



## **Sustainable Meat and Milk Production from Grasslands**

### **Draft Scientific Programme**

#### **Sunday – June 17<sup>th</sup>**

*09.00 – 16.00 – Master Classes and Working Groups*

*Working Group ‘Grazing’ and Grazing Masterclass – Moorepark – 08:00 – 17:00*

*Working Group ‘Sensing in grassland and forage science and practice’ – Rochestown Park Hotel – 13:00 – 16:30*

*17.30 -18:15 - Opening Ceremony*

*18:15 – 19:15 – Opening session*

**The evolution of grassland in the European Union in terms of utilisation, productivity, food security and the importance of adoption of technical innovations in increasing sustainability of pasture-based ruminant production systems**

*Dillon, P.G.*

**Ruminant grassland production systems in Ireland**

*O’Donovan, M., Hennessy, D. and Creighton, P.*

#### **Monday – June 18<sup>th</sup>**

##### **Session I**

*08:30 – 09:30 – Plenary papers*

**Breeding resilient cultivars for European grass based ruminant production systems**

*Gilliland, T.J., Hennessy, D. and Ball, T.*

**Robust animals for grass based production systems**

*Delaby L., Buckley F., McHugh N. and Blanc F.*

*09:30-10:30 – Coffee and Poster Session*

10:30 – 12:30 – Parallel Sessions (Themes 1 & 3)

**Theme 1 - Resilient plants for grass based ruminant production systems, adapting grassland systems to the dynamics of climate and resource availability**

- 10:30 Tubritt, T., O'Donovan, M. and Gilliland, T.J. *Comparison of utilisation performance of perennial ryegrass varieties* (27612)
- 10:45 Lovatt, J.A., Ander, E.L., Broadley, M.R., Bone, P., Crout, N.M.J., Graham, N., Hayden, R., Kendall, N.R., Kumssa, D.B., Lark, R.M., Lovatt, A.C., Palmer, S., Penrose, B., Skot, L., Thomson, R., Wilson, P. and Young, S.D. *Breeding grass varieties with increased magnesium content to prevent hypomagnesaemia in ruminants* (27448)
- 11:00 Fox, A., Suter, M., Widmer, F. and Lüscher, A. *Yield stimulating legacy effect of sown legume abundance in a ley on the performance of a *Lolium multiflorum* following crop* (27746)
- 11:15 Sitzia, M., Manca C., Epifani G.P. and Loi, A. *Enhancing *Sulla* (*Hedysarum coronarium L.*) introduction to different soil types through inoculation with rhizobia strain* (27637)
- 11:30 Hoekstra, N.J., De Deyn, G.B. and Van Eekeren, N. *Red clover cultivars of *Mattenklee* type show higher yield and persistence than *Ackerklee* type* (27383)
- 11: 45 Nadeem, S., Steinshamn, H., Sikkeland, E.H., Gustavsson, A.M. and Bakken A.K. *The relationship between phenological development of red clover and its feed quality in mixed swards* (27666)
- 12:00 Porqueddu, C., Dettori, D., Nieddu, D. and Meli, R.A.M. *Performance of legume-based annual forage crops in a Mediterranean environment* (27628)
- 12: 15 Guy, C., Hennessy, D., Gilliland, T.J., Coughlan, F. and McCarthy, B. *Perennial ryegrass ploidy and white clover: how do they affect sward performance?* (27489)
- 12:30 Parsons, D., Zhou, Z. and Palmborg, C. *Production and botanical composition of leys in a long-term cropping system experiment in northern Sweden* (27784)

**Theme 3 - Environmental influences on grassland systems – consequences of climate change, mitigation strategies, and impacts on ecosystems**

