TRUCK SUSPENSION SYSTEM: IMPACTS ON PIG'S WELFARE, CARCASS AND PORK QUALITY

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The transport has been considered as a major source of stress in pigs. Vibrations of the truck body during transport may result in travel sickness, higher heart rate and skin damage in pigs. So the objective of this study was evaluate the effects of two truck suspension systems, leaf-spring suspension (LS) *vs.* air (A), each installed on one of two double-decked trucks, on lairage behaviour, exsanguination blood parameters and carcass and meat quality traits as assessed in the *Longissimus dorsi* (LD) and *Semimembranosus* (SM) muscles. A total of 120 from 960 crossbred pigs originating from five farms (located in Rio Grande do Sul state, Brazil) were analysed after been transported to slaughter by the same two double-decked trucks and drivers under the same transport conditions [230 kg/m^2, 96 pigs/truck, 53.5 (±2.5) Km, 80 (±6.5) min]. The behaviour observations (standing, walking, seated, lying down, fighting) were evaluated by scan sampling method with direct observation on intervals of 15 minutes. Blood samples were collected at exsanguination for lactate and cortisol analysis. Carcass lesions were counted on the left side of each carcass in the cooler after slaughter. Meat quality assessment was evaluated by pH (45min and 24h *post-mortem*), instrumental colour (L*, a* and b* values) at 24 h, visual color and drip loss in *Longissimus dorsi* (LD) and *Semimembranosus* (SM) muscles. Variance analysis using GLM SAS (2003) was applied to study the effects of truck type with transport as repetition, the group as experimental unit for the analysis of behaviour data, and individual for physiological and meat quality data. The tests were performed using the FREQ procedure of SAS (2003). The type of suspension neither influenced pig behaviour in lairage nor blood cortisol and lactate concentrations at exsanguination ($P > 0.05$ for all). However, compared with A suspension system, the use of LS increased the number of carcass lesions ($P < 0.05$), particularly of density-type, in the loin and ham and produced a paler colour (lower subjective colour score) in the LD muscle, and lower pH at 24h and yellower colour (higher b* value; $P < 0.05$) in the SM muscle. It may be concluded that the use of air suspension system during transportation improves carcass and meat quality of pigs.

Keywords: cortisol, lactate, pig transport, pre-slaughter handling, skin bruise