

**Rémy DELAGARDE**

PEGASE<sup>1</sup>, UMR1348 INRA-Agrocampus Ouest

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<sup>1</sup> PEGASE : *Physiologie, Environnement et Génétique pour l'Animal et les Systèmes d'Élevage*

INRA Researcher

*Institut National de la Recherche Agronomique*  
French National Institute of Agronomic Research

Main research area : **Nutrition of grazing dairy cows / Feeding systems /  
Environmental evaluation of dairy systems**

**Main competences and scientific expertise :**

- Dairy cow, grazing, intake, behaviour, digestion, forages, management (experiments, meta-analyses of literature, methodology)
- Feeding systems, supplementation, modelling and prediction of daily intake (Grazeln model, INRA Feed Tables 2007, INRAtion software)
- Production systems, resources use efficiency, environmental evaluation of dairy systems (head of team "Dairy Systems" in the research unit PEGASE).  
See: [www6.rennes.inra.fr/pegase](http://www6.rennes.inra.fr/pegase)

**Main scientific responsibility**

Leader of the scientific team SYSLAIT (Dairy Systems) from 9 years, first in the research unit UMR1080 Production du Lait (2008-2011) and then in the research unit UMR1348 INRA-Agrocampus Ouest PEGASE (2012-today). The team is composed by 10 permanent researchers and teachers, 2 technicians and 2-5 PhD students and post-doc.

The main scientific objective of the team is to determine ways of improving the efficiency of dairy systems at both herd and system levels, in order to increase food self-sufficiency and reduce impacts on the environment, while maintaining competitiveness. Focus is on the multi-criteria responses of the dairy herd (lactation / intake / reproduction / growth / health) to management factors, on optimisation of grazing on a yearly basis, giving

practical references for animal nutrition and pasture management, and on the environmental efficiency at the cow, system or territory levels over long periods.

#### **Direction or co-direction of PhD students and post-docs**

- 1999-2003 : Cabrera-Estrada J.I., Mexico (PhD, Univ Rennes I, France), co-direction
- 2000-2002 : Ribeiro Filho H.M.N., Brasil (PhD, UFRGS, Porto Alegre, RG, Brasil), direction
- 2002-2002 : Wade M., Argentina (Post-doc), co-direction
- 2004-2008 : Pérez-Ramírez E., Mexico (PhD, Univ. Rennes I, France), direction
- 2008-2011 : Pérez Prieto L., Chile (PhD, Univ Rennes I, France), direction
- 2010-2013 : O'Neill B., Ireland (PhD, Teagasc, UCD, Dublin, Ireland), co-direction
- 2013-2014 : Leichtle L., Chile (PhD, Univ Austral, Valdivia, Chile), co-direction
- 2013-2015 : Roca-Fernandez A.I., España (Post-doc, Fund. Juana de Vega), direction
- 2013-2016 : Miguel M., Brasil (PhD, Univ. Lages, SC, Brasil), co-direction
- 2015-2018 : Charpentier A., France (PhD, Univ Poitiers, France), direction

#### **Teaching**

1. Master students, Agrocampus Ouest, Rennes, France (1-3 days/year).
2. Ecole Supérieure d'Agriculture (ESA) d'Angers, France (1-2 days/year).
3. Master class (postgrados, en español) in the FAUBA (Argentina) (1 week in 2012).
4. Curso-taller internacional (en español) en alimentacion de bovinos productores de leche basada en pastoreo y forrajes. Univ Autonoma del Estado de México (Oct de 2014).
5. National, regional or local training for engineers and technicians of several extension services, and for groups of farmers (2-6 days/year).
6. Invited conferences and seminars (en español) for research or extension in America Latina from 10 years (Uruguay, Brasil, Chile, Mexico, Argentina).

#### **Qualification :**

1991 : Ecole Nationale Supérieure Agronomique de Montpellier (France)

Diplôme d'Agronomie Approfondie

Diplôme d'Ingénieur Agronome en Productions Animales

2012 : Habilitation à Diriger les Recherches, Institut National Polytechnique de Toulouse, France (french obligatory qualification to supervise PhD students).

