BEEF ON DAIRY, USING GENOMICS TO OPTIMIZE THE USE OF BELGIAN BLUE BULLS ON HOLSTEIN COWS IN ORDER TO INCREASE SUSTAINABILITY OF DAIRY PRODUCTION

**a unique opportunity to join the teams of ULiège-GxABT
and of Inovéo scrlfs (*awé groupe* - Ciney, Belgium),
the international leader in the creation of Belgian Blue genetics for crossbreeding**

Overall context of thesis proposal:

Sustainability of dairy farms is of increasing concern in dairy production. An important topic where the three pillars of sustainability overlap, is the use of beef breed bulls on dairy cows (often called Beef on Dairy) and this for several reasons. First, in extreme dairy breeds bull calfs have very low economic value. This lowers economic sustainability, but also creates the issue of difficulties to ensure socially acceptable further use of these animals. One of the solutions to this dilemma is the use of beef breed (often Belgian Blue) bulls on dairy (mostly Holstein) cows in order to increase the opportunities of these crossbred calves to be used in beef production. However, this leads to a second issue, around the selection of best suited bulls, i.e. generating no calving difficulties and producing good musculed calves. Finally, the third issue is that dairy farmers have obviously a need to select for beef crossing the less efficient females and this potentially very early in their life. This later element is highly linked to economic, but also environmental sustainability of their farms.

The objective of this thesis proposal is to develop **genome based tools** to optimize the use of Belgian Blue bulls on Holstein cows in order to increase sustainability of dairy production. The project will be done in close collaboration with Inovéo scrlfs (*awé groupe* - Ciney, Belgium), the major player in the cattle breeding industry in Wallonia and international leader in the creation of Belgian Blue genetics for crossbreeding.

The project and its challenges:

In collaboration with *awé groupe*, the Numerical Genetics, Genomics and Modeling group at Gembloux Agro-Bio Tech (ULiège), is currently doing R&D in the field of genomic selection in dairy and dual-purpose cattle. Through previous projects, several building blocks were developed allowing the successful candidate to pursue his research. The main challenge will be to make significant contributions to the topic of crossbreeding evaluations for Belgian Blue bulls. This project involves also the following associated challenges:

- ✓ Interaction with regional, national and international players in the field.
- ✓ Consolidation of existing tools providing services to farmers and industry.
- ✓ Development of advanced strategies to combine breeding values across breeds, countries and evaluations.
- ✓ Adding novel contribution to genomic evaluation tools in multi-trait and multi-breed situations.
- ✓ Exploiting specific combining abilities.
- ✓ Contributing to novel services to farmers and industry in Wallonia and beyond.

What we offer:

The position offers an opportunity to develop her/his own PhD research in an international research laboratory having strong regional, national and international scientific and industry contacts but also contacts with key stakeholders in many countries and organizations (e.g., ICAR, INTERBULL). Those contacts will help the research to create an impact in the field and to develop your future career. This offer includes:

- ✓ A 48-month contract as full-time PhD (grant scheme, but fully social-secured).
- ✓ A net monthly salary of 2100 €.
- ✓ The opportunity to travel abroad (short-term, long-term) and exchange knowledge with colleagues.
- ✓ The opportunity to work with the Walloon breeding industry (close connection with and part-time integration in the R&D team of *awé groupe*).

Responsibilities:

- ✓ Managing the projet and interacting with the industrial partner *Inovéo scrlfs (awé groupe)*.
- ✓ Developping adapted scientific and technical responses to the outlined challenges.
- ✓ Writing publications in scientific journals.

Requirements:

- ✓ A strong interest in animal breeding and this specific topic of research is needed, knowledge of the specific Belgian context is an asset.
- ✓ Holding a Master degree in directly relevant fields (e.g., bio-engineering, agricultural (animal) science, veterinary science) is normally required, but holders of related degrees as in (bio-)statistics, data science, (bio-)informatics or other related disciplines can also apply.
- ✓ The applicant should have adequate command of French and English, Dutch can be an asset.
- ✓ A mention of "Distinction" (*cum laude*) by the time the applicant starts her/his work is required, but students finishing in the next weeks can also apply.

Method of application and deadline: October 16, 2020

Please apply by e-mail and send us (Prof. N. Gengler nicolas.gengler@uliege.be, CC to S. Vanderick sylvie.vanderick@uliege.be and C. Bertozzi cbertozzi@awenet.be) your CV and motivation letter. Please do not forget to mention two reference persons that we might contact. Please put our reference "Job Offer 202010" and your name in the subject line.

Contact:

For any questions, please contact Prof. Gengler (nicolas.gengler@uliege.be).