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Approximation of some minerals in soil and forage as a function of non-conventional compost: A case study

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ABSTRACT

In present study concentration of some metals (Magnesium, Nickel and Calcium) were determined in soil and different parts of *Avena sativa* treated with poultry waste grown in the pots. Nine different treatments of poultry waste were used: 0 (control), 60, 90, 120 and 150 kg/ha applied to soil as full doses before sowing, and 60, 90, 120, and 150 applied as two equal splits, 1st before sowing and the 2nd before flower instigation. The samples of soil were obtained after mixing the poultry waste with soil in each pot before sowing. Different parts (roots, leaves, and seeds) of plants were taken after 90 days of sowing and after grain filling. Samples of soil and forages were analyzed. Mg concentrations found both in soil and plants were non-significantly affected by treatments and were lower than the requirements of ruminants in forage crops, but above requirement of forages in soil. Soil and forage Ni was affected non-significantly from the treatments of poultry waste and soil and forage Ni levels were found to be lower than the toxic level for animals and forages. Soil Ca was affected non-significantly by treatments having far lower values than the requirements of both forage species and ruminants. The study showed that soil Mg was higher and Ca was lower than the requirements of forages, but forage Mg and Ca were not fulfilling the requirements of livestock indicating the non significant effect of poultry waste on their concentrations. From the results of this study it has been anticipated that various deficiency problems in livestock may be resulted as these elements play very important role in animals' metabolic progression. Therefore, soil amendment with poultry manure along with other synthetic fertilizers for enhancing the levels of various minerals is acceptable. The soil amendment and specifically tailored mineral mixture with appropriate proportion of these elements is the dire needs for livestock consuming *Avena sativa* in pasture treated with poultry waste.

KEYWORDS

Mineral; Forage; Soil; Non-Conventional Fertilizer

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