



## Behavioral responses of sheep submitted to human presence and brushing

P.R. Tamioso, Alain Boissy, Xavier Boivin, Herve Chandeze, Stéphane Andanson, Eric Delval, C.A. Taconeli, G.P. Silva, C.F.M. Molento

### ► To cite this version:

P.R. Tamioso, Alain Boissy, Xavier Boivin, Herve Chandeze, Stéphane Andanson, et al.. Behavioral responses of sheep submitted to human presence and brushing. UFAW International Symposium, Jun 2017, Londres, United Kingdom. 2017. hal-01608199

**HAL Id: hal-01608199**

**<https://hal.science/hal-01608199>**

Submitted on 2 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - ShareAlike 4.0 International License



# BEHAVIOURAL RESPONSES OF SHEEP SUBMITTED TO HUMAN PRESENCE AND BRUSHING

PR Tamioso<sup>1</sup>, A Boissy<sup>2</sup>, X Boivin<sup>2</sup>, H Chandèze<sup>2</sup>, S Andanson<sup>2</sup>, E Delval<sup>2</sup>, CA Taconeli<sup>3</sup>, GP Silva<sup>3</sup> and CFM Molento<sup>1</sup>

<sup>1</sup>Animal Welfare Laboratory – LABEA, Department of Animal Science, Federal University of Paraná - UFPR, Curitiba, Paraná, Brazil; <sup>2</sup>UMR1213 Herbivores, Institut National de la Recherche Agronomique – INRA, Saint-Genès Champanelle, France; <sup>3</sup>Department of Statistics, Federal University of Paraná – UFPR, Curitiba, Paraná, Brazil.

**Introduction:** Positive emotional states have been recently studied in farm animals. We investigated the perception of Romane ewes submitted to the presence of a familiar observer (H) and brushing by a familiar observer (B).

**Material and Methods:** Thirty-eight Romane sheep belonging to two genetic lines, more (R+) and less (R-) reactive to temporary social separation, were studied. Body postures, head orientation, ear changes and postures, eye aperture, tail moves and ingestion were assessed. Data were analyzed using generalized linear models. The effects of treatment, genetic line and phase (2.5 min pre-, 3.0 min during and 2.5 min post-treatment) were included in the models, in addition to their interactions.

**Results and Discussion:** H ewes tended to show less body posture changes in the pre-treatment phase ( $0.50 \pm 0.23$ ) than B ewes ( $2.06 \pm 0.78$ ), whereas during the treatment, the opposite was observed (Fig.1A) ( $P < 0.05$ ). During the treatment, H ewes showed higher number of head orientation changes ( $14.08 \pm 2.32$ ) than B sheep ( $2.71 \pm 1.28$ ) ( $P < 0.01$ ), suggesting that B sheep were more relaxed during brushing. In addition, for R+ ewes, H sheep showed more head orientation changes ( $16.25 \pm 2.44$ ) than B sheep ( $7.07 \pm 1.31$ ) ( $P < 0.01$ ). During the treatment, a higher number of ear changes was found for the H group (Fig. 1B) ( $P < 0.01$ ), and R+ ewes showed higher number of ear changes ( $10.83 \pm 1.06$ ) than R- ewes ( $7.68 \pm 0.87$ ) ( $P < 0.05$ ).

