

FINAL RESUME ON THE RESEARCH UNIT
PEGASE - Physiology, Environment and Genetics for the
Animal and Livestock Systems

UNDER THE SUPERVISION OF THE
FOLLOWING INSTITUTIONS AND RESEARCH
BODIES:

Institut national de recherche pour l'agriculture,
l'alimentation et l'environnement - INRAE
Agrocampus Ouest - Institut supérieur des sciences
agronomiques, agroalimentaires, horticoles et du
paysage

EVALUATION CAMPAIGN 2020-2021
GROUP B



In the name of Hcéres¹:

Mr Thierry Coulhon, President

In the name of the experts committee²:

Mr Agustin Blasco, Chairman of the committee

Under the decree No.2014-1365 dated 14 November 2014,

¹ The president of Hcéres "countersigns the evaluation reports set up by the experts committees and signed by their chairman." (Article 8, paragraph 5);

² The evaluation reports "are signed by the chairman of the experts committee". (Article 11, paragraph 2).

Tables in this document were filled with certified data submitted by the supervising body on behalf of the unit.

UNIT PRESENTATION

Unit name:

Physiology, Environment and Genetics for the Animal and Livestock Systems

Unit acronym:

PEGASE

Current label and N°:

UMR 1348

ID RNSR:

201220380E

Application type:

Renewal

Head of the unit (2020-2021):

Ms Florence Gondret

Project leader (2021-2025):

Ms Florence Gondret

Number of teams and/or themes:

7

EXPERTS COMMITTEE MEMBERS

Chair:

Mr Agustin Blasco, Universidad Politécnica de Valencia, Spain

Experts:

Ms Anne Bonnieu, INRAE, Montpellier (representative of INRAE CSS)

Mr Stephen Butler Teagasc, Irlande

Mr Stefaan De Smet, Ghent University, Belgium

Mr Jacques Lasseur, INRAE, Montpellier

Mr Charles-Henri Moulin, Montpellier SupAgro

Mr Etienne Verrier, AgroParisTech (representative of Cneca)

HCÉRES REPRESENTATIVE

Mr Serge Delrot

REPRESENTATIVES OF SUPERVISING INSTITUTIONS AND BODIES

Ms Hèlène Lucas, Bretagne-Normandie INRAE center

Ms Françoise Medale, INRAE Phase Division

Ms Edwige Quillet, INRAE Animal Genetics Division

Mr Dominique Vollet, Research Division Agrocampus Ouest

INTRODUCTION

HISTORY AND GEOGRAPHICAL LOCATION OF THE UNIT

PEGASE was created in 2012 from the merger of part of SENAH ("Systèmes d'Élevage, Nutrition Animale et Humaine"), PL ("Production du Lait"), and GARen ("Génétique Animale de Rennes") units. The resulting unit dedicated to livestock science, is located on three sites within a 15 km range. The main location in Saint-Gilles is dedicated to research and administration, while the Rennes location is mainly devoted to teaching. The third site at Le Rheu-Méjusseau holds the experimental facility for dairy ruminants. On first January 2016, staff in charge of the pig facility (in Saint-Gilles) and the logistics team were administratively separated from PEGASE, to create the experimental Unit UE3P ("Unité Expérimentale Porcs de Rennes"). PEGASE is organized in seven teams (Team 1: SYSLAIT: Dairy Systems, Team 2: SysPorc: The Pig in livestock systems, Team 3: LACTATION: Physiology of lactation, Team 4: ADAPTATION: Physiology of adaptation, health and welfare, Team 5: CROISSANCE: Physiology of growth and meat products quality, Team 6: GG: Genetics and Genomics, Team 7: ALINUT: Feeding and Nutrition). In the past contract, these teams conducted research along three axes: Axis 1: to improve the efficiency of resource utilization in livestock production systems; Axis 2: to understand the mechanisms of adaptation and identify markers of robustness of farm animals; Axis 3: to propose and evaluate strategies for animal production and their products. For the next contract, they defined three new research axes: (1/multiperformance: biological levers of multiperformance, 2/ diversity and 3/ circularity).

RESEARCH ECOSYSTEM

PEGASE is under the supervision of Phase ("Physiologie Animale et Systèmes d'Élevage") and GA ("Génétique Animale") divisions from INRAE, and of the P3AN division ("Production Animale, AgroAlimentaire et Nutrition") from the Institut Agro Agrocampus Ouest (AO). PEGASE is one of the 20 research units, experimental facilities and service units of INRAE in the Brittany and Normandy regions. PEGASE may be identified as a major research unit in animal biology and livestock production systems in a region with high livestock production. Within the local ecosystem (Rennes Metropole and Region Bretagne), PEGASE has many collaborations with other UMR: SAS, BAGAP, SMART Lereco, STLO. PEGASE is a founding member of the Convergence Laboratory on Digital Agriculture (IC #DigitAg) created in 2017 and funded by PIA, which allows them to interact with the UMR IRISA (INRIA). PEGASE coordinates the GIS Biogenouest, co-leads the GIS Apivale and participates in the GIS Avenir Elevages. The unit also participates to the Living Laboratory "Ouest-Territoires d'Élevage" (LIT Ouesterel). Involvement of PEGASE in UMT/RMT (RIEL 3.0; Digiporc) resulted in high funding from the "Institut Carnot France Futur Elevages F2E" (1.2 M€) during the past contract. The status of joint research unit (UMR INRAE-Agrocampus Ouest) allows PEGASE to play an important role in research, education, and training in animal science and livestock production.

