

THESIS TITLE : EVALUATION OF PROTEIN QUALITY FROM ANIMAL PRODUCTS
IN WEANLING PIGS

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ABSTRACT

Two experiments were conducted to determine the effect of various animal protein sources on protein utilization for weanling pigs. First experiment, skim milk, whey, blood meal, plasma protein, Denmark fish meal, Chile fish meal, 60% meat meal and 70% meat meal were used as a sole sources of 10% crude protein diets. Thirty two commercial Piglets crossbred (Large White x Landrace x Duroc) (at 21 days of age) were used as experimental animal. They were assigned to Randomized Complete Block Design with 4 block of 8 piglets. The piglets were fed one of eight dietary treatments. The performances of experimental piglets were observed. Body weight gain of skim milk treatment showed highly significant ($P < 0.01$) was 144.65 g/h/d greater than others protein sources, while the piglets fed blood meal showed body weight loss (- 9.82 g/h/d). The piglets fed skim milk, whey, Denmark fish meal or Chile fish meal consumed more than others treatment (blood meal, plasma protein, 60% meat meal, 70% meat meal) (333.66, 287.24, 285.18, 313.11 VS 123.48, 154.29, 175.89, 175.81 g/h/d) highly significant ($P < 0.01$). Dry matter digestibility value of the dietary treatments showed

highly significant ($P < 0.01$) were between 91.85 to 96.30%. Nitrogen digestibility, net protein utilization and biological value of dietary skim milk, whey, blood meal, plasma protein, Denmark fish meal, Chile fish meal, 60% meat meal and 70% meat meal showed highly significant ($P < 0.01$) were 95.42, 96.67, 95.73, 98.22, 94.23, 93.46, 90.88 and 92.54% respectively, and 93.53, 89.20, 81.81, 92.04, 89.97, 88.97, 88.79, 79.97 and 81.59% respectively, and 97.61, 91.59, 82.40, 92.53, 94.83, 94.66, 86.99 and 87.93%, respectively. In experiment 2, eight experimental diets was basal diet plus various protein sources such as skim milk, whey, blood meal, plasma protein, Denmark fish meal, Chile fish meal, 60% meat meal and 70% meat meal. The tested protein sources provided 5% of crude protein. Ten percent of crude protein was formulated (5% from tested protein and 5% from skim milk in the basal diet). Body weight gain and feed intake of blood meal, plasma protein, 60% meat meal or 70% meat meal plus skim milk were improved (-9.82, 13.39, 12.50 and 26.79 g/h/d VS 74.11, 111.61, 75.00 and 80.30 g/h/d, respectively and 123.48, 154.29, 175.89 and 175.81 g/h/d VS 239.83, 266.25, 241.79 and 257.68 g/h/d, respectively). Dry matter digestibility value did not showed significant level amount the dietary treatments ($P > 0.05$). Nitrogen digestibility, net protein utilization and biological value of whey, blood meal, plasma protein, Denmark fish meal, Chile fish meal, 60% meat meal or 70% meat meal plus skim milk were improved. The piglets fed free protein diet had fecal nitrogen and urinary nitrogen were 50.81 mg/BW/d and 57.91 mg/BW/d respectively and had body weight loss were 45.98 g/h/d. The results of these studies indicated that milk products was a good protein sources for weanling pigs. Piglets fed milk products had greater growth performance and protein utilization than piglets fed fish products, meat products and blood products. Skim milk protein sources showed higher growth performance and protein utilization than other animal protein sources.