contents were 69.7 and 71.9% in the subcutaneous fat and 1.74 and 1.82% in the longissimus dorsi muscle for LV and LC, respectively.

Lipogenic enzyme activities of the backfat were lower in LV than in LC: acetyl CoA carboxylase: 0.09 and 0.14 nmol HCO_3^-/min/mg protein ($p < 0.07$); malic enzyme: 7.95 and 8.96 mmol NADPH/min/mg protein ($p < 0.08$); and glucose-6-phosphodehydrogenase: 1.34 and 1.51 mmol NADPH/min/mg protein ($p < 0.11$). For the intramuscular fat from the longissimus dorsi muscle, activities were identical between the 2 groups. The increase of lipid synthesis obtained could be explain by the amount of short-chain fatty acids which are in a higher proportion in the goats' than in the cows' milk, without any modification in the rate of lipid deposition. However, the data presented did not take account for C/4 which is high in goats' milk; this supports our hypothesis.

The effect of dietary fat on the fatty-acid composition of the adipose tissue has been demonstrated further. In addition, the fat tissues have a satisfactory technological fitness because the rates of C18:2 and C16: 0 were 7% and 30% for the 2 diets respectively and lead to a lower risk of oxidation of the unsaturated fatty acids. Thus, the milk fat could be included in pig diet improve the qualities of the meat without any great change of body fat.

Effect of dietary linoleic acid on pig carcass composition and lipogenesis.

J Mourot, A Mounier, P Peiniau (*INRA, Station de Recherches Porcines, 35590 Saint-Gilles, France*)

Fatty-acid composition of pig adipose tissue is affected by dietary fat. The energy value of the diet is frequently increased by supplement of dietary lipid to improve the feed–conversion ratio. Highly unsaturated vegetable fats are used in the diet for economic reasons. A high level of unsaturated fatty acids may lead to increased risks of lipid oxidation and rancid meat. It appears that high levels of unsaturated fat in the diet can also increase carcass fatness.

The aim of the present study was to investigate the effect of dietary linoleic acid on lipogenesis activity. Thirty-six Large White castrated male pigs (35 and 100 kg liveweight) were fed diets containing 4% total lipids inclucing 3 levels of pure linoleic acid, 1,5%, 2.0% and 2.5 %. The elevation in dietary linoleic acid increases carcass fatness ($P < 0.01$). At slaughter, the C18:2 content of backfat increased with the level of dietary linoleic acid ($P < 0.001$).

Table I. Effect of dietary linoleic on acetyl CoA carboxylase activities (nmol HCO_3^-/ min/g tissue). (J Mourot *et al*)

	Acetyl CoA carboxylase activity (nmol HCO_3^-)		
	Backfat	*Leaf fat*	*Ham*
C18:2 (%)			
1.5	2.21	4.07	2.87
2.0	3.16	4.84	4.13
2.5	3.69	5.34	4.69
RDS [1]	0.94	1.52	1.86
Effect	$P < 0.03$	NS	$P < 0.06$

Lipogenesis activity was stimulated by dietary linoleic acid. Acetyl-coenzyme A carboxylase activity increased significantly in subcutaneous adipose tissues (table I). Malic enzyme and glucose-6-phosphate dehydrogenase activities increased significantly in subcutaneous adipose tissues and leaf fat, whereas no significant effect was observed in the intramuscular fat. The elevation of fat synthesis activity can explain the increased carcass fatness of pigs fed diets containing high levels of unsaturated fat.

Thus excess unsaturated fatty acids compares with the needs of the animal increases the carcass fatness in perhaps 2 ways: a direct deposit and/or a stimulation of the lipid synthesis. Dietary linoleic acid also decreases the technological qualities of fatty tissues. This utilization in the diet is negated in all attempts to control and decrease the development of subcutaneous adipose tissue.

Low-protein diets containing hydrogenated coconut or salmon oils affect hepatic and very low density lipoprotein fatty-acid compositions in growing rats.

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