

Threshold Levels of Boar Taint Compounds

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Abstract

Boar taint is used to describe the presence of unpleasant odour and sometimes flavour in pork meat produced mainly from entire males. The relationship between levels of boar taint compounds and sensory assessment was studied in a group of pigs reared on a commercial farm. 50 fat samples were taken at random and each sample divided into half. One set was analysed for androstenone and skatole concentration using gas chromatographic methods. The samples were then grouped into four different categories according to the concentration levels of androstenone and skatole: high androstenone-high skatole (HA/HS), high androstenone-low skatole (HA/LS), low androstenone-high skatole (LA/HS) and low androstenone-low skatole (LA/LS). The second set was submitted to a trained sensory panel who rated the intensity of pork and abnormal odour. The values for androstenone and skatole concentration ranged from 0.378 $\mu\text{g/g}$ to 2.862 $\mu\text{g/g}$ and 0.022 $\mu\text{g/g}$ to 2.528 $\mu\text{g/g}$. Sensory ratings revealed significant differences in abnormal odour between groups. The highest value was seen in the group LA/HS (5.50) followed by HA/HS (5.02). The lowest values were for the groups LA/LS (4.65) and HA/LS (4.61) (least significant difference test at 0.05 level, post hoc). The results from the regression analysis for abnormal odour against skatole indicated that 46% of the variation in data was explained by the linear relationship between these two variables. For androstenone, the results from the regression analysis showed that 6% of variation in data is explained by fitting the regression which leaves 94% unexplained. Assuming that a score of 5.0 for abnormal odour is unacceptable to most people, this related to a concentration of approximately 0.5 $\mu\text{g/g}$ for skatole which, can therefore be taken as a crude threshold value based on these results. These results suggest that the concentration level of skatole in adipose tissue is more significant than the concentration of androstenone. In addition, assessors were asked to provide unsolicited comments and it was seen that the

most common words used to describe abnormal odour were 'musty, mothballs, sweaty, nose-feel, ammonia and parsnip'.

Key words: Androstenone, skatole, boar taint, sensory assessment, pork fat