Notes and Objective:

The dataset has been divided (by the organizers) into two Excel sheets

- Training dataset: contains the value to predict (cow diet) and the spectra
- Test dataset: contains only the spectra

The test dataset contains 1,089 spectra.

The aim of the analysis is to predict the cow diet for the samples in the test dataset.

Sample collection

Data used in this study originated from Teagasc Moorepark Dairy Research Farm (Fermoy, Co. Cork, Ireland) between May and August in 2015, 2016, and 2017. A total of 120 Holstein-Friesian cows from different parities were involved in the experiment across the years, with a mean number of 36 samples per cow, and with some of the cows participating in the experiment in more than 1 yr. Each year, 54 cows were randomly assigned to different dietary treatments for the entire lactation period. The treatment diets included grass
(**GRS**), which consisted of cows maintained outdoors on a perennial ryegrass sward only, clover (**CLV**), where cows were maintained outdoors on a perennial ryegrass white clover sward (with an annual average clover content of 20%) only, and **TMR**, where cows were maintained indoors and fed with a single nutritional mix containing grass silage, maize silage, and concentrates. Further information on the experimental design and dietary treatments have been described by O'Callaghan et al. (2016). The cows were milked twice daily (0730 and 1530 h), and a.m. and p.m. milk samples were collected once weekly from consecutive milkings and analysed by a Pro-Foss FT6000 (FOSS). A total of 4,364 milk spectra were stored, comprising 1,060 wavelengths in the region from 925 cm−1 and 5,010 cm−1. The wavelengths values were recorded as transmittance values.

O'Callaghan, T. F., D. Hennessy, S. McAuliffe, K. N. Kilcawley, M. O'Donovan, P. Dillon, R. P. Ross, and C. Stanton. 2016. Effect of pasture versus indoor feeding systems on raw milk composition and quality over an entire lactation. J. Dairy Sci. 99:9424–9440. https://doi.org/10.3168/jds.2016-10985.