- 10:30 Dellar, M., Topp, C.F.E., Banos, G. and Wall, E. *A meta-analysis on the impacts of climate change on the yield of European pastures* (27435)
- 10:45 Ruelle, E., Delaby, L. and Hennessy, D. *Impact of climate change on grass growth at two sites in Ireland* (27510)
- 11:00 Zumwald, J. Braunschweig, M., Nemecek, T., Schüpbach, B., Jeanneret, Ph., Roesch, A., Hofstetter, P. and Reidy, B. *Life cycle assessment of grassland-based dairy production systems in Switzerland* (27469)
- 11:15 Järvenranta, K., Virkajärvi P., Pulkkinen H., Huuskonen A., Nousiainen J., Hietala S., and Pesonen, M. *Dynamic LCA model for estimating environmental effects of Finnish beef production (FootprintBeef)* (27714)
- 11:30 Malisch, C.S., Reinsch, T. , Kluß, C. , Herrmann, A., Loges, R. and Taube, F. *Net primary productivity and soil carbon balance of different forage production systems* (27473)

- 11:45 Dorn, K., Menzi, H., Hofstetter, P. and Reidy, B. *Nitrogen and phosphorus fluxes of grassland-based dairy production systems on mixed farms in Switzerland* (27675)
- 12:00 Hoppe, G.M., Morrow, E. and Gilliland, T.J. *Long-term trend in perennial ryegrass (*Lolium perenne* L.) delineator cultivar heading dates from 1984 to 2016* (27614)
- 12:15 Poetsch, E.M. Lenzen, D. and Schellberg, J. *Response of plant functional traits to temperature along an alpine gradient of altitude* (27651)

12:30 – 14:00 – Lunch

## Session II

14:00 – 15:00 – Plenary papers

### **A review of big data, smart and precision technologies in pasture based dairying systems**

*S Shalloo, L., Leso, L., McDonagh, A., Geoghegan, A., Werner, J. and O'Leary, N.*

### **Social and economic impacts of grass based ruminant production**

*van den Pol-van Dasselaar, A., Becker, T., Botana Fernández, A., Hennessy, T. and Peratoner, G.*

15:00 – 15:45 – Coffee and Poster Session

15:45 – 17:30 – Parallel Sessions

### **Theme 4 – Social and economic impacts of grass based ruminant production systems**

- 15:45 Gulati, A., Hennessy D., Lewis E., O'Donovan M., McManus J.J., Fenelon M. A. and Guinee T.P. *Effect of dairy cow feeding system on milk composition and processability* (27742)
- 16:00 Botana, A., González L., Dagnac T., Resch-Zafra C., Pereira-Crespo S., Veiga M., Lorenzana R., Fernández-Lorenzo B. and Flores-Calvete G. *Fatty acids and liposoluble antioxidants in milk from dairy farms in the Atlantic area of Spain* (27684)
- 16:15 Klingler, A., Resch, R. and Poetsch, E.M. *Effects of grassland extensification on yield, forage quality and floristic diversity* (27654)
- 16:30 Laisse, S., Baumont, R., Veysset P., Benoit M., Madrange P., Rouillé, B. and Peyraud, J.L. *The net contribution of ruminant production to the protein supply for humans* (27433)
- 16:45 García-de-la-Fuente, L., Guzmán Otano, D., Mora Cabello de Alba, A., Nobre, S. and Brau-Nogué, C. *Designing economic instruments to maintain and enhance hay meadow biodiversity in south-west European mountain areas* (27447)
- 17:00 Hanrahan, L., McHugh N., Hennessy T., Moran B., Kearney R., Wallace M. and Shalloo L. *Factors associated with profitability in pasture based systems of milk production* (27573)
- 17:15 Junklewitz, P., Berlin, K. and Basten, M. *Sulphur improves feed quality in intensively managed grassland in Germany* (27563)

## **Theme 2 - Appropriate livestock for grasslands, key characteristics of animals adapted to and suitable for grasslands**

