

This paper presents a study of different rearing and hatching conditions for broiler chicks on chick health and performance parameters. The paper is generally well written, but better use of tables/diagrams would make it much easier to understand the experimental design. It is difficult to evaluate the validity of the experimental design in the present presentation.

Specific comments:

Materials and methods

The organisation of information in this section is confusing and the content is not coherent with the headings. I can't distinguish the heading levels in the pdf, but it looks like they are

1. Experimental design
2. Hatching and husbandry
 - 2.1. Hatching conditions
 - 2.2. Contact with hens
3. Behavioural observations

Experimental design is normally understood as the overall plan for how different treatments are applied to the test subjects, and which these treatments and test subjects are. However, under Experimental design in this paper, you are describing aspects of subjects and treatments that are common to all animals independently of treatment groups. The differential treatments are instead described under Hatching and husbandry (a title that suggests it would be about general practice, not specifics about experimental treatments). To make things more confusing, the order that information is presented is not coherent with chronology, as what is described under Experimental design happens later in the life of the test subjects than what is described under Hatching and husbandry.

In addition to the detailed information on different aspects of the experimental approach that is now provided in narrative form, a table or diagram / timeline illustrating the experimental design would help the reader. Some of the key information is very difficult to extract from the text; for example there is reference to "four tagged chicks" but the information that four specific chicks per pen were tagged is not provided. In other places important details are missing, such as:

- Lines 127-128 "Sex was determined on tagged chickens on D19" – do you mean to say that the chickens were tagged on D19 and that sex was determined as part of the handling process when tagging them? The present wording doesn't make that clear.
- Lines 129-131 "On D27, chickens were challenged by combining transport in boxes to a new room at a lower temperature (15 °C instead of 25 °C) and 4 h of feed deprivation. " As in the previous comment, here it looks like you're providing relevant information in passing, in a way that makes it ambiguous. For how long were the chicks kept in the lower temperature? For the 4h of feed deprivation?
- Line 178 Need more information about what "a wire-latticed space for chicks" is. Is this a cage within the cage? Can the chicks get in and out of it? Does it keep the hen out? What's the gauge? How many walls and what do they measure?
- Line 185 "Chicks and hens were put physically together in a closed nest" please provide information on measures and material for the nest.

I also strongly recommend you change the title to "Animals, materials and methods".

On lines 527 and onwards, the details on ethics approval are given in what seems to be the most appropriate place, so they can be removed from lines 114-119.

Results

Lines 273-274 What happened to the chicks from the pens where the hens were removed? Were they removed from the analysis? If so, that should be mentioned. If not, what is the justification for keeping them in the analysis?

Lines 327-336 This paragraph is very difficult to understand. In particular “when considering the subtotal scores linked to the appearance, the tiredness or the abdomens of the chicks it appeared that the subtotal of the appearance score changed depending on the treatment (Figure 4), with the two other subtotals not being significantly changed”. Reword to something like “the subtotal score for appearance depended on treatment whereas the subtotal scores for tiredness and abdomens of the chicks remained unaffected by treatment”.

What is the reason for treating BW data as data points for the specific measurement dates, rather than considering growth/weight gain over time? And is the time point at which treatments start to differ the same for all treatments? It’s difficult to decipher what the treatments really consist in (see my comment under Materials and methods above!) but from the description under Contact with hens, it looks like some of the treatments only start to differ at hatching. When this is the case, then the weight at D19 (and possible also later) may be dependent on weight at hatching in a way that is not related to the treatment since the treatment up until hatching was the same.

Discussion

Line 432 “These degraded indicators” – please change to “The negative effect on these indicators”

Lines 495-496 “It appeared that male OFH chicks developed more fear and 496 stress responses than females when placed in the presence of a hen that was not their mother” – on what data is this conclusion based?

I miss a discussion of the limitations of the study and suggestions for further research.

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