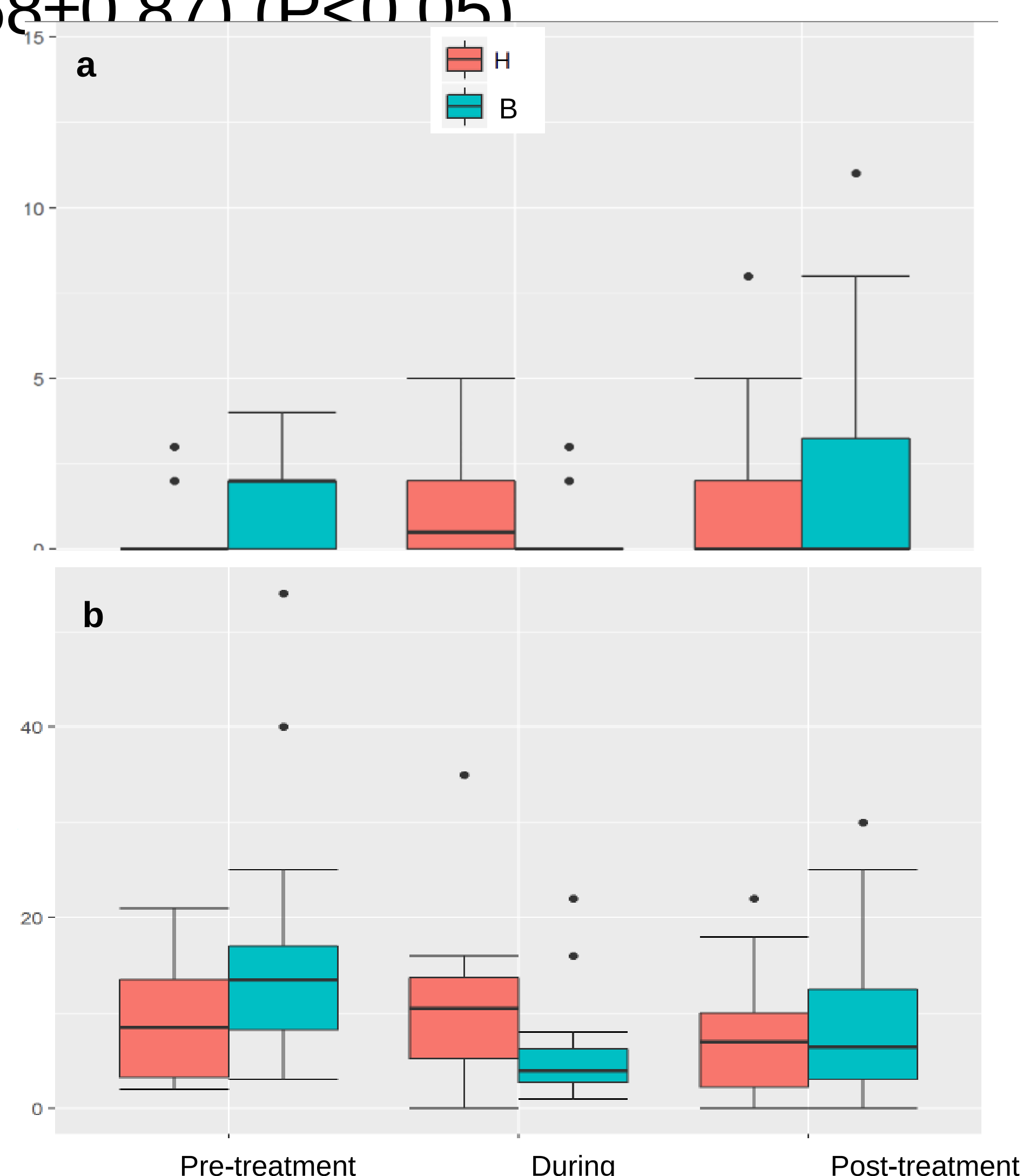


Figure 1. Body postures changes (a) and ear posture changes (b) recorded in 17 highly (R+) and 21 lowly (R-) reactive ewes submitted to human presence (H) and brushing (B), assessed in pre-, during and post-treatment phases.

Higher proportion of raised up or asymmetrical ear posture was noted pre- ( $0.73 \pm 0.05$ ) than during the treatments ( $0.53 \pm 0.06$ ), in which the horizontal ear was performed for longer ( $P < 0.05$ ).

Higher performance of horizontal, neutral ear postures has been associated with the experience of positive affective states in sheep (Coulon et al., 2015). Among R+ sheep, H sheep showed raised up or asymmetrical ear postures for longer ( $0.63 \pm 0.06$ ) than B sheep ( $0.45 \pm 0.05$ ) ( $P < 0.05$ ).

It was also found that B ewes had higher proportion of closed or half-closed eyes (Fig.2A) ( $0.53 \pm 0.06$ ) than H ewes during brushing ( $0.15 \pm 0.04$ ) ( $P < 0.01$ ). In addition, overall, R+ sheep showed closed or half-closed eyes for longer ( $0.25 \pm 0.04$ ) in comparison with R- sheep ( $0.13 \pm 0.03$ ) ( $P < 0.01$ ), indicating that both treatments might have elicited appeasing states mainly in R+ ewes.

Brushed ewes also wagged their tails for longer (Fig.2B) than non-brushed sheep mainly during (B:  $0.16 \pm 0.05$ ; H:  $0.01 \pm 0.003$ ) and after the treatments ( $0.02 \pm 0.009$ ;  $0.007 \pm 0.002$ ) ( $P < 0.01$ ). Among R+ sheep, B ewes spent more time ruminating ( $0.48 \pm 0.08$ ) than H ewes ( $0.12 \pm 0.06$ ) ( $P < 0.01$ ).



Figure 2. a. Facial expressions of a Romane ewe during brushing. Closed eyes and rumination can be observed.; b. Tail held up and wagging.

**Conclusion:** All the behavioural indicators strongly suggest that both treatments induced a relaxing state in sheep, especially during brushing. Comparing more and less reactive sheep provided significant differences which warrant further studies.

**Acknowledgments:** The project was funded by a grant to the first author by the Brazilian Program Science Without Borders – CSF/CNPq. The authors are grateful to Boris Cluzel and to the staff of both INRA experimental farms UE Herbivores and UE La Fage.

## References:

COULON, M. et al. Do lambs perceive regular human stroking as pleasant? Behavior and heart rate variability analyses. *PLoS ONE*, v.10, n.2, 2015.