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Mineral accumulation in deep litter of different poultry species

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A study was conducted to quantify N, P and important macro and micro mineral excretion of different poultry species in deep litter system as a function of time. Litter samples were taken at intervals of two weeks from selected pens of six different poultry species including grower chicken (GL), layer chicken (LL), broiler parents (BP), broiler litter disposed (BD), turkey (TL) and ducks (DL) using a soil auger,

for a period of 4 months. In addition to these bedding materials, saw dust, paddy husk and feed given to these birds and fresh broiler droppings were also taken and used for laboratory analyses.

Dry matter, ash, N, P and K content of fresh saw dust and paddy husk were 53 and 90%, 1.2 and 17%, 0.27 and 0.79%, 0.6 and 0.13%, and 0.02 and 0.002% respectively. Chemical composition of feed varied with the type of feed. Nitrogen content of grower, layer and broiler feeds were 2.87%, 3.06% and 3.62% whereas P contents were 0.68%, 0.77% and 0.51% respectively. Dry matter, Ash, N, P and K content of different litters increased with time while those of disposed broiler litter decreased. This increase in N content was associated with accumulation of N in the litter. However, N accumulation during the last four weeks was somewhat less compared to previous week and this may be related to the accelerated NH_3 volatilisation due to the higher environmental temperature prevailed during the last four weeks. Calcium, Mg, Fe, Mn, Zn, Cu, and Cr contents also increased in all types of litters with time.

According to the results, it can be seen that intensive poultry management caused the accumulation of minerals including heavy metals in all the litters. Therefore, it is important to dispose the litter according to a manure management plan so that environmental pollution can be minimised.

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