

GenTORE

Contents

ANNOUNCEMENTS	1
EAAP 2019 SESSION	2
EDITORIAL	3
NEWS	4
RESEARCH ARTICLES	6
PROFILES	13
PUBLICATIONS	13
EVENTS	14
CONTACT	14

About GenTORE

GenTORE – “GENomic management Tools to Optimize Resilience and Efficiency” - is a European Union funded project within the Research and Innovation Program H2020.

GenTORE will develop innovative genome-enabled selection and management tools to empower farmers to optimize cattle resilience and efficiency (R&E) in different and changing environments. The combined research and outreach program of GenTORE will make a contribution to addressing the challenges facing farming in a changing and volatile world.

NEWSLETTER

ANNOUNCEMENTS

UPCOMING EVENTS

EAAP 2019

GenTORE will take a part in the IMAGE-Common Dissemination Booster (CDB) 'Sustainable Livestock Farming' joint session on “Burning issues in biodiversity 2: *Fitter livestock farms from better gene banks*” during the EAAP 2019 conference on 28 August 2019, in Ghent, Belgium. The session is an initiative of IMAGE project coordinated by Michèle Tixier-Boichard (INRA) under the GenTORE cluster of CDB 'Sustainable Livestock Farming' which is a service of the EC. There will be presentations from the projects in cluster like Feed-a-Gene, SmartCow and GplusE. The session will take place between 14:00-17:00 at Room Baeckeland 1 in ICC. For more information visit [EAAP 2019 website](#).



9th ATF SEMINAR on Climate Smart Livestock Farming

The Animal Task Force (ATF) will dedicate its afternoon session to the CDB 'Sustainable Livestock Farming' GenTORE Cluster projects in its 9th Seminar on "Towards a climate smart European livestock farming". The CDB 'Sustainable Livestock Farming' session will take place on 06 November 2019, between 14:00-16:15 at the University Foundation in Brussels. Other finalized or on-going relevant EU projects and actions have also been invited for the panel discussion at the end of the session. For more information, please check [ATF's website](#).



Sustainable LiveStock Farming





Sustainable LiveStock Farming

**Burning issues in biodiversity 2:
"Fitter livestock farms from better gene
banks"**



IMAGE SESSION

Wednesday 28 August, 2019 14:00-17:00

International Convention Centre (ICC), Ghent, Belgium

Session 43, Room Baeckeland 1

TIME	SPEAKER	TALK TITLE
14:00-14:05	M. Tixier-Boichard	Introduction
14:05-14:30	P. Cozzi	The IMAGE unified data portal to integrate and represent European gene bank
14:30-14:45	R. Baumont	SmartCow: integrating European cattle research infrastructures to improve
14:45-15:00	N. Gengler	GplusE: Mid-infrared milk analysis based technologies adding value to gene
15:00-15:15	H. Gilbert	Responses of pigs divergently selected for cortisol level or feed efficiency (Feed-A-Gene)
15:15-15:45	L. Colli	H2020 IMAGE project strategy to investigate local adaptation in European sheep
15:45-16:15	Coffee break	
16:15-16:30	C. Grovermann	Economic resilience and efficiency indicators of conventional and organic dairy farms across Europe (GenTORE)
16:30-16:45	L. Telo de Gama	Capacity building to enhance the use of Animal Genetic Resources in a multinational context
16:45-17:00	M. Tixier-Boichard	Final discussion and introduction to posters

[Click here to register for EAAP 2019](#)



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EDITORIAL

By: Nicolas Friggens—INRA

It's hard to believe that we're already 2 years into GenTORE but it's true! We've just had a very successful annual meeting hosted by FiBL at Frick in Switzerland where, in addition to the great hospitality and the farm visit to see an organic grass-based dairy farm, we have had a rich programme including presentation of results by [GenTORE young scientists](#) and scientific exchange between partners and with stakeholders. The cows looking perfectly happy grazing their lush pasture completely unperturbed by the rain, which could not dampen the enthusiasm of the GenTORE partners.