- 15:45 Riesch, F., Tonn B., Meißner M. and Isselstein J. *Grazing by free-ranging red deer: effective management for semi-natural grassland conservation?* (27425)
- 16:00 Connolly, J. *Perspectives on the use of animal as replicate in grazing experiments* (27808)
- 16:15 Zom, R.L.G., Van Berkel, I.A.J., Oegema, M.D. and Holshof, G. *Can we motivate dairy cows to increase their grass intake by feeding low protein supplements?* (27716)
- 16:30 Schori, F. *Feeding zero concentrate to dairy cows* (27412)
- 16:45 Pavlů, V.V., Pavlů, L., Gaisler, J., Kassahun, T., Hejzman, M. and Pavlů, K. *Effect of long-term grazing on dry matter biomass production and heifer performance* (27431)
- 17:00 McGovern, F.M., Fetherstone, N., Creighton, P. and McHugh, N. *Comparing grass utilisation and herbage intake of elite New Zealand versus Irish ewes in the pre-weaning period* (27725)
- 17:45 Delagarde, R., Belarbre N. and Charpentier A. *Accuracy of the ytterbium-faecal index method for estimating intake of pasture-fed dairy goats* (27424)

### **Tuesday – June 19<sup>th</sup>**

08:30 - Depart Rochestown Park Hotel

09:30 – 12:00 – Teagasc, Animal and Grassland Research and Innovation Centre, Moorepark

12:00 am – Depart Moorepark for one of 5 Mid-Conference Tours

#### **Tour 1 – Sustainable Grass-based Meat Production**

This Tour will travel west of Cork City to mid-Cork. It will visit a beef farm and a sheep farm. Both farms are family run businesses and are grass based. Livestock are turned out to grass in February and the grazing session continues until November. Grazed grass is the primary source of feed for meat production on these farms. Delegates will visit paddocks and learn about the grazing and grassland management, the production systems implemented on the farms, and production and financial data will be presented. The beef farmer is currently the Beef Grassland Farmer of the Year.

#### **Tour 2 – Using SMART Technology in Grassland Research and Grassland Farming, and Grass-based Dairy Products**

This Tour will visit the Teagasc SMART Farm at Dairygold Research Farm, close to Moorepark. Delegates will learn how smart technologies such as sensors and decision support tools are being used on a dairy farm and the benefits of technology for research and dairy farming. Incorporating automatic milking with grazing systems will also be discussed. The Tour will then visit a dairy processor in North Cork and discover the importance of grass based milk production for Irish dairy products.

#### **Tour 3 – Biodiversity and Sustainable Production**

This Tour will visit Teagasc Curtins Research Farm and a dairy farm. Developing sustainable grass based dairy production systems is a key focus of Curtins Research Farm, with particular

focus on water quality. The second visit is to a productive dairy farm where there is a particular interest in incorporating measures to increase bio-diversity. The farmer on this farm was recently successful in securing funding for a project from the European Innovation Partnerships Initiative (EIP). Delegates on this tour will learn about grazing and grassland management, nutrient use management, water quality, biodiversity enhancement, and production data will be presented.

#### **Tour 4 – Forage Production and Evaluation**

This Tour will visit the Department of Agriculture, Food and the Marine Crop Evaluation Site at Ballyderown, Fermoy, Co. Cork. The visit will focus on the evaluation of grass and clover varieties for the Recommended List in Ireland. The evaluation protocols will be discussed and delegates will see the varieties in-situ. The Teagasc Pasture Profit Index will also be presented. The Tour will then visit the GoldCrop Facility. GoldCrop are Teagasc's commercial breeding partner, with responsibility for propagating and marketing all forage material coming from the Teagasc Grass and Clover breeding programme.

#### **Tour 5 – Irelands expanding milk pool**

Milk production in Ireland is expanding since the removal of milk quota. Grazed grass is the basis of Ireland's efficient milk production systems. This tour will visit two of the top dairy farmers in Ireland. Both are family run farm businesses with excellent grassland management. Both farmers are amongst the top grassland farmers in Ireland, and one of them is currently Grassland Farmer of the Year. Delegates will view and discuss farm infrastructure, grassland management, dairy cow breeding, and production and financial data will be presented.

