

Litter Use in an Aviary Laying Hen Housing System

A.S. Leaflet R2720

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Summary and Implications

Litter use by hens was investigated by recording the number of hens moving to and from the litter in an aviary housing system. Findings showed a difference in litter use between different times and pens. These findings are being contributed as one component of a comprehensive assessment of an aviary laying hen housing system.

Introduction

The US egg industry is anticipating a change from conventional cage to cage-free housing systems. Aviary housing is a cage-free system that allows hens access to litter-floors, nest boxes, and perches. The purpose of this project was to quantify litter usage and record the movements to and from the litter. These data will contribute as a welfare portion of a comprehensive assessment of aviary housing systems. The objectives were to determine differences in litter use between time of day and between pens.

Materials and Methods

All hens were housed in an aviary housing system. They were allowed into litter areas from approximately 1130 until 2100 hours. Hens were fed from 0530-0546, 1100-1116, 1530-1546, and 1930-1946 hours.

Video of laying hens was collected from 10 pens (fig. 1 and 2) for behavioral observation. Cameras were placed in one pen at a time and rotated randomly through the 10 pens every two weeks. Ten minute sampling was used to record hen movement once per hour starting at 1230 and ending at 2040 h for 1-3 days. In and out behaviors were recorded. In behavior was defined as a hen going from litter floor or into the cage. Out behavior was defined as hen going from cage onto the litter floor.

Results and Discussion

Data show that litter is used by hens. Differences were significant for time in relation to both in ($P < .0001$) and out ($P < .0001$) behaviors. Movements into the cage significantly increased during feeding times (1530 and 1930 hours) (Figure 3).

Differences were also significant between pens in relation to both in ($P < .0001$) and out ($P < .0001$) movements. Movements were significantly higher for row 2 pen 5, when compared to other pens (Figure 4).

Other components of this comprehensive assessment are in progress and will be forthcoming.

Row 2			Row 3		
Tier	Shared Litter	Tier	Tier	Shared Litter	Tier
Pen 1			Pen 2		
Pen 3			Pen 4		
Pen 5			Pen 6		
Pen 7			Pen 8		
Pen 9			Pen 10		

Figure 1. Shaded cells show location of cameras and studied pens

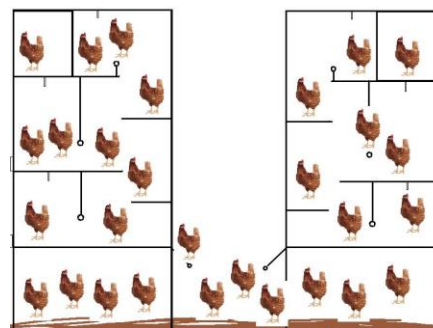


Figure 2. Cross section of one pen of hens

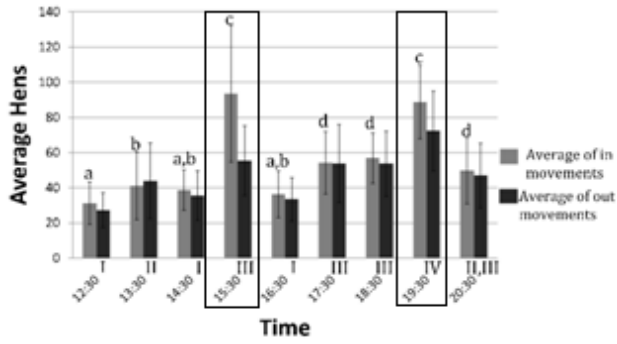


Figure 3. Average number of hens moving over time. Letters indicate differences in the “in” movements over time, roman numerals indicate differences in the “out” movements over time. Outlined area indicates feeding times (feeding occurs in tiers).

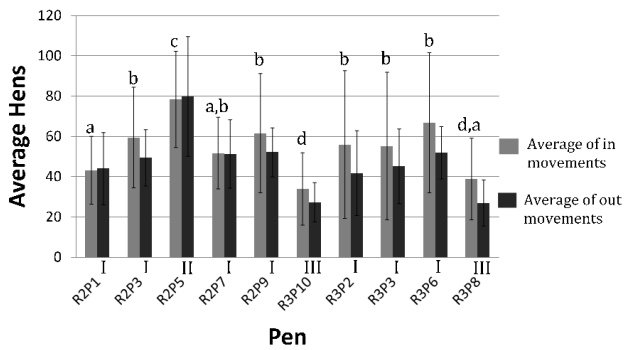


Figure 4. Average movements per pen. Letters indicate differences in the “in” movements over time, roman numerals indicate differences in the “out” movements over time.