In the last newsletter I presented the structure of GenTORE, its objectives, and the focus of different work packages. I am pleased in this newsletter to be able to tell you about some of the highlights of the progress being made towards GenTORE objectives. This past year saw the development of two working documents that are underpinning our approach to quantifying efficiency and resilience. The document on efficiency explores how best to extend the residual feed intake methodology so as to be able to quantify which of the biological components of efficiency (digestive efficiency, metabolic efficiency for milk production, growth, maintenance, etc.) are the most important for describing variation between animals in feed efficiency. This builds on prior work by GenTORE partners and we are finalizing a multi-breed dataset to apply the new methods across beef and dairy (WP2).

The document on resilience tackles the thorny question of how to define resilience in terms that allow us to develop proxies for resilience using near- or at-market precision farming technologies. The issue of defining resilience has been discussed on a number of occasions,

including in an extremely well attended open session with scientists and stakeholders at the 2018 EAAP. In the resilience document this issue is approached from another angle; in order to validate any candidate measure or proxy for resilience, we need to be able to test it against reference measures. Such reference measures can be derived from the accumulated consequences of an animal's resilience capacity, for example a longer productive lifespan or a lower number of recorded diseases. Then, given such reference measures (which of course need to be adjusted for factors such as farm management differences) we can test different candidate measures that capture the dynamic of animals' responses and recovery from environmental perturbations. This testing to develop proxies for resilience is in full swing and early results demonstrate that this is a promising approach (WP3).

With respect to environmental perturbations, WP1 has developed a Europe-wide database that combines farm economic and production data with climatic data. This provides a means to describe different farm types, their economic efficiency, and their farm resilience to weather events. This is highly valuable for accounting for genotype by environment interactions in the genomic evaluation work (WP4), and for providing the local farm context in decision support tools at farm- and regional policy-levels (WP5 and 6). There has been significant interaction with stakeholders in this work through different kinds of survey activity, and WP7 is developing the stakeholder interaction further.

All in all, GenTORE is progressing well and this will accelerate as the genomic-related work packages, which only started 1 year ago, start to deliver results. So watch this space! Keep track of GenTORE via [Twitter](#), our [YouTube channel](#), and via our website www.gentore.eu, we're very keen to hear all of your opinions and to receive any feedback that you have for us. I'm very much looking forwards to the breaking results that will come in this next year.





NEWS

GenTORE Cluster for Common Dissemination Booster (CDB) 'Sustainable Livestock Farming' logo is finalized!



Sustainable LiveStock Farming

The (CDB) 'Sustainable Livestock Farming' led by GenTORE designed a new logo and a new banner is on the way!

This useful tool was created to improve the dissemination activities of the scientific projects with similar objectives. The aim is to disseminate the scientific outcomes of the 6 projects (GenTORE, SAPHIR, FeedaGene, SmartCow, IMAGE, GPLusE) better to end-users. This unique cluster of projects will deliver innovative results to help farmers in Europe and internationally improve their businesses.



GenTORE Stakeholder Survey

As a part of the EU-wide GenTORE project, WP1 has carried out a stakeholder survey called "Cattle Systems in Europe" between March-April 2019 with the aim of supporting resilient and efficient cattle production across Europe. The combined results of this survey may inform future genetic improvement strategies that are

more appropriate for users and stakeholders. The survey closed on 19th April 2019. Aggregated results will be available on the project website in the coming months.

GenTORE at the 1st European Symposium on Livestock Farming in Mountain Areas

The 1st European Symposium on Livestock Farming in Mountain Areas was an important opportunity for the promotion of GenTORE project. The Symposium took place in **Bolzano**, from **20th to 22nd June 2018**, thanks to the cooperation of the Free University of Bolzano and EURAC Research Center and with the active support of the European Federation of Animal Science (EAAP), the FiBL Institute of Switzerland and the University of Padova. The gathering of participants from different regions across Europe was expected to stimulate the exchange of knowledge, promote innovation and, thus, enable the expertise to be bundled and implemented on a local level throughout Europe.

