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INFLUENCE ON THE ILEAL AND FECAL DIGESTIBILITY OF FORAGES INCLUSION IN THE DIET

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Introduction

Forage, which is mainly characterized by a high content of dietary fiber, is a potential feedstuff or additive for monogastric animals in order to improve health and sustainability. When forages are used either as feedstuff or rooting material or both it is important to have knowledge of the potential contribution to the nutrition in order to supply pigs with optimum requirements.

The objective of the present study was to chemical characterize and estimate the ileal and fecal digestibility of the three forages that have potential both as energy source and rooting material; fresh clover grass, clover-grass silage and barley-pea silage.

Materials and Methods

24 female crossbreed pigs were fitted with a T-cannula at the terminal ileum at approximately 30 kg LW.

Forage: 1. fresh white clover-grass (Clover-grass) with approximately 50-70 % clover cut and packed in 10 kg bags and frozen; 2. clover-grass cut when the clover started blooming and ensiled (Clover-grass silage) in mini-wrap and thereafter the silage was packed in 10 kg bags and frozen; 3. whole crop barley and pea which was harvest 3-4 week after barley eared, the amount of pea was approximately 25 %, ensiled in mini-wrap and thereafter packed in 10 kg bags and frozen (Barley-Pea silage).
Basal diet: 15 % soybean meal, 6 % rapeseed cake, 23.7 % barley, 15 % oat, 23.8 % wheat, 12 % pea, 2 % animal fat and supplied with synthetic lysine, mineral and vitamins. Chromic oxide as digestibility marker.

Two pigs in each test were fed the basal diet while 6 others were fed the basal diet plus forage throughout the whole experiment. The forages were offered the pigs the first 40 minutes at each feeding thereafter removed and the basal diet supplied. After the last collection, the pigs were sacrificed and digesta collected from the digestive tract 3 h after the morning meal.

Results and Discussion

Clover grass has low DM content compared to the two silages and the ash content is higher in the clover grass silage.

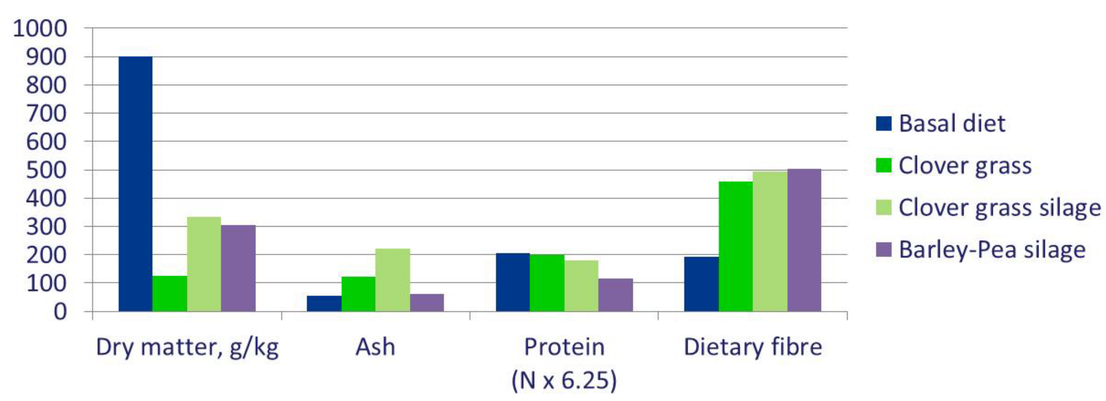

Figure 1. Chemical composition.

