EGF-EUCARPIA-Symposium-2019

‘Improving Sown Grasslands through Breeding and Management’

Scientific programme

Sunday, 23.6.2019

14:00 – 19:00  Registration desk open (E Floor, main entrance)

14:00 – 17:00  Workshop (Auditorium D 7.1)
DeltaGen the “one-stop-shop” for plant breeders
Jahufer Z., AgResearch Ltd, New Zealand

17:00 – 19:00  Welcome drinks and light snacks (Snacks offered by ARYZTA Switzerland)
(E Floor, main entrance)

Monday, 24.6.2019

08:00 – 12:00  Registration continues (E Floor, main entrance)

09:00 – 10:15  Opening session (Auditorium F 30)
Chair: Andreas Lüscher, EGF & Roland Kölliker, EUCARPIA

09:00  Welcome addresses
- Joël Mesot, President ETH Zurich
- Eva Reinhard, Head Agroscope
- Mervi Seppänen, President EGF
- Dirk Reheul, Chair EUCARPIA Fodder Crops and Amenity Grasses Section

09:30  Introductory lecture: Grassland systems in Switzerland with a main focus on sown grasslands
Lüscher A.¹, Grieder C., Huguenin-Elie O., Klaus V.H., ... Kölliker R.²
¹Agroscope, Forage Production and Grassland Systems, Switzerland
²Molecular Plant Breeding, ETH Zurich, Switzerland

10:15 – 10:45  Coffee break (sponsored by Swissem)

10:45 – 12:35  Plenary Session Theme 1: Efficient and multi-functional forage production on sown grasslands (Auditorium E 7)
(Sponsored by Hauenstein)
Chair: Dirk Reheul, Gent University, Belgium

10:45  Multifunctionality of permanent grasslands: ecosystem services and resilience to climate change
Buchmann N., Fuchs K., Feigenwinter I. and Gilgen A.K.
Grassland Sciences, ETH Zurich, Switzerland
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<th>Time</th>
<th>Session</th>
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<tr>
<td>11:20</td>
<td>Strategy avenues for breeding plants for multispecies grasslands</td>
<td><strong>Litrico I.</strong>&lt;br&gt;INRA, P3F UR 004, Lusignan, France</td>
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<td>11:55</td>
<td>Temporal synchrony of white clover populations with perennial ryegrass</td>
<td>affects yield and yield stability of grass-clover mixtures&lt;br&gt;<strong>Tonn B.</strong>*, <strong>Koops D.</strong>, <strong>Schweneker D.</strong>, <strong>Heshmati S.</strong>, ... <strong>Isselstein J.</strong>&lt;br&gt;<em>Grassland Science, University of Goettingen, Germany</em></td>
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<td>12:15</td>
<td>Changes in root traits of forage mixtures through successive defoliations</td>
<td>and with different N sources&lt;br&gt;<strong>Thivierge M.-N.</strong>*, <strong>Houde S.</strong>, <strong>Bélanger G.</strong>, <strong>Chantigny M.H.</strong>, ... <strong>Vanasse A.</strong>&lt;br&gt;<em>Quebec Res. &amp; Develop. Centre, Agriculture and Agri-Food Canada, Canada</em></td>
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<td>12:35</td>
<td>Lunch break (sponsored by Freudenerger Feldsaaten)</td>
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<td>13:45</td>
<td>EGF Executive Committee Meeting (Room E42)</td>
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**Parallel Sessions Theme 1 and Theme 3**

