS. and Telles T.S.
102. A GEO-based digital calendar for real time and site specific registration of grassland management - Stienezen M.W.J. and Sijbrandij F.D.
103. Exploring the phenotypic diversity of alfalfa (*Medicago sativa* L.) in Lithuanian acidic soils: Insights from a cluster analysis - Liatukienė A., Skuodienė R., Asakavičiūtė R., Mikaliūnienė J.
104. Using Digital-Surface-Models and GNSS for monitoring shade on dairy cow pasture for heat stress mitigation - Obermeyer K., Isselstein J. and Kayser M.
105. Site-specific nitrogen management: N response and N uptake as basis for variable rate fertilization - Gnypl M.L., Portz G., Jasper J. and Junklewitz P.
106. Reducing nitrogen surplus on grassland farms by incorporating legumes - Egan M., O'Donovan M. and Looney C.
107. Non-constant rate of degradation of NDF in primary growth of grass, clover, and lucerne - Hansen N.P. and Weisbjerg M.R.
108. Investigating the effects of wilting factors on the ensilage dynamics of multispecies swards - Callan R., Jordan S.N., McCabe S., O'Riordan E., Crosson P. and Lynch J.P.
109. The effect of biochar and forage species on rumen fermentation and methane production in vitro - Halmemies-Beauchet-Filleau A., Vanhatalo A. and Kokkonen T.
110. Estimating fresh pasture forage quality using a mobile handheld near infrared spectroscopy sensor - Perdana-Decker S., Werner J., Baumgärtner H., Gallmann E. and Dickhoefer U.
111. Are virtual fences applicable in mountain pastures? - Probo M., Fuchs P., Schneider M.K., Hervault P., Umstätter P., Bruckmaier R.M. and Pauler C.M.
112. Effect of mineral nitrogen application rate and strategy on productivity and quality of grassclover swards - Junklewitz P., Liespuu J. and Seppänen M.



113. Characterization of polyphenol content and antioxidant activity of a network of French pasture grasses - Maxin G., Peudpièce C., Couvreur S., Le Meurlay D., Plantureux S. and Maury C.
114. Breeding perennial ryegrass varieties with an improved combining ability with white clover - Cougnon M., Ghesquiere A. and Aper J.
115. Identifying the optimal stocking rates depending on soil type and local weather conditions in Ireland - Ruelle E., and Delaby L.
116. PastureBase Ireland — the adoption of grassland knowledge on Irish grassland farms - O'Donovan M., Ruelle E., Geoghegan A. and Hearn C.
117. Evaluation of three-year farm-gate balances of dairy farms in a coastal area of northwest Germany - Sieve F., Wilken F., Isselstein J. and Kayser M.
118. Use of compressed sward height and growing degree days to predict herbage availability on pastures - Gatterer M., Wedmann C.P., Fundneider A., Mittermair P., Soini E. and Peratoner G.
119. Spectroscopy for assessing the nutritional value of pastures and enteric methane emissions from dairy cows in northern Sweden - Oliveira J., Chagas J.C.C., Bernes G., Fant P., Angeard E., Morel J. and Ramin M.
120. Unlocking forage yield and field stand persistence potential of alfalfa in low pH soils through recurrent selection - Presley H.W., Bernardes S. and Missaoui A.M.
121. The influence of foliar fertilizer on the productivity and quality of grass-red clover swards - Adamovics A., Gutmane I., Iesalniece I. and Rancane S.
122. Nitrate nitrogen residues measured in autumn in Flemish grassland soils - D'Haene K., Vanden Nest T. and Hofman G.
123. Use of two GreenFeed Emission Monitoring units in an indoor-grazing management system to estimate methane production in cows - Lind V., Nyamuryekung'e S., Lardy Q., Hetta M., Höglind M. and Ramin M.
124. What information is needed for upscaling grassland ecosystem services to landscape scale? - Klaus V.H., Lüscher A., Richter F. and Huguenin-Elie O.
125. A reference framework for evaluating the ecosystem services of grasslands and livestock farming - Sénécal J., Lemauxviel-Lavenant S., Faure P. and Couvreur S.
126. What is the hoof pressure exerted by different types of dairy cows at grazing? - Delaby L., Leloup L., Gaborit M., Chaigne C. and Launay F.
127. A regression approach relating nitrogen fertilization rates with herbage yields for perennial ryegrass and multispecies swards - Ayala M.C., Groot J.C.J., de Boer I.J.M., Kennedy J., Grace C. and Ripoll-Bosch R.
128. Plate meter assisted grass height measurement and grass yield estimation adjustments in Hungary - Lepossa A., Menyhárt L., Nagy Sz., Wagenhoffer Zs. and HalászA.
129. Yield and nutrient value determination in permanent grassland via sensors on the self-propelled forage harvester - Schneider M. and Thurner S.
130. Virtual fencing in rotational stocking systems: stress levels of grazing heifers - Grinnell N.A., Komainda M., Hamidi D., Riesch F., Horn J., Traulsen I., Palme R. and Isselstein J.
131. Technologies for the authentication of grass-based dairy milk samples - Pereira-Crespo S., Lorenzana R., Botana A., González L., Veiga M., Martínez-Diz M.P., Dagnac T., Valladares J., Resch-Zafra C. and Flores-Calvete G.

