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Why estimating forage intake is important?

Estimating forage intake in grazing animals is critical not only to **understand grazing [animal behaviours and nutrition](#)**, but also to **improve grassland management and production systems** in a given area. Forage intake is perhaps the most important variable that determines animal performance; voluntary feeding is generally correlated with the **amount of nutrients that can be extracted from the forages**.

How to estimate forage intake

Forage intake serves as a means of explaining differences in animal performance between different species. Additionally, it provides a general explanation of **different grazing systems and management practices**. **Various methods have been developed to assess the feed consumption of different livestock's**. Such methods rely on techniques imposing minimal disturbance to the normal grazing activity of animals, **accurate and precise, applicable to individual animals, applicable to all types of forage**, and based on easily determined chemical components.

These methods can be divided into three groups:

- The **animal-based methods**: involves an estimation of the faeces produced, and the digestibility of the grazed forages.
- The **vegetation based methods**: involves estimating forages intake from the difference between the forages mass present on the ground

Methods of estimating forage intake in grazing animals.

before input and after output from the animals.

- The **feeding behavior methods**: based on the weight of each bite, the biting rate and the grazing time.

Advantages and disadvantages of the feed consumption estimation methods

Plants based method

It imposes little interference on the animal, but the application is limited to specific grazing situations and it can only provide an estimate of the mean intake of a group. **This method does not allow data to be collected from individual animals, unless a single animal is kept on each plot.**

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Animal based method

This method is applicable in a wide range of grazing circumstances and allow some examination of animal variations. The **main sources of error arise from** the differences in cutting **height of vegetation** before and after passage of the animals, from **the estimation of vegetation accumulation during grazing**, as well as the uncertainties inherent in the measurement of biomass.

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The feeding behavior method

This method describes the changes in the behavior of animals confronted with modifications in vegetation structure and provide a basis for

interpreting the variations of intake observed with vegetation. **It is problematic to use this method to estimate herbage intake on a daily basis** since the measurement of each of the terms can be a major source of error. **The most difficult parameter in this method is to evaluate the average intake per bite.** Furthermore the bite size and frequency undergoes considerable modification with the degree of defoliation.

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Conclusion and recommendations

Forage intake reflects nutritional value and accessibility of standing forage and is important in understanding the relationship of the range parameters to the animal productivity. The measurements of different methods cover a variety of aspects, but to a greater extent include the vegetation characteristics and foraging behavior of animals. Essentially, recommending a specific technique as the best for estimating forage intake is not an easy task. As illustrated in the tables, all techniques have advantages but also have challenges.