

DIFFERENCES IN THE RESPONSES OF ICoMST DELEGATES TO A MEAT CONSUMER SURVEY COMPARED TO NON-EXPERT CONSUMERS IN FIVE COUNTRIES: HYGIENE AND FOOD SAFETY ASPECTS

Peter Purslow*¹, Rosana Cepeda¹, Estefania Cáffaro¹, Lorena Garitta², Miriam Sosa², Damian Frank³, Lisa Duizer⁴, Tania Ngapo⁵, Heather Bruce⁶, Renata Nassu⁷, and Maeve Hinchion⁸

1. Universidad Nacional del Centro de la Provincia de Buenos Aires, Tandil, Argentina 2., DESA-ISETA, CONICET, 9 de Julio, Argentina. 3. Commonwealth Scientific and Industrial Research Organisation, North Ryde, Australia 4. University of Guelph, Guelph, ON, Canada 5., Agriculture and Agri-Food Canada, Saint Hyacinthe, Quebec, Canada 6., University of Alberta, Edmonton, Alberta, Canada 7. Empresa Pecuária Sudeste, São Carlos, SP, Brazil 8. Teagasc, Rural Economy & Development Programme, Dublin, Ireland.

*Corresponding author email: ppurslow@vet.unicen.edu.ar

I. INTRODUCTION

A study of consumer attitudes in Argentina, Australia, Brazil, Canada and Ireland, containing questions on frequency of meat consumption, meat preparation, conservation and hygiene, and beef meat quality attributes was reported at ICoMST in 2017 [1]. Several of the questions tested respondents' knowledge and behaviour concerning hygienic practices and attitudes to factors influencing meat quality. The aim of the current study was to collect data from an international group of persons knowledgeable in meat science using the same questionnaire, to see how lay consumers in the various countries differed in attitudes from a group of "meat experts". Because the amount of data from the whole questionnaire is relatively large, only the differences in the area of meat preparation, conservation and hygiene are reported here

II. MATERIALS AND METHODS

Delegates to the 63rd ICoMST (Cork, Ireland, 2017) were asked to complete the on-line questionnaire described by Purslow et al. [1], which consisted of 32 categorical questions divided into areas of (a) demographics, (b) frequency of meat consumption, (c) meat preparation, conservation and hygiene, and (d) beef meat quality attributes. The questionnaire was constructed, and data collected, using SawTooth software (Orem, UT, USA). Principal Coordinate Analysis with Spearman correlation distance (Pcoa) and Multiple Correspondence Analysis (MCA) were applied to compare and describe variation between the responses of 6 groups, comprising the ICoMST delegates and the respondents from the 5 different countries. Questions specifically concerning meat preparation, conservation and hygiene (questions 20-26, 28-30 in the survey) were analysed separately. Data analysis was performed with R statistical software.

III. RESULTS AND DISCUSSION



Fig.1. Principal coordinate representation for meat preparation, conservation and hygiene parameters, The first principal coordinate (CP1) accounts for 45.3% of the variability, and the second (CP2) for 35.7%. AUS = Australia, ARG=Argentina, IRL=Ireland, CANA=Canada, BRA=Brazil, EXP=ICoMST 2017 delegates.

One hundred and forty-six (146) of the ICoMST 2017 delegates responded to the survey, of which 124 completed all questions relevant to meat preparation, conservation and hygiene. Using Spearman's correlation coefficient as a distance measure, the overall similarities and differences between the ICoMST group and respondents in each country are summarized in a biplot of the Principal Coordinates (Fig.1.). The first two dimensions represent approximately 81% of the variability between the groups in relation to the overall set of parameters related to meat preparation, conservation and hygiene. The group of experts from ICoMST 2017 responded with most similarity to consumers in Australia, Canada and Ireland, consumers in Brazil and Argentina differed in the responses most, as shown by the distances in Fig. 1.

ICoMST delegates showed differences from respondents in different countries in three interesting areas. Firstly, in response to the question “From the time of purchase...How long do you think raw (unfrozen) meat could be kept in the refrigerator before spoiling?” the average number of days predicted by the ICoMST delegates was higher for beef, lamb and pork than for consumers in the 5 countries studied. (Fig.2).