HCÉRES NOMENCLATURE AND THEMATIC OF THE UNIT

SVE1_3, SVE5_1, SVE2_2

MANAGEMENT TEAM

2015-2017: Mr Jaap van Milgen Head; Ms Sandrine Lagarrigue and Mr Philippe Faverdin, Deputy Heads.

2018-2021: Ms Florence Gondret, Head; Ms. Vanessa Lollivier and Mr Jaap Van Milgen, Deputy Heads.

2022-2027: Ms Florence Gondret, Head; Ms Vanessa Lollivier and Mr Ludovic Brossard, Deputy Heads.

UNIT WORKFORCE

Active staff	Number 06/01/2020	Number 01/01/2022
Full professors and similar positions	4	4
Assistant professors and similar positions	6	6
Full time research directors (Directeurs de recherche) and similar positions	10	8
Full time research associates (Chargés de recherche) and similar positions	15	16
Other scientists ("Conservateurs, cadres scientifiques des EPIC, fondations, industries, etc.")	0	0

High school teachers	0	0
Supporting personnel (ITAs, BIATSSs and others, notably of EPICs)	74	68
Permanent staff	109	102
Non-permanent professors and associate professors, including emeritus	1	
Non-permanent full time scientists, including emeritus, post-docs (except PhD students)	5	
PhD Students	12	
Non-permanent supporting personnel	33	
Non-permanent staff	51	
Total	160	102

GLOBAL ASSESSMENT OF THE UNIT

PEGASE may be identified as a major research unit in animal biology and livestock production systems in a region with high livestock production. The scientific production of the unit (global and per FTE) is very good and well balanced among teams (363 original papers and 65 reviews, of which 62 % were published in journals of excellence of the first quartile). In general, there is a good collaboration between teams enhanced by the establishment of the three axes for organizing the research of the whole unit, although some teams like SYSLAIT, LACTATION or GENOMICS and GENETICS are less connected. PEGASE participates in numerous projects with other countries, especially through many H2020 and FP7 projects, again with some unbalance among teams (LACTATION, ADAPTATION, and GENOMICS and GENETICS teams being less active, while SysPORC has a high involvement in European projects). The unit participates in nine H2020 projects, coordinating one of them, and twelve ERANET programs. Five of twelve ANR research grants in which the unit was involved, have been coordinated by PEGASE. This demonstrates a strong experience in the conduct of large-scale projects at national and international level. International visibility is the best for ADAPTATION and CROISSANCE teams, while LACTATION team is set back from the others.

Transfer activities occupy a substantial part of the activity of the unit. PEGASE has a very good relationship with the industry, with numerous R&D contracts with the private sector at national and regional levels, and in some cases with large transnational companies (ALINUT, LACTATION and ADAPTATION teams being the most connected with the private sector). The communication with the non-academic sector through professional media is good, with many appearances in the media.

In addition to the strong input by Agrocampus Ouest (AO) faculties, the main involvement of the unit in training is (i) giving lectures in different AO and university curricula and (ii) supervision of PhD candidates. A total of 36 PhD theses started in the current contract, among which 26 PhD theses were supervised by PEGASE scientists, (27 HDR), thus the ratio of PhD per scientist is satisfactory, but could be higher. Duration of PhD theses is appropriate, and the number and quality of associated articles is on average also good, with few exceptions. Nearly half of the PhD candidates come from abroad.

Three research axes were developed: Axis 1: to improve the efficiency of resource utilization in livestock production systems; Axis 2: to understand the mechanisms of adaptation and identify markers of robustness of farm animals; Axis 3: To propose and evaluate strategies for animal production and their products. They are fulfilled by the unit as a whole, with some teams more concentrated in specific axes. The five-year project includes reorganization of the activity of the seven teams along three new axes: (1/ multiperformance: biological levers of multiperformance, 2/ diversity and 3/ circularity). The former and new axes represent conceptual and not organizational frame. Most but not all teams are working on two or three axes. The strategies of the teams are, in general, well thought and in line with the past activity of the whole unit. Some projects with the industry can be seriously affected by the COVID pandemic economic consequences.

The recent and coming retirements of a relatively large number of senior scientists with special skills, rises a major concern, because this can compromise the activity of the unit, for both academic research and the relationships with the industry. Moreover, the median age of the permanent staff of the unit is rather high. Some teams are rather small, with less than four FTEs. Maintaining small teams compromises the critical mass needed for research.

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