As animal husbandry and breeding were two of the covered topics, GenTORE perfectly fitted the interests of the participants. Prof. Giulio Cozzi, as President of the Italian Society for study and improvement of Alpine livestock systems (SoZooAlp), was one of the co-organizers and during the Symposium had chance to provide information about GenTORE and to hand out project's informative material.





NEWS

PhD Course on Robustness : from a woolly concept to operational measures

This doctoral module offered by GenTORE members focused on the concept of animal robustness as a complex, multi-level and dynamic concept, and its relevance in management strategies. The course took place between 01-05 April 2019, in AgroParisTech, Paris.

GenTORE Young Scientist Network

GenTORE has a Facebook page called GenTORE [Young Scientist Network](#) for PhD and Young Scientists. It's aiming to create a network to share the interdisciplinary approach from the GenTORE project and for young scientists to share experiences and views.

On 8 May 2019, during the annual meeting of GenTORE in Switzerland, young scientists presented their work in line with the GenTORE project.

Early-career scientists are welcome to join the [GenTORE Young Scientist](#) Network on Facebook!

had the chance to listen to WP1 and WP3 presentations and had brief overview of the progress of GenTORE. There were also two different stakeholder presentations followed by a plenary discussion session. Lastly WP1 has presented the survey results. The main discussion questions and comments made during the plenary discussion focused on the efficiency traits and how to measure them, definitions of resilience traits and the link between selected traits and farm economics. Some of the main discussion points are given below:

- How can we measure efficiency?

Efficiency is input/output. We need input to measure efficiency. It is important to define which efficiency will be taken into account; feed or production, or do we talk about efficiency in animals, area, per unit concentrate, roughage or CO₂? Or per unit of food competing feed stuff, ruminant or monogastric, efficiency in human edible protein, edible protein per product? These are theoretical questions since we can't think about it without the economic impact. The solution is binding the economics to efficiency. Therefore, we can define efficiency as the animal which produces with less problems in economic terms.

- What is the level of accuracy needed for measuring efficiency traits?
- What are the environments that our breeding takes place in? Are there better breeds that could be more resilient to future production, organic or conventional?
- What will we give to the next generation? In 20 years, what do we want to achieve in R&E in the context of sustainable cattle production?



GenTORE 2nd Annual Meeting "Stakeholders' Session"

GenTORE had its 2nd Annual Meeting in Fliet, Switzerland hosted by FiBL. The Annual Meeting took place between 07-09 May with plenary sessions, WP meetings with dedicated young scientists and stakeholder session.

GenTORE stakeholders and representatives of Swiss breeding sector were among the invitees. All stakeholders





Explaining Differences in European Cattle Farming Systems

By: Simon Moakes, Sylvain Quiédeville, Christian Grovermann, Florian Leiber—FiBL

Latest technology and global trade allows for cattle genetics to circle the world, but there are vast differences between cattle systems within a single continent. To ensure appropriate genetics are used within the varying systems, first it is necessary to understand the specifics of each system. This information can then be combined with specific genetic data to generate a GxE algorithm. This allows for a performance adjustment due to the local environmental factors, as well as an indication of the suitability of those genetics for that environment. However, first the production environment indicators need to be calculated from consistent data that is available at a suitable spatial scale.

Within GenTORE we have developed a farm characterisation database that is constructed from two major data sources, the Farm Accountancy Data Network (FADN)¹, and the Gridded Agro-Meteorological Data in Europe (AGRI4CAST)². The data was processed and is presented as two cattle system databases (dairy and beef), as averages for a wide range of variables at a NUTS2³ regional spatial scale (circa 235 regions with cattle farms).

