

Different data collection instruments in a network project on small group housing systems



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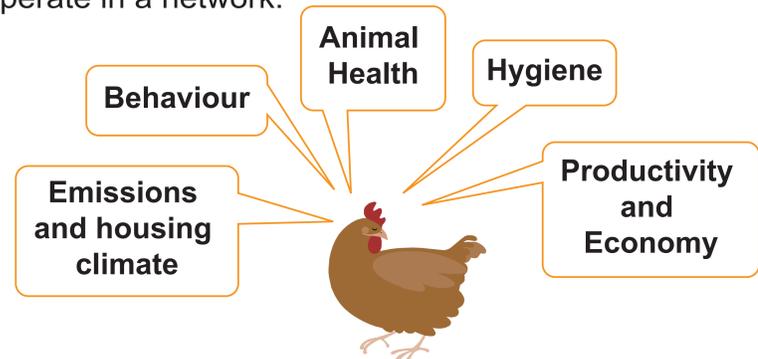
Introduction

According to the German farm animal welfare law [1] the battery cages for laying hens have been banned and must be replaced by small group housing systems in Germany starting on January 2010.

Small group housing systems have been developed to integrate animal welfare, hygiene and performance. Being a novelty they have to be evaluated and developed further. For this purpose a network research project has been set up for joint investigation of various parameters influencing animal welfare and behaviour.

Partners

For the first time, 7 partners of 5 different specialist areas cooperate in a network:



Objectives

Aim of the study is the evaluation and further development of small group housing systems. The main advantage of this multi-sided approach is an adjustment for bias by neglected influencing factors. Hence comprehensive data collection and analysis are conducted:

- ➔ design a pilot questionnaire
- ➔ evaluate different alternatives of data collection
- ➔ develop a database
- ➔ comprehensive data analyses

Data Collection Instruments

A new data collection instrument has to be validated [2]. It is tested on reliability and validity. The questions have to be precise, complete and mutually exclusive [3]. A data collection instrument should contain as few topics as possible [4]. Due to demands of work flow it is necessary to use 5 different data collection instruments on every investigated farm (n=70).

1) Pilot questionnaire	2) Main questionnaire	3) Behavioural data collection sheet	4) Emission and housing climate protocol	5) Economical record of current data
Time: start of the study Purpose/Content: - evaluate and select the farms - characterize the farm structure - determine necessary preparations for the following comprehensive data collection	Time: final third of one laying period Purpose/Content: - investigate target state of farm and farm management - characterize farm and farm management in detail (e.g. productivity, feeding, watering, hen data, lighting, health management, level of knowledge of the farm manager, problems during previous runs)	Time: final third of one laying period Purpose/Content: - record the actual state of the hen housing and management conditions (e.g. feeding, watering, lighting), - dimensions of the housing system, - animal-human contact; - support behavioural and health examination	Time: same laying period as 2 and 3, optimally also last third of the period Purpose/Content: - record the actual state of the hen housing and management conditions (e.g. ventilation, litter supply in the scratch area, manure removal) - support measurements of emissions and air quality	Time: after completion of the laying period Purpose/Content: - gather continuous economical data of the whole laying period (e.g. productivity, costs, mortality, consumption, working hours)
Instrument: paper-based questionnaire Completion by: scientists at first contact with the farm manager	Instrument: either paper-based questionnaire or database Completion by: behavioural scientists together with the farm manager	Instrument: paper-based data collection sheet to be used inside the hen housing Completion by: behavioural scientists during their observations	Instrument: paper-based measurement protocol to be used inside the hen housing Completion by: scientists of agricultural technology and hygiene	Instrument: questionnaire and readout of farm data or copy of sheets

The interviewers are trained as recommended to avoid interviewer bias [3] and a pilot study is conducted on six farms. Every project partner imports or fills in the collected data into a central comprehensive database for overall data management and analysis.

Data Analysis

- ★ Effects of predominant influence factors and mutual interactions are examined by multifactorial statistical analysis.
- ★ The optimal combination of parameter values has to be identified.
- ★ The hierarchical structure of data has to be observed.
- ★ Multicollinearity of variables has to be investigated and accounted for.

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