

Lysine and methionine supplementation influence on antler growth of yearling fallow deer (*Dama dama*)

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For cervid, protein requirement during antler growth is up to 15%. Thus, the requirement of specific amino acids for protein synthesis is also very important. Lysine (Lys) and Methionine (Met) are the two known limiting amino acids for ruminants. And for deer, Lys is very interesting for antler growth, since it is the precursor for collagen production. However, very limiting studies conducting on its effects on antlers. In this study, we show the first trial on a large herd of fallow deer (*Dama dama*) with two experimental designs. Each experiment involved 45 yearling fallow bucks, distributed in three groups based on average weight. The group compositions included Exp. 1: Pasture, Pasture+Barley (0.2 kg/animal per day), and Pasture+Barley+Lys (5 g/animal per day); Exp.2: Pasture+Barley (0.5 kg/animal per day), Pasture+Barley+Lys (9 g/animal per day), and Pasture+Barley+Lys+Met (9 and 3 g/animal per day, respectively). At the first glance, Lys supplementation in the first experiment did not improve any antlers characteristics. However, when the level was increased to 9 g and with the combination of Met in the second experiment, the treatments had good effects on external antler characteristics and antler weight. A very interesting result is the increase in burr perimeter, which is a crucial base for the better and long-term antler growth. The results also suggest a more intense positive effect of amino acid supplementation *in situations* when the animals have a lower performance. This result opens opportunity for improving deer farming practices, particularly for velvet production and trophies.

Field pea included up to 45% in bull fattening concentrates does not impair *in vivo* digestibility

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In the last years, the substitution of soybean by legumes has been promoted in Europe to reduce the dependency on soybean imports. Field pea (*Pisum sativum*), which has high starch and protein content, can be included in the diet of fattening cattle. The aim of this study was to compare the apparent digestibility of dry matter (DM) and nitrogen (N) of the diet and blood metabolites due to the inclusion of pea in concentrates. The main ingredients of the concentrates were: 52% corn, 20% barley, 15% corn gluten feed, 9.7% soya and 0% pea (0% pea); 41% corn, 20% barley, 15% corn gluten feed, 15% pea and 5.5% soya (15% pea); 30% corn, 30% pea, 20% barley, 15% corn gluten feed and 1.3% soya (30% pea); 45% pea, 27% corn, 20% barley and 4% corn gluten feed (45% pea). For that, 4 Parda de Montaña young bulls (initial weight 251±4 kg) received restricted amounts of one of 4 concentrates and straw during 4 consecutive experimental periods. The average daily intake of concentrate and straw was 5.0 (±0.02) and 0.68 (±0.001) kg DM, respectively, and it was not affected by pea inclusion (P>0.05). However, the inclusion of pea in the concentrate tended to increase the apparent DM digestibility (P<0.10) and affected N digestibility (P<0.05). The 30 and 45% pea concentrates had greater N digestibility than the 0 and 15% pea concentrates. The intake of N increased linearly with the rate of pea inclusion, the lowest intake was in the 0% pea treatment and the greatest in the 45% pea treatment (P<0.05). The urinary N excretion was greater in bulls with 30 and 45% pea than in the 0 and 15% pea bulls (P<0.05), whereas the faecal N excretion was not affected (P>0.05). The inclusion of pea also affected the retained N, with higher values in bulls receiving the 45% pea than in those with 0 and 15% pea. The plasma concentrations of IGF-1, total protein, β-hydroxybutyrate and urea at the beginning and at the end of each period were not affected by the inclusion of pea (P>0.05). In conclusion, the total replacement of soybean by pea in the fattening concentrate of bulls did not impair digestibility and improved the N retention.

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Field pea can be included up to 45% in the fattening concentrates of bulls without impairing in vivo digestibility

LOBÓN, S., CASASÚS, I., JOY, M., BLANCO, M.



EU promotes the use of local
legumes



Soybean imports



✓ Field pea (*Pisum sativum*)

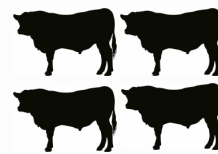
Evaluate the inclusion of different
rates of field pea in the fattening
concentrate of bulls on:

- apparent digestibility
- Nitrogen balance
- blood metabolites

Material and methods

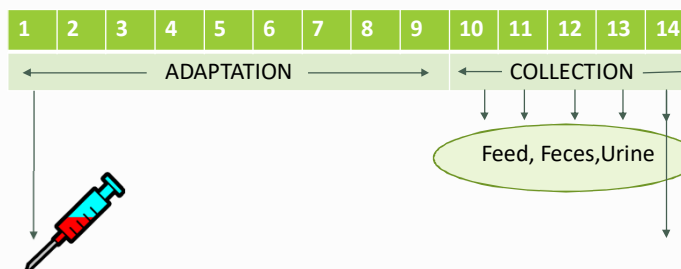
	0% Pea	15% Pea	30% Pea	45% Pea
Ingredients, %				
Corn	51.6	40.6	29.6	27
Barley	20	20	20	20
Corn gluten feed 19	15	15	15	4.4
Soybean meal	9.7	5.5	1.3	0
Fied pea	0	15	30	45

In vivo digestibility trial



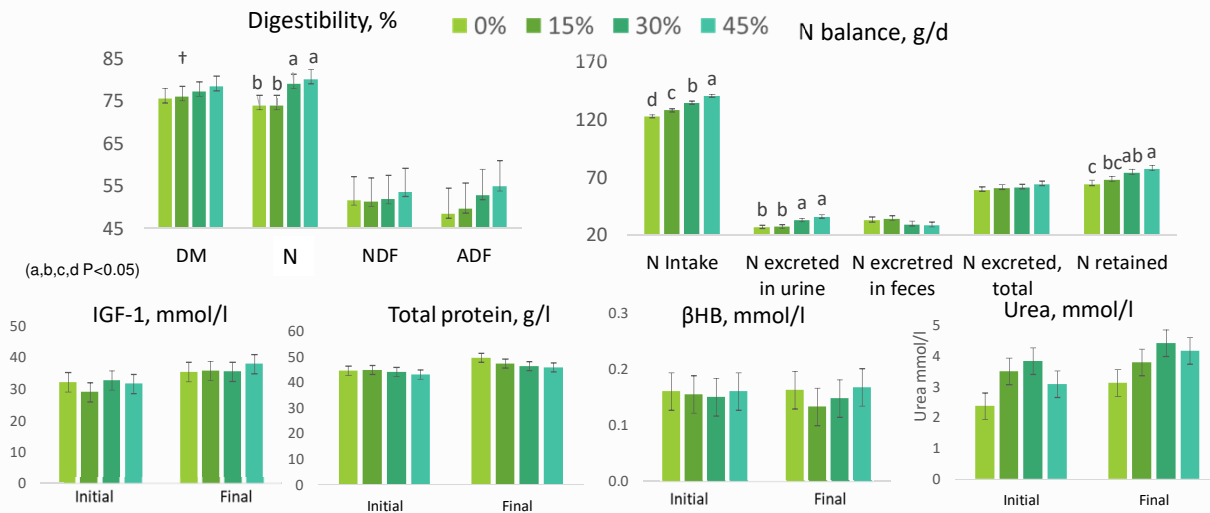
Initial weight of 251 ± 4 kg

4
Experimental
periods



Results

Average daily intake: 5 kg/DM Concentrate (P>0.05).
0.68 kg/ DM Straw



Conclusion



The total replacement of soybean by field pea in the fattening concentrate of bulls did not impair apparent digestibility but improved the N retention

Thank You!

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