

Letter

What might Brexit mean for trade and animal welfare in the Latin American pork industry?

E Vargas-Bello-Pérez^{*†}, GG Miguel-Pacheco[‡], J Figueroa[§] and J Lensink[#]

[†] Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Grønnegårdsvej 3, DK-1870 Frederiksberg C, Denmark

[‡] School of Veterinary Science, University of Nottingham, Sutton Bonnington, Leicestershire LE12 5RD, UK

[§] Departamento de Ciencias Animales, Facultad de Agronomía e Ingeniería Forestal, Pontificia Universidad Católica de Chile, Santiago, Chile

[#] ISA Lille, CASE, Animal Behaviour and Livestock Systems, Lille Cedex, France

* Contact for correspondence: evargasb@sund.ku.dk

Introduction

The UK's animal welfare standards are among the most rigorously maintained in the world (Wildlife and Countryside Link & and UK Centre for Animal Law 2018), however, post-Brexit (UK withdrawal from the European Union), the UK is looking to secure deals with other economic areas and countries. This could potentially lead to more imports from countries operating with welfare standards lower than the UK's, not to mention leaving UK producers outpriced and at a competitive and economic disadvantage (Agriculture and Horticulture Development Board [AHDB] 2016). Possible suggestions for a better deal for farmers and animals would depend on the type of trade agreement with other countries (McCulloch 2018; Wildlife and Countryside Link & and UK Centre for Animal Law 2018). To achieve this, the UK Government could either include a clause specifying that imports will be required to meet UK animal welfare and health standards; or place tariffs to differentiate exports (Wildlife and Countryside Link & and UK Centre for Animal Law 2018).

In developed countries, livestock production has undergone considerable change, both in terms of infrastructure and animal management to address society's concerns about animal welfare (Garnett *et al* 2013; McGlone 2013). However, the scenario is different in developing economies where some countries may be more advanced than others regarding animal welfare legislation, particularly for farm animals (Rivera *et al* 2016; Gallo & Tadich 2018). Therefore, while Brexit might represent an economic opportunity to the pork industry in certain Latin American countries (Brazil, Mexico and Chile are among the top ten pig producers and exporters in the world), imports from countries with a poor record on animal welfare will be conditional on UK Government plans to maintain its high welfare standards after exit from the European Union (in order to protect its producers and manage pressure from British consumers).

Pig welfare and consumer concerns

Meat quality can be defined by its intrinsic characteristics (eg colour, flavour, tenderness and nutritional value), safety, appearance and convenience but also based on ethical criteria, particularly those related to environmental and animal welfare concerns (Paranhos da Costa *et al* 2012). In this letter, we consider animal welfare as an important factor when defining 'quality.' According to a recent review (Thorslund *et al* 2017); farm animal welfare has been debated publicly in a number of European countries since the mid-1960s. More than nine in ten EU citizens believe it to be important to protect the welfare of farmed animals, and more than half of all Europeans have expressed a willingness to pay more for welfare-friendly animal products (Thorslund *et al* 2017).

Consumers care about animals' physical health, adequate provision of food and heating, and protection; but also, about animals' freedom to move and freedom to fulfill natural desires and express natural behaviours as far as possible (Te Velde *et al* 2002). Regarding pig welfare, studies have shown consumers to be favourable towards improved welfare for pigs, particularly further promoting outdoor production systems (Denver *et al* 2017). However, consumer demand for high-welfare products is ultimately driven by the cost implications to consumers (European Union Committee 2017a). In the report, *Brexit: Farm Animal Welfare* (European Union Committee 2017a), the House of Lords advised that labelling systems should be simplified to help consumers make informed purchasing decisions, which could help prioritise welfare over cost.

In the case of Latin America, studies have shown consumers to have a similar interest in farm animal welfare as in Europe (Vargas-Bello-Pérez *et al* 2017a), sharing their desire for clear information and more regulations (Vargas-Bello-Pérez *et al* 2017b). This is likely due to an increase in the Gross Domestic Product (GDP). For example, in Chile, the GDP has risen from 10 to almost 13.5 thousand euros per capita in the last ten years (World Bank 2018), which has allowed citizens as well as the government to pay greater attention to animals' needs and welfare (Frank 2008). Similarly, research in the area of animal welfare has increased in the region, with Mexico, Brazil, Chile and Colombia leading the way (Werner & Gallo 2008; Tadich *et al* 2009; Galindo *et al* 2016).

