



TECHNICAL NOTE: A characterization of Argentinian pork fabrication techniques

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ABSTRACT

A main concern during the rapid growth of the Argentinian pork industry that has not been addressed is inconsistency and unknowns in carcass cutting techniques and specifications. The objectives of this study were to characterize pork carcass fabrication techniques in the Argentinian commercial pork industry. Pigs ($n = 100$) from 4 Argentinian pork suppliers were used. Pigs were slaughtered at a commercial pork processing facility and air chilled at 4°C for 24 to 48 h. Left carcass sides were fabricated into 5 primals according to specifications used in the commercial Argentinian pork industry: jamón, carne, pecho con manta, bondiola, and paleta. Weights of primals were recorded immediately after fabrication. Primals were further fabricated into subprimal pieces according to standard procedures of the commercial pork processing facility. Primal and subprimal weights were reported as raw weights and as a percentage of total HCW (head on). Weights of primals and subprimals were characterized as descriptive data and then compared among suppliers. When expressed as a percentage of HCW (head on), the jamón primal was $26.99 \pm 0.12\%$ of HCW, the carne was $10.70 \pm 0.12\%$ of HCW, the pecho con manta primal was $17.21 \pm 0.12\%$ of HCW, the bondiola primal was $6.75 \pm 0.06\%$ of HCW, and paleta was $15.79 \pm 0.10\%$ of HCW. Overall, the understanding of commercial cutting techniques will allow the Argentinian pork industry to become more consistent, and comparing cuts of primals and subprimals with North American Meat Processors (NAMP) specifications may allow for a greater understanding of the Argentinian pork industry worldwide.

Key words: Argentina pork, carcass cutability, pig, pork cut specification

INTRODUCTION

A global strategy is needed to increase food production to feed 9 billion people expected worldwide in 2050 (Godfray et al., 2010). Pork, the most commonly consumed meat in the world (NPB, 2013), has great potential to fill the need for an increased amount of protein throughout the world. Argentina boasts a reputation of having great agricultural resources, being ranked in the top 5 countries for producing corn (NCGA, 2012) and soybeans (USDA, 2015), the 2 largest inputs of a common swine diet. This has been recognized, and the Argentinian pork industry is experiencing rapid growth, thus showing the potential to become a key player in supplying an increase in the global demand for pork. In 2011, 3.4 million pigs were slaughtered in Argentina, with an estimated increase to 5.7 million pigs by 2022 (USDA/ERS, 2013; Ministerio de Agroindustria, 2015). In 2011 pork consumption in Argentina was 350,370 t (8.6 kg/yr per capita), and in 2022 it is estimated pork consumption in Argentina will rise to 610,000 t (13.2 kg/yr per capita; estimates for future data from USDA/ERS, 2013; past data from Ministerio de Agroindustria, 2015; population data from UN WPP, 2015). This equates to a 68% increase in production, a 74% increase in total consumption, and a 53% increase in per capita consumption. The Argentinian swine industry has recognized the need for increased emphasis on pork production, processing, and understanding the demand of consumers, both domestically and globally. Previous studies have summarized meat quality traits in Argentinian pork (Lloveras et al., 2008) and predicted lean content in Argentinian pork using data collected with grading probes and a Fat-O-Meater (Goenaga et al., 2008). However, no peer-reviewed literature currently exists characterizing fabrication techniques and carcass cutability of pork produced in Argentina. With the growing population in the world and increased trade specialization, the pork industry will become a more global enterprise. There is certainly a need for research to compare traits that differ among countries and among regions. Thus, the objectives of this study were to characterize pork carcass fabrication techniques in the Argentinian commercial pork industry.

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MATERIALS AND METHODS

Source of Animals

Pigs ($n = 100$) were slaughtered at a commercial pork processing facility in Argentina. Four suppliers (A to D) with differing production programs were used in the study ($n = 25$ pigs per supplier). Supplier A was vertically integrated, and suppliers B, C, and D were not vertically integrated. The population of pigs selected from each supplier consisted of 10 barrows and 15 gilts. Pigs from each supplier were transported together and slaughtered on the same day; pigs from different suppliers were transported separately and experienced lairage separately. Pigs from different suppliers were slaughtered over 3 d with supplier B and C being slaughtered on the same day. After slaughter, carcasses were air chilled at 4°C. Fat depth was measured on the left side of the carcass at approximately the fourth rib and last rib locations.

