

Variation in pH Values and Tenderness of Meat of Cattle Fed Different Levels of Lipids

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Abstract : Introduction: Over the last few years the market has increased its demand for high quality meat. Based on this premise some producers have continuously improved their efficiency in breeding beef cattle with the purpose to support this demand. It is well recognized that final quality of beef is intimately linked to animal's diet. The key objective of this study is to evaluate the influence of feeding animals with cottonseed and its lipids and the final results in terms of pH and shear forces of the meat. Materials and Methods: The study was carried out in the Chapéu de Couro Farm in Aguai/SP, Brazil. A group of 39 uncastrated Nellore cattle. Mean age of the animals was 36 months and initial mean live weight was 494.1 ± 10.1 . Animals were randomly assigned to one of three treatments, based on dry matter: feed with control diet 2.50% cottonseed, feed with 11.50% cottonseed, and feed with 3.13% cottonseed added of 1.77% protected lipid. Forage:concentrate ratio was 50:50 on a dry matter basis. Sugar cane chopped was used as forage. After slaughter, carcasses were identified and divided into two halves that were kept in a cold chamber for 24 h at 2°C. Using pH meter was determined post-mortem pH in Longissimus thoracis muscle between the 12th and 13th rib of the left half carcass. After, part of each animal was removed, and divided in three samples (steaks). Steaks were 2.5 cm thick and were identified and stored individually in plastic bags under vacuum. Samples were frozen in a freezer at -18°C. The same samples cooked were refrigerated by 12 h the 4°C, and then cut into cylinders 1.10 Øcm with the support of a drill press avoiding fats and nerves. Shear force was calculated in these samples cut into cylinders through the Brookfield texture CT3 Texture Analyzer 25 k equipped with a set of blade Warner-Bratzler. Results and Discussion: No differences ($P > 0.05$) in pH 24 h after slaughter were observed in the meat of Nellore cattle fed different sources of fat, and mean value for this variable was 5.59. However, for the shear force differences ($P < 0.05$) were founded. For diet with 2,50% cottonseed the lowest value found 5.10 (kg) while for the treatment with 11.50% cottonseed the great value found was 6.30 (kg). High shear force values mean greater texture of meat that indicates less tenderness. The texture of the meat can be influenced by age, weight to the slaughter of animals. For cattle breed Nellore Bos taurus indicus more high value of shear force. Conclusions: The add the cottonseed or protected lipid in diet is not affected pH values in meat. The whole cottonseed does not contribute to the improvement of tenderness of the meat. Acknowledgments: IFGoiano, FAPEG and CNPq (Brazil).

Keywords : beef quality, cottonseed, protected fat, shear force

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