

The Effect of Feed Withdrawal on Meat Quality

A White Paper Prepared By:

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June 4, 2002

Over the past 10 years, competition for the consumers' protein dollar has increased. The U. S. Pork Industry has met this competition through the development of enhanced, value-added, branded products. Pork quality is essential to maintaining demand for value-added pork. Recently, the desire to improve product quality has gained momentum as a fundamental goal of the Pork Industry. Ideal pork quality is defined as a combination of appearance, taste, nutritional value and wholesomeness. Specifically the Pork Industry has focussed improvement opportunities around pork color and water holding capacity.

Pork quality is influenced by many factors. These factors include genetics, nutrition, animal handling, stunning and chilling. The producer and the packer share equally in the influence of pork quality. No one single factor can be attributed to defining pork quality: The combination of all factors dictates ultimate pork quality (Cannon et al., 1995).

In general, research has demonstrated improved pork quality when animals are exposed to feed withdrawal 12 – 24 hours feed prior to slaughter. Specifically, feed withdrawal reduces the incidence of PSE by increasing ultimate pH (Jones et al. 1985, Murray et al. 1989, Eikelenboom et al. 1991). Reducing the frequency of PSE results in darker more desirable pork color (Murray et al. 2001) and increased water holding capacity (Jones et al. 1985). Feed withdrawal prior to slaughter reduces the amount of available glycogen (De Smet et al., 1996). During post mortem metabolism, glycogen is converted to lactic acid. Production of lactic acid drives ultimate pH lower. Not all research studies have demonstrated enhanced pork quality resulting from feed withdrawal. Becker et al. (1989) and De Smet et al. (1996) observed no meat quality improvements after feed withdrawal.

Feed withdrawal also reduces the incidences of deaths in transport, promotes easier animal movement, reduces carcass contamination during evisceration, and reduces the amount of waste for the plant to handle (Eikelenboom *et al.*, 1991 and Gispert *et al.*, 1996).

Various factors, both producer and packer, influence the quality and ultimately the consumer acceptability of pork. As competition for the consumers' protein dollar grows, attention to quality will increase. Utilizing feed withdrawal in conjunction with other producer management tools will optimize the quality of pork as a raw material for a multitude of consumer products that include pork as an ingredient.

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