**Theme 1: Efficient and multi-functional forage production on sown grasslands** *(Auditorium D 7.1)*

Chair: Martin Komainda, Georg-August-University Göttingen, Germany

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<td>13:45</td>
<td>Effects of plant diversity on yield in intensively managed grasslands</td>
<td><strong>Grange G.</strong>*, <strong>Brophy C.</strong> and <strong>Finn J.A.</strong>&lt;br&gt;<em>Teagasc, Environment Research Centre, Wexford, Ireland</em></td>
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<td>14:03</td>
<td>Grass-clover mixtures: benefits for arable and livestock farms and biodiversity</td>
<td><strong>Hoekstra N.J.</strong>*, <strong>De Haas B.R.</strong>, <strong>Van der Schoot J.R.</strong>, <strong>Visser E.J.W.</strong>, ... <strong>Van Eekeren N.</strong>&lt;br&gt;<em>Louis Bolk Institute, the Netherlands</em></td>
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<td>14:21</td>
<td>Species diversity enhances multifunctionality in sown grass-legume mixtures</td>
<td><strong>Suter M.</strong>, <strong>Huguenin-Elie O.</strong> and <strong>Lüscher A.</strong>&lt;br&gt;Agroscope, Forage Production and Grassland Systems, Switzerland</td>
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<td>14:39</td>
<td>Effect of intra-specific diversity on the performance of subterranean clover across contrasting Mediterranean environments</td>
<td><strong>Carroni A.M.</strong>, <strong>Annicchiarico P.</strong> and <strong>Pecetti L.</strong>&lt;br&gt;CREA, Research Centre for Animal Production and Aquaculture, Italy</td>
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<td>14:57</td>
<td>The use of <em>Plantago lanceolata</em> to reduce nitrate leaching from the urine patch</td>
<td><strong>Judson H.G.</strong>*, <strong>Stewart A.V.</strong>, <strong>Moorhead A.J.</strong>, <strong>Fraser T.M.</strong>, ... <strong>Edwards G.R.</strong>&lt;br&gt;<em>Agricom, Christchurch, New Zealand</em></td>
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**Theme 3: Molecular genetics and genomics for improved breeding of forages** *(Auditorium D 7.2)*

Chair: Stephen Byrne, Teagasc, Oak Park, Ireland

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<td>13:45</td>
<td>Genomic snapshots from the pre-breeding of Perennial Ryegrass (<em>Lolium perenne L.</em>)</td>
<td><strong>Schubert M.</strong>*, <strong>Asp T.</strong> and <strong>Rognli O.A.</strong>&lt;br&gt;<em>Norwegian University of Life Sciences, Ås, Norway</em></td>
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</table>
14:03 Mapping self-fertility for hybrid breeding in perennial ryegrass (Lolium perenne L.)
*Cropano C.*, Place I., Manzanares C., Yates S., ... Studer B

1 Inst. of Molecular Plant Breeding, ETH Zurich, Switzerland
2 Inst. of Biological, Environ. and Rural Sci., Aberystwyth University, UK

14:21 An assessment of genomic selection in perennial ryegrass
*Faville M.J.*, Schmidt J., Ryan D.L., Hong W., ... Barrett B.A.

AgResearch Limited, Grasslands Research Centre, New Zealand

14:39 Differential gene expression and multi-omic analysis of drought stress in Lolium perenne
*Ruud A.K.*, Malinowska M., Bjarup Hansen B.P., ... Asp T.

*Dep. of Molecular Biology and Genetics, Aarhus University, Denmark

14:57 Genomic selection for lucerne biomass yield in different stress-prone environments
*Annicchiarico P.*, Nazzicari N., Pecetti L., Bouizgaren A., ... Basigalup D.

CREA, Research Centre for Animal Production and Aquaculture, Italy

15:15 – 18:30 Poster Session (including coffee break)

Posters Theme 1: Efficient and multi-functional forage production on sown grasslands (Floor E)

Posters Theme 3: Molecular genetics and genomics for improved breeding of forages (Floor D)

Posters Theme 4: New methods and technologies to assess plant traits, swards and forages (Floor D)

(15:15 – 16:30: discussion with the authors; 16:30 – 18:30: self-study)

16:30 – 18:30 Workshops

16:30 – 18:30 Workshop ‘Festulolium’ (Auditorium D 7.1)

Moderated by Marc Ghesquière, INRA, Lusignan, France

- Studying physiological parameters contributing to cold acclimation mechanisms in Lolium multiflorum/Festuca arundinacea introgression forms
*Augustyniak A.*, Pawłowicz I., Perlikowski D., Masajada K. and Kosmala A.

