DIETARY FAT AND REPRODUCTION IN THE POST PARTUM SOW

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Lactating sows are not able to ingest sufficient energy to produce the large amount of milk they are presently capable of. Therefore, sows use a considerable amount of body reserves to maintain their milk production. The high amount of body weight loss is negatively associated with subsequent reproductive performance. Addition of fat to the diet is often used to increase energy intake during lactation. The intent of this review is to examine the effect of fat addition to the diet on subsequent reproductive performance. Fat in the diet may affect reproduction in three different ways. Firstly, increasing dietary fat increases milk fat output. This higher milk fat output limits or even nullifies the effect of a higher energy intake on body weight loss in ad libitum fed sows. It has even been demonstrated that sows fed an isocaloric fat-rich diet lost more body reserves than sows fed a carbohydrate-rich diet. Secondly, fat-rich diets increase blood levels of metabolites (non esterified fatty acids, β-hydroxybutyrate, urea), which seems to be negatively related with reproductive performance. Thirdly, fat-rich diets depress the secretion of insulin and IGF-1, which are directly or indirectly related to reproductive hormones (LH, estradiol, progesterone) and follicle development. Based on these results, it is concluded that addition of fat to the diet of lactating sows disrupts the balance between C2 and C3 compounds, which is necessary to run the Krebs cycle in an efficient way and may negatively affect the sows' subsequent reproductive performance. Therefore, increasing energy intake during lactation can probably be accomplished better by adjusting other management procedures to support feed intake, such as housing temperature and water intake, which prevents overfeeding in early lactation to control body condition development.