METHOD SPECIFICATION
Department of Animal and Aquaculture Sciences, NMBU

Method name: Buffer capacity
BIOVIT No.: Msp1069

---

1. Method of analysis / Principle / Main instrument

The method is mainly intended for analyzing buffer capacity in grass.
The purpose of the analysis is to investigate whether the grass material is easy or difficult to ensile, i.e. how much acid is needed to lower the pH of the grass material. Even though the conditions in small test tubes do not simulate the large farm silos exactly, the studies have shown that chemical and bacteriological changes follow the same pattern in both test tubes and large metal silos (capacity 1000 kg).

A buffer solution is a solution where the pH is almost constant when smaller amounts of acid or base are added. The buffer capacity of grass is mainly determined by plant acids and amino acids. The most quantitatively important acids are malic acid (2-Hydroxybutanedioic acid) and citric acid (2-hydroxy-1,2,3-propanetricarboxylic acid).

Main instrument: pH meter

2. Reference and any modifications:

Playne, M. J., McDonald, P., *Journal of the Science of Food and Agriculture, **1966**, 17*, 264-268

Modification: Uses 0.2 M HCl and NaOH
The result is reported as meq NaOH / kg sample received

3. Requirements for the degree of grinding and temperature of the sample for storage before analysis:

The sample material must be finely cut and well mixed. The sample can be stored at -20 ° C pending analysis.

Sample quantity: 20 g crude sample or 10 g pre-dried sample - degree of grinding: finely cut

4. Contact person:

Lab leader: Hanne K. Hustoft
Responsible for analysis: Frank Sundby / Kari Eikanger

5. Other literature
ISO 6497, Animal feeding stuffs - Sampling
ISO 6498, Animal feeding stuffs - Preparation of test samples