Institute of Plant Genetics, Polish Academy of Sciences, Poland

- A cytogenetic map of Festuca pratensis and examples of genome reshuffling in F. pratensis × Lolium perenne hybrids
*Majka J.*, Zwierzykowski Z., Książczyk T., Kielbowicz-Matuk A., ... Kosmala A.

*Institute of Plant Genetics, Polish Academy of Sciences, Poland

- Comparison of plant persistency between and within Festulolium and Dactylis progenies under summer water deficit conditions
*Ghesquière M.*, Bourgoin T. and Durand J.-L.

INRA, URP3F, Lusignan, France

- Long-term crown rust survey in perennial ryegrass and Festulolium trials in Lithuania
Kemešytė V., Statkevičiūtė G. and Jaškūnė K.
Lithuanian Research Centre for Agriculture and Forestry, Lithuania

- Digestibility, forage and seed yield of two new Festulolium amphiploids
  Baert J., Van Laere K., Ghesquiere A. and Aper J.
  Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Belgium

16:30 – 18:30 Workshop ‘Collaboration between practice and research’ (Auditorium D 7.2)
Moderated by Johanna Besier, Agroscope, Switzerland

- ‘Grassland Compass’: a practical tool to improve grass production and grass utilization on Dutch dairy farms
  De Haas M.J.G.*, Aantjes L.M., Borkent H., Kwakernaak C., ... Voskamp-Harkema W.
  *Van Hall Larenstein University of Applied Sciences, the Netherlands

- Grass-clover mixtures in practice: key-factors of success
  Suter D.*, Kessler W., Thomet E., Frick R. and Lüscher A.
  *Agroscope, Forage Production and Grassland Systems, Switzerland

- REDCap, an inter-profession cooperation to improve and promote sown grasslands for sustainable dairy goat systems in western France
  Jost J.*, Donier H., Caillat H., Brachet A. and Pierre P.
  *Institut de l’Elevage, Mignaloux-Beauvoir, France

18.30 – 20:30 Welcome reception (Main hall)
(Sponsored by the City of Zurich and the Canton of Zurich,
Milk products offered by Swissmilk)
Welcome address
Martin Neukom, Government Councillor, Canton of Zurich

Tuesday, 25.6.2019

08:30 – 10:20 Plenary Session Theme 2: Improving sown grasslands and their management for future challenges (Auditorium E 7)
Chair: Massimiliano Probo, Agroscope, Switzerland

08:30 Nitrogen fertilization of grass-clover leys
  Eriksen J.*, Frandsen T.S., Knudsen L., Skovsen S., ... Rasmussen J.
  *Department of Agroecology, Aarhus University, Denmark

09:05 Effects of trampling-resistant seed mixtures on pasture vegetation cover
  Salomon E.*, Engström J., Nilsdotter-Linde N. and Spörndly E.
  *RISE – Research Institutes of Sweden, Box 7033, 75007 Uppsala, Sweden
09:23  Individual-based modelling as a tool to identify combinations of key traits to enhance overyielding in legume-based mixtures
        **Louarn G.**, Barillot R., Combes D. and Escobar-Gutiérrez A.J.
        INRA, UR4, URP3F, Lusignan, France

09:42  Allelopathic effects in species mixtures of legumes
        **Elsalahy H.** *, Bellingrath-Kimura S. and Döring T.
        *Dep. of Agronomy and Crop Science, Humboldt-University of Berlin, Germany

10:00  The economic value of species diversity in intensively managed grasslands
        **Schaub S.** *, Buchmann N., Lüscher A. and Finger R.
        *Agricultural Economics and Policy Group, ETH Zurich, Switzerland

