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CONSEQUENCES OF DIFFERENT POULTRY MANURE RATES ON SOIL FERTILITY AND THE AGRONOMIC PERFORMANCE OF CUCUMBER (*CUCUMIS SATIVUM*) IN DSCHANG (CAMEROON WESTERN HIGHLANDS)

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ABSTRACT

Low crop production due to poor soil fertility necessitates eco-friendly and affordable methods for soil fertility enhancement and crop production. This work aims to evaluate the effects of different rates of poultry manure (PM) on soil fertility and cucumber (*Cucumis sativum*) production. The experimental design was a completely randomized block design with three repetitions and six treatments: T0 (control), T1 (3 t ha^{-1} PM), T2 (6 t ha^{-1} PM), T3 (9 t ha^{-1} PM), T4 (12 t ha^{-1} PM), and T5 (3 t ha^{-1} NPK 20:10:10). Soils samples were analysed by standard laboratory methods. Results showed that different rates of PM improved soil properties like pHH_2O, exchangeable bases, organic carbon, and available phosphorus. Treatments also had a significant effect on all growth variables such that T3>T4>T2>T1>T5>T0. The yield parameters were such that T3>T4>T2>T5>T1>T0 (number of fruits), T3>T4>T0>T5>T3>T1 (fruit length), T4>T3>T0>T5>T2>T1 (fruit diameter) and T4>T3>T5>T2>T1>T0 (fruit weight). T4 gave highest yield (29.36 t ha^{-1}) but with lowest BCR compared to T1, T2 and T3, probably due to the high expenditure on PM rate, spreading cost and transport cost. All treatments with PM were profitable and recommendable (benefit-to-cost Ratios>2), but T1, T2 and T3 were more profitable and more recommendable.