

NITRIFICATION STUDIES IN A GARDEN SOIL OF JAFFNA

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Nitrification of urea, (a fertilizer extensively used by the Jaffna farmers) was investigated under laboratory conditions using soil samples obtained from a chilli garden in Thirunelvely.

SECTION D

Soil in polythene bags kept at 35% moisture content was treated with urea, equivalent to 5 cwt. per acre which is the currently used dosage for chilli. Samples removed at 2 to 4 -day intervals were analysed for ammonium-nitrogen ($\text{NH}_4\text{-N}$) and nitrate-nitrogen ($\text{NO}_3\text{-N}$).

$\text{NO}_3\text{-N}$ was found to increase from negligible amounts until day 22 after which a steady level was reached. $\text{NH}_4\text{-N}$ increased rapidly up to day 9 followed by a decrease, which was quite rapid initially but gradual thereafter. The net result of these changes after 36 days led to the recovery of only 56% of the applied nitrogen of which 45% was $\text{NH}_4\text{-N}$ and 11% $\text{NO}_3\text{-N}$. The balance nitrogen was mostly lost as ammonia. This was confirmed in a second experiment where the ammonia gas was trapped and estimated using filter papers soaked in dil. H_2SO_4 in a modified set up. Evolution of ammonia from urea-treated soil was very rapid during the first two weeks and ceased after three weeks.