10:20 – 10:45  Coffee break (sponsored by Saatzucht Steinach GmbH)

10:45 – 12:35  **Plenary Session Theme 3: Molecular genetics and genomics for improved breeding of forages** (Auditorium E 7)
                  (Sponsored by Ufa/Fenaco)
        Chair: Philippe Barre, INRA, Lusignan, France

10:45  Advances and perspectives in the application of genomic tools for research and breeding of forage crops
        **Roldán-Ruiz I.** *, Ruttink T., Muylle H., Verwimp C., ... Barre P.
        *Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Belgium

11:20  Response of alfalfa populations to recurrent selection for superior freezing tolerance
        **Rocher S.**, Bertrand A. and Claessens A.
        Quebec Res. & Develop. Centre, Agriculture and Agri-Food Canada, Canada

11:38  A diploid phased genome assembly of the Italian ryegrass (**Lolium multiflorum** Lam.) cv. Rabiosa
        **Copetti D.** *, Kuon J.-E., Yates S., Kölliker R. and Studer B.
        *Molecular Plant Breeding, ETH Zurich, Switzerland

11:56  Genomic polymorphisms involved in phenotypic variation in the natural diversity of perennial ryegrass (**Lolium perenne** L.) across Europe
        **Keep T.** *, Willner E., Roschanski A.M., Dehmer K.J., ... Barre P.
        *INRA, Centre Nouvelle-Aquitaine-Poitiers, UR4 (UR P3F), Lusignan, France

12:14  Genome organization and (in)stability of wide hybrids
        **Kopecký D.**, Perničková K., Horáková L. and Glombík M.
        Centre of the Region Haná for Biotechnological and Agr. Res., Czech Republic

12:35 –19:00  Lunch box (sponsored by Migros)
        Departure for the *mid-conference excursions 1 to 4*
        (sponsored by FiBL, Bio Suisse and Wintersteiger)

19:00  Free evening
Wednesday, 26.6.2019

08:30 – 10:20  Plenary Session Theme 6: Plant-soil-microbe interactions in multi-species grasslands (Auditorium E 7)
Chair: Pierre Mariotte, Agroscope, Switzerland

8:30  Advances in understanding plant-soil-microbe interactions in multi-species grasslands
De Deyn G.B.*, Barel J.M., Dassen S. and Martinez-Garcia L.B.
*Soil Biology Group, Wageningen University, the Netherlands

09:05  Soil microbial diversity and functioning in permanent grasslands across management and agro-climate gradients – A Pan-European survey
Rasche F.*, Lüscher A., Dimitrova Mårtensson L.-M., Silva L., ... Widmer F.
*Inst. of Agricultural Sciences in the Tropics, University of Hohenheim, Germany

09:23  The impact of mountain hay meadow management on litter decomposition and root colonization by arbuscular mycorrhizal fungi
Herzog C.*, Lessard-Therrien M., Van der Heijden M., Arlettaz R. and Humbert J.-Y.
*Institute of Ecology and Evolution, University of Bern, Switzerland

09:42  Effects of plant functional types on greenhouse gas fluxes in grasslands along a climatic gradient
Debouk H.*, Llurba R., Altimir N., Ribas A. and Sebastià M-T.
*Laboratory of functional ecology and global change, Solsona, Spain

10:00  The interaction between soil biota and soil phosphorus fertilisation influences plant community biomass and composition
Wasof S., De Schrijver A., Schelfhout S., Mertens J., Baeten L. and Verheyen K.
Forest and Nature Lab, Ghent University, Belgium

10:20 – 10:45  Coffee break (sponsored by DSV)

10:45 – 12:35  Plenary Session Theme 5: Breeding for future grassland challenges (Auditorium E 7)
Chair: Isabel Roldán-Ruiz, ILVO, Melle, Belgium

