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PERCEPTION OF STRESS FACTORS CONCERNING RABBIT TRANSPORT FROM THE FARM TO THE ABATTOIR

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ABSTRACT

Two groups of students were asked to order the stress factors involved in transport from the farm to the slaughterhouse. Both groups of students considered noise (3.58 ± 1.96 on a scale from 1, the most stressful, to 9, the least stressful) and handling (3.88 ± 2.45) as very important stress factors whereas the type of fattening cage was considered as the least important (7.17 ± 2.07). The change of cage, mixing unfamiliar rabbits and heat were significantly different between both groups of students. One group of students assessed these three stress factors as equal potential stressors (3.59 to 4.41 on the scale) while the other group of students highlight heat as the most important stressor, with 41% of people placing it in the position 1 of the scale (2.71 ± 1.98 on average).

Key words: Ranking, Students, Stressors, Transport

INTRODUCTION

Whatever the production system, leaving the fattening cage at the end of the fattening period triggers a series of changes in the physical, social and climatic environment and facilitates the contact with potential stressors. The high amount of critical points at this stage of production (Buil et al., 2004), the relatively scarce number of papers about stress on rabbits during transport to the slaughterhouse, together with the contradictory experimental results that can be found in literature (EFSA, 2011), make it difficult to have an accurate idea of the relative importance of possible stressors, as well as how they are perceived by the society.

The aim of the present study was to learn how two groups of students perceive the stress factors that affect rabbits during transport from the farm to the slaughterhouse. The answer to this question can provide the researcher information about social sensitiveness concerning those stressors.

MATERIAL AND METHODS

Two groups of students were asked to order the stress factors involved in transport from the farm to the slaughterhouse. The first group (group A, 112 people) were students from the course that the UPV has taught online since 2007

(<http://www.cursodecunicultura.upv.es/Cursos.html>). Putting stressors in order was one of the tasks of the course, consequently it was possible to obtain answers from students from 2007 to 2014. These students are particularly interested in rabbit production and the group includes vets, rabbit producers, university professors, students from the last course of agricultural engineering... They had to carry out the task after studying a lesson about "Behaviour and welfare during transport and slaughter". The question was put as follows: "In your view (based on professional practice or simply on your imagination) and regardless of what was explained in the lesson, order the stress factors involved in transport from the farm to the slaughterhouse from most to least serious: handling of rabbits, change of cage, mixing unfamiliar rabbits, heat, cold, transport time, position in the multi-floor crates, type of fattening cage". There being 9 factors, they were asked to order them from 1 (the most stressful) to 9 (the least stressful).

The second group (group B, 29 people) were students from various courses from the Veterinary Faculty at Zaragoza University without any previous experience or knowledge in transport of rabbits. They had not received any specific lesson about the topic and, at most, had basic information about rabbit management in farm. The question asked online was the same except that the sentence “regardless of what was explained in the lesson” was not included. For this group, the question came together with a picture of a lorry for the transport of rabbits and another one of a multi-floor crate. The sentence: “You can see pictures of cages and lorries for transport on the webpage <http://transportanimalesvivos.blogspot.com.es/> “ was added. All of the 29 students had a lot at the webpage.

The answers were studied using the SPSS Statistics (22.0). An analysis of frequency was carried out for each of the stress factors, by applying the Kruskal-Wallis non parametrical test in order to study the differences between groups of students. So as to be able to organize all the stressors, the average values for each of the factors was calculated and the groups were compared according to the ANOVA procedure.

RESULTS AND DISCUSSION

Table 1 shows the distribution of the marks given to each of the stress factors. Concerning the stressors for which no group effect was detected, handling was considered to be the most stressful factor, as 26% of students put it in the first position and 12% in the second position. There was also a high number of people (38%) who put this factor in the fourth, fifth and sixth positions, in other words, they considered it a factor of medium importance among those studied. On the other hand, noise was globally considered one of the most important stress factors, as the addition of the first three positions accounted for the 60% of the answers, although it was positioned in the first place less often than handling. The average values of handling and noise (table 2) were 3.88 and 3.58, without any significant differences between both stressors (P=.263).

While noise during transport is a well contrasted stressor (Verde & Piquer, 1987; de la Fuente et al., 2007) but difficult to avoid, handling can be an important stress factor (Gascón & Verde, 1987) but gentle handling has proved to lead to better dressing percentage than brusque handling (FENALAP, 1992). It is, therefore, easier to control as a stressor and could this be the reason that a high number of people considered it a factor of medium importance.