Within GenTORE we have developed a farm characterisation database that is constructed from two major data sources, the FADN and AGRI4CAST

Detailed FADN data (anonymised individual farm data) was requested for all ruminant and mixed farm types for the most recent data available (2004-2013 at time of request). This dataset of (~250k farms) was then compiled into two consistent datasets, one for dairy (142k) farms and one for beef farms (54k). Each dataset comprises both FADN variables as well as a large number of calculated variables, to identify dairy or beef enterprise performance at per animal, per output product unit or per hectare (allocated to the enterprise). These values were calculated according to the respective dairy and beef enterprise allocation methodologies described by FADN^{4,5}, with further economic and structural variables calculated as necessary.

Furthermore, data for each farm is supplemented with the addition of meteorological data. Daily individual weather station data was downloaded from the AGRI4STAT database web portal and then processed through scripts in STATA software to generate annual values for a wide range of climatic variables, including Temperature Humidity Index (THI), and indicators of drought and seasonality of weather. Furthermore, the altitude values per weather station allowed for a sub-grouping of weather station data by altitude zone (aligned with values available in the FADN dataset), allowing us to separate lowland and upland systems.

¹ The Farm Accountancy Data Network (FADN) is an instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. The concept of the FADN was launched in 1965, when Council Regulation 79/65 established the legal basis for the organisation of the network. (http://ec.europa.eu/agriculture/rica/concept_en.cfm)

² CGMS database contains meteorological parameters from weather stations interpolated on a 25x25 km grid. Meteorological data are available on a daily basis from 1975 to the last calendar year completed. (<http://agri4cast.jrc.ec.europa.eu/DataPortal/Index.aspx>)

³ <https://ec.europa.eu/eurostat/web/nuts/nuts-maps-pdf>, <https://ec.europa.eu/eurostat/web/nuts/principles-and-characteristics>

⁴ https://ec.europa.eu/agriculture/sites/agriculture/files/fadn/documents/dairy-report-2016_en.pdf

⁵ http://ec.europa.eu/agriculture/rica/pdf/beef_report_2012.pdf





Using a statistical (Latent Class) procedure, the meteorological data was analysed to generate consistent environmental regions in Europe. Selected climatic variables, together with altitude zone, were utilised to statistically identify differing zones, and to classify each NUTS2 region to a zone, resulting in 6 lowland zones and 3 upland zones (above 600m). Therefore for each farm in the dairy and beef datasets, meteorological and environmental zone data was allocated on a NUTS2 by altitude zone basis.

Environmental Zones

Lowland:

- 1- North Atlantic – cool and wet, with less temperature variation (IE, UK)
- 2- West Atlantic – moderate temperature, with warmer summers, cooler winters, drier (BE, DE, DK, ES, FR, LU, NE, PT, UK)
- 3- Boreal – Very cold winters, moderate summer, dry (FI, SE)
- 4- Central Europe – Warm summers, cold winters (AT, CZ, DE, EE, FR, IT, LT, LV, PL, SE SK)
- 5- Southern Central Europe – Warm summers, cool winters (AT, EL, ES, FR, HU, IT, SI, SK)
- 6- Mediterranean – Hot summer, warm winter, dry (CY, EL, ES, FR, IT, MT, PT)

Upland:

- 1- Atlantic Mountain – cool and wet with less seasonal variation (BE, DE, FR, IE, LU, UK)
- 2- Central Mountain (Alpine) – warmer summers but colder winters, moderate rainfall (AT, CZ, DE, ES, FI, FR, HU, IT, PL, SE, SI, SK)
- 3- Mediterranean Mountain – mild winters and warm summers, with lower rainfall (CY, EL, ES, FR, IT, PT)

Farm sub-types per environmental zone

Within each environmental zone the large database of farms highlights the variation between farms. To allow for this variation we adopted a decision tree basis for determining the “farm types” within each environmental zone.

We defined two farm typologies, a detailed and a simpler system. Figure 1 shows the method for defining the farm databases, through to climatic zone allocation and into the basic farm types. The basic typology provides 4 lowland types and 2 upland “mountain” types.

Next steps

WP1 is now completing analysis of the efficiency and relative resilience of these varying systems and regions. Furthermore, WPs 1 and 4 are now working together to integrate their data and deliver a combined GxE calculation that further helps to explain the variation in performance of genetically similar animals.

