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Curriculum Vitae

Family Name: Yang
Given Name: Xueping
Nationality: Chinese
Date of birth: 28/08/1994
Email: xueping.yang@studenti.unipd.it

Education:

- PhD in Animal and Food Science, Università di Padova (2020-)

- M.Sc. Master's in Grassland Science, China Agricultural University (2018-2020)

- B.Sc. Bachelor's in Grassland Science, Northeast Agricultural University (2014-2018)

Research areas:

- Animal Nutrition

- Near Infrared Reflectance Spectrometer

Dairy farming has evolved from small family farms to medium and large farms that have the same necessity in terms of quality control of feed as the feed mills 30 years ago. Traditionally NIR equipment is very expensive and difficult to manage instrumentation which would require large investments. The premise of NIR analysis is the mathematical calibration, and the maintenance of the mathematical calibration is the basis of NIR application, as well as one of the core technologies to realize NIR resource sharing and promote the application of NIR analysis technology. However, a problem arises, when the samples to be predicted are measured on a different instrument or under differing environmental factors from those used to build the model (Food and Drug Administration (FDA),2007), and then the model transformation method is needed. Calibration transfer usually occurs between different instruments of the same brand or different brand, between different accessories of the same instrument, or different measurement time, etc. At the same time, the introduction of lower-cost handheld NIR instruments has enabled small dairy farms to acquire this lower cost instrument with mixed success. At the farm, this instrument should analyze intact feed and forage without drying and grinding as they normally do at feed mills. The handheld NIR instrument also covers a limited spectral range which may affect the limited predictive performance. Based on the above-mentioned contents, the doctoral research program of mine will focus on analyzing the limit of this technology, and broaden the application field of handheld NIR technique.

Objectives include the following parts:

- evaluate the predictive performances of different NIR instruments, including laboratory full spectral range and two or three different handhelds shorter spectral range for the analysis of corn silage
- investigate the application of online NIR system on silage quality detection;
- establish a model transfer method between different NIR instruments;
- compare the calibration performance between different chemometrics algorithms (LOCAL calibration, Artificial neural network (ANN), or Support

vector machine (SVM)) beside the most popular method of Partial least square (PLS) regression.

Supervisor:

Paolo Berzaghi

Publications:

https://scholar.google.com/citations?hl=en&view_op=list_works&authuser=1&gmla=AJsN-F5vKQNo981qPONPqQJcwUn8xvT-2yoCmThdSXQ3W5ocdD4QHmMFfz5h4cTrUr7NilhtEwIORvNGrRJ9tZO_gcWMIFYYYA&user=fubDySUAAAAJ