Carcass Fabrication

The left side of each chilled carcass was initially fabricated into the jamón, carre, pecho con manta, bondiola, and paleta, as indicated in Figure 1. Carcasses of pigs produced by each supplier were fabricated on the same day. Carcasses from different suppliers were fabricated over 4 d, and each primal was fabricated by the same processing facility employee each day to reduce variability. In accordance with North American Meat Processors specifications (NAMP, 2014), the jamón would be similar to North American Meat Processors (NAMP) #401 Pork Leg; the carre would be similar to NAMP #410 Pork Loin, Bone-in; the pecho con manta would be similar to NAMP #408B Pork Belly, Bone-in; and the bondiola (proximal shoulder) and paleta (distal shoulder) would be similar to NAMP #403 Pork Shoulder. Each primal piece was weighed before further fabrication into subprimal cuts.

Jamón. The jamón primal was cut immediately posterior to the hip bone with a tapering cut that included the

entire cuadril (sirloin). The hind foot was removed below the hock joint, and tail bones were removed. Trimmed jamón were fabricated into 5 separate pieces used for this study: cuadril (similar to NAMP #413D Pork Sirloin, Boneless; NAMP, 2014), nalga (similar to NAMP #402F Pork Leg, Inside; NAMP, 2014), peceto (semitendinosus), cuadrada (similar to NAMP #402D Pork Leg, Outside, but without the semitendinosus portion; NAMP, 2014), and bola de lomo (similar to NAMP #402H Pork Leg, Tip; NAMP, 2014). As a percentage of head-on carcass weight, the jamón primal was approximately 27% of the pork carcass (Table 1). According to NAMP specifications, the ham primal is reported to be 23.5% of head-off carcass weight (Lowe et al., 2014); thus, the difference between the jamón primal and the ham primal was 3.5% of HCW. The driving discrepancy between these 2 percentages is the inclusion or exclusion of the sirloin/cuadril in the ham primal. However, the inclusion of the sirloin on the Argentinian jamón primal compared with the NAMP #401 Leg (NAMP, 2014) ham also contributed to the observed difference.

Carre. The carre primal was cut at the fourth and fifth rib interface at the anterior end and immediately posterior to the hip bone with a tapering cut that did not include the cuadril (sirloin) at the posterior end because the cuadril was included in the jamón primal. The ventral edge of the carre was removed by a straight cut that extended from a point no more than 7.5 cm from the longissimus thoracis on the shoulder end to a point on the posterior end no more than 1.3 cm from the psoas major. The skin and fat cap surrounding the carre primal was removed. The solomillo (similar to NAMP #415 Pork Tenderloin; NAMP, 2014) was removed and weights were collected on the carre without the solomillo (carre con hueso; similar to NAMP #414 Pork Loin, Center-Cut 11 Ribs, Boneless; NAMP, 2014) and on the solomillo alone. As a percentage of head-on carcass weight, the carre was approximately 10.7% of carcass weight. Comparatively, according to NAMP specifications, the bone in loin would be approximately 26% of

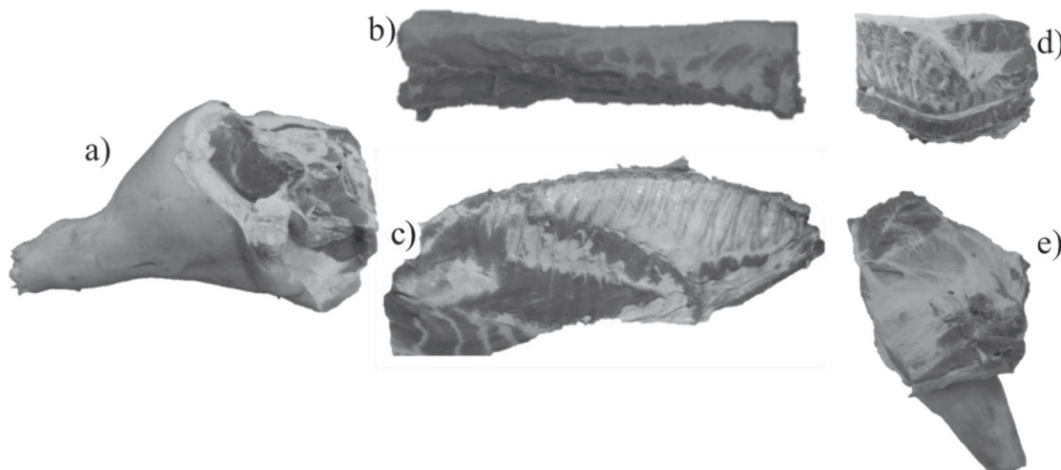


Figure 1. Argentinian primal cuts fabricated into a) jamón, b) carre, c) pecho con manta, d) bondiola, and e) paleta.

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