

Effects of Additional Space During Transport on Pre-slaughter Traits of Pigs

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Abstract: The objectives of the present study were to evaluate the effects of increasing space in transportation at different distances, on live weight loss in pigs and to determine the effects of fasting and pre-slaughter lairage period on both live and carcass weights by sex and on pork quality. Seven hundred and twenty pigs Pietrain x (YorkshirexLandrace) were divided into two experimental conditions (EC₁ and EC₂). EC₁ pigs were divided in three groups of 120 animals each and were transported for 8, 16 and 24 h (loading density: 0.35 m²/100 kg). EC₂ pigs were divided in three groups of 120 animals, the transport duration was the same as in EC₁ (loading density: 0.68 m²/100 kg). Transport duration and space allowance significantly affected (p<0.01) the posture of the pigs on arrival to the slaughterhouse; there were significant differences (p<0.01) between genders. When transport time was shorter, a higher number of pigs arrived in a standing posture, more females arrived in a standing position in the group shipped for 8 h. Pig position affected carcass yield, when transportation time was shorter carcass yield was higher. There was a higher percentage (p<0.01) of pigs at pH 5.8-6.2 in animals transported for 8 h, compared with 16 and 24 h period, independently of the space allowance. Additional space provided to pigs during transportation lead to a better animal welfare in transit and had no decisive influence in the quality of the carcass; nevertheless, the quality of meat improved.

Key words: Pig, transport, slaughter, pork quality, pH, *Longissimus dorsi*

INTRODUCTION

The minimum conditions for pig transportation vary from one country to another, expecting deficiencies during and after transportation, according to time of fasting, loading and unloading methods used, stocking density, transport duration and weather conditions among others (Nanni-Costa *et al.*, 1999; Mota *et al.*, 2006; Warriss *et al.*, 2006).

It is well known that physiological responses of pigs as a consequence of transportation result in physiological stress and/or physical fatigue. Injuries produced during the journey or at lairage affect some carcass traits, as temperature and pH leading to alterations in both, carcass yield and shelf-life (Schaefer *et al.*, 1997; Gallo *et al.*, 2001, 2003; Mota *et al.*, 2000, 2004).

Without any doubt, transportation is one of the most important stages in pigs handling before slaughter, since it influences meat quality and quantity; poor handling causes economic losses to farmers, transporters and slaughter plants (Gallo *et al.*, 2001). Animal commingling, contact with strangers, speed variations, vibrations, space, establishment of new hierarchies, humidity and high temperatures, noises and strange scents are stress factors affecting welfare of transported animals (Grandin, 1994; Martoccia *et al.*, 1995; Grandin, 1997; Tadich *et al.*, 2000; Gallo *et al.*, 2001; Grandin, 2003). The intensity of these negative factors and transport duration affect the welfare of transported pigs (Wajda and Denaburski, 2003).

Several strategies have been developed to reduce stress during transportation, some of them are to avoid mixing pigs from unknown farms and to unload animals in

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