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Routine infrared phosphorous determination in ex-farm milk giving better insight in the phosphorous cycle on dairy farms

Mikael Bastian, Harrie van den Bijgaart
Innovation & Business Development, Qlip B.V., Zutphen, Netherlands

EU limitations incited the Dutch government in 2017 to implement a national regulation to reduce phosphorous losses from dairy husbandry. The demand for a better insight in the phosphorous cycle on Dutch dairy farms led Qlip to develop an FTIR calibration model for phosphorous measurements in raw milk.

The calibration model was developed with a training set of 210 milk samples and tested on 80 milk samples. The model allows for a precise estimation of P content (RMSEP = 2-3 mg/100 g milk). The precision of this estimation is stable across the year, can be done in both herd bulk milk and individual cows' milk, and does also work for specific breeds, e.g. Jersey cows.

The application was successfully implemented in routine Dutch herd bulk milk testing in early 2019. With this tool, farmers can now monitor the phosphorous balance in their dairy cattle and adapt the supply of phosphorous through the ration. Furthermore, these detailed milk data can serve as a basis for farm-specific reporting of phosphorous output through ex- farm milk supplies.

If wished for, the application can be extended with models on a number of other minerals.

Keywords: phosphorous excretion, milk, infra red spectrometry