## Main publications (2010-2016)

- Collas C, Dumont B, **Delagarde** R, Martin-Rosset W, Fleurance G (2015) Energy supplementation and herbage allowance effects on daily intake in lactating mares. *Journal of Animal Science* 93, 2520-2529.
- Delagarde** R, Lamberton P (2015) Daily grazing time of dairy cows is recorded accurately using the Lifecorder Plus device. *Applied Animal Behaviour Science* 165, 25-32.
- Delagarde** R, Peyraud JL (2013) Gérer les variations des apports alimentaires des vaches laitières au pâturage. *INRA Productions Animales* 26, 263-276.
- Delagarde** R, Valk H, Mayne CS, Rook AJ, Gonzalez-Rodriguez A, Baratte C, Faverdin P, Peyraud JL (2011) Grazeln: a model of herbage intake and milk production for grazing dairy cows. 3. Simulations and external validation of the model. *Grass and Forage Science* 66, 61-77.
- Delagarde** R, Faverdin P, Baratte C, Peyraud JL (2011) Grazeln: a model of herbage intake and milk production for grazing dairy cows. 2. Prediction of intake under rotational and continuously stocked grazing management. *Grass and Forage Science* 66, 45-60.
- Delagarde** R, Pérez-Ramírez E, Peyraud JL (2010) Ytterbium oxide has the same accuracy as chromic oxide for estimating variations of faecal dry matter output in dairy cows fed a total mixed ration at two feeding levels. *Animal Feed Science and Technology* 161, 121-131.
- Fanchone A, Archimède H, **Delagarde** R, Boval M (2012) Comparison of intake and digestibility of fresh *Digitaria decumbens* grass fed to sheep, indoors or at pasture, at two different stages of regrowth. *Animal* 6, 1108-1114.
- Faverdin P, Baratte C, **Delagarde** R, Peyraud JL (2011) Grazeln: a model of herbage intake and milk production for grazing dairy cows. 1. Prediction of intake capacity, voluntary intake and milk production during lactation. *Grass and Forage Science* 66, 29-44.
- Graux AI, Gaurut M, Agabriel J, Baumont R, **Delagarde** R, Delaby L, Soussana JF (2011) Development of the Pasture Simulation Model for assessing livestock production under climate change. *Agriculture, Ecosystems and Environment* 144, 69-91.
- Jurjanz S, Feidt C, Pérez-Prieto LA, Ribeiro Filho HMN, Rychen G, **Delagarde** R (2012) Soil intake of lactating dairy cows in intensive strip grazing systems. *Animal* 6, 1350-1359.
- Miguel MF, Ribeiro Filho HMN, de Andrade EA, Moraes Genro TC, **Delagarde** R (2014) Pasture intake and milk production of dairy cows grazing annual ryegrass with or without corn silage supplementation. *Animal Production Science* 54, 1810-1816.
- O'Neill BF, Ruelle E, O'Donovan M, Shalloo L, Mulligan FJ, Boland TM, Delaby L, **Delagarde** R, Lewis E (2014) Adaptation and evaluation of the Grazeln model of grass dry matter intake and milk yield prediction for grazing dairy cows. *Animal* 8, 596-609.
- O'Neill BF, Lewis E, O'Donovan M, Shalloo L, Mulligan FJ, Boland TM, **Delagarde** R (2013) Evaluation of the Grazeln model of grass dry-matter intake and milk production prediction for dairy cows in temperate grass-based production systems. 2. Animal characteristics. *Grass and Forage Science* 68, 524-536.
- O'Neill BF, Lewis E, O'Donovan M, Shalloo L, Mulligan FJ, Boland TM, **Delagarde** R (2013) Evaluation of the Grazeln model of grass dry-matter intake and milk production prediction for dairy cows in temperate grass-based production systems. 1. Sward characteristics and grazing management factors. *Grass and Forage Science* 68, 504-523.
- O'Neill BF, Lewis E, O'Donovan M, Shalloo L, Galvin N, Mulligan FJ, Boland TM, **Delagarde** R (2013) Predicting grass dry matter intake, milk yield and milk fat and protein yield of spring calving grazing dairy cows during the grazing season. *Animal* 7, 1379-1389.
- Peyraud JL, **Delagarde** R (2013) Managing variations in dairy cow nutrient supply under grazing. *Animal* 7:s1, 57-67.
- Pérez-Prieto LA, Peyraud JL, **Delagarde** R (2013) Does pre-grazing herbage mass really affect herbage intake and milk production of strip-grazing dairy cows? *Grass and Forage Science* 68, 93-109.
- Pérez-Prieto LA, **Delagarde** R (2012) Meta-analysis of the effect of pregrazing pasture mass on pasture intake, milk production, and grazing behavior of dairy cows strip-grazing temperate grasslands. *Journal of Dairy Science* 95, 5317-5330.
- Pérez-Prieto LA, **Delagarde** R (2013) Meta-analysis of the effect of pasture allowance on pasture intake, milk production, and grazing behavior of dairy cows grazing temperate grasslands. *Journal of Dairy Science* 96, 6671-6689.
- Pérez-Prieto LA, Peyraud JL, **Delagarde** R (2011) Pasture intake, milk production and grazing behaviour of dairy cows grazing low-mass pastures at three daily allowances in winter. *Livestock Science* 137, 151-160.
- Pérez-Prieto LA, Peyraud JL, **Delagarde** R (2011) Substitution rate and milk yield response to corn silage supplementation of late-lactation dairy cows grazing low-mass pastures at 2 daily allowances in autumn. *Journal of Dairy Science* 94, 3592-3604.
- Pérez-Ramírez E, Peyraud JL, **Delagarde** R (2012) *N*-alkanes v.ytterbium/faecal index as two methods for estimating herbage intake of dairy cows fed on diets differing in the herbage:maize silage ratio and feeding level. *Animal* 6, 232-244.
- Roca-Fernández AI, Peyraud JL, Delaby L, **Delagarde** R (2016) Pasture intake and milk production of dairy cows rotationally grazing on multi-species swards. *Animal* 10, 1448-1456.