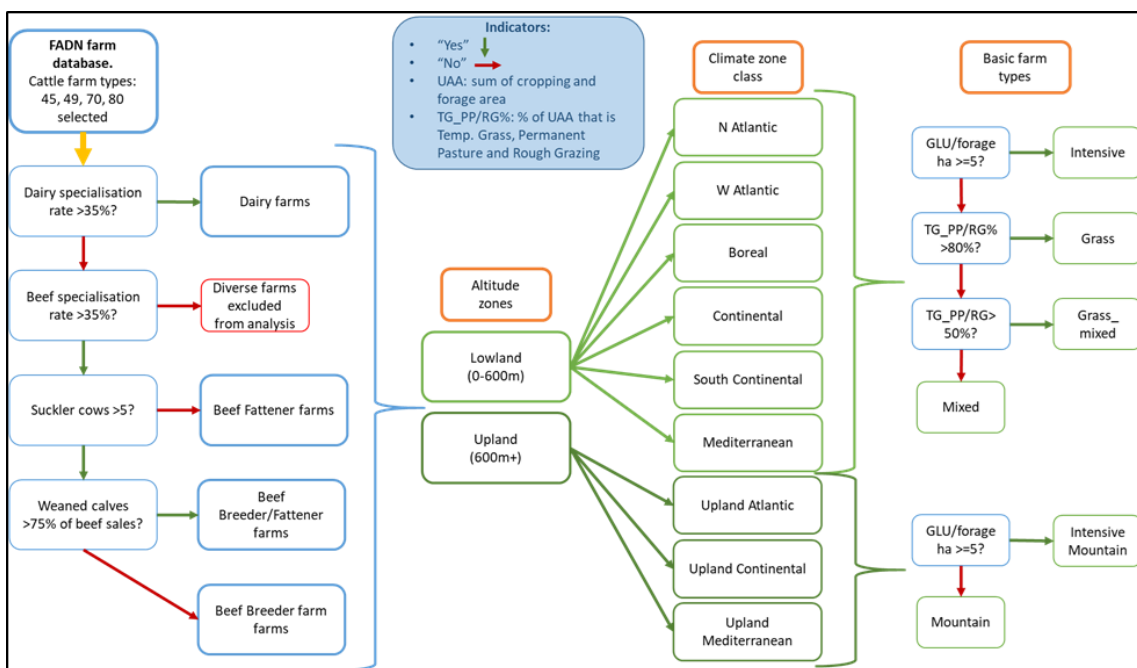


Figure : Farm database construction, linked with climatic zones and basic farm typology





WP3 in GenTORE

By: Yvette de Haas - Wageningen University and Research (WUR)

The overall goal of WP3 is (1) to develop phenotyping tools and to collect data that can be used as proxies for resilience and efficiency of animals, and (2) to calibrate and validate these phenotyping tools across a range of production environments and systems for beef and dairy cattle. Task 3.1 has the objective to develop predictive algorithms for resilience and efficiency using at-market sensor technologies. Each of the main players involved in this task will develop their own local prediction algorithm based on their available data. To avoid a 'one size fits nobody' in the process, the development of these local algorithms will follow a similar approach for each of the partners. This approach involves the use of the same (pragmatic) definition of resilience and efficiency, and the same method to development predictive sensor-based variables. However, since available data differs between partners, weighing of different elements within (particularly the) resilience definition can be different. Also, the algorithm that will be applied to the predictive variables will be different between partners. During the development of these local prediction algorithms, partners will keep each other updated on

the weighing of the elements and in the development of the predictive variables.

To enable a smooth process of the development of local prediction algorithms, a workshop was organised (**5-9 November 2018, Wageningen, the Netherlands**). The main goal of this workshop was to establish the pragmatic definitions of resilience and efficiency, and to identify the required steps to get to predictive sensor-based variables.

