

Effects of dietary tallow and DDGS on pork fat quality

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A study was conducted to determine if supplementing beef tallow to grower-finisher diets containing corn dried distillers grains with solubles (DDGS) would reduce the negative effects of DDGS on pork fat firmness. Crossbred pigs (n=315) were blocked by initial BW (32.4 ± 1.9 kg) and assigned randomly to 1 of 4 dietary treatments in a 3-phase feeding program using a 2×2 factorial arrangement of treatments. Diets consisted of a conventional corn-soybean meal diet (C), C containing 30% DDGS (D), C containing 5% tallow (T), and C with 30% DDGS and 5% tallow (DT). Pigs were housed in a confinement facility containing 40 pens with 7 to 8 pigs per pen to provide 10 replications per treatment. Gilts and barrows were housed separately, but fed common diets formulated to contain similar available P and Standardized Ileal Digestible Lys:ME across treatments. For fat quality characteristics, one pig from each pen was selected based being the closest to average pen BW (n=20 barrows and 20 gilts). Data were analyzed utilizing the Proc Mixed functions of SAS with random effect of block and fixed effects of DDGS, tallow, gender, and DDGS×tallow. Hunter L* and b* values for backfat and belly fat were greater ($P < 0.01$) for pigs fed C and T diets compared to pigs fed D and DT. Similarly, Japanese Color Score for belly fat was higher for pigs fed D and DT. Pigs fed D and DT exhibited softer bellies compared to pigs fed C and T. An interaction between DDGS and tallow was observed for belly fat iodine value (IV), indicating that tallow decreases IV when DDGS was included in the diet, but tallow increased IV when no DDGS was included. Backfat IV increased ($P < 0.01$) when either DDGS or tallow were fed. In conclusion, adding 5% tallow to diets containing 30% DDGS did not improve pork fat firmness.

Table 1. Tallow and DDGS effects on belly firmness and fatty acids in pork fat.

	C	T	D	DT	PSE	P-Values		
						DDGS	Tallow	DDGS×Tallow
Belly Flop, °	125.8	115.3	72.6	63.1	9.93	<0.01	NS	NS
<i>Belly fat</i>								
PUFA, %	8.6	8.5	15.4	11.4	1.84	<0.01	NS	NS
MUFA, %	51.1	57.5	43.8	56.2	3.17	NS	<0.01	NS
SFA, %	40.3	34.1	30.8	32.4	2.06	<0.01	<0.01	NS
IV	59.0	64.2	71.2	67.9	1.87	<0.01	NS	<0.03
<i>Backfat</i>								
PUFA, %	8.9	9.9	16.3	18.5	1.31	<0.01	NS	NS
MUFA, %	23.5	27.6	14.4	23.7	1.76	<0.01	<0.01	NS
SFA, %	43.2	38.0	37.9	33.1	2.96	NS	<0.01	NS
IV	56.7	61.9	65.3	73.6	2.20	<0.01	<0.01	NS

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