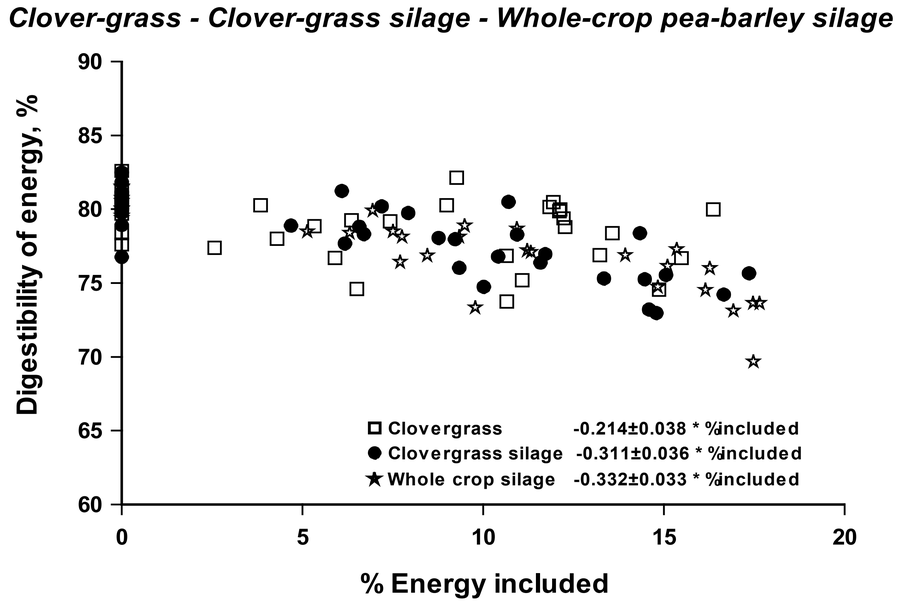

Figure 2. Influence of forages inclusion on the energy digestibility of the total diet.

Dietary fibre contributed with almost half of the DM content in all forages.

The intake of forages was relative low and quite variable and accounted for 10-12 % of the daily DM intake (200 g).

Ileal digestibility estimated from the T-cannulae was generally higher than the digestibility calculated from the slaughter method.

Fresh clover grass had higher energy digestibility than the two silages.

Inclusion of 10 % of gross energy in the diet from clover grass reduced the rations energy digestibility by 2.2 %, while clover grass silage and the pea-barley silage made a reduction of 3 – 4 %.

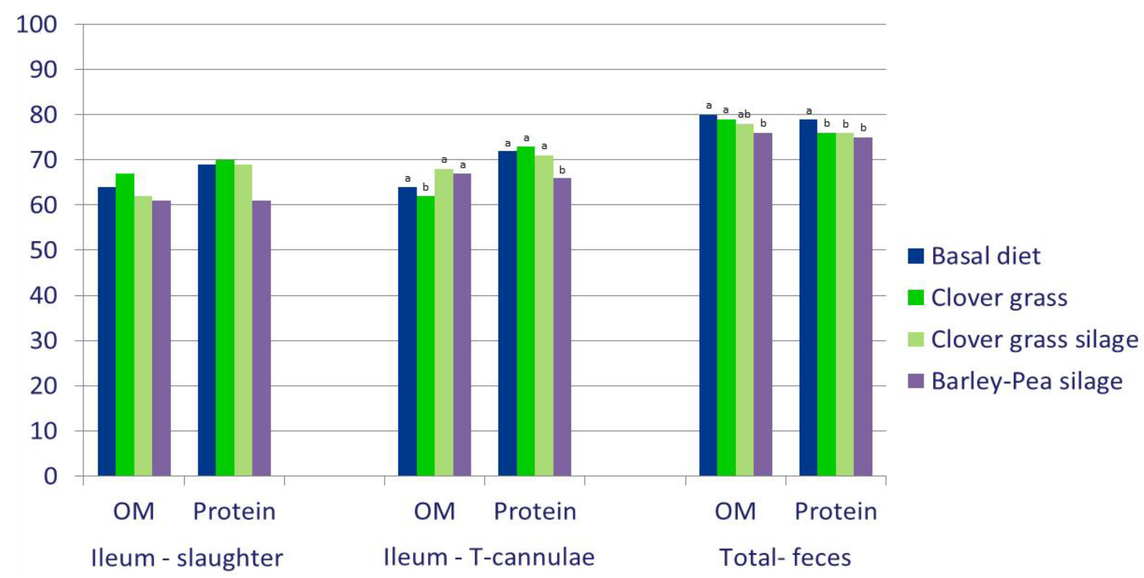

Figure 3. Ileal and fecal apparent digestibility.

Conclusions

In organic pig production forages like the ones used in the present study can play an important role in satiety and rooting behavior. However, the contribution to the overall energy supply is limited.

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