10:45  Advances and perspectives in breeding for improved grass-endophyte associations
Johnson L.J.*, Voisey C.R., Faville M.J., Moon C.D., ... Hume D.E.
*AgResearch Ltd., Grasslands Research Centre, New Zealand

11:20  Benchmarking symbiotic performance of white clover cultivars: room for improvement?
Weith S., Griffiths A.*, Ballard R., Ganesh S., ... Hofmann R.
*AgResearch Ltd., Grasslands Research Centre, New Zealand

11:38  Analysis of seed shattering in a perennial ryegrass (Lolium perenne L.) backcross family derived from Lolium temulentum
Malenica M., Schulze S., Böhm C. and Saal B.
Saatzucht Steinach GmbH & Co. KG, Germany

11:56  Traits underlying seed yield in red clover uncovered
Vleugels T., Roldán-Ruiz I., Van Laere K. and Cnops G.
Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Belgium

12:14 The imperative of improving yield of perennial forage crops: will genomic selection help?
Brummer E.C.*, Li X., Wei Y., Hanson J.L. and Viands D.R.
*Plant Breeding Center, The University of California, Davis, USA

12:35 – 13:45 Lunch break (sponsored by Barenbrug)

13:45 – 15:15 Parallel Sessions Theme 2 and Theme 5

Theme 2: Improving sown grasslands and their management for future challenges (Auditorium D 7.1)
Chair: Piotr Golinski, Poznan University of Life Sciences, Poznan, Poland

13:45 Species richness increased yield stability in intensively managed grasslands subjected to experimental drought
Finn J.A.*, Suter M., Haughey E., Hofer D. and Lüscher A.
*Teagasc, Environment Research Centre, Johnstown Castle, Ireland

14:03 Effect of water stress on grass species in sown permanent swards
Peratoner G., Querini M. and Figl U.
Laimburg Research Centre, Ora/Auer, Italy

14:21 The effect of altering autumn closing management on the water-soluble carbohydrate composition of perennial ryegrass (Lolium perenne L) the following spring
Looney C.*, Wingler A., Donaghy D. and Egan M.
*Teagasc, Animal & Grassland Res. and Innov. Centre, Moorepark, Ireland

14:39 Sward lifting in compacted grassland: effects on soil structure, grass rooting and productivity
De Boer H.C., Deru J.G.C. and Van Eekeren N.*
*Louis Bolk Institute, AJ Bunnik, the Netherlands

14:57 Legacy effect of legume proportion in the preceding ley on the bacterial community composition under a Lolium multiflorum following crop
Fox A.*, Lüscher A. and Widmer F.
*Agroscope, Forage Production and Grassland Systems, Switzerland

Theme 5: Breeding for future grassland challenges (Auditorium D 7.2)
Chair: Piet Arts, Barenbrug, the Netherlands

13:45 Salinity response of alfalfa populations selected for salinity tolerance using an indoor screening method
Bertrand A.*, Claessens A., Rocher S., Bipfubusa M., ... Beauchamp C.
*Quebec Res. & Develop. Centre, Agriculture and Agri-Food Canada, Canada

14:03 Disentangling genetic and non-genetic yield trends of Dutch forage crops
Schils R.L.M.*, Van den Berg W., Van der Schoot J.R., ... Van Ittersum M.K.
*Plant Production Systems, Wageningen University, the Netherlands
14:21 An experimental design to test tall fescue ecotype × endophyte combinations under diverse managements and environments
Trammell M.A.*, Guiterrez F., Krogman W., Young C.A. and Brummer E.C.*
*Noble Research Institute, Oklahoma, USA

14:39 Genetic diversity of Epichloe endophytes infecting Schedonorus pratensis and other forage grasses reveals complex correlation between haplotypes and loline alkaloid levels
Cagnano G.*, Roulund N., Jensen C.S. and Asp T.*
*DLF Seeds A/S, Store Heddinge, Denmark