Efficiency: The reference method against which to evaluate efficiency proxies was defined as feed efficiency at lactation level, based on total sum of kg milk produced per day / the sum of kg feed intake. It was acknowledged that this definition required the actual recording, or approximation, of feed intake (via, e.g., roughage intake control bins).

Resilience: The reference method against which to evaluate resilience proxies was defined as a cow's ability to re-calve in combination with five additional elements that say something whether this ability was better or worse compared to herd mates. The additional elements were age at first calving, number of inseminations, 305-day milk yield, number of health events (preventive measures excluded), and calving interval. The ability to re-calve, and the additional



Task 3.1 has the objective to develop predictive algorithms for resilience and efficiency using at-market sensor technologies.





elements will be transformed into a resilience-index based on credit or debit points.

Points will be assigned at cow level, for all cows in the local database. For now, only finished lactations (from calving to calving) will be used. For each calving, a cow will receive points (the amount to be determined by each individual partner). Then, the additional five elements may cause these points to increase further or whether points are distracted, using the following approach:

1– Age at first calving: This will be compared to the herd average. In case the interval is shorter than the herd average, bonus points will be provided. In case longer than herd average, minus points will be given.

2– Number of inseminations: For every first insemination during a lactation bonus points will be assigned. For each additional insemination, minus points will be given, where each additional insemination will receive an increasing amount of minus points (e.g., the first insemination receives +5 point, the second insemination -1 point, the third insemination -2, etc).

3– 305-yield: In case above average of peers in the herd (same parity) bonus points will be given for each % above the peer average, for each % below peer average minus points will be given.

4– Number of events: For each event day, minus points will be given. This does not account for preventive events, e.g., hoof trimming. Also inseminations and calvings are ignored since they are already accounted for in element 1, and 2.

5– Calving interval: for each day of shorter interval compared to herd average bonus points will be given, for each day of longer interval minus points will be given.

Bonus and minus points will be assessed throughout lactations, and thus, assigned at cow level. Each partner will decide for their own how the weighing of bonus and minus points will be done. If local available data does not have the information of one or more of these elements, the weight will be set at zero.





FARMERS' PERCEPTIONS ON PARAMETERS DEFINING SUCKLER COW EFFICIENCY

By: Isabel Casasús, Sandra Lobón, Alberto Bernués - CITA

Most beef cattle breeding programs focus on traits related to maternal ability and calf performance during lactation and fattening. These traits have been selected because of their economic importance, easy measurement and adequate heritability to allow for genetic improvement via classical breeding programs. However, other traits also play a major role on cow lifetime productivity, such as number of weaned calves, cumulative weaning weight or functional traits, which can be regarded as very important by farmers. Due to their low heritability and long generation intervals, they are seldom included in classical breeding schemes, but may profit from recent advancements in genomic technologies.

In the context of a survey carried out in suckler cattle farms in the Spanish Pyrenean mountains (GenTORE W1), 53 farmers were asked to score the relative importance (1-not important to 5-very important) of several traits associated to cow productive efficiency. These traits were age at first calving, calving ease, fertility, cumulative number of weaned calves, calf weight at birth, at 90 days and at weaning, calf carcass conformation, cow size, cow udder conformation, feet and legs morphology, docility and use of low quality feedstuffs. Farmers were also asked if they actually recorded their phenotypes for these traits, and if they provided the information to any breeder association. Results were analysed according to farm size (< 65 vs. > 65 dams; 49% and 51% of the farms, respectively), type of marketed product (weaned vs. finished calf, 75% and 25%) and predominant cow breed (autochthonous vs. imported, 91% and 9%).

	Importance (1-5)	Recording rate
Calving ease	4.92	30%
Fertility	4.60	32%
Udder Conformation	4.35	4%
Docility	4.31	2%
No. calves weaned in the cow's life	4.25	21%
Feet and leg morphology	4.18	2%
Carcass conformation	4.02	4%
Calf weight at birth	4.00	28%
Age at first calving	3.92	51%
Calf weight at weaning	3.59	9%
Efficient use of low quality resources	3.42	0%
Calf weight at 90 days	3.12	2%
Cow Size	2.92	2%

Figure 1. Importance and recording rates of different traits to define cow productive efficiency.

