

## BEHAVIOUR OF NITROGEN FERTILIZERS IN ALKALINE CALCAREOUS SOILS

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### ABSTRACT

*Ammoniacal loss of nitrogen from different commercial N-fertilizers in alluvial alkaline calcareous soil was assayed, using non-destructive direct estimation technique, under laboratory conditions. The results showed that the loss of N from urea was highest (~30%) which was 56% higher than from ammonium sulphate. No loss of N as ammonia was detected in case of sulphur coated urea and nitrophos. The clay content of the soil and plant residues with low N content significantly retarded the volatilization of ammonia from urea. Kallar grass straw (*Leptochloa fusca*) reduced loss of N by 80%. Whereas the residue of a legume plant *Sesbania aculeata* enhanced the ammonia volatilization from urea and it was almost twice as high as in urea alone. Field experiments were also conducted to develop methodology for higher efficiency of urea for wheat and rice crops. Application of urea in single dose 20 days after sowing produced the maximum grain yield of wheat, and paddy yield highest when urea was applied in two splits (at tillering stage and flowering stage). Mixing CAN with urea in the ratio of 1:2 (on N basis) improved the efficiency of urea for wheat production by 5.5% when applied at seeding and by 10.3% when applied half at sowing and half at first irrigation.*