132. An assessment of the GHG emissions in grazing and confined total mixed ration dairy systems of Atlantic NW Spain - Martínez-Diz M.P., Botana A., Veiga M., González L., Pereira-Crespo S., Dagnac T., Valladares J., Resch-Zafra C., Lorenzana R. and Flores-Calvete G.
133. Split nitrogen application in spring to timothy-meadow fescue leys - Nadeau E., von Essen A. and Bakken A.K.
134. Ryegrass and tall fescue perform better than timothy in a three-cut system in Nordic maritime climate - Sturite I. and Østrem L.
135. How does the heterogeneity of sward height evolve under moderate grazing intensity? - Silva Neto G.F., Essomandan U.K., Menezes J.L., Michaud V., Bredemeier C., Carvalho P.C.F. and Bindelle J.
136. Assessing root biomass in timothy and tall fescue via minirhizotron imaging and core sampling - Kykkänen S., Korhonen P. and Virkajärvi P.
137. Methodological study for optimising a digital grazing schedule plan from GPS data - Coursault A., Banliat C., Riaboff L., Couvreur S.
138. The effect of chemical nitrogen fertiliser on red clover production in silage swards - Kearney S., Tubritt T., McKay Z., Dineen M. and Egan M.
139. N, P, K balances for six grazed or cut plots in an agroecological dairy cattle system - Novak S., Pelhate E., Bourgoin F., Chargelègue F. and Audebert G.
140. Forage seed mixtures adapted to the number of cuts per season - Hallin O., Holmström K. and Nadeau E.
141. Validation of behavioural-based models to estimate pasture herbage dry matter intake of dairy cows - Werner J., Haak T. and Schori F.
142. Calibration of grass growth model Lingra-N-Plus for Flemish conditions - Versavel E., Verbrigghe N., De Swaef T., Gobin A., Schellekens A. and Thys M.
143. Tillerbox: an easy-to-use tool to efficiently assess tiller density in grassland - Käch D., Reidy B., Studer B. and Kölliker R.
144. Monitoring C3 and C4 species change over time in Kentucky cattle pastures - Gotsick E.E., Smith S.R., Henning J.C. and Teutsch C.D.
145. Does sowing rate affect establishment of ribwort plantain when over-sown in grass-clover swards? - Hearn C., Healy M., Egan M., O'Donovan M. and Flynn D.
146. Assessment of perennial ryegrass variety performance on commercial farms - Hearn C., Geoghegan A. and O'Donovan M.
147. Robotics on leys: An Unmanned Ground Vehicle to monitor forage grasslands - Oliveira J., Morel J., Haluska J., Kanellakis C., Tsimpidi I., Nikolakopoulos G. and Parsons D.
148. Efficiency of methods of managing meadows on sloping land in Ukraine - Veklenko Y., Petrychenko V. and Korniychuk O.
149. Introducing goats to virtual fencing - Wilms L., Hamidi D., Lüntzel C.H.U., Isselstein J., Waiblinger S. and Egerbacher M.
150. LIFE Nardus & Limosa: The challenge of harmonizing Nardus grassland restoration with meadow bird populations - Schelfhout S., Hendrix J., De Schrijver A., Verheyen K. and Mertens J.
151. Asking grazing cattle: using virtual fencing collars to make forage availability dynamics visible - Hamidi D., Hütt C., Komainda M., Grinnell N.A., Horn J., Riesch F., Hamidi M., Traulsen and Isselstein J.

