

## Introduction:

NIR Transmission Spectroscopy provides a means of measuring moisture, protein and fat in foods and agricultural products with high moisture contents, ie, >50%. This brief study was undertaken to establish the best pathlength through which to pass the NIR light. It was also to establish the consistency of the spectra generation.

## Description:

Eight(8) samples of cheese curd were provided. Three samples had a reference moisture value. Five samples of "Curd" were provided without moisture values.

NIR spectra were collected using the NIT-38 Dairy Analyser. A Squeeze Cell with a 10mm pathlength was used to collect the spectra. There was sufficient sample in three containers to completely load the cell. As such, the instruments sample transport module was used to collect 5 scans of each sample. This feature allows the spectra to be averaged over a larger area. The other 5 samples had only sufficient to collect 1 scan.

## Results:

Figure 1. shows the NIR spectra of the 8 samples. There are two distinct groups of spectra. The higher spectra were for the two samples labelled "1Curd" and "2Curd". The other spectra were from the "Light Phili" sample and the five samples labelled, "Curd1...5".

Figure 2. shows the 2<sup>nd</sup> Derivative Spectra of the samples.

## Comments:

The spectra shown in figure 1. indicate that the 10mm pathlength should be suitable for making the measurement of moisture and fat in cheese curd. A thinner pathlength could be used, however there is no sign of spectral noise at 10mm and the extra width in the cell would be better for an on line application.

The spectra in figure 2. shows that there is excellent reproducibility in collecting these spectra.

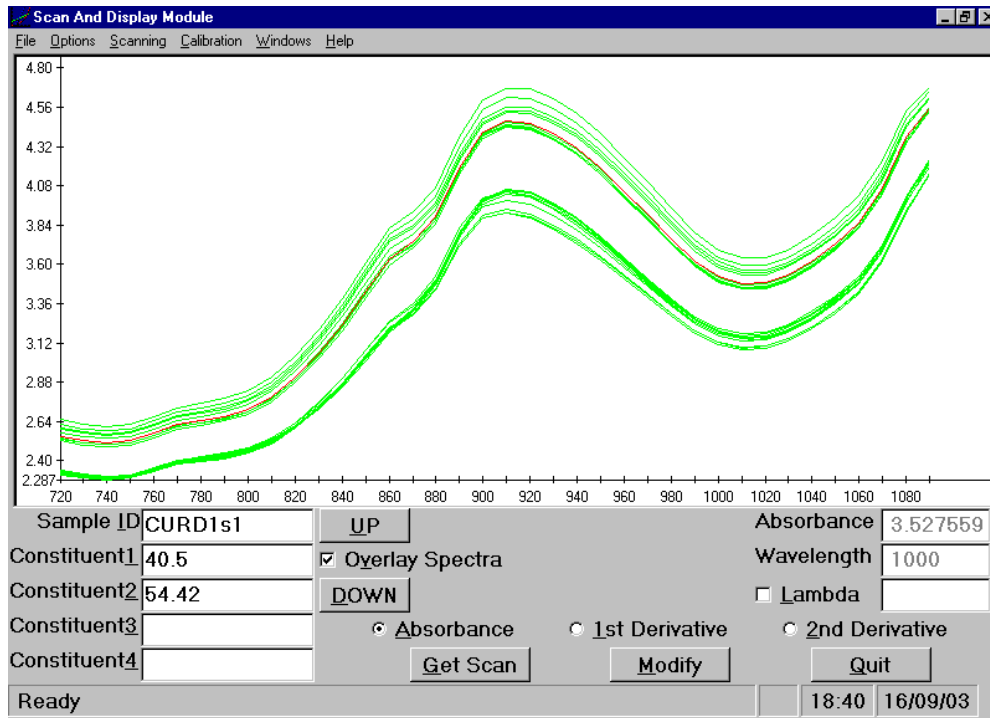


Figure 1. NIR spectra of Cheese Curd and Light Phil Cheese

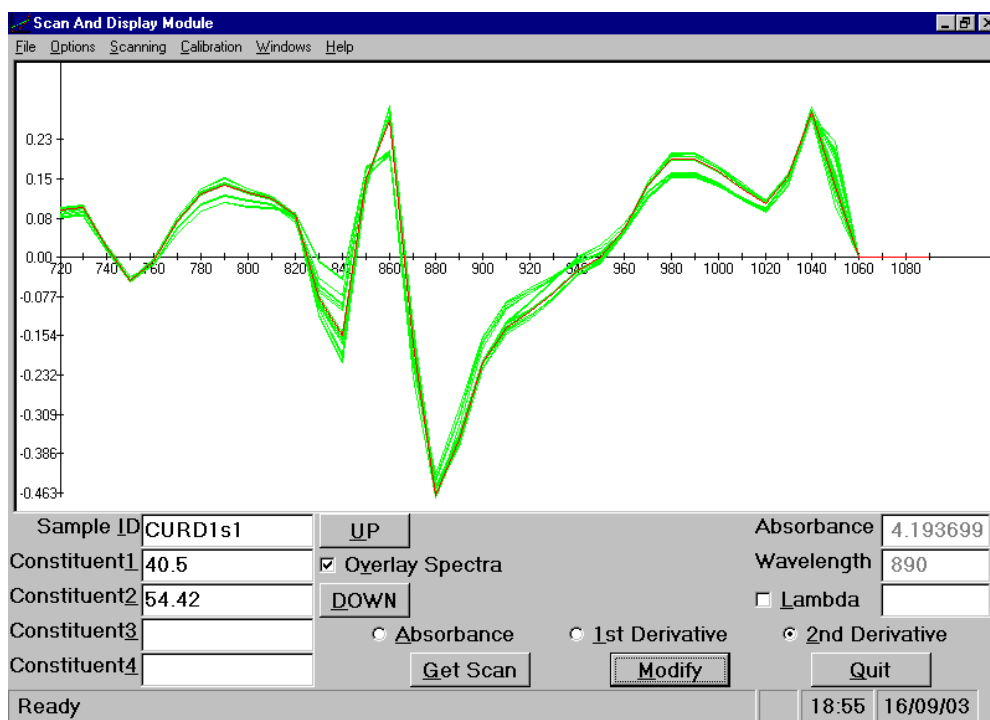


Figure 2. 2<sup>nd</sup> Derivative Spectra of Cheese Curd.

## Conclusion:

It is considered that the NIR Transmission will provide an excellent means of measuring moisture and fat in this type of sample.