

Orathai Linruesee 2009: Effects of Corn Particle Size and Feed Pellet Size on Pellet Processing, Nutrient Digestibility and Performance of Weanling Pigs. Master of Science (Animal Nutrition and Feed Technology), Major Field: Animal Nutrition and Feed Technology, Department of Animal Science. Thesis Advisor: Assistant Professor Seksom Attamangkune, Ph.D. 74 pages.

Three experiments were conducted in order to determine the effects of corn particle size (2 and 3 mm. diameter hammer mill sieve screen) and feed pellet size (2.8 and 3.8 mm. diameter) on pellet processing characteristics, feed nutrient digestibility and growth performance of weanling pigs. Grinding corn with 2 and 3 mm. diameter hammer mill sieve screen produced the average corn particle size of 644 and 773 microns, respectively. Feed pellet size of 3.8 mm. showed lower in energy consumption and better in production capacity compared to 2.8 mm. feed pellet size. No interaction between corn particle size and feed pellet size was observed in any pellet processing characteristics. Nevertheless, the combination of 3.8 mm. feed pellet size and 773 microns of ground corn had the lowest pellet processing cost. Twenty four weanling pigs with average body weight between 8-9 kg. were placed to individual metabolic cage and subjected to 4 dietary treatments for 14 days. The results indicated that ground corn with 773 microns particle size had higher ($p<0.05$) in feed's apparent metabolizable energy (AME) and apparent protein digestibility compared to 644 microns ground corn. However, feed contained 773 micron ground corn with 2.8 mm. pellet size showed the lowest in dietary AME compared to the other combinations. One thousand and eighty eight weanling pigs (744 castrated and 744 female weanling pigs) with the average body weight between 9-11 kg. were randomly assigned to 4 dietary treatments. Each treatment consisted of 6 replications with 62 weanling pigs per replication. All the weanling pigs were raised in evaporative cooling house for 32 days. Weanling pigs fed diet with 644 microns ground corn had better ($p<0.05$) feed conversion rate and feed cost per gain compared to these fed 773 microns ground corn. The combination of 644 microns ground corn and 3.8 mm. pellet size showed better feed conversion rate and the lowest feed cost per gain compared to the other groups.

Student's signature

Thesis Advisor's signature