

Research facilities Laying hens

Wageningen University & Research has the possibilities to carry out experiments with laying hens. There are possibilities for experiments between 0 and 100 weeks of age on different scale from 5 to 300 birds per pen. The flexible facilities are suitable for running experiments on diet composition, behavioural studies, different management factors (e.g. light, temperature), etc. Data will be collected per pen on laying rate, egg weight, mortality and amount of feed. Also fertility, hatchability and embryonic mortality of the hatching eggs can be carried out. Besides these data a wide range of measurements as behaviour, blood samples, body composition, feather cover quality, and ileal or faecal collection per pen can be carried out.

Examples of experiments

- Effect of diet composition on production performance
- Effect of feeding strategies on behaviour and welfare during rearing and laying
- Doses-response studies to determine e.g. amino acid or phosphorus requirements
- Digestibility studies to determine ileal or faecal nutrient digestibility
- Performance – efficacy – tolerance studies (small scale)
- Performance – efficacy (large scale)
- Apparent faecal or ileal digestibility (small scale)

Accommodation and animals

Experiments can be carried out on a different scale:

- Up to 14 layers per pen:
 - 16 to 64 floor pens (0.9 x 2.2 m; 2.0 m²)
 - Each pen contains perches, feeding troughs, drinking nipples and laying nests.
 - Automatic mechanical ventilation and light system
- Up to 21 layers per pen:
 - 16 to 64 floor pens (0.95 x 3.0 m; 2.9 m²)
 - Each pen contains perches, feeding troughs, drinking nipples and laying nests.
 - Automatic mechanical ventilation and light system
- Up to 28 layers per pen:
 - 8 to 32 floor pens (1.8 x 4 m, 7.2 m²)
 - Each pen contains a plastic slatted floor (1.8 x 1 m), feeding troughs, drinking nipples and laying nests.
 - Automatic mechanical ventilation and light system
- 330 laying hens per pen:
 - 32 pens in an aviary system (4.6 x 4.4 m; 20.2 m², 36.8 m² living area).
 - Automatic mechanical ventilation and light system

Measurements

Standard observations: laying rate, egg weight, amount of feed and mortality.

Additional observations:

- Behaviour: general, eating time, etc.
- Blood samples: stress hormones, metabolites, etc.
- Body composition: dissection or chemical analysis
- Feather cover: visual scoring system
- Litter quality: visual scoring system and/or dry matter content
- Ileal and faecal nutrient digestibility
- Mean retention time of digesta in gut segments.

Experimental Design	n- exp. units	n-birds per exp. unit	n-treatments	n-replicates
8 x 8	64	5-14	8	8
6 x 6	36	330	6	6



Small-scale accommodation (2 m²)



Small-scale accommodation (3 m²)



Semi-practical scale (20 m²)