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**Title:** Innovative multifunctional platforms for broiler chickens: effects on litter quality and animal welfare

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**Abstract:** Chickens are highly motivated to access elevated structures for perching and roosting. For fast growing broilers elevated platforms better accommodate this behavioral need as they find it difficult to access, and maintain balance on, narrow perches. In order to increase the animal welfare benefits and commercial uptake, we've designed prototype platforms with additional functionalities: local cooling for thermoregulation via the footpads, a dark brooder underneath the platform, and manure collection trays (to prevent excreta from falling on the litter). A study was conducted to test the effects of these multifunctional platforms on broiler performance and welfare. Here we report specifically on the effect of the manure collection functionality on litter quality and associated broiler welfare indicators. In each of the 4 rounds, 560 broiler chicks (Ross 308) were equally and randomly distributed over 4 pens, with a stocking density of 3,8 birds/m2. Two pens were enriched with the multifunctional platforms (n=3), whereas in the other 2 pens no platforms were installed (control group). Manure on the collection trays was collected ca. weekly or more frequently according to the accumulation of excreta. When the chickens were 39d old, litter samples (4 per pen) were assessed for dry matter (DM) content, pH, and quality. Furthermore, 15 birds from each pen per round were assessed for plumage cleanliness, footpad dermatitis and hock burns. Results of the first round indicate an improved litter quality with better litter score (1.08 vs 1.16), higher DM (72.80% vs 69.15%) and lower moisture content (27.19% vs 30.84%), and a trend for lower hock burn scores (p=0.072) in the pens with the platforms. These preliminary and promising outcomes about the effect of collecting manure underneath the platforms will be complemented by data from the 3 subsequent rounds.