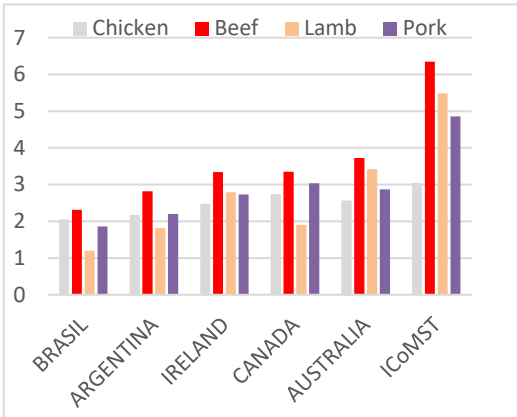
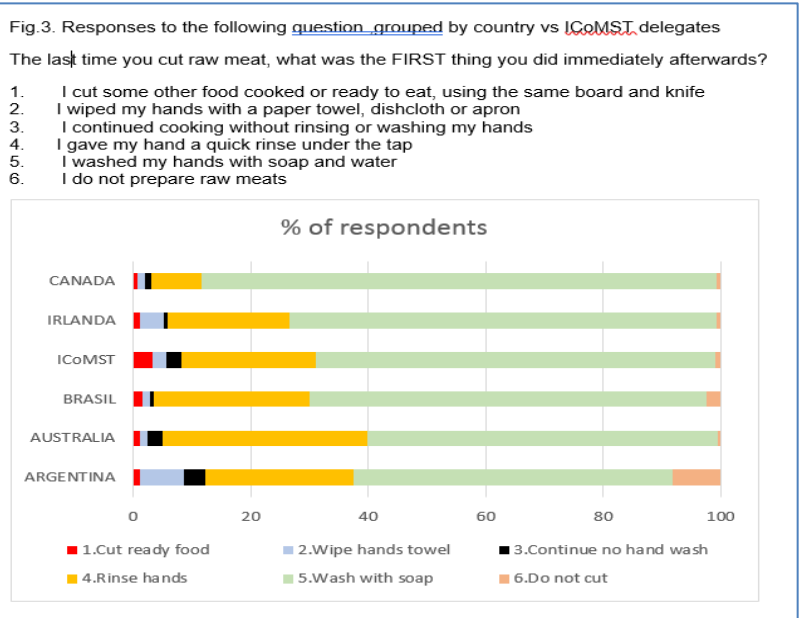


Fig.2. Average number of days raw meat can be kept in fridge predicted by consumers in 5 countries and ICoMST group

Secondly, ICoMST delegates were average in their response to a question of cross-contamination of other foods after handling raw meat (fig.3).



Consumers in Canada and Ireland were more likely than ICoMST delegates to wash their hands with soap and water. Thirdly, the percentage of respondents in each country/group that agreed with two statements about spoilage showed interesting differences (Fig.4). ICoMST delegates mostly agreed that minced meat is more prone to germs/contamination than other forms of meat, whereas less than 60% of respondents in Australia and Ireland agreed with this. In contrast, more people in Argentina, Ireland, Brazil and Canada believed that bacteria causing foodborne illness cannot develop in the fridge, compared to ICoMST delegates.

IV. CONCLUSION

The ICoMST delegates showed a good general knowledge of food safety regarding handling and keeping meat. As consumers they appear more comfortable with keeping raw meat longer in the fridge than the average consumer in Brazil, Argentina, Canada, Australia or Ireland. This has relevance for food waste avoidance/reduction strategies. Differences in consumer attitudes to minced meat contamination, may reflect different levels of trust in food safety standards in different countries. Misconceptions about the impact of refrigeration on food safety are cause for concern.

REFERENCES

1. Purslow, P., Cepeda, R., Cáfferro, E., Garitta, L., Sosa, M., Frank, D., Duizer, L., Ngapo, T., Bruce, H., Nassu, R. and Henchion, M. (2017). Differences in consumer perceptions of meat quality. In 63rd International Congress of Meat Science and Technology, pp 766-767. Wageningen Academic Publishers, The Netherlands. 2017. ISBN: 978-90-8686-313-6.

Fig. 4 | Percentage of respondents that agree with the following statements

