Test and validation

2024WP3_Trio_001
Status: Finished

Technical functionality
TF-1

Problem Owner:
Trioliet

Involved:
Wageningen Research
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More information?
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Validation of an NIR sensor in a feed mixer wagon

Accuracy of an NIR sensor for the contents of dry matter, crude protein, crude fiber, crude fat and crude ash in different feed mixtures

Broad knowledge question

The aim is to test the accuracy of an NIR sensor when analysing the feed components dry matter, crude protein, crude fibre, crude fat and crude ash in various mixtures of grass silage, maize silage, by-products and a complete ration mix (TMR).

Approach

For this study, various feed samples were analysed to validate the NIR sensor in the feed mixer wagon. The outcomes were compared with measurements from six laboratories and used to determine differences in the contents of dry matter, crude protein, crude fibre, crude ash and crude fat. In addition, it was assessed whether the ration was mixed well by analysing samples for feed value and measuring the distribution of particle size.

Objective

The aim of the testing and validation activity is to assess whether an NIR sensor in a feed mixer wagon is reliable and accurate for measuring the composition and quality of different feed mixtures, and for measuring the homogeneity of the feed mixture, thereby safeguarding mixing quality.

Results and reflection

The NIR sensor consistently produced good values only for dry matter and crude protein in mixtures of grass silage, maize silage and by-products. The values for the other components and for single-component mixtures were variable. It is therefore still too early to rely on the absolute values. After further calibration of the NIR sensor, this will become more reliable.