

Digestibility Trials with Moulting Mink

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Introduction

Digestibility trials with mink are traditionally conducted in periods with out moulting.

If conducted in a moulting period faeces is contaminated with hair, which is rich in nitrogen (N). Consequently, N-digestibility may be underestimated.

Knowing the magnitude of the theoretical error it is possible to define whether it is recommendable to perform digestibility trials in the moulting periods or not.

Methods

Four samples of feed ingredients for mink feed were use both in trials in the moulting periods and outside. There were 3 samples in a Regression design;

- * Meat-and-bone meal
- * Fish meal
- * Peas

and 1 sample in a Simple design

- * Mackerel graks.

In the moulting periods larger tufts of hair were removed manually during collection of faeces.

After freeze drying faeces was ground. When grinding, a unknown quantity of

hair separated from the faeces because it stuck to the sides of the laboratory mill, due to static electricity.

Results

Digestibility of N

The apparent digestibility of nitrogen (ADN) was underestimated by up to 2 percentage points or overestimated by 1 percentage point in the moulting peri-ods versus outside. Although only 4 observations - the correlation was high ($R^2 > 0.99$)(Figure 1).

Digestibility of fat

The correlation between digestibility of fat (DF) was relatively low ($R^2 = 0.85$) (Figure 2). In the trial with peas fat from peas only made up 5% of the total fat in the feed. This implicitly makes the DF relatively uncertain.

Digestibility of carbohydrate

Carbohydrate in feed and in faeces is calculated by "The Method of Difference". But as moulting does not influence the digestibility of N and fat noteworthy, it follows that the digestibility of carbohydrate is neither affected.

This was confirmed in the trial with peas, where digestibility of carbohydrate was exactly the same in the moulting period (56.3%) as outside (56.4%).

SEM/Std

Especially concerning N digestibility it could be justified to expect a greater variation among animals when performing trials in the moulting period than outside. The SEM/Std (Figure 1) shows that this was not the case.

Effect of the digestibility of the feed ingredient

The quantity of hair in the faeces was not measured. Generally it was observed to increase when the quantity of faeces increases. But when the quantity of faeces and so the quantity of hair increases the total quantity of indigestible N also increases. Therefore the determination of N-digestibility is not affected by the actual digestibility of the feed ingredient in question.

Conclusion

Performing digestibility trials in a moulting period may result in digestibility values that is slightly under- or over estimated compared to values achieved outside. Different or not, the values determined in a moulting period is well inside the 95% confidence interval of the values determined outside the moulting period.

It is concluded, that digestibility of N, fat and carbohydrate might as well be determined in a moulting period as outside.

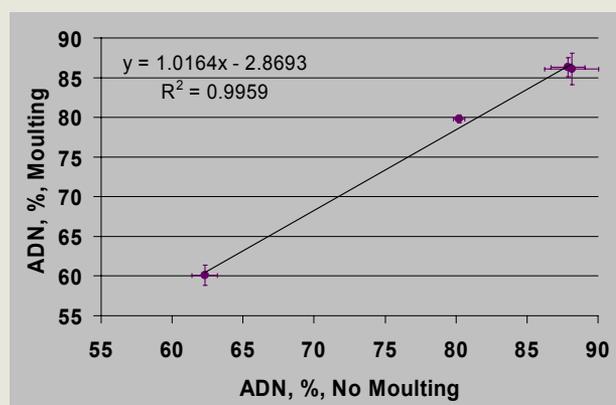


Figure 1. Apparent digestibility of nitrogen (Mean \pm SEM)

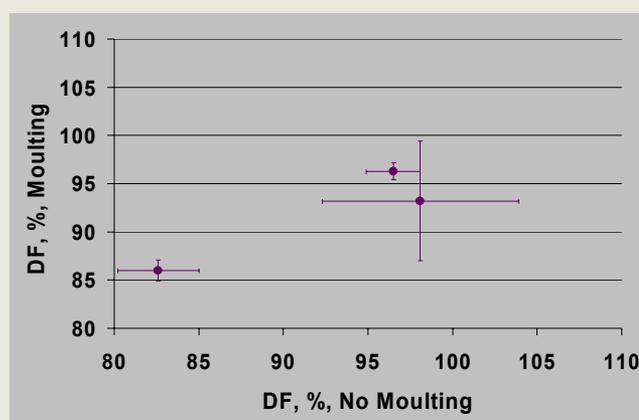


Figure 2. Digestibility of fat (Mean \pm SEM)