In 2006, a survey to World Organization of Animal Health (OIE) representatives of the Latin American countries found animal welfare legislation, in many cases, to be non-existent and only four countries (Colombia, Mexico, Paraguay and Uruguay) considered OIE animal welfare standards in their regulations (Gallo 2007). Since then, a combination of increased societal interest in animal welfare and individual governments' desire to fulfill OIE mandates has seen development of stronger, yet still somewhat limited, animal welfare legislation and regulations in this region. For

example, in the case of Mexico, there are four regulations that cover two areas of the farm animal supply chain: establishments or companies (slaughterhouses and transport companies) and procedures (slaughter and transport of animals). The latter regulations define the basis for humanitarian treatment during transport and at the time of killing (Arvizu Tovar & Téllez Reyes Retana 2016). On the other hand, in Chile, animal welfare regulations for animal production, considers welfare during time on-farm, at transport and in slaughterhouses (Ministerio de Agricultura de Chile 2013a,b,c). However, none of the countries in this region have banned the use of gestation crates or painful procedures (eg castration).

Brexit context on animal welfare and new import opportunities for pork meat

Almost all pig meat imports into the EU, with the exception of offal, are subject to sizeable import tariffs, ranging from €172 to €1,494 per ton. The result is that most non-EU pork is uncompetitive on the EU market, even though production costs and wholesale prices are lower in other exporting countries, such as the United States, Canada and Brazil (AHDB 2016). None of the existing EU Free Trade Agreements is significant for UK pork exports, though both South Korea and Vietnam are potential future markets. However, negotiations have been completed or are underway with all the major pork exporters, Canada, the US and Brazil (part of the Mercosur trade bloc). For these countries, this may result in an increased access to the EU market once trade agreements have been ratified (AHDB 2016).

The report, *Brexit: Agriculture* from the European Union Committee (2017b), declared that the UK's withdrawal from the European Union would have a profound impact on agricultural policy, including farm animal welfare, and the trade in agri-food products. While high standards of animal welfare could be a selling point for UK producers (and is something that the Prime Minister has pledged to maintain when leaving the EU), these also, inevitably, push up production costs (Anonymous 2017). The report also indicated that the greatest threat to farm animal welfare standards would come from UK farmers competing against cheap imported food from countries operating at lower standards of welfare than the UK (Waters 2017). If the UK's real market differentiator is going to be high animal welfare standards, then consumer awareness of those standards will be pivotal and British consumers will need clear labelling on production methods and slaughter (Waters 2017).

The Pig industry in Chile: an example from the Latin-American region

The Chilean pork industry is vertically integrated (producing feed, raising pigs, and processing them into pork meat) (ODEPA 2014), and exports over 55% (\$US 446m) of their meat production to Asian markets (78%) with China the main destination (29%) (ASPROCER 2018). Ranked as the sixth largest exporter of pork meat worldwide

(ASPROCER 2016), Chile's sow tally exceeds 180,000 with no more than 30 companies controlling the market, simplifying organisation of the industry. (ASPROCER 2018). Chile has excellent phyto- and zoo- sanitary conditions, being free of foot-and-mouth and other diseases (Agosin & Bravo-Ortega 2009). Of the 507,000 tons of pork Chile produces, only 2% of its pig production is exported to Europe (Poland), probably because of environmental and animal welfare regulations and subsidies.

Welfare regulations within the Chilean pork industry, differ from developed countries such as the UK, limiting exports. The EU enacted a law in 2013 prohibiting the housing of females in individual crates during pregnancy (The Council of the European Union 2008). However, in Chile, intensive pig systems still make use of gestation crates for the entirety of the sow's pregnancy. This drastically restricts movement, exposing sows to foot injuries, muscular atrophies, and high levels of stress from constantly coming into contact with adjacent animals. Additionally, females are subject to feed restriction, generating chronic hunger and stereotypical behaviour. Enrichment measures to ameliorate these, such as toys and wheat straw, are difficult to administer in crates (van de Weerd & Day 2009). A further welfare problem for the Chilean pig industry is its short suckling periods (around 21 days, cf a minimum 28 days in the EU) which fails to allow piglets time to adapt to future post-weaning conditions resulting in higher levels of neophobia (Figuroa *et al* 2013) and digestive problems (Moeser *et al* 2017).

Latin American countries could learn from the Chilean pig industry, that tighter animal health regulations can open international markets. Additionally, we are of the opinion that should Chile and its neighbours enhance their animal welfare regulations, it could place them in a highly favourable position economically. It could open new markets, helping offset losses incurred by implementing new equipment (eg group housing) and profit from the longer transition period, allowing for adequate training and management (Mitchell *et al* 2017).