152. Does sward type affect lamb performance and the eating quality of the meat produced? - Woodmartin S., Crofton E., Creighton P., Boland T.M., Monaghan A. and McGovern F.
153. Evaluation of host plant suitability of *Festuca arundinacea* and *Festuca rubra* for plant parasitic nematodes - Nicolaisen S.H.M. and Visser J.H.M.
154. Does precision N-fertilizer application in grassland make sense? - Oenema J., Noij G.-J., van der Vlugt P. and Kempenaar C.
155. The effects of varying Nitrogen, Potassium, and Sulphur treatments on grass clover sward production and composition - Healy M., O'Donovan M., Burchill W., Buckley F. and Egan F.
156. The effect of sward species on nitrate leaching: a lysimeter study - Healy M., Hearn C.<sup>1</sup>, O'Donovan M., Burchill W., Buckley F. and Egan M.
157. Grassland species identification and mapping with UAS imaging - Männer F.A., Werner C., Marzinke T. and Müller J.
158. Exploring the genetic basis of cattle grazing behaviour for the sustainable use of the Swiss Alps - Moreno Garcia C.A., Schneider M.K., Pauler C.M., Svensk M., Zhou H. and Hickford J.
159. Comparing grassland management on boreal mineral and peat soils - Shurpali N., Peltola O., Bhattarai H.R., Semberg S., Maaninen P. and Virkajärvi P.
160. Remote sensing services and drone technology for optimizing grassland management on cattle farms - Korhonen P., Kaivosoja J., Näsi R., Oliveira R., Honkavaara E., Mustonen A. and Niemeläinen O.
161. Effect of vegetation-related parameters on the relationship between Leaf Area Index and yield in meadows - Dovas A., Sicher G., Soini E. and Peratoner G.
162. The plasticity of *Festulolium* varieties in response to contrasted climatic conditions - Kemešytė V., Rancane S., Vezis L., Statkevičiūtė G., Jaškūnė K. and Norkevičienė E.
163. Optimizing manure application rate to grass sward ground coverage before and after the winter season - Rueda-Ayala V., Harik E.H.C. and Persson T.
164. Seasonal development of *Ostertagia ostertagi* antibodies in milk of grazing dairy cows - Akert F., Thüer S., Reidy B. and Werne S.
165. Spatio-temporal transferability of drone models to predict forage supply in a dryland savannah - Amputu V., Männer F., Tielbörger K. and Knox N.
166. Ley field management using satellite based digital tools - Peng J., Morel J., Oliveira J. and Parsons D.
167. Grass biomass assessment in Wallonia (Belgium) based on satellite imagery and a grass growth model - Lucau-Danila C., Curnel Y., Mertens A., Decruyenaere V., Mathy D., Boulet L., Mathieu S., Lambert R., Himdi H., Knoden D., Glesner N., Nicolas S., Reding E., Dawance A., Stilmant D. and Planchon V.
168. A preliminary examination of white clover variety performance influenced by leaf size and varying nitrogen levels in grass swards - Carroll C., Gilliland T., O'Donovan M. and Tubritt T.
169. Comparative grazing behaviour and dry matter intake of dairy-beef steers - O'Driscoll J., Purfield D. and Byrne N.
170. Evaluating the relationship between sheep grazing offtake and the nutritive value of perennial ryegrass varieties - Johnston L.S., Patterson J.D., Archer J., Mocarska M.M., Herron E.R., Beerepoot L.J. and Young G.K.

