

PORK QUALITY

Title: Effects of Genotype and Pre-Slaughter Handling on Pork Quality
NPB #98-166

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Abstract: Pork carcasses were electrically stimulated at various times postmortem to investigate how muscle of various genotypes responds to varying stresses. Three modern genotypes were secured from independent suppliers and pigs were fed ad libitum until reaching approximately 110 kg. Pigs were then slaughtered and subjected to a 2 X 2 factorial experiment consisting of two levels of voltages (100 and 200 voltages, 13 pulses) and two times (15 and 25 min postmortem) for electrical stimulation. Muscle samples were taken from a subset of pigs and were subjected to glycolytic potential assays. Electrical stimulation altered ($P < 0.0001$) pH decline and meat quality characteristics. Moreover, time of stimulation and voltage decreased ($P < 0.05$) pH values. Most importantly, genotypes responded differently ($P < 0.05$) to the electrical stimulation insult. In addition, electrical stimulation hastened ($P < 0.05$) the metabolism of glycogen in the muscle and mostly likely was responsible for the adverse pork quality characteristics caused by electrical stimulation. These data show that different genotypes respond differently to stress early postmortem and suggest that genotypes, relatively equal in muscle growth ability, contain inherently different capacities to develop quality pork. More work, however, is needed to pinpoint exactly what is causing these differences across highly selected genotypes and further validate the use of electrical stimulation for studying PSE development.

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