B-13 : POTASSIUM CHLORIDE AS A POTENTIAL MATERIAL FOR REDUCING AMMONIA VOLATILIZATION FROM SURFACE APPLIED UREA

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Volatilization of ammonia from surface applied urea is a major problem limiting the effectiveness of urea as a fertilizer. It is reported that addition of KCl along with urea could reduce volatilization losses to a considerable extent. The objective of this study was to examine the influence of mixing different rates of KCl with urea on NH_3 volatilization, using soils from Maha Illuppallama. Kekirawa (Rhodustalfs) and Hanguranketa (Rhodustults). A laboratory incubation experiment was conducted to compare NH_3 losses from these soils when urea was added without KCl or with KCl at the rates of 0.5, 1, 1.5 parts KCl per part of urea by weight. The volatilization losses of NH_3 were measured using an acid trap system periodically upto 21 days.

Volatilization losses of NH_3 was substantially higher in Kekirawa soil than in the other two soils. The addition of KCl with urea reduced volatilization losses, in all

soils. The treatment 1:1.5 urea: KCl was the most effective while 1:0.5 and 1:1 treatments showed a similar effectiveness in reducing NH_3 loss. This reduction of NH_3-N losses was primarily attributed to the replacement of Ca^{+2} and Mg^{+2} from the soil exchange sites by added K^+ and their subsequent precipitation with CO_{3-2} to form $CaCO_3$ and $MgCO_3$ which may lead to formation of NH_4Cl instead of $(NH_4)_2CO_3$ and thereby reduce losses as NH_3.