RELEASE OF PLANT NUTRIENTS FROM ANIMAL WASTES

Shifaya Maraikar* and S.L. Amarasiri**

* Central Agricultural Research Institute, Gannoruwa.
** Regional Agricultural Research Centre, Bandarawela.

Although large quantities of cattle and poultry manure are used along with chemical fertilizers in intensified vegetable cultivation in Sri Lanka, research findings on the nutrient release pattern of these materials are very scarce.

A study was conducted at CARI, Gannoruwa, where cattle and poultry manure at rates of 10, 20 and 40 t/ha were mixed with soil and incubated at about 75% field capacity for six weeks. Soil samples were taken periodically and analysed for ammonium - N, nitrate - N, available P and exchangeable K content.

Addition of poultry manure at rates of 20 and 40 t/ha resulted in rapid increase in the mineral N content of the soil. No significant quantities of mineral N were released from the cattle manure treatments. While both cattle and poultry manure increased available P in soil, the effect due to poultry manure was more pronounced. Exchangeable K of soil also increased markedly with poultry manure, and showed a slight decrease with time.

The rapid release of nutrients from poultry manure suggests that when such organic manures are used in combination with inorganic fertilizer, the amounts of fertilizer and times of application must be carefully worked out to reduce losses of nutrients and to avoid excessive supply to the plant which may even be harmful.

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