

## BIOPARAMETRICS SILAGE ANALYSIS PARAMETERS EXPLAINED

### ***DM (%)***

Dry Matter

### ***Ash (% DM)***

Ash

### ***Active Fibre (% DM)***

This describes the proportion of large particles (>3.18mm) predicted to be available in the rumen after mastication and contribute to the rumen raft. The original work was done by measuring the particle size of forages before and after chopping in an electric blender. It was found that the proportion of large particles after mastication was dependent primarily on the structural strength of the forage rather than the particle size as fed. This structural strength or Active Fibre level is predicted by the level of DM, ADF and NDF present in the forage, but in feeds it is always zero.

### ***D value (% DM)***

This is the digestibility of organic matter as predicted by gas production as the level of degraded material after 28 to 44 hours of incubation in the rumen. It varies as to the type of material that is being fermented.

### ***Metabolizable Energy (MJ/kg DM)***

Calculated from the D value of the silage (see above).

### ***Fermentable ME (MJ/kg DM)***

FME is the proportion of ME that is available in the rumen and is calculated by removing the energy content of the oil, VFA and lactic acid available in the silage from the total ME content.

### ***FME/ME***

### ***Oil (% DM)***

Total ether extract

### ***Total Carbohydrate (% DM)***

Total available carbohydrate calculated by subtracting the protein, ash, oil, VFA

and lactic acid from 1000.

***ADF (% DM)***

Total Acid Detergent Fibre (ADF)

***NDF (% DM)***

Total Neutral Detergent Fibre (NDF)

***Total Starch (% DM)***

Total starch

***Sugar (% DM) and it's Fractional Rate (/h)***

The measure of sugar and how quickly it is fermented by rumen microbes.

***Other Quickly Degradable CHO (% DM) and it's Fractional Rate (/h)***

The measure of things such as pectins and how quickly they are fermented by rumen microbes.

***Quickly Degraded Starch (% DM) and it's Fractional Rate (/h)***

Starch that is immediately fermented upon ingestion and the rate of fermentation by rumen microbes.

***Slowly Degraded Starch (% DM), it's Fractional Rate (/h) and Lag time (h)***

Starch that is not immediately fermented upon ingestion, the rate of fermentation by rumen microbes and a lag time necessary for microbial colonisation and pre-fermentation of the protein matrix.

***Fermentable NDF (% DM), it's Fractional Rate (/h) and Lag time (h)***

That amount of NDF that can be fermented upon ingestion, the rate of fermentation by rumen microbes and a lag time necessary for microbial colonisation.

***CP (% DM)***

Crude Protein measured using the Kjeldhal technique

***Quick Degradable Protein (prop of CP) and it's Fractional Rate (/h)***

Quick Crude Protein is the total quick protein fermented by the rumen microbes and the rate that it's made available.

***Slowly Degradable Protein (prop of CP), it's Fractional Rate (/h) and Lag time (h)***

Describes the quantity of protein that is not immediately degraded my rumen

microbes and is only fermented at a given rate, after a certain lag time.

***Effective Rumen Degradable Protein at 0.08/h (eRDP as CP fraction)***  
***Undegradable Protein at 0.08/h (UDP as CP fraction)***

***Ammonia (g/kgDM)***

***Lactic Acid (% DM)***

***Total VFA (% DM)***

Total volatile fatty acids