**Dietary lecithin improved fat digestibility and reduced abdominal fat in broilers**

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The objective of the study was to investigate the effects of emulsifier and dietary fat type on nutrient digestibility, intestinal morphology and carcass abdominal fat in broilers. This study involved 288 broilers that were fed with two fat types (palm oil or prilled fat) and two emulsifiers (3% lecithin or 2% lysolecithin). Diets and ileal digesta of starter and finisher birds were analyzed for dry matter, crude protein and crude fat digestibility. Histological sections of duodenum, jejunum and ileum were examined for villus height and crypt depth. Lecithin or lysolecithin in combination with palm oil or prilled fat improved fat and protein digestibility in the starter and finisher periods compared with diets without emulsifier (P<0.05, respectively). Lecithin and palm oil gave the highest value for fat digestibility in the starter and finisher periods (P<0.05, respectively). Emulsifier promotes incorporation of fatty acids into micelles therefore may explain the increased fat digestibility. The more effective nutrient digestibility could also be related with changes in the intestinal morphology. Lysolecithin with palm oil or prilled fat gave the best value for villi height to crypth depth ratio in almost all segments of small intestine in the starter and finisher periods (P<0.05, respectively). This is followed by combination of lecithin with either fat type. Lecithin with palm oil or prilled fat gave the lowest abdominal fat percentage (P<0.05, respectively). In conclusion, combination of lecithin with either fat type was the most effective in improving fat digestibility and reducing abdominal fat in broilers.

Keywords: lecithin, lysolecithin, palm oil, prilled fat, fat digestibility, broilers