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EFFECT OF METHODS OF UREA APPLICATION ON THE YIELD OF MAIZE

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ABSTRACT

A field experiment was conducted at Agricultural Research Station, Ratta Kulachi, Dera Ismail Khan to study the effect of different methods of urea application on grain yield and other characteristics of maize cultivar "Sarhad White" during 1988-89. The experiment was arranged in a Randomized Complete Block Design and urea was applied @ 120 kg N/ha by various methods viz; broadcast/ incorporated full dose at sowing time, broadcast/incorporated in two halves, plough-sole plus strip application, top dressing in two splits, banding full dose at sowing, and banding half dose at sowing and half side dressed at knee high stage. Banding full dose at sowing or half dose at sowing and half at knee high stage though at par with each other, gave significantly more total dry matter, stover yield, grain yield, 1000-grain weight than when equivalent rates of nitrogen were applied by other methods. The application of nitrogen in two splits was more efficient than full application at the time of sowing.

INTRODUCTION

Soils of D.I.Khan are mainly alkaline having pH value above 8.0, calcareous ($CaCO_3$ 14%) and fine textured, in which if urea is not properly applied, produce low nitrogen efficiency due to volatization, denitrification, and fixation etc. However, urea losses can be minimized if it is properly incorporated in the soil (Fox and Hoffman, 1981). Gill and Hussain (1967) using Ammonium sulphate as source of nitrogen at the rate of 125 lbs per acre obtained maximum grain and stover yield by drilling half dose of nitrogen at plough depth on both sides of the rows at sowing time and the rest half was side dressed when the crop was 18" high. Singh and Saroha (1970) compared the standard methods of nitrogen application of urea, 50% at sowing and 50% at tasseling, foliar application, one third at knee height stage and one third at tasseling and they obtained significant increase in yield of maize grain and stover and increased uptake of nitrogen by 29, 49 and 44% respectively. Dalal (1974) studied the placement of applied nitrogen as urea at surface and at 5 cm depth and found that urea placed at 5 cm depth was more