171. Satellite imagery to categorize botanical composition in an alpine pasture - Pornaro C., Basso E., Pinna D., Marinello F. and Macolino S.
172. Application of the repellent TRICO as a method to reduce mortality of fawns at grass harvest - Frandsen T.S., Nitschke T., Olesen C.R. and Rahbek J.
173. Examination of grazing sustainability of grasslands in southwest Hungary - Hoffmann R., Keszthelyi S., Pál-Fám F. and Halász A.
174. Investigating the effects of herbage mass and harvest date on perennial ryegrass nutritive value - Heffernan C., Egan M., Fleming C., O'Callaghan T.F. and Dineen M.
175. Simulating grassland winter survival in high latitude regions using the BASGRA model - Persson T., Ancin Murguzur F.J., Davids C., Höglind M. and Jørgensen M.
176. Does the Soil Index relate to differences in grassland and forage crop yields between farms? - Russchen M.A., Terwisscha Van Scheltinga R.A. and De Haas M.J.G.
177. Effect of pasture allocation frequency on the milk production of Holstein grazing dairy cows - Menegazzi G., Bailon F., Fernández L., Pesoa S., Fast O., Mattiauda D.A. and Chilbroste P.
178. Can a liquid nitrogen fertiliser produce similar herbage dry matter yields as granular fertilisers? - Bock M.H., McKay Z.C., Creighton P., Patton D. and McCarthy B.
179. Exploring the productivity puzzle: an examination of fast- and slow-growing forage grasses - Pittaro M.G., Duchini P.G., Guzatti G.C. and Sbrissia A.F.
180. Establishing grass-clover leys in winter cereals - El Khosht F.F., Hallin O., Öborn I. and Nilsson-Linde N.
181. Identification and assessment of the distribution of fungal diseases within the main grassland species in Norway - Muradagha K. and Jørgensen M.
182. The impact of warm-season pasture management on the following cool-season annual ryegrass growth - Comassetto D.S., Barreta D.A., Piran F., Gislón F.C.S., Pittaro G. and Sbrissia A.F.
183. Fresh grass diets supplemented with essential oils for dairy cows: effects on milk and urea - Burgers E.E.A., Klop A., Koning L., Holshof G. and Klootwijk C.W.
184. Monitoring the effect of grass production strategies within the 'Koe and Eiwit' project - Wind T.M., de Haan M.H.A., van Laar H. and Galama P.J.
185. Mattenkleef in mixed swards with timothy for sustainable organic forage production - Edin E., Omer Z. and Wallenhammar A.-C.
186. Development of rising plate meter calibration equations for mixed perennial ryegrass and ribwort plantain (*Plantago lanceolata* L.) swards - Holohan C., Chesney L., Rutherford N.H., Takahashi T., Gordon A. and Patterson J.D.
187. A survey analysis of permanent grassland management practices across six European biogeographical regions - Titterton F., Lively F., Mulvenna C., Klopčič M., Newell-Price P., Rankin J., Smith K. and Holohan C.
188. Investigating factors that affect cow throughput on farm roadways - Maher P.J., Murphy M.D., Egan M. and Tuohy P.
189. Evaluation of satellite data for estimation of legume proportion in clover-grass swards - Frandsen T.S., Malskaer L.M. and Torp M.T.
190. How to resurvey historic grassland records from the turn of the 19th century? - Riedel S. and Widmer S.

191. Landolt indicator values changes as result of fertilization in *Danthonia alpina* grassland - Zornić V., Petrović M., Babić S., Lazarević Đ., Tomić D., Racić N. and Radović J.
192. Impact of leaf area index on the grassland yield prediction - Goliński P., Golińska B., Czerwiński M., Paszkowski A. and Dąbrowska-Zielińska K.
193. How does seed production in southern part of Norway affect the winter hardiness of varieties adapted to Northern Norway? - Dalmannsdottir S., Jørgensen M., Amdahl H., Hellton K.H. and Rognli O.A.
194. Risk of nitrate leaching at grassland renovation in spring versus autumn in the Netherlands - Van Middelkoop J.C. and van Schooten H.

