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**Supplementary Material S1**

Effect of different housing systems (single and group penning) on the health and welfare of commercial female rabbits

S. Pérez-Fuentes, A. Muñoz-Silvestre, E. Moreno-Grua, E Martínez-Paredes, D. Viana, L. Selva, A. Villagrá, C. Sanz-Tejero, J. J. Pascual, C. Cervera and J. M. Corpa

*Mathematical equation and SAS statistical model used to analyse the traits included in Table 2 [Blood parameters at first insemination (1AI) and fifth parturition (5P)] and Table 3 [Blood parameters in the animals located in each housing type at fifth parturition (5P)].*

Data were analysed using a mixed procedure (SAS Institute, 2002), in a repeated measure design which allows variance among animals and the intra-animal covariance to be considered. Covariance structures were objectively compared using the most severe criteria (Schwarz Bayesian criterion), as suggested by Littell *et al.* (1998), being the most appropriate a compound symmetry function. Random terms included the permanent effect of each animal (*p*) and the error term (*e*), both assumed to have an average of zero and a variance of σ2 and σ2, respectively.

*Mathematical equation*

Y = cagei + timej + cagei × timej + *p*k + *e*ijk

*SAS statistical model*

proc mixed data=library.data;

class cage time anim;

model Y = cage time cage\*time;

repeated time / subject=anim(cage) type=cs r rcorr;

lsmeans cage time cage\*time / pdiff;

run;

Where “cage” is the type of experimental cage tested (5 different cages type), “time” the sampling time (first insemination or fifth parturition), “anim” the identification of the animal, and “Y” the trait studied (13 both at the Table 2 and Table 3).

**References:**

SAS Institute 2002. SAS/STAT. Statistical Analysis Systems Institute Inc., Cary, NC, USA.

Littell RC, Henry PR and Ammerman CB 1998. Statistical analysis of repeated measures data using SAS procedures. Journal of Animal Science 76, 1216-1231.