Beyond Brexit

Many international food businesses have started to set up animal welfare policies for their supply chain, as a reaction to increased consumer awareness and investor concerns about animal welfare around the world (Sullivan *et al* 2017). The development of welfare improvements in Latin America requires governments, industries and scientists to work together on the development of group housing systems for sows, as has been the case in Canada and the United States (Brown 2017), providing a context for the updating of animal welfare regulations and recommendations (NFACC 2014). A useful starting point is a good understanding of current pig production systems, leading to practical welfare solutions for the pig industry that would hopefully leave them handily placed to export to new markets.

References

- Agosin MR and Bravo-Ortega C** 2009 The emergence of new successful export activities in Latin America: The case of Chile. *IDB Working Paper No 236*. <https://dx.doi.org/10.2139/ssrn.1807608>
- AHDB** 2016 *What might Brexit mean for UK trade in pork products?* Agriculture and Horticulture Development Board: Warwickshire, UK
- Anonymous** 2017 Will Brexit lead to 'race to the bottom' for UK food animal welfare standards? *Veterinary Record* 181: 104-104
- Arvizu Tovar LO and Téllez Reyes Retana ER** 2016 *Bienestar Animal en México-Un Panorama Normativo*. National Autonomous University of Mexico: Mexico City, Mexico. [Title translation: Animal welfare in Mexico - a regulatory landscape]
- ASPROCER** 2016 *30 years: 2015 Report*. Pork Producers Trade Association of Chile. <https://www.asprocer.cl/en/assets/uploads/2016/09/asprocer-report2015.pdf>
- ASPROCER** 2018 *Pork industry analysis*. <http://www.asprocer.cl/en/industry/pork-industry-analysis/>
- Brown J** 2017 National Sow Housing Conversion Project *National Sow Housing Conversion Newsletter*. NSHCP. <http://group-sowhousing.com/wp-content/uploads/2017/09/NSHC-Newsletter-vol-1-iss-4-pdf>
- Denver S, Sandøe P and Christensen T** 2017 Consumer preferences for pig welfare – Can the market accommodate more than one level of welfare pork? *Meat Science* 129: 140-146
- European Union Committee** 2017a *Brexit: Farm Animal Welfare 5th Report of Session 2017-19*. Authority of the House of Lords: London, UK
- European Union Committee** 2017b *Brexit: Agriculture 20th Report of Session 2016-17*. Authority of the House of Lords: London, UK
- Figuroa J, Solà-Oriol D, Vinokurovas L, Manteca X and Pérez JF** 2013 Prenatal flavour exposure through maternal diets influences flavour preference in piglets before and after weaning. *Animal Feed Science and Technology* 183: 160-167
- Frank J** 2008 Is there an "animal welfare Kuznets curve"? *Ecological Economics* 66: 478-491
- Galindo F, Tadich T, Ungerfeld R, Hötzel M and Miguel-Pacheco G** 2016 *The Development of Applied Ethology in Latin America*. Wageningen Academic Publishers: Wageningen, The Netherlands
- Gallo C** 2007 Animal welfare in the Americas. *Compendium of Technical Items Presented to the International Committee or to the Regional Commissions of the OIE* pp 151-166. http://www.oie.int/fileadmin/Home/eng/Publication_%26_Documentation/docs/pdf/TT2006_151-158_Gallo_A.pdf
- Gallo CS and Tadich TG** 2018 Perspective from Latin America. In: Mench JA (ed) *Advances in Agricultural Animal Welfare* pp 197-218. Woodhead Publishing: Kidlington, UK
- Garnett T, Appleby MC, Balmford A, Bateman IJ, Benton TG, Bloomer P, Burlingame B, Dawkins M, Dolan L, Fraser D, Herrero M, Hoffmann I, Smith P, Thornton PK, Toulmin C, Vermeulen SJ and Godfray HCJ** 2013 Sustainable intensification in agriculture: Premises and policies. *Science* 341: 33-34
- McCulloch S** 2018 Brexit and animal protection: Legal and political context and a framework to assess impacts on animal welfare. *Animals* 8: 213
- McGlone JJ** 2013 The future of pork production in the world: Towards sustainable, welfare-positive systems. *Animals: An Open Access Journal from MDPI* 3: 401-415
- Ministerio de Agricultura de Chile** 2013a *Aprueba reglamento sobre protección del ganado durante el transporte*, Santiago, Chile. <http://bcn.cl/1v8yh>. [Title translation: Approved regulation for the protection of livestock during transport]
- Ministerio de Agricultura de Chile** 2013b *Reglamento sobre protección de los animales durante su producción industrial, su comercialización y en otros recintos de mantención de animales*, Santiago, Chile. <http://bcn.cl/1vkjb>. [Title translation: Regulation for the protection of animals during their industrial production, the commercialisation and while in other animal-keeping areas]
- Ministerio de Agricultura de Chile** 2013c *Reglamento sobre protección de los animales que provean de carne, pieles, plumas y otros productos al momento del beneficio en establecimientos industriales*, Santiago, Chile. <http://bcn.cl/1w20o>. [Title translation: Regulation for the protection of animals that provide meat, skins, feathers and other products at the time of slaughter]
- Mitchell L, Romanowicz B, Sawyer P, Reyes E and Deblitz C** 2017 *The pig industry's transition to group sow housing: economic and welfare assessments*. Braunschweig, Germany. <https://literatur.thuenen.de/digbib-extern/dn058694.pdf>
- Moesser AJ, Pohl CS and Rajput M** 2017 Weaning stress and gastrointestinal barrier development: Implications for lifelong gut health in pigs. *Animal Nutrition* 3: 313-321
- NFACC** 2014 *Code of Practice for the Care and Handling of Pigs*. National Farm Animal Care Council: Ottawa, Canada
- ODEPA** 2014 *Mercado porcino: coyuntura internacional y efectos en el mercado interno*. Ministerio de Agricultura de Chile: Chile. [Title translation: Pork market - international conjecture and effects in the domestic market]
- Paranhos da Costa MJR, Huertas SM, Gallo C and Dalla Costa OA** 2012 Strategies to promote farm animal welfare in Latin America and their effects on carcass and meat quality traits. *Meat Science* 92: 221-226
- Rivera E, Hernandez R, Carissimi AS and Pekow C** 2016 Laboratory animal legislation in Latin America. *ILAR Journal* 57: 293-300
- Sullivan R, Amos N and van de Weerd HA** 2017 Corporate reporting on farm animal welfare: An evaluation of global food companies' discourse and disclosures on farm animal welfare. *Animals: An Open Access Journal from MDPI* 7: 17
- Tadich N, Gallo C, Brito ML and Broom DM** 2009 Effects of weaning and 48 h transport by road and ferry on some blood indicators of welfare in lambs. *Livestock Science* 121: 132-136
- Te Velde H, Aarts N and Van Woerkum C** 2002 Dealing with ambivalence: Farmers' and consumers' perceptions of animal welfare in livestock breeding. *Journal of Agricultural and Environmental Ethics* 15: 203-219
- The Council of the European Union** 2008 Council Directive 2008/120/EC Laying down minimum standards for the protection of pigs. *Official Journal of the European Union*. https://ec.europa.eu/food/animals/welfare/practice/farms/pigs_en
- Thorslund CA, Aaslyng MD and Lassen J** 2017 Perceived importance and responsibility for market-driven pig welfare: Literature review. *Meat Science* 125: 37-45

