

Public Abstract

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Title:Novel Feed Additives To Improve Lipid Profiles In Pigs

Opportunities to export high quality pork products to trade partners like Japan are economically favorable outlets for US pork producers. Furthermore, domestic consumers rely heavily on fresh pork appearance, especially color and marbling (intramuscular fat, i.m.), to make initial and repeat purchasing decisions. Using a combination of biological type and nutrition, hog producers have an opportunity to manipulate the lipid profile of pigs and ultimately improve pork quality. Unconventional dietary fat in the form of oils inevitably increases the unsaturation in carcass fat, which is undesirable for further processing pork products and soft fat reduces the export potential of fresh meat. Two studies were performed to elucidate novel ways to improve pork quality, specifically by altering lipid profiles and increasing i.m. fat with alternative dietary ingredients

The objective of experiment 1 was to determine the influence of added fat on muscle and fat quality of pigs fed 5 different diets containing 30% dried distillers grains with solubles (DDGS) and 3% added fat in the form of choice white grease or butter oil. Butter oil may be a unique alternative to supplement swine diets to not only increase conjugated linoleic acid (CLA) content in pork, but also increase the saturation of pork to improve fat quality. As expected, saturated fats (SFA), monounsaturated fats (MUFA), and polyunsaturated fats (PUFA) were different between all diets in all fat depots. Specifically, the three diets containing DDGS had greater proportions of PUFA and lower proportions of MUFA in belly, jowl and SC fat.

Despite evidence the FA composition of fat depots is perceptible to changes in dietary fat source and concentration, the saturation level of butter oil was not capable of overcoming the unsaturated content of DDGS in pig diets. Further research is needed to describe thresholds for the effectiveness of alternative fat sources in terms of source, feeding duration and economic feasibility.

Skycis® (Narasin, NAR) is high performance ionophore labeled as an oral premix for pigs to increase rate of gain when fed during the least 4 weeks of the finishing phase. The objective of experiment 2 was to evaluate inclusion of NAR in the diets of pigs and determine the source of carcass yield, specifically dressing percentage (DP) and hot carcass weight (HCW), improvements previously observed in other experiments. Results from experiment 2 did not confirm the source of differences in DP and HCW in pigs fed NAR, but differences could be attributed to the tendency of NAR to increase carcass fatness through increased metabolic activity in pigs. Barrows retained more gut fill at the time of slaughter, but gilts were leaner and heavier muscled than barrows regardless of dietary inclusion of NAR. Numerical differences observed in i.m. fat and LM color should be pursued further in the effort to improve pork quality and aid in the export potential of US pork.