NITROGEN LOSSES FROM FARM YARD MANURE AND NITROGENOUS FERTILIZERS ON A RED LATOSOL

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The study was conducted at the Kilinochchi Regional Research Centre during *Maha* 1981/82 on a Red Latosol. Urea and ammonium sulphate were each applied at the equivalent of 40, 80 and 120 kg N/ha in six split doses at two week intervals, with and without basally incorporated farm yard manure (FYM 5t/ha, 0.8% N o.d.).

Lysimeters, each 56 cm in diameter and 86 cm tall were used. Two chilli plants were grown in each and treated with nitrogenous fertilizer. In addition, there were no fertilizer control treatments with and without plants. During dry periods soil moisture at 15 cm depth was maintained at less than 0.03 MPa (0.3 bar) as measured by tensiometers. The soil was drained on seven occasions and leachates collected and analysed for nitrate, ammonium and total nitrogen.

The total nitrogen content ranged from 2.7 to 5.5 ppm, over sampling dates, with higher rates following fertilizer application. The ratios of nitrate-N to ammonium-N averaged 9 : 1 both accounting for an average of 93% of the total nitrogen. In the no-fertilizer treatments leachates had only 0.4 ppm nitrogen. Addition of 40 kg N/ha equivalent as FYM in a single dose only doubled the concentration, while adding inorganic fertilizer at this rate in six doses raised the total nitrogen approximately ten-fold, to 3.9 ppm. The source of inorganic fertilizer made no difference to total nitrogen, but application of ammonium sulphate doubled ammonium-N concentration in the leachate. Addition of 120 kg N/ha, when compared to 40 kg N/ha, raised total nitrogen by a third to half, to an average of 6.2 ppm. The highest nitrate ion concentration was 28 ppm with 120 kg N/ha urea and FYM. Nitrogen uptake by the chilli plants, as percentage of that applied, averaged 28% whilst that lost to drainage averaged 23%.