van de Weerd HA and Day JEL 2009 A review of environmental enrichment for pigs housed in intensive housing systems. *Applied Animal Behaviour Science* 116: 1-20

Vargas-Bello-Pérez E, Miranda-de la Lama GC, Teixeira DL, Enríquez-Hidalgo D, Tadich T and Lensink J 2017b Farm animal welfare influences on markets and consumer attitudes in Latin America: The cases of Mexico, Chile and Brazil. *Journal of Agricultural and Environmental Ethics* 30: 697-713

Vargas-Bello-Pérez E, Riveros JL, Köbrich C, Álvarez-Melo PA and Lensink J 2017a Chilean consumers' perception about animal welfare in dairy production systems: short communication. *Animal Production Science* 57: 147-151

Waters A 2017 Are we really willing to sacrifice our high farm animal welfare? *Veterinary Record* 181: 126

Werner M and Gallo C 2008 Effects of transport, lairage and stunning on the concentrations of some blood constituents in horses destined for slaughter. *Livestock Science* 115: 94-98

Wildlife and Countryside Link, and UK Centre for Animal Law 2018 *Brexit: Getting the Best Deal for Animals*, London, UK. <https://www.alaw.org.uk/wp-content/uploads/Brexit-Getting-the-Best-Deal-for-Animals-Full-Report.pdf>

World Bank 2018 *Global Economic Prospects, Chile*. <https://data.worldbank.org/country/chile>