#### **Theme 4. WHERE? Where should we focus on which ecosystem services?**

195. Mapping wet grasslands to consider ecosystem services at the landscape scale - Lemauviel-Lavenant S., Chauvel L., Irien C. and Odoux J.F.
196. Effects of distance and orientation of hedgerows on grass production and quality in permanent grasslands - Thiery T., de Streel G., Czapliski S., Hornick J.L. and Dufrasne I.
197. Animal health service provided by grassland diversity: farmers' perceptions and strategies in four French regions - Rose J., Michaud A., Biasotto M., Couvreur S. and Petit T.
198. Integrating arable and dairy farms through legume-based leys in the Netherlands - Alderkamp L.M., Taube F., van Middelaar C.E., van der Linden A. and Klootwijk C.W.
199. Adaptive responses of meadow melliferous plants to low soil pH and change in soil structure - Pradita F.A. and Janicka M.
200. Bite item diversity and bite item quality in an extensive grazing system with suckler cows - Siede C., Pohlmann W., Juch A., Hamidi D., Isselstein J. and Komainda M.
201. Climate impact and energy return of reed canary grass or tall fescue on marginal land for biogas - Palmborg C. and Cristescu C.
202. Where do we find permanent grasslands? Approaches and shortcomings of existing Europeanscale maps - Tonn B., Schils R.L.M. and Newell Price J.P.
203. Grassland and grazing: scrutiny of benefits and side-effects - Rolinski S., Lotze-Campen H., Heinke J., Hunecke C., Beier F., von Jeetze P., Wirth S.B., Steinhauser J. and Müller C.
204. Provision of biodiversity and ecosystem services from permanent grassland types - Schils R.L.M., Tonn B. and Newell Price J.P.
205. Yield potential and forage quality on free rangeland pastures in Northern Norway - Elverland E. and Haugen F.A.
206. Can perennial grain crops combine the soil ecosystem services of grassland with starch production on sandy soils? - van den Hout M., Sleiderink J. and van Eekeren N.
207. Changes of sward characteristics in cut meadow after introduction of intensive sheep grazing - Pavlů V., Titěra J., Pavlů L. and Bandak I.
208. Growth potential and yields of chicory and ribwort plantain - Holshof G., Zom R.L.G. and Cui Z.
209. Carbon sequestration practices in Eastern Netherlands: a grass and arable fields case study - Fabri F.B., Poot N., Spek E. van der, Jacobs A. and Eekelder J.
210. Balanced phosphorus fertilization in a mixed grazing and mowing system on grassland; results after 26 years - Van Middelkoop J.C. and Regelink I.

211. Inventory of the abundance of earthworm *Lumbricus terrestris* in grasslands on sandy soil - van de Logt R., van der Sluijs T. and van Eekeren N.

**Theme 5. WHOM? For whom are grasslands important?**

212. How German grazing dairy farmers perceive feed intake of cows on pasture and dietary effects - Oehlert L., Obermeyer K. and Kayser M.
213. Honey bees pollen collection in a grasslands bocage territory - Odoux J.F., Raulin A. and Lemauxiel-Lavenant S.
214. Bibliometric analysis of the literature focusing on ecosystem services provided by grasslands - Sénécal J., Lemauxiel-Lavenant S., Faure P. and Couvreur S.
215. Sharing grass related innovations to enhance the resilience of European dairy farms - Brocard V., Browne N. and Debevere S.
216. What policies are needed in Europe to protect grasslands and support their sustainable management? - Newell Price J.P., Hunter E., Arndt V., Gallardo-Cobos R., Miškolci S., Sánchez-Zamora P., Sari N., Smith K., Tindale S., Vicario-Modroño V. and Frewer L.J.
217. The perspectives of young European farmers and students on grazing - Van den Pol-van Dasselaar A., Ankersmit E., Dumitras D.E., Fracchetti L., af Geijerstam L., Jitea I.M., Looney C., Nilsson-Linde N., Peratoner G., Ramos C., Schetelat S., Thielecke D. and Zanatti R.



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