

Thesis Title Site and Extent of Soybean Meal Amino Acid Digestibility in Barrows and Gilts

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Abstract

Two experiments were conducted to study the site and the extent of soybean meal amino acids digestibility in barrows and gilts.

1. The first experiment,

1.1 Silicone cannulae was made for digesta collecting. Silicone was shaped and then pressed into T-shaped mold. The study shows that thickness stability, presence of water and air sac in the silicone play an important role in the durability of the cannulae.

1.2 An operation to fix silicone cannulae in the terminal ileum was conducted on 5 male and 5 gilts (Land race X Large white). A routine right flank laparotomy was carried out. The silicone cannulae was inserted into the terminal ileum about 10-15 cm. anterior from the ileocecal value. After the 4th week of the operation, the study shows that the intestinal wall and skin fused well. Pigs had healthy growth.

1.3 Catheter were inserted into the bladder on 5 gilts. Fecae was separated from urine and urine were completely collected. Gilts was healthy growth.

2. The second experiment. A Completely Randomized Design was applied to study the site and the extent of endogenous amino acids loss, soybean meal amino acid digestibility, nitrogen balance and true biological value of soybean meal in barrows and gilts (avg. weight 53.5 kg). Pigs were prepared with a simple T-shape cannulae in the terminal ileum. Then, the catheter was inserted into the bladder of female pigs.

This study showed that there was no significant difference in endogenous amino acids loss, apparent and true amino acids digestibility at the end of the small intestine and in the total tract, except for lysine and methionine. True lysine and methionine digestibility at the total tract in gilts were significantly ($P<0.05$) higher than in barrows.

The content of the endogenous lysine and methionine (0.33 and 0.15 g/kg DMI respectively) is significantly lower ($P<0.05$) at the end of small intestine than in the total tract. (0.97 and 0.37 g/kg DMI respectively) Meanwhile, there was no significant difference on theonine at both sites. (0.84 vs. 0.79 g/kg DMI respectively)

The apparent digestibility of lysine and methionine (88.66 and 82.94 % respectively) is significantly higher ($P<0.05$) at the end of small intestine than in the total tract. (79.82 and 65.78 % respectively) Meanwhile, there was no significant difference on theonine at both site. (71.54 vs. 74.49 % respectively)

The true digestibility of lysine theonine and methionine at the end of small intestine and in total tract were not significantly different. (93.20, 90.39 and 93.39 % vs. 96.03, 95.92 and 97.03 % respectively)

There were no significant difference in percent of nitrogen retention and nitrogen absorb ratio, percent nitrogen retention and nitrogen intake ratio between the end of small intestine (28.57 and 62.85 % respectively) and the total tract. (28.05 and 62.42 % respectively)

There was no significant difference in true biological value between the end of small intestine and the total tract. (76.07 and 69.28 % respectively)