

UNDERSTANDING RUMEN FUNCTION

Alltech® IFM



Goal to maximize rumen health and function, and how those steps translate to herd health, productivity and profitability.

Multiple factors impact dairy ration digestion, which takes place in the cow's rumen.

The primary functions of the rumen are to break down fiber and synthesize microbial protein. Both functions are essential, as much of the energy and protein utilized by the cow comes from the rumen. Good rumen function will ensure optimal feed intake and digestion, while poor rumen function can negatively impact intake and overall cow performance. Proper ration formulation and understanding how the individual ingredients in the ration work together can help keep the rumen, and your cows, functioning properly.



Alltech®

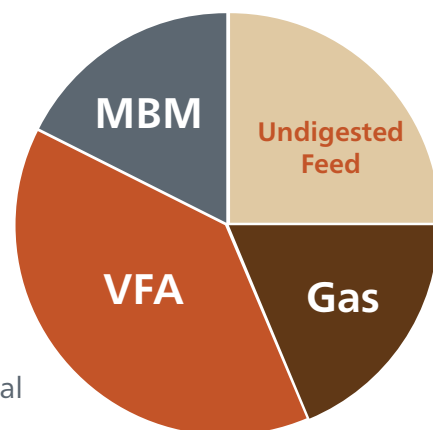
Alltech® IFM

In-Vitro Fermentation Model (IFM) from Alltech is a support tool for nutritionists to evaluate and troubleshoot dairy rations to maximize feed efficiency and combat ever-rising feed costs.

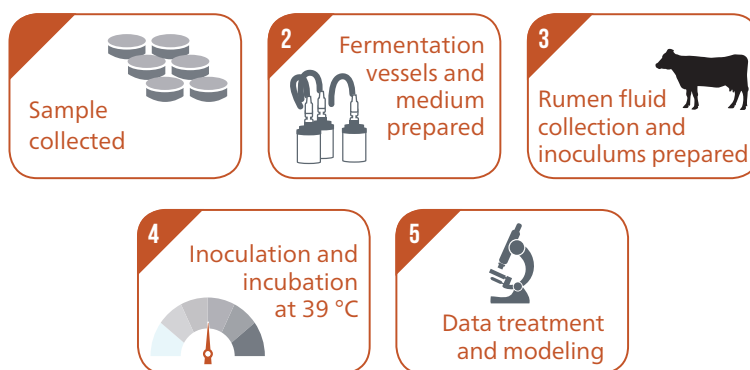
IFM is a diagnostic tool that stimulates rumen fermentation and evaluates the nutritive value of total mixed rations in terms of digestibility and end product formation.

POINTS TO CONSIDER:

- IFM Simulates rumen fermentation
- IFM is a revolutionary diagnostic tool for forage and row materials to:
 - Evaluate
 - Troubleshoot
 - Target solutions
- Screen new formulation concept
- IFM measures all by-products of microbial digestion of feed



In-Vitro Fermentation Model



Measures of fiber are NDF and ADF

Fiber is an important component of forages that impacts the digestibility of plant organic matter. Organic matter includes everything except the water and inorganic minerals in the plant; it includes, for example, the proteins, carbohydrates, and lipids that are used by the cow for energy.

Terminology:

- **Neutral Detergent Fiber (NDF)** - hemicellulose, cellulose, and lignin.
- **Acid Detergent Fiber (ADF)** - cellulose and lignin.

One-unit (1%) increase in NDF digestibility *In-vitro* or *In-situ*:



- 0.17-kg increase in DMI
- 0.23-kg of milk yield &
- 0.25-kg increase in 4% Fat Corrected Milk

(Oba and Allen 1999)

Alltech team has analysed more than 72 fodders from Bangladesh (including different grass varieties - Napier, German, Jumbo, Para Grass, Fodder maize) silage and straw in the IFM to understand and educate the stakeholders on the right time to harvest and digestibility studies.



GERMAN GRASS

- German grass which was collected from Day 35-40 showed better digestibility than Day 30, Day 50 & Day 55.
- Applied YEA-SACC® with grass showed better quality fodder with increased TDMD (True Dry Matter Digestibility) & NDFD (Neutral Detergent Fiber Digestibility) values.
- YEA-SACC® increases fiber digestibility by up to 3-10%



HYBRID-NAPIER

- Hybrid Napier collected at Day 30 -35 is the best sample compared with Day 40, Day 50 & Day 55, which had lower NDF and higher NDFD.
- The grass which was formulated with YEA-SACC®, TDMD (True Dry Matter Digestibility) & NDFD (Neutral Detergent Fiber Digestibility) values increased in the grass sample which was harvested at Day 30-35.
- YEA-SACC® increases fiber digestibility by up to 8%.



NAPIER PUNGCHNONG GRASS

- Grass was collected on Day 30-35 seemed the best grass sample due to lower NDF.
- The grass sample was applied with YEA-SACC® on Day 30, showed higher TDMD (True Dry Matter Digestibility) & NDFD (Neutral Detergent Fiber Digestibility).
- YEA-SACC® increases fiber digestibility by up to 7%.



FODDER MAIZE

- Fodder Maize sample was collected on Day 60-65, showed good quality with appropriate digestibility compared to the collected Fodder maize of Day 75.
- Fodder maize with YEA-SACC® resulted in increased TDMD (True Dry Matter Digestibility).
- YEA-SACC® increases fiber digestibility by up to 6%.



Alltech has launched IFM (In-vitro Fermentation Model) in India in 2013 under the strategic alliance with Bangalore Veterinary College, Karnataka Veterinary Animal and Fisheries Sciences University (KVAFSU). It has been making a huge impact on South Asia Dairy Industry.



IFM & Bangladesh

Considering the increasing demand driven by the growing population, higher incomes and more health consciousness, the dairy industry growth looks promising.

Forages in cow diets provide energy and nutrients that support milk yield. forages are typically variable in chemical composition. The primary reason for this variability is that forages are harvested at various stages of physiological maturity.

IFM Data enables purchase managers & nutritionist

- Selection of fodders based on IVDMD
- Right harvesting stage of fodders
- Feed Formulation



For more information on sampling and submission please contact with your local Alltech Sales manager. All reports are sent via email. Alltech team of dairy experts provides assistance in interpreting test results. Individuals calls, emails or farm visit can be set up at the request of the customer to provide an in-depth analysis and possible recommendation.

Send samples to analyse:

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