



Growth performance, carcass traits and pork quality of pigs fed ractopamine and slaughtered between 100 and 145 kg

Teresinha M. Bertol*¹, Jonas I. dos Santos Filho¹, Arlei Coldebella¹, Andreza L. Marinho²
¹Embrapa Suínos e Aves, BR 153, KM 110, 89700-000, Concórdia, SC, Brazil; ²Universidade Federal Rural de Pernambuco; *teresinha.bertol@embrapa.br

A total of 192 crossbred pigs (average body weight = 29.36 ± 0.88 kg and average initial age of 69.24 ± 3.56 d) were used in an experiment carried out to evaluate the effect of slaughter weight in pigs fed ractopamine on growth performance, carcass traits and meat quality. Pigs were allotted in groups of four per pen, in a randomized block design, six pens of each sex (castrated males and females) per treatment. Treatments consisted of four distinct target slaughter weights: 100, 115, 130 and 145 kg live weight. Diets were formulated to meet or exceed the nutrients recommended for each phase and were supplemented with 5 and 10 ppm of ractopamine in the last two periods of 14 d, respectively, before the slaughter. The weights actually obtained at slaughter were 106.5, 119.7, 133.9 and 141.9 kg for females and 111.2, 126.1, 137.9 and 148.4 kg for males, respectively. Average daily gain and the growth curve estimated by the Gompertz model within sex did not differ ($P > 0.05$) among slaughter weights. The maximum growth rate was estimated as 975 g day^{-1} for females and $1,017 \text{ g day}^{-1}$ for castrated males and was estimated to occur at 136 d of age for both genders. Average daily feed intake increased quadratically ($P < 0.05$) and gain:feed decreased quadratically ($P < 0.03$) with increasing slaughter weight. Backfat thickness at last rib and P2 point, loin eye area, fat area, belly yield, boneless belly yield and fat yield increased linearly ($P < 0.01$ to $P < 0.0001$), whereas loin eye:fat area, meat yield from the pooled cuts, boneless loin yield and meat:fat ratio reduced linearly ($P < 0.05$ to $P < 0.0008$) with increasing slaughter weight. The loin eye area:fat area ratio fell 0.014 points and the meat:fat ratio fell -0.063 points for each kg increase in slaughter weight. However, comparing the results of this study with other studies from 1986 to this date, we observe that backfat at last rib and fat area are 13 mm and 14 cm^2 lower, respectively, while loin eye area and loin eye area:fat area ratio are 10 cm^2 and 1.3 points higher, respectively, in the pigs killed at 145 kg in the present study. The increase in average daily gain and feed efficiency in the same period, considering previous studies from 1986 to the present, is approximately 200 g day^{-1} and 0.113 points, respectively, for pigs slaughtered between 130 and 145 kg of live weight. pH 45 min of loin and ham, pH 24 h of ham, and dry matter of loin increased quadratically ($P < 0.03$ to $P < 0.01$), color score of loin and ham and marbling score increased linearly ($P < 0.04$ to $P < 0.0007$), whereas L^* value of loin and ham and cooking loss reduced linearly ($P < 0.04$ to $P < 0.005$) with increasing slaughter weight. It was concluded that, the increase of slaughter weight impaired feed efficiency, increased fat yield and reduced meat yield in the main cuts. However, the magnitude of the detrimental effect on performance and carcass characteristics with increasing slaughter weight was substantially reduced relative to that observed in the last two decades, which can be attributed mainly to genetic advances, to adjustments in nutrient levels and the use of products modifiers of metabolism. Regardless of this evolution on performance and carcass characteristics over time, the optimum slaughter weight is defined by the cost of production and slaughter, and by valuing the cuts. Pork quality was improved with the increase of slaughter weight, due to the increase of intramuscular fat, decrease of cooking loss and color improvement.

Key Words: carcass quality, growth performance, pigs, pork quality, slaughter weight