# Effect of the Dietary Fat Source of the Gestation and Lactation Diet on the Fatty Acid Composition of the Backfat of the Progeny

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The fatty acid (**FA**) composition of porcine adipose tissues is strongly influenced by dietary FA during postnatal growth. In addition, there is evidence that the amount and source of dietary fats for gestating and lactating sows also affect the backfat FA composition, the size and number of adipocites at birth and weaning of the progenies. The aim of this study was to determine the effect of 2 fat sources (coconut fat [**CF**] and soy oil [**SO**]) differing in the concentration of saturated (**SFA**), monounsaturated (**MUFA**), and PUFA supplemented to the gestation (3.8%) and lactation (5%) diet of 16 multiparous sows on the FA composition of the backfat of their progeny at 105 kg BW. At weaning 4 gilts from each CF and SO sow were selected and fed a standard starter and growing diet from 9 to 63 kg BW. In the finishing period (66 to 105 kg BW) 2 gilts were fed a finisher diet with the same FA composition (expressed as % total FA; SFA: 25.8; MUFA: 26.6; PUFA: 47.6) as the growing diet (treatment **A**), whereas 2 littermates were fed a more saturated finishing diet (treatment **B**; SFA: 28.8; MUFA: 25.1; PUFA: 46.1). During the experimental period, gilts were group penned and had free access to the diets and water. The day of slaughter the weight of the carcass, heart, liver, and kidney and 24 h post-mortem the percentages lean meat and subcutaneous fat were determined. The FA composition of the backfat at the $10^{th}$ rib level was assessed. Regardless of the diet fed in the finishing period, progeny from CF sows grew slower (0.65 vs. 0.68 g/d; $P = 0.08$) and were less efficient (0.38 vs. 0.39 kg/kg; $P = 0.06$) than gilts from SO sows but these differences did not ($P > 0.58$) affect carcass characteristics. By contrast,gilts in treatment B had lower carcass yield (82.0 vs. 81.4%; $P = 0.02$), higher percentage lean meat (59.3 vs. 58.5%; $P = 0.09$), lower percentage backfat (11.2 vs. 11.7%; $P = 0.08$), lighter hearts (408 vs. 428 g; $P = 0.05$) and kidneys (285 vs. 300 g; $P = 0.05$) and heavier livers (1551 vs. 1483 g; $P = 0.02$) compared to A gilts. The backfat of gilts in treatment B had higher ($P < 0.01$) SFA (40.2 vs. 39.3%) and MUFA (42.6 vs. 41.1%) and lower PUFA (17.2 vs. 19.7%) concentrations than the backfat of A gilts. These differences were primarily due to higher levels of stearic (23.5 vs. 22.9%), palmitoleic (2.0 vs. 1.8), oleic (39.3 vs. 38.1%), and lower linoleic acid (14.6 vs. 17.1%) levels ($P < 0.01$ for each). Feeding the finisher diet with a higher degree of saturation decreased the PUFA content to a greater extent in the backfat of gilts born from CF (16.6%) than SO (17.7%) sows (maternal feeding x finisher diet interaction; $P = 0.04$). These results revealed that not only the FA of the grower-finisher but also the FA of the maternal diet affected the FA composition of the backfat of slaughter pigs.