

THE EFFECTS OF FLOOR WETTING ON ESTABLISHED DUNGING PATTERNS

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Dried dung is a major source of both gaseous and particulate airborne pollutants in pig sheds. Hence controlling the generation of pollutants at its source by reducing faecal contamination of pen floors will greatly improve environmental quality in piggery buildings. The positive effects of improved air quality on production efficiency, animal welfare and human health is well documented (Donham *et al.* 1989). A previous study suggested that the wet pen floors will have a negative effect on the establishment of correct dunging patterns in newly stocked pig pens (Banhazi, 2002, unpublished). As a continuation of that previous study, the effects of a wet pen floor on established dunging pattern was investigated. An experiment was conducted to artificially induce poor dunging patterns in pens with established good dunging pattern, by wetting the pen floors daily.

Four clean pens with good dunging patterns were selected in a partially slatted, naturally ventilated grower/finisher room housing approximately 90 pigs at a stocking rate of 0.65 m²/pig. For two pens of the four pens, the floors were thoroughly wetted using 8 litres of water or approximately 1.1 litre/m². One of the selected study pens housed only male pigs while the other housed only females. The other two pens in the same room (one with male and one with female pigs), stocked at the same rate, were used as control pens and the floors of these pens were kept dry. Dunging patterns were monitored for 25 days as described previously (Banhazi *et al.* 2000) and the amount of dung cover on the concreted areas were assessed daily applying a subjective scoring system and analysed using simple T-test and ANOVA.

In the control pens the correct dunging patterns did not change throughout the experimental period. The female experimental pen maintained the correct dunging patterns longer as the male experimental pen, despite the same level of wetting and did not demonstrate the same level of soiling than the male experimental pen. The male experimental pen broke the correct dunging pattern relatively soon after the wetting commenced and deteriorated rapidly to a high level of soiling in the pen. Pigs in the dry pens had an improved dunging pattern ($p < 0.001$), compared to pigs in wet pens (Figure 1).

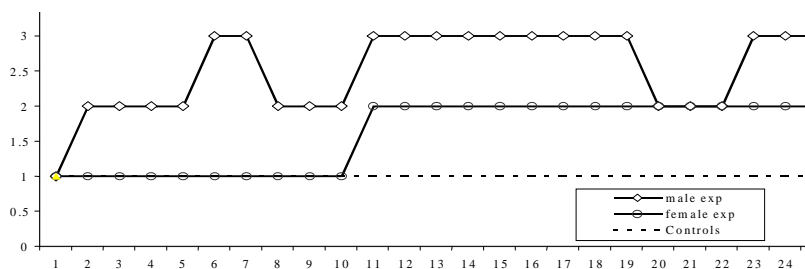


Figure 1. Change in dunging pattern over time in the wet and dry pens. (* Value 1 indicates <10%; value 2 indicates between 10 and 50%, and value 3 indicates > 50% soiling of the solid floor.)

The experiment demonstrated that significant wetting of the pen floor will trigger incorrect dunging. Therefore, care has to be taken when spraying or cleaning pen floors to avoid extensive, daily wetting of pen floors in pig pens in order to avoid the deterioration of pen hygiene.

Supported in part by the Australian Pork Limited.

BANHAZI, T., CARGILL, C., MARR, G., KEFFORD, A., MOORE, K., KOCH, S., PAYNE, H. and NICHOLLS, N. (2000). *Final Report to PRDC*, Canberra, Australia.

DONHAM, K. J., HAGLIND, P., PETERSON, Y., RYLANDER, R. and BELIN, L. (1989). *Br. J. Ind. Med.* **46**: 31-7.

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