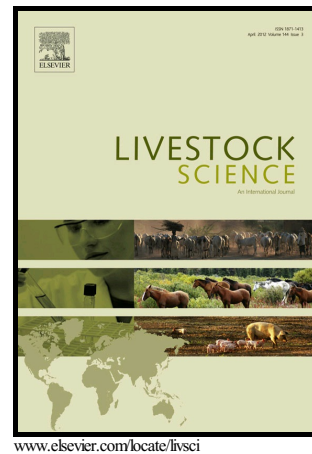


Author's Accepted Manuscript

The use of near infrared spectroscopy to predict faecal indigestible and digestible fibre fractions in lactating dairy cattle

Federico Righi, Marica Simoni, Giulio Visentin, Carmen L. Manuelian, Sarah Currò, Afro Quarantelli, Massimo De Marchi



PII: S1871-1413(17)30298-6
DOI: <https://doi.org/10.1016/j.livsci.2017.10.006>
Reference: LIVSCI3318

To appear in: *Livestock Science*

Received date: 4 April 2017
Revised date: 4 October 2017
Accepted date: 5 October 2017

Cite this article as: Federico Righi, Marica Simoni, Giulio Visentin, Carmen L. Manuelian, Sarah Currò, Afro Quarantelli and Massimo De Marchi, The use of near infrared spectroscopy to predict faecal indigestible and digestible fibre fractions in lactating dairy cattle, *Livestock Science*, <https://doi.org/10.1016/j.livsci.2017.10.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The use of near infrared spectroscopy to predict faecal indigestible and digestible fibre fractions in lactating dairy cattle

Federico Righi^{a1}, Marica Simoni^a, Giulio Visentin^b, Carmen L. Manuelian^b, Sarah Currò^b, Afro Quarantelli^a, Massimo De Marchi^b

^a Department of Veterinary Science, University of Parma, Via del Taglio, 10, 43126 Parma, Italy

^b Department of Agronomy, Food, Natural resources, Animals and Environment, University of Padova, Viale dell'Università 16, 35020 Legnaro (PD), Italy

¹Corresponding author: Federico Righi, Department of Veterinary Science, University of Parma, Via del Taglio, 10, 43126 Parma, Italy, federico.righi@unipr.it

Abstract

The objective of this study was to investigate the ability of faecal near infrared spectroscopy (FNIRS) to predict undigested neutral detergent fibre at 240 h of fermentation (uNDF240) and other fibre fractions in lactating dairy cattle faeces. A total of 130 faecal samples (600 g) were collected directly from the rectum of dairy cows randomly selected across the lactating groups of 6 herds located in northern Italy and fed grass/alfalfa hay forage based total mixed ration. Reference values were matched with FNIRS spectra. Prediction equations were developed for each trait using external validation. Our results showed that the calculated uNDF240 (DM basis) to ADL ratio in faeces averaged 2.84, ranging from 1.58 to 4.10. The similar ratio of acid detergent fibre (ADF) and uNDF240 to NDF (66-67%) indicated that potentially digestible NDF in faeces is mainly represented by hemicelluloses, whereas uNDF240 is mainly composed of lignin and cellulose. The coefficient of determination of

Download English Version:

<https://daneshyari.com/en/article/8502098>

Download Persian Version:

<https://daneshyari.com/article/8502098>

[Daneshyari.com](https://daneshyari.com)