<b>Wednesday – June 20<sup>th</sup></b>
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### **Session III**

*08:30 – 09:30 – Plenary papers*

#### **Towards sustainable European grassland farming with Inno4Grass: an infrastructure for innovation and knowledge sharing**

*Krause A., Becker T., Feindt, P.H., Huyghe C., O'Donovan M., Peeters A. and Van den Pol-van Dasselaar, A.*

#### **The carbon sequestration of grassland soils – climate change and mitigation strategies**

*Klumpp, K. and Fornara, D.A.*

*09:30 -10:30 – Coffee and Poster Sessions*

10:30 – 12:30 - Parallel Sessions

**Theme 1 - Resilient plants for grass based ruminant production systems, adapting grassland systems to the dynamics of climate and resource availability**

- 10:30 Klootwijk, C.W., Zom, R.L.G., Van den Pol-Van Dasselaar, A., Van Middelaar, C.E., Holshof, G. And De Boer, I.J.M. *Amazing Grazing; N use efficiency of 60 individual dairy cows under intensive grazing* (27669)
- 10:45 Wall, D.P., Fox, I. and Bailey, J. *Effect of soil type, lime and phosphorus fertiliser application on grass yield and quality* (27788)
- 11:00 Díaz Fernández, D.D.F. and Nagy, G. *Sustainable fertilisation of natural grasslands* (27527)
- 11:15 Schils, R.L.M., Höglind, M., van Middelkoop, J., Holshof, G., Verloop, J.J., Rijk, B., van de Ven, G., van den Berg, W., van der Schoot, J.R. and van Ittersum, M.K. *Framework for yield gap analysis in grasslands* (27407)
- 11:30 Wolf, M. and Laser, H. *Experimental simulation of intensive grazing and other management systems in a low mountain range* (27664)
- 11:45 Dineen, M., Higgs, R., McCarthy, B. and Van Amburgh, M.E. *Evaluation of the Cornell Net Carbohydrate and Protein System version 7.0 for pasture-based systems* (27729)
- 12:00 McConnell, D.A., Scoley, G. and Gordon, A. *Impact of pre-cutting herbage mass on cow performance and sward utilisation in zero-grazing systems* (27735)
- 12:15 Jatkauskas J. and Vrotniakiene V. *Improvement silage nutritive and hygienic value using viable lactic acid bacteria inoculant* (27623)
- 12:30 Patterson, R., Morrison, S., Laidlaw, S. and Theodoridou, K. *The effect of pasture allowance on the performance of growing dairy heifers* (27737)

**Theme 6 – Knowledge transfer to stakeholders**

- 10:30 Ollion, E., Brives, H., Cloet, E. and Magne M.A. *Suitable cows for grass-based systems: what do stakeholders do in France?* (27715)
- 10:45 Schmitz, A. and Isselstein, J. *Evaluation of horse farmers' knowledge and attitude towards grassland management* (27467)
- 11:00 Champion, F.P. Lynch, C. and Diskin, M.G. *A case study on the adoption of grazing skills and technologies on the Teagasc BETTER sheep farms* (27839)
- 11:15 Brocard, V. Rankin, J., Korevaar, H., Menghi A., Keatinge, R. *Eurodairy: a bottom-up approach to transfer innovations on grass to European farmers* (27449)
- 11:30 Keown, C. *Dairylink Ireland – 'Best use of resources to drive profit'* (27720)
- 11:45 Peratoner, G., Kasal, A., Florian, C. and Pramsöhler, M. *Accuracy of visual assessment of the plant stand type for the estimation of forage quality* (27486)
- 12:00 Pick, S., Genever, E., Wheeler, K., Jones, M. and Morgan, C. *Increasing beef production from grass and grazed forage by using farmers as mentors* (27695)
- 12:15 Maher, J. and Bogue, F. *Grass10 - An extension campaign to improve the level of grass production and utilisation* (27841)

12:30 – 14:00 pm – Lunch

## Session IV

14:00 - 15:00 – Plenary papers

### **Influence of pasture-feeding on milk and meat product quality**

*Stanton, C., Mills, S., Ryan, A., Di Gioia, D. and Ross, R.P.*

### **Optimising ecosystem services provided by grassland systems**

*Huguenin-Elie O., Delaby L., Le Clec'h S., Moreno G.M., Teixeira R.F.M. and Schneider M.K.*

15:00 – 15:45 - Coffee and Poster Sessions

15:45 – 17:30 – Parallel Sessions

### **Theme 3 – Environmental influences on grassland systems – consequences of climate change, mitigation strategies, and impacts on ecosystems**