14:57 Analysis of drought tolerance in perennial ryegrass (Lolium perenne L.) with methods of genomic prediction
Westermeier P.*, Albrecht T., Geyer R., Willner E. and Hartmann S.*
*Bavarian State Research Center for Agriculture, Freising, Germany

15:15 – 18:30 Poster Session (including coffee break)
Posters Theme 2: Improving sown grasslands and their management for future challenges (Floor E)
Posters Theme 5: Breeding for future grassland challenges (Floor D)
Posters Theme 6: Plant-soil-microbe interactions in multi-species grasslands (Floor E),
Posters theme 7: Collaboration between practice and research for practical advances (Floor D)
(15.15 – 17.00: discussion with the authors; 17.00 – 18.30: self-study)

15:15 – 17:00 EUCARPIA Board Meeting (Room E 42)
17:00 – 17:30 EUCARPIA business meeting (Auditorium D 7.1)

19:00 – 23:00 Conference dinner
Thursday, 27.6.2019

08:30 – 10:20  **Plenary Session Theme 4: New methods and technologies to assess plant traits, swards and forages (Auditorium E 7)**
Chair: Ulf Feuerstein, DSV, Asendorf, Germany

8:30 Methodological advances, challenges and perspectives in field phenotyping and its application to forage crops
**Hund A.**, Feuerstein U., Roth L., Kirchgessner N., ... Walter A.
*Crop Science, ETH Zurich, Switzerland*

09:05 UAV-based remote sensing used for yield prediction in temperate grasslands
**Grüner E.**, Astor T. and Wachendorf M.
*Grassland Sci. and Renewable Plant Resources, Universität Kassel, Germany*

09:23 Evaluating LIDAR as a tool for yield measurement in perennial ryegrass and white clover monoculture sward plots
**Ghamkhar K.**, Irie K., Bateman C., Hagedorn M., ... Barrett B.
*AgResearch Grasslands Research Centre, Palmerston North, New Zealand*

09:42 Comparison of different sensing technologies to estimate LAI of managed grassland
**Klingler A.**, Schaumberger A., Vuolo F. and Pötsch E.M.
*DNW, BOKU-Vienna, Vienna, Austria*

10:00 Using drone imagery to estimate lodging in red fescue (**Festuca rubra**)
**Andreasen C.**, Bitarafan Z., Westergaard J.C. and Rasmussen J.
*Dep. of Plant and Environmental Sci., University of Copenhagen, Denmark*

10:20 – 10:45  **Coffee break (sponsored by IPSuisse)**

10:45 – 12:35  **Plenary Session Theme 7: Collaboration between practice and research for practical advances (Auditorium E 7)**
Simon Ineichen, HAFL, Bern University of Applied Sciences, Zollikofen, Switzerland

10:45 Revising official herbage cultivar evaluation to meet evolving EU stakeholder needs
**Gilliland T.J.**, Annicchiarico P., Julier B. and Ghesquière M.
*Queens University Belfast and Agri-Food and Biosciences Institute, UK*

11:20 Predetermining factors for grazing efficiency differences in perennial ryegrass varieties
**Tubritt T.**, Byrne N., Gilliland T., Delaby L. and O’Donovan M.
*Teagasc, Animal and Grassland Innovation Centre, Moorepark, Ireland*

11:38 Developments in the use of plantain (**Plantago lanceolata**) cultivars in New Zealand
**Stewart A.V.** and Judson H.G.
*PGG Wrightson Seeds Ltd., Lincoln, New Zealand*
Effect of training and methodology development on the effectiveness of discussion groups on grassland innovation (Inno4Gras)

*Van den Pol-van Dasselaar A.*, Florian C., Mairhofer F., ... *Peratoner G.*
*Aeres University of Applied Sciences, the Netherlands*

The Sown Grassland Cup: a competition as training tool for mixture choice and management

*Hengartner W.* and *Hirschi H.*
*Agricultural School Strickhof, Lindau, Switzerland*

Closing remarks

Lunch break (sponsored by DLF)

Departure