Despite 85% of the farmers belonged to breeder associations, only 21% of them delivered data for their breeding programmes. In fact, most of the traits being recorded by far less than 50% of the respondents (Figure 1). However, they considered most of them as important or very important to determine cow efficiency, with the highest scores given to calving ease, fertility, docility, cumulative number of weaned calves and udder conformation (Figure 1). Large farms rated cow size and docility higher, while those that had predominantly dams of autochthonous breeds gave higher importance to calving ease than the rest, but there were no differences among farms selling weaned or finished calves.

Traits such as number of weaned calves, cumulative weaning weight or functional traits, also play a major role on cow lifetime productivity.





Finally, the relative importance ascribed by the farmers to these traits was compared to their consideration in the breeding programmes of the breeds involved in the study or others managed under similar conditions, and four categories of traits were identified:

- a) Some traits were both **recorded by the farmers and included in the breeding schemes**, such as calving and calf birth weight.
- b) Other traits were considered as **quite important but phenotypes were not recorded**. These include cow udder, feet and leg conformation and docility, functional traits related to the adaptability of cows to management conditions. Calf carcass conformation, also in this category, is not generally available for farmers selling weanlings to be fattened in other farms.
- c) Some **very important traits were not included in the current schemes breeding schemes**, such as age at first calving, fertility and cumulative number of weaned calves, all of them key to determine lifetime productivity.

d) Finally, some of the traits **included in the breeding programmes were regarded by farmers as less important**, such as calf weight at 90 days and weaning, probably because they were not individually recorded or used to influence selling price.

Except for the first category, the discordances observed in the rest call for actions ensure the engagement of farmers in breeding programmes. First, a participative approach should be considered in the design of these programmes; then easy phenotype recording protocols for the different traits should be developed, and official database mining and on-farm data delivery facilitated.



PRECISION LIVESTOCK FARMING (PLF) WORKSHOP SEMINAR

By: Claudia Kamphuis - Wageningen University and Research (WUR)

The Precision Livestock Farming (PLF) Workshop Seminar was first organized in **Wageningen University and Research (WUR) in the Netherlands**, in **May 2018**. The objective of that Workshop Seminar was to establish a forum for PLF researchers, to get to know each other, to build a network, and to openly exchange ideas and provide constructive feedback.

After a successful first edition of the workshop seminar, a second edition was organised this year (**April 2019**) by a collaboration between the Swedish University of Agricultural Sciences and the University of Copenhagen, and was held in **Copenhagen, Denmark**. This year, there were 25 participants, including a number of new, mainly early-career, PLF researchers. Also this year, the organising committee invited speakers to present on-going rather than finished research, with the note to clearly identify discussion points or challenges the PLF researchers were facing at this early phase. There were a total of 14 presentations, with varying topics within the dairy or pig domain. Presenters clearly followed the instruction of the organizers and perhaps due to the

very informal setting and small number of participants, lively discussions resulted from these presentations. Work package 3 (on-farm phenotyping) from GenTORE was also presented at this Workshop Seminar. A brief introduction of GenTORE and work package 3 was provided and four main discussion points were addressed: the choice of resilience scoring system, the methodology to summarize sensor data into parameters, an alternative for feed efficiency in absence of feed intake (all task 3.1), and the proposed methodology to get to herd correction factors (task 3.2). Valuable feedback was provided mainly towards the scoring system, and the herd correction factors.

GenTORE and WP 3 was presented in the Precision Livestock Farming (PLF) workshop seminar in April 2019 in Copenhagen.