- 15:45 Larkin, J., Sheridan, H., Finn, J.A., Denniston, H. and Ó hUallacháin, D. *Semi-natural habitats on intensive grassland farms in Ireland* (27625)
- 16:00 Forrester, P., Harty, M., Carolan, R., Lanigan, G., Krol, D., Hennessy, D., G., Wall, D., Watson, C., Richards, K. *Grassland yield and nitrogen uptake as influenced by urea or ammonium nitrate based fertilisers* (27537)
- 16:15 Van Middelkoop, J.C. *Effect of nitrogen and phosphorus fertilisation and their interaction on nitrogen-phosphorus ratio of grass* (27712)
- 16:30 Kykkänen, S., Hyrkäs, M., Korhonen, P., Hartikainen, M., Toivakka, M., Kauppila, R., Kärkönen, A. and Virkajärvi, P. *New nitrogen fertilisation experiments challenge the old yield responses of forage grasses in Finland* (27663)
- 16:45 Mesbahi, G., Bayeur, C. and Plantureux, S. *Prediction of grassland values by phytosociological or agronomical approach* (27642)
- 17:00 Persson, T., Höglind, M., Van Oijen, M., Korhonen P., Palosuo, T., Jégo, G., Virkajärvi, P., Bélanger, G. and Gustavsson, A.-M. *Intercomparison of nutritive value simulations in three process-based timothy grass models* (27562)
- 17:15 Loges, R., Mues, S., Kluß, C., Reinsch, T., Lorenz, H., Humphreys, J. and Taube, F. *Eco-efficient milk production in northern Germany inspired by the Irish rotational grazing system* (27670)

### **Theme 5 – Big data and smart technologies in grassland**

- 15:45 Riaboff, L., Bedere, N., Couvreur, S., Aubin, S., Goumand, E., Magnier, J., Madouasse, A., Chauvin, A. and Plantier, G. *Influence of pasture characteristics and time of day on dairy cow behaviour predicted from GPS-data* (27488)
- 16:00 O'Leary, N., Ahrend, A., McDonagh, A., O'Brien, B. and Shalloo, L. *A partial budgeting tool to assess investments in precision dairy technologies* (27481)
- 16:15 Möckel, T., Fricke, T. and Wachendorf, M. *Multi-temporal estimation of forage biomass in heterogeneous pastures using static and mobile ultrasonic and hyperspectral measurements* (27507)

- 16:30 Meyer, S.T., Eisenhauer, N., Jochum, M., and Weisser W.W. *Effects of biodiversity on ecosystem functioning in a grassland experiment (Jena) and implications for management* (27770)
- 16:45 Stienezen, M.W.J., Philipsen, A.P., Schils, R.L.M. and van den Pol-van Dasselaar A. *Amazing grazing: feed wedge and cutting window for grazing systems with high levels of supplementation* (27442)
- 17:00 Rinne, M., Jalava, T., Stefanski, T., Kuoppala, K., Timonen, P., Winqvist, E. and Siika-aho, M. *Optimizing grass silage quality for green biorefineries* (27459)
- 17:15 McDonnell, J., Brophy, C., Ruelle, E., Lambkin, K., Fealy, R., Shalloo, L. and Hennessy, D. *Evaluation of ECMWF weather forecasts and their inclusion in an Irish grass growth model* (27513)

19:15 – Conference Dinner

<b>Thursday – June 21<sup>st</sup></b>
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## **Session V**

08:30 – 10:30 - *Presentations and Workshops*

### **Knowledge Transfer to Stakeholders – Science to Practice**

Speaker 1 *to be confirmed*

Dr. Kevin McDonald (DairyNZ)

### **Three short contributions**

Farmer

Knowledge Transfer Specialist

Industry

### **Workshops**

Intensive grassland

Semi-intensive grassland

Extensive grassland

10:30 – 11:15 – *Coffee*

11:15 – 12:15 – *EGF Business Meeting and feedback from the Workshops*

12:15 – 12:45 – *Closing Ceremony*

12:45 – *Lunch*