

Public Abstract

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Title:Dietary fat source alters pork fat quality

During the last decade, several changes have taken place in the swine industry. There has been an increase in the use of distillers dried grains with solubles (DDGS) which, depending on the level included in the diet, may negatively affect growth performance, carcass quality and pork fat quality, especially belly firmness which may further affect bacon production. Furthermore, in order to diminish some of the negative effects caused by DDGS, an additive called conjugated linoleic acid (CLA) has been also fed to swine. Additionally, metabolic modifiers have been largely included in swine diets in order to improve performance, increase carcass leanness and decrease carcass fatness. The main metabolic modifier used in swine nutrition is called ractopamine hydrochloride (RAC). However, little is known about the interactive effects of these three ingredients when fed along to growing-finishing pigs.

Thus, three experiments were designed in order to: 1) define which level of DDGS inclusion may be considered optimal; and 2) analyze the effects and interactions among these ingredients on growth performance, carcass quality, meat quality and pork fat quality. In all experiments, pigs were fed during the last phase, which is called growing-finishing phase. Animals were humanely slaughtered and data was collected.

An inclusion level of 30% DDGS was found to be the most appropriated, but negative effects on pork fat quality could be observed with a decrease in belly firmness. Furthermore, these changes in the fat profile indicated that the shelf-life stability of the product may decrease when animals are fed 30% DDGS. The inclusion of 0.6% CLA in the diet was able to counteract some of the effects caused by DDGS. The feeding of CLA increased belly firmness and demonstrated that shelf-life of the product may be extended due to positive changes on the fat profile. Finally, dietary RAC was able to improve growth performance traits and carcass quality, and demonstrated that it may affect fat quality differently depending on the fat source utilized.