8th International Feed Conference
Present and Future Challenges

FEED 2023

Milan, October 9-10

UNIVERSITÀ DEGLI STUDI DI MILANO

divas
DIPARTIMENTO DI MEDICINA
VETERINARIA E SCIENZE ANIMALI

ABSTRACT BOOK

Chair: Prof. Luciano Pinotti
Chair of the Organizing Committee and
Chair of the Scientific Committee

Contents

Dear Colleagues and Friends,

On behalf of the Local Organizing Committee, it is my pleasure to welcome you to the 8th International Feeding Meeting "Present and Future Challenges", at the Università degli Studi di Milano (Italy) October 9-10, 2023.

As seen in 2021, the availability of sufficient and safe feedingstuff is still a key challenge in modern agriculture. While the topic of undesirable substances in feed remains a major issue, the globalisation of the feed business has further reinforced the need for efficient tools for traceability of feed ingredients. Moreover, the constantly increasing demand for food from animal origin, along with limited resources, triggers the need for evaluating new sources of feed ingredients such as insects and efficient feed production. Additionally, the impact of climate change on feed production should be also taken into account. Keeping the feed safe and sustainable therefore requires a multidisciplinary approach, bringing together all stakeholders, including industry.

The 2023 International Feed Conference covers all the current interesting areas for animal feed, which will be presented in the following two sessions:
· Circular feed and additives
· Feed quality, safety, authentication and traceability

In today's world, sharing scientific knowledge, research findings, laboratory methods and strategies within the scientific community has become a necessity. The aim of this conference is to bring together, at a single event, scientists, researchers, laboratory personnel, policy-makers from governmental and non-governmental organizations and people from industry where they can share their knowledge, scientific experiences and experiments on subjects crucial to animal feed. With the participation of international experts, we hope that productive discussions will stimulate new creative ideas to translate new discoveries into better practices and applications.

For this eighth edition - FEED2023 – participants can attend in both online or directly at the venue.
Keynote and regular speakers will deliver their presentations in front of the audience in Milan.
Discussions will only be open to the audience in the conference venue.

Welcome to FEED2023!

Prof. Luciano Pinotti
Chair of the Organizing Committee and Chair of the Scientific Committee

P31

Feed quality, safety and authentication

DEVELOPMENT OF A MICRO-NIRS- APP-CLOUD SYSTEM FOR ON-SITE DETERMINATION OF THE NUTRITIONAL COMPOSITION OF POULTRY FEED AND ITS VARIOUS INGREDIENTS

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Precision feeding can improve poultry nutrition and at the same time reduce the excretion of surplus nutrients, thereby improving the sustainability of poultry production while reducing feed costs. Near infrared spectroscopy (NIRS) is a useful tool for precision feeding as it allows to accurately analyze feed and feed ingredients and enables precise formulation of rations according to known nutritional requirements, eventually avoiding over-formulation. The purpose of the Pocket Feed Lab project is to develop a portable micro-NIRS for the on-site analysis of poultry feed and poultry feed ingredients. The micro-NIRS sensor developed by aikemy GmbH is based on MEMS (micro electro mechanical system) technology. It connects with a mobile app via Bluetooth and finally to cloud services for data analysis and storage. Results are displayed in near-real time as percentage values in the app. Furthermore, the comparison of the results with user pre-specified test targets provides an immediate pass/fail score for each nutrient. The potential of three different MEMS, covering different regions of the NIRS wavelength range, was explored for use in the final dual-MEMS design. Calibrations are being developed to predict crude protein, crude fiber, crude fat, water soluble carbohydrates, crude ash and moisture. Over 1000 samples (poultry feed and its various ingredients: corn, wheat, soybean meal/press cake and distillers' grain) were collected in Switzerland, different European countries and the USA. They were analyzed according to official methods at the accredited analytical laboratory of Agroscope. The training sample set covers the protein content recommendations suggested by different research centers and is in line with the nutrient composition of available commercial products reported by the Swiss poultry sector. In general, the statistics of the preliminary prediction models show a good potential of the micro-NIRS system in terms of coefficient of determination (R^2), root mean square error of prediction (RMSEP), and ratio of the standard deviation of the validation set to the standard error of prediction (RPD). The results suggest that this system will be a useful tool for precision feeding in poultry production. Based on the current knowledge, the application of this device could be extended to additional nutritional parameters as well as other feeds and feed ingredients.