Table 1. Frequencies in the scoring applied to stressors, expressed in percentages

Variable	Group	1	2	3	4	5	6	7	8	9	P-value
Handling	A+B	26	12	7	16	12	10	5	9	3	.826
Noise	A+B	13	17	30	14	9	4	8	4	1	.741
Cold	A+B	2	19	12	8	12	5	14	10	19	.304
Transport time	A+B	6	4	9	11	10	19	19	13	9	.072
Position in multi-floor crate	A+B	2	9	9	16	12	13	13	19	8	.160
Type of fattening cage	A+B	2	3	2	4	6	14	14	17	38	.181
Change of cage	A	-	13	8	7	19	23	15	12	3	.025
	B	10	14	17	14	14	14	-	10	7	
Mixing unfamiliar rabbits	A	8	9	9	5	12	9	14	17	17	.000
	B	24	10	21	14	7	14	7	-	3	
Heat	A	41	18	8	15	7	4	5	3	-	.000
	B	14	7	17	21	21	3	-	10	7	

Scale: from 1 (the most stressful) to 9 (the least stressful)

The distribution of the factor cold is interesting: the percentage of people who put it in level 2 or 3 (19%) is almost the same as the percentage of those who considered it a level 9 (19%) or a level 8 stressor (10%), with high frequency rates also in positions 5 or 7, so that it stands out as the factor with the most homogenous marks in all levels. Besides, both the transport time and the position in the multi-floor crates were most often placed between levels 4 to 8, with positions 6 and 7 as predominant for the

transport time and 4 and 5 for the position in the multi-floor crate. When the marks for these 3 factors, cold, transport time and position in the multi-floor crate are expressed as average (Table 2), the mark given is between levels 5.40 and 5.64, without any statistical differences between the three stressors. Concerning transport time, Liste et al. (2008) showed that the longer the journey the less stressful according to physiological blood markers, and Petracci et al. (2008) concluded that long journeys were one of the main critical points affecting mortality rate, live weight loss and slaughtering yield. Regarding position on the truck, bottom or middle positions showed increased stress levels according to Liste et al. (2009), but Vignola et al. (2008) observed that stress parameters were not influenced by crate position.

Both groups of students considered the kind of fattening cage as the weakest stressor, and they very often put it in the last positions, in particular in level 9 (38%), although could well make a difference in the levels of stress during transport to the slaughterhouse (Canali et al., 2000).

Table 2. Average values of the scoring applied to stressors ($\bar{x} \pm sd$)

Variable	Group A	Group B	P-value
Handling		3.88±2.45	.823
Noise		3.58±1.96	.338
Cold		5.40±2.63	.290
Transport time		5.64±2.23	.105
Position in multi-floor crate		5.57±2.22	.176
Type of fattening cage		7.17±2.07	.318
Change of cage	5.39±1.94	4.41±2.40	.024
Mixing unfamiliar rabbits	5.74±2.63	3.59±2.21	.000
Heat	2.71±1.98	4.31±2.35	.000

Scale: from 1 (the most stressful) to 9 (the least stressful)

The change of cage, mixing unfamiliar rabbits and heat were significantly different for groups A and B. Group A considered heat as the most important stressor of those studied, with 41% of people placing it in the first position. Group B considered mixing unfamiliar rabbits as the most important stressors studied, with a frequency of 24% for position 1 and with a 69% of people who gave it marks from 1 to 4. For heat, 14% of these students put this factor in position 1 but most of them (59%) put it between level 3 to 5. Consequently, for group A the average value for heat was 2.71, and for change of cage and mixing unfamiliar rabbits 5.39-5.74. For group B, these stress factors had a potential as stressors between 3.59 and 4.31 on average.

About this issue, de la Fuente (2003) and de la Fuente et al. (2007) found an adaptive response in the rabbits subject to change from fattening cage to transport cage as well as when mixing rabbits coming from different litters. On the contrary, the rabbits showed no adaptive response to heat, measured in a thermic room and also during transport in the summer. Heat proved to be the most influential stressor regarding the welfare of rabbits (de la Fuente et al, 2007), as the results from other experiences have also shown (EFSA, 2011). The differences in the answers of both groups of students suggest that the answer of group A could be closer to the opinion and the experience of a professional. Obviously, we wonder if group A took into account the sentence “regardless of what was explained in the lesson” which formed part of the question, as this group had just finished studying the lesson about stress during transport.

In conclusion, the results of the present study are interesting because two groups of very different students gave similar values to various stressors. For instance, noise and handling stood out as very important stress factors whereas the type of fattening cage was considered as the least important. It is also interesting to study the stressors whose structure and scoring show a clear effect on the group, like the change of cage, mixing unfamiliar rabbits and heat. These stress factors had the same potential as stressors for group B, but group A, more expert, highlights heat as the most stressful factor, giving average scores to the others. That is why the results also suggest that the social perception of these stress factors could benefit from making them public.

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