

Evaluating ration digestibility for optimal rumen function



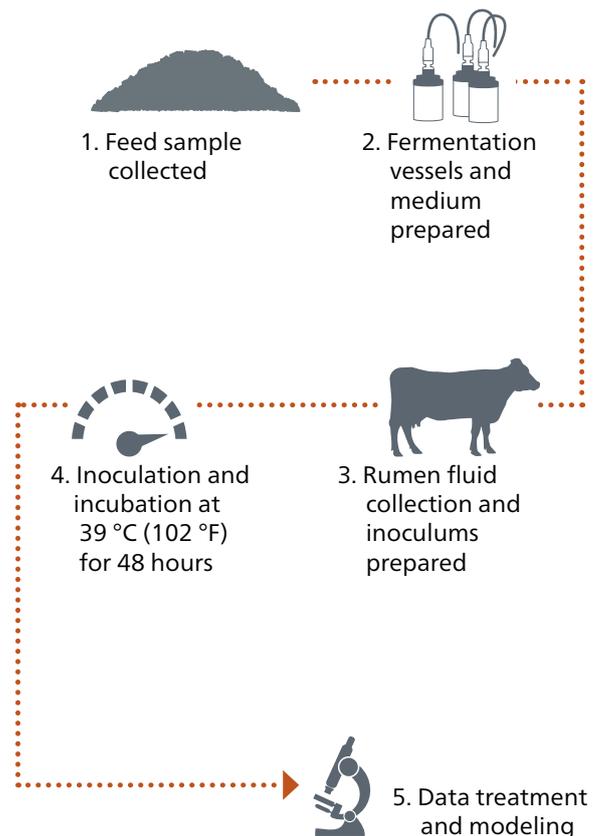
Alltech IFM™ is an *in vitro* fermentation model that simulates rumen fermentation and evaluates the digestibility of a ration and end-product formation. Alltech IFM is a nutritional tool used by farmers and feed manufacturers to screen individual ingredients, formulate rations and make informed decisions on the quality of feed or total mixed rations (TMR).

By using Alltech IFM, we can identify barriers to rumen fermentation, formulate rations based on nutrient availability and help to reduce energy losses and feed wastage.

How it works

Feed samples are incubated using rumen fluid and a buffer system to mimic natural rumen fermentation in an oxygen-free environment. Feed samples can include individual ingredients, compound feed, TMR and fodder.

- Alltech IFM **measures gas production**, taking into account all nutrients fermented (solubles and insolubles). Total gas production is separated into fast-fermenting carbohydrates (e.g., starches and sugars) and slow-fermenting carbohydrates (e.g., fibres).
- Alltech IFM uses estimates of gas production and **identifies TMR inefficiencies** that produce excessive gas per unit of dry matter digested.
- Alltech IFM estimates rates of degradation of the different carbohydrate fractions and provides detailed information on the **nutritive value of the feed**.



Combined with a measurement of digestibility provided by Alltech IFM, we can calculate the amount of energy lost as methane and methane emissions per animal.

Verified by the **Carbon Trust**, Alltech IFM is an effective tool for predicting farm- and feed-specific enteric methane emissions.

Alltech IFM measures all by-products of microbial digestion of feed

- Volatile fatty acid (VFA) profile, which is the source of energy
- Total gas production (carbon dioxide and methane)
- Microbial biomass
- Undigested feed

How Alltech IFM can be used:

1. Troubleshoot potential problems in the ration

- Digestion rates and profiles reveal barriers to rumen fermentation.
- Monitor nitrogen and carbohydrate synchronisation.

2. Improve efficiency and reduce carbon footprint

- Although both diets have the same 'digestibility,' diet B is more efficient, as it produces more VFAs and biomass, and less gas.
- Identify diets producing more methane and carbon dioxide.
- Use Alltech IFM as part of an on-farm carbon assessment.

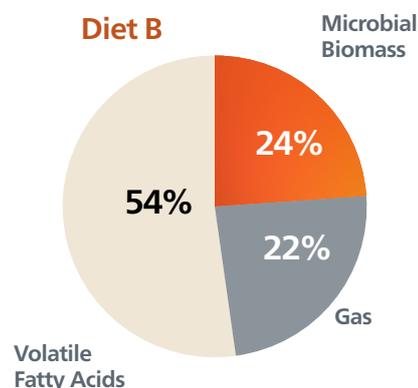
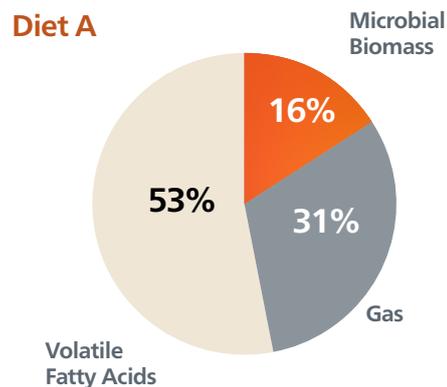
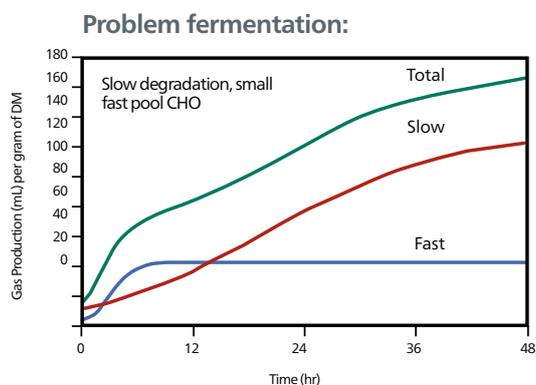
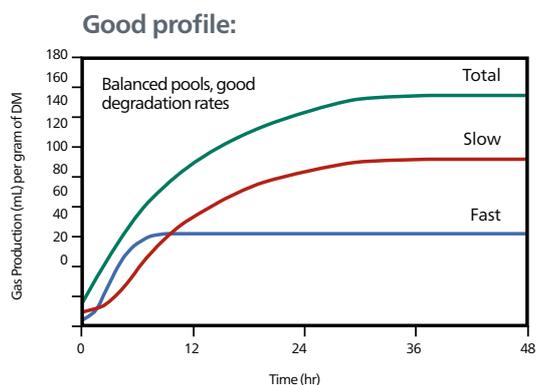
3. Test on-farm strategies

- Strategies to solve fermentation problems on individual farms can be tested quickly and easily.
- Identify benchmarks for superior animal productivity.

4. Product development

- Screen new compounds and formulate diets that maximise rumen microbial efficiency.

Partitioning of by-products of ruminal digestion of feeds that are similar in digestibility.



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Alltech representatives can provide support in interpreting test results and in making recommendations. For more information on ration sampling and submission, please contact your local Alltech office.

