

Effects of vermicomposts produced from cattle manure, food waste and paper waste on the growth and yield of peppers in the field

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Summary

Commercially processed *vermicomposts*, produced from food wastes, paper wastes and *cattle manure*, were applied to 8.25m² field plots, at rates of 10 or 20t/ha in 1999 and 5 or 10t/ha in 2000, to evaluate their *effects* on the growth and yields of peppers (*Capsicum annuum*) var. King Arthur. The *vermicomposts* were incorporated into the upper 10cm of soil and supplemented, based on chemical analyses, with amounts of inorganic NPK fertilizers calculated to equalize initially with the rates of 95-95NKkg/ha applied to the inorganic fertilizer control plots. Phosphorus was determined to be adequate in soils at the experiment site so was not added. All treatments were replicated four times in a randomized complete block design. The vermicompost applications increased the growth and yields of peppers significantly; including increased leaf areas, plant shoot biomass, marketable fruit weights and decreased yields of non-marketable fruit. Application of *vermicomposts* to soils increased their microbial biomass and dehydrogenase activity. Humic materials and other plant growth-influencing substances, such as plant growth hormones, produced by microorganisms during vermicomposting, and produced after increased microbial biomass and activity in soils, may have been responsible for the increased pepper growth and yields, independent of nutrient availability.

Keywords: Peppers; *Vermicomposts*; Dehydrogenase activity; Microbial biomass; Humic acids; Plant growth regulators