

Energy metabolism in pregnant gilts

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An experiment involving 12 groups of four littermate sisters was carried out in order to study a few aspects of the energy metabolism of the pregnant gilt. In each group, 2 animals were mated and 2 were kept non pregnant, as controls. After mating the animals were fed either 1.8 or 2.5 kg feed per day. The feed contained 14.2 p. 100 crude protein and 11.4 MJ metabolizable energy ME/Kg. Each animal was examined at one of the three stages of pregnancy; 50, 75 or 100 days. ME intake, heat loss, energy, protein and fat retentions were measured by keeping the animal in a calorimeter for a 7-day period.

The heat production increased and consequently the energy retention decreased with progressing pregnancy. The body weight gain and the total nitrogen retention were higher in the pregnant animals than in their control sister. However, the energy retention, and especially the energy retained as lipids was higher in the latter. The net body weight gain of the pregnant gilts was very similar to the body weight gain of the controls. But the energy and the proteins retained in the maternal tissues of the pregnant animals were lower than the energy and the proteins deposited in the pregnant females. Thus, we did not find any pregnancy anabolism. The maintenance costs (KJ/Kg^{0.75}/day) and the efficiency of energy deposition were 420 and 0.80, respectively, for both pregnant and non pregnant animals. In practice the daily energy requirements of a pregnant gilt are located between 27 and 30 MJ.ME.

Contribution to the determination of feed restriction of pregnant sows in an experimental herd subjected to the batch system and to an intensive rhythm of reproduction

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Prior to the application of an experimental programme on the use of the various cereals in sow feeding, we compared two restricted energy levels in pregnant sow (R1 = 5.9 and R2 = 7.1 Mcal D.E.) i.e. 1.9 and 2.3 Kg feed, respectively per day and the same daily protein supply during 5 successive cycles. The results concerned a total of 420 litters in the first treatment and 412 in the second one.

The herd was composed of 168 « minimal disease » Large White sows subjected to a batch system including weaning every 3 weeks at a mean age of 26 days. The gilts were mated at puberty and sows which did not exhibit heats two weeks after weaning were culled.

The weight of the sows varied during the cycles according to the level of feed intake. Mating-weaning cycle balances became and remained negative at 1st weaning (R1) and at 2nd weaning (R2).

Litter size at birth and at weaning was significantly larger, i.e. on an average 0.5 piglet for the most restricted sows (R1). The mean weight of the piglets at birth was lower in multiparous sows than in young gilts receiving the same diet (a difference of 14.5 p. 100).

The mortality rate between birth and weaning was little affected by the treatment. The percentage of culling due to reproductive disorders was large (56 p. 100 on an average). The