

**Predicting cheese making traits in Grana Padano PDO via milk Fourier-transform infrared spectra**A. Molle<sup>1</sup>, G. Stocco<sup>1</sup>, A. Summer<sup>1</sup>, A. Ferragina<sup>2</sup> and C. Cipolat-Gotet<sup>1</sup><sup>1</sup>University of Parma, Department of Veterinary Science, via del Taglio 10, 43126 Parma (PR), Italy, <sup>2</sup>Teagasc Food Research Centre, Food Quality and Sensory Science Department, KN3K, Dublin, D15, Ireland; [arnaudpaulj.molle@unipr.it](mailto:arnaudpaulj.molle@unipr.it)

The aim of this study was to investigate the prediction reliability of cheese making traits [3 measures of cheese yield (%CY): fresh, solids and retained water (%CYCURD, %CYSOLIDS, %CYWATER); 4 recovery traits (%REC): milk fat, protein, solids and energy in the curd (%RECFAT, %RECPROTEIN, %RECSOLIDS and %RECENERGY)] applying Bayesian models on the Fourier-transform infrared spectroscopy (FTIR) spectra of vat milk samples used for Grana Padano PDO production. Information from 50 cheese-making days (2-3 vats per day depending on the number of batches/day; in total 139 vats) from two dairy industries were collected. For each vat, weights of the vat milk, and the cheese after 48h from cheese making, were measured and milk and whey were sampled for their composition (total solids, lactose, protein and fat). Two spectra from each milk sample were collected using a MilkoScan FT 6000 in the range between 5,011 and 925 cm<sup>-1</sup> and averaged prior the data analysis. A Bayesian approach was implemented to develop calibration models by using the BGLR (Bayesian Generalized Linear Regression) package of R software. Performance of models was assessed by coefficient of determination (R2VAL) and the root mean squared error of validation (RMSEVAL). A random cross-validation (CV) was applied [80% calibration (CAL) and 20% validation (VAL) set] with 10 replicates. Results from CV showed that the most accurate predictions were obtained for %CYCURD and %CYSOLIDS, which exhibited R2VAL and RMSEVAL values of 0.55 and 0.27, and of 0.65 and 0.18, respectively. The %CYWATER showed the lowest R2VAL (0.53), being the least repeatable among cheese making traits. Considering %REC traits, promising results were obtained for the recovery of protein (RMSEVAL=0.31%). In opposite, the recovery of energy (RMSEVAL=0.81%) and fat (RMSEVAL= 1.83%) showed a less favourable result. These results demonstrate FTIR spectroscopy could be a valid method to indirectly monitor cheese making efficiency at the dairy industry level for Grana Padano PDO production.

**Saliva as a potential non-invasive fluid for passive immune transfer surveillance in calves**F.G. Silva<sup>1,2</sup>, E. Lamy<sup>1</sup>, S. Pedro<sup>1</sup>, I. Azevedo<sup>1</sup>, P. Caetano<sup>3</sup>, J. Ramalho<sup>3</sup>, L. Martins<sup>3</sup>, J.O.L. Cerqueira<sup>2,4</sup>, S.R. Silva<sup>2</sup> and C. Conceição<sup>1</sup>

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Passive immune transfer (PIT) is detrimental to the calf's welfare. PIT is currently assessed by immunoglobulins or total proteins concentration (TP) in blood. Blood collection has some constraints, ergo, a simple and non-invasive alternative method is of great interest. This study aimed to evaluate the potential use of saliva as a non-invasive fluid to assess PIT. A total of eighty saliva and blood samples were taken from twenty calves at 4 time points: at birth (approximately 30 min before colostrum consumption), at 24h, 48h and at day 7, for total protein and IgG levels concentration assessment. A hand-held refractometer was used for serum samples and the Bradford method for total protein determination in both saliva and serum samples. Dot-blot analysis was performed in a sub-sample to check for IgG in saliva and serum (n=5 calves). With both methods, TP in serum at 24h, 48h and at day 7 was significant higher than TP at birth (P<0.001). A tendency for elevated TP at 24h (P<0.1) was found in saliva samples. A significant Pearson's positive correlation was found between TP in saliva and in serum by refractometer at 48h (r=0.45; P=0.0474). Dot-blot analysis showed an increase in IgG from birth to following phases in blood and saliva. These results suggest that saliva can be used for PIT surveillance, highlighting the importance of further studies.

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# Book of Abstracts of the 73<sup>rd</sup> Annual Meeting of the European Federation of Animal Science



**Book of abstracts No. 28 (2022)**

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**5 – 9 September, 2022**

# Book of Abstracts of the 73<sup>rd</sup> Annual Meeting of the European Federation of Animal Science

Porto, Portugal, 5<sup>th</sup> – 9<sup>th</sup> September, 2022



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## **Welcome to the EAAP 2022 in Porto**

On behalf of the Portuguese Organizing Committee, we are honored and delighted to welcome you at the 73<sup>rd</sup> EAAP Annual Meeting being held at the wonderful world heritage city of Porto, in Portugal. The last EAAP meeting held in Portugal was in 1987. 35 years and one pandemic later, Portugal has the privilege to finally again host the annual meeting of EAAP.

The years we are living show us that our sector never stops, that animal production continues to put food in people's houses, and that we are an essential part of society. This year, recent war events at our door have put the society under high economic and societal changes. To add up we are faced with the undergoing climate urgency and still adapting to the post pandemic crisis. This conjuncture increases the challenges of Animal Science making them even more relevant than ever, with a consequent higher engagement and responsibility from the scientific community.

The program will cover various areas of knowledge, such as nutrition, genetics, physiology, animal health and welfare, livestock farming systems, precision livestock farming, insect production and use, cattle, horse, pig, sheep and goat production. These topics will be filled with innovation and recent scientific results leading animal production in the right path.

The European Federation of Animal Science (EAAP) Annual Meeting gives an opportunity for the application of new ideas in practice through many parallel sessions, poster presentations, and discussions about scientific achievements in livestock production all around the world. The Plenary Session, under the topic "The coexistence of wildlife and livestock" is a must of 2022 Porto Meeting.

Moreover, as we know, this Meeting is a privileged discussion forum where the research community meets with the industry, to discuss and plan for and how to address the multiple challenges that the animal science sector has to cope with in the upcoming years. All these activities make the EAAP Annual Meeting one of the largest animal science congresses in the world.

Of course our unforgettable social program throughout the week promotes all this scientific activities and networking even more. Starting with the welcome ceremony the programme follows with a typical Portuguese night, a gala dinner and finishes with remarkable technical tours. In parallel an exquisite accompanying persons program is available.

We hope that the 73<sup>rd</sup> Annual Meeting of EAAP: EAAP 2022, is a unique opportunity to add work with pleasure. We wish you a very pleasant stay in our beautiful city and country!

**Ana Sofia Santos and Olga Moreira**

Chairmen of the Portuguese Organizing Committee

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