MEET GENTORE



Dr. Didier BOICHARD (INRA)

WP2 Leader—Resilience and efficiency biology across growing and adult phases

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Didier Boichard graduated from AgroParisTech (Agricultural University of Paris) and made his PhD on fertility of dairy cattle. He joined INRA in 1982 and made his main research contributions in dairy cattle genetics and breeding. He has been deeply involved in the French national genetic evaluation for dairy cattle. In 2002, in close collaboration with the French breeding industry, he implemented a large scale marker-assisted selection programme, which evolved in 2008 towards genomic selection. From 2002 to 2009, he led the Animal Genetics Division of INRA (200 researchers, 500 total staffs). He is presently leading the Bovine Genetics and Genomics research group at INRA in Jouy-en-Josas (close to Paris), involved in research on the genetic variability of phenotypes and on genetic and genomic evaluation. He is author or co-author of more than 140 peer-reviewed papers and is co-editor-in-chief of the journal *Genetics Selection Evolution*. In GenTORE he is leader of the WP2 (together with H el ene Leclerc from Idele) and supervises the INRA activities in WP4 in genomic evaluation of crossbreds and prediction of resilience.



Yvette de Haas (Wageningen Research)

WP3 Leader – Proxies for resilience & efficiency

Yvette.deHaas@wur.nl

When I was a little girl I wanted to become a vet so that I could help animals. Even though I am not a vet nowadays, I still want to help animals and improve them. My expertise is in animal breeding, with a focus on new and novel traits. In other words, how can we improve the next generation of animals so that they are more healthy, more fertile, live longer etc. During my PhD studies I focused on using cell count patterns, instead of the lactation-average cell counts, to improve udder health of cattle. Here I looked at using existing data in another way to get more information out of that. Nowadays my focus is on feed efficiency and methane emissions of cattle. Here the focus is on recording new traits on large enough scale. Main questions are: How can we measure both traits accurately? What are the differences between animals? Within GenTORE I am the WP leader of the work package that focusses on proxies for resilience and efficiency. The use of sensor data is very promising for that, and I enjoy diving into that with the consortium. When I am not working on GenTORE, or any other project, I enjoy playing board games and riding a horse.

RECENTLY PUBLISHED

- [At-market sensor technologies to develop proxies for resilience and efficiency in dairy cows](#) - W. Ouweltjes, Y. de Haas, and C. Kamphuis - *Wageningen University and Research*
- [Reaffirmation of known major genes and the identification of novel candidate genes associated with carcass-related metrics based on whole genome sequence within a large multi-breed cattle population](#) - D.C Purfield, R. D Evans and D.P Berry - *Teagasc and Irish Cattle Breeding Federation*

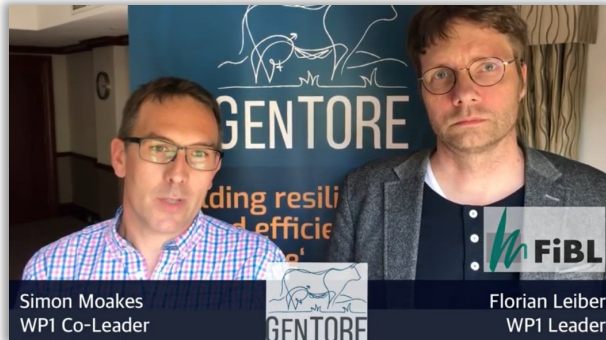
Visit the GenTORE website to stay up-to-date on the newest publications: www.gentore.eu





GenTORE TV

GenTORE TV continues to publish informative videos about the GenTORE project and its work packages. On [GenTORE WP1 Production system metrics](#) video, the aim of WP1 is explained by Florian Lieber, WP1 Leader and Simon Moakes, WP1 Co-Leader. On the [GenTORE WP3 On-farm tools to phenotype proxies for resilience and efficiency](#) video, Yvette De Haas, WP3 Leader, describes the content of WP3. Subscribe yourself to GenTORE H2020 on [YouTube](#) to see all videos. The videos are also accessible from the GenTORE website under '[MEDIA](#)'.



UPCOMING EVENTS

26- 30 August 2019

[70th EAAP Annual Meeting](#)

Ghent, Belgium

26-29 August 2019

[PLF Workshop Seminar](#)

Cork, Ireland

06 November 2019

[9th ATF Seminar](#)

Brussels, Belgium

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