

## **The role of combinations between fasting intervals and lairage times on pigs' welfare, stomach content and carcass and meat quality**

Filipe Antonio Dalla Costa\*<sup>1,2</sup>, Osmar Antonio Dalla Costa<sup>3</sup>, Arlei Coldebella<sup>3</sup>, Antonio Guidoni<sup>3</sup> (in memorian), Eliane Bodanese<sup>4</sup>, Adriano Cleiton Holdefer<sup>5</sup>, and Arlan Marcos Lorenzetti<sup>5</sup>

<sup>1</sup>FCAV-UNESP, Jaboticabal, SP, Brazil, <sup>2</sup>ETCO, Jaboticabal, SP, Brazil, <sup>3</sup>EMBRAPA Swine and Poultry, Brazil, <sup>4</sup>Cooperativa Central Aurora Alimentos, Brazil, <sup>5</sup>Cooperativa de Produção e Consumo Concórdia - Copérdia, Brazil

The objective of this study was to compare the effects of combinations between on-farm fasting interval with lairage time on pigs' welfare, stomach content and meat quality traits. A total of 960 pigs from eight farms during two seasons (winter vs. summer) was used. Treatments were the combination of each on-farm fasting interval (8, 12, 16, 20 h) with each lairage time (1, 3, 6 h). Blood was collected at exsanguination for analysis of cortisol and lactate. Stomach content weight was determined as the difference between full stomach at evisceration and empty stomach after it has being opened and washed. Carcass lesions were evaluated and classified at the cooler as fighting, mounting or handling types by visual assessment. Meat quality traits (pH<sub>u</sub>, colour, drip loss) were assessed in loins and hams. Data was analysed by variance analysis for effects of season, on-farm fasting interval and lairage time, and their interaction. A complementary analysis of response surface was performed when any effect was present. Stomach weight content data was analysed by logistic regression. There was an effect of season on blood lactate level, which was greater ( $P \leq 0.05$ ) in the summer. Carcass lesion was influenced ( $P \leq 0.05$ ) by season and lairage. Carcass lesion caused by fight was greater ( $P \leq 0.05$ ) in the winter, mainly after 3 and 6 h of lairage ( $P \leq 0.05$ ). Stomach content was affected ( $P \leq 0.05$ ) by season, on-farm fasting interval, lairage time, and an interaction between on-farm fasting interval and lairage time. The results showed that weight of stomach content reduces as the total fasting time increases. However, this effect stops from on-farm fasting of 17 h plus 1 h of lairage. According to analysis of response surface, a longer total interval of fasting resulted in lower weight of stomach content. An interaction between season and lairage time on pH<sub>u</sub> of loin and ham was found, where pH<sub>u</sub> was lower ( $P \leq 0.05$ ) for pigs slaughtered after six hours of lairage at the summer. Based on the results, to obtain empty stomach, it is recommended both combinations: on-farm fasting of 14 h plus 1 h of lairage, or on-farm fasting of 12 h plus 4 h of lairage.

**Key Words:** Cortisol, lactate, pH, stomach weight