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Production, behaviour, and physiology of four strains of laying hens in cages and free run housing

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Consumer demand has led to alternative poultry production including free run systems which have some elements of traditional poultry husbandry. Nine hundred chicks of four strains (Lohmann White (LW), H & N White (HN), Lohmann Brown (LB), and a cross between Rhode Island Reds and Barred Plymouth Rocks (Cross)) were reared and housed at 18 weeks of age in either cages or floor pens. Egg and shell weights, albumen height, and yolk colour were higher in pens than cages. The LB and Cross hens laid heavier eggs, with minor differences among strains for yolk, shell, and albumen weights, albumen height and yolk colour. In cages, Cross and LB hens ate most. Body weights were higher in pens than cages. Cross hens were heaviest, followed by LB, LW and HN hens. In pens, hens spent most time foraging and caged hens spent most time standing and eating. The LB, LW and HN hens performed comfort behaviours more in pens than in cages. In pens, LW and HN hens used perches and nest boxes more than LB and Cross hens. Heterophil to lymphocyte ratios did not differ among treatments. Although there were striking dissimilarities in behaviour between systems, production and physiological data did not provide evidence of stress associated with cage housing.

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A field study on broiler hatchability: which factors are related to hatchability?

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Field data from three Dutch hatcheries of 2004, 2005 and 2006 were analysed. In total 24,234 batches of eggs, originating from 511 breeder flocks. A significant difference in hatchability between eggs from different breeder flocks was found. Moreover, hatchability was significantly related with the parental age, egg storage length, breed, feed company, season, year, as well as hatchery code ($P < 0.001$). The effects of 'age at first delivery', egg-storage length, breed, feed company and season on hatchability depended also on the parental age. Moreover, other interaction terms were also found significant. An 8% difference in hatchability was found between the hatcheries and years and between the different breeds. A 2% difference was found between flocks fed with feed of different feed companies. In addition, a 2% difference was found between flocks with an age of 22 weeks at first delivery and flocks with an age of 28 weeks. Egg storage has negative effect on hatchability; on average, a day extra storage reduces the hatchability by 0.5%. Eggs from older flocks are less sensitive for prolonged storage while they are more sensitive for seasonality. Hatchability was higher during the late summer than during springtime although it differs between hatcheries. Results suggest that improvement of the management is possible. Choosing the breed and feed company are choices for the breeder farm, whereas choosing breeder farms and proper egg storage are decisions for the hatchery.