

EFFECT OF SOURCE AND TIME OF NITROGEN APPLICATION ON YIELD AND UPTAKE IN MAIZE CROP

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ABSTRACT

In general, soils are deficient in nitrogen therefore its use has become inevitable for obtaining high crop yields. Nitrogenous fertilizers play dominant role in increasing the crop yield and also enhancing the protein contents of crop, as nitrogen is a constituent of proteins. Majority of the farmers are not applying proper doses of nitrogen fertilizers at proper time due to which a considerable fraction of the applied nitrogen is lost. To evaluate the effect of source of nitrogen and its time of application on yield and uptake in crop, a field experiment was conducted on maize in a randomized complete block design with three replications. Two nitrogen sources i.e. Urea and calcium ammonium nitrate (CAN) were tested @ 150 Kg N ha⁻¹ each applied at various stages of growth (all at sowing, 1/2 at sowing + 1/2 with 2nd irrigation, 1/3 at sowing + 1/3 with 2nd irrigation + 1/3 at tasseling). After harvesting, stover and grain yield recorded and representative plant samples of both stover and grain were taken and analysed for total nitrogen. It showed that both the sources (urea and CAN) gave maximum yield when applied in two splits and uptake of nitrogen is also high with the above mentioned treatments

INTRODUCTION

Fertilizers constitute a crucial input in modern farm technology in increasing crop production through improving soil fertility. Fertilizers are energy intensive to produce and are expensive too. Therefore, efforts are being made

is, therefore, added as chemical fertilizers to meet the need of crop plants to get the maximum yield as higher yields are impossible without its proper application. The efficiency of applied nitrogen depends mainly upon the balanced, timely and proper use of nitrogen fertilizers. The unjudicious use of nitrogenous fertilizers is the limiting factor of biological crop growth. Therefore, due emphasis should be given to the development of technologies for the judicious and timely use of nitrogenous fertilizers to maximize the crop yield. The present study is an attempt towards this direction in which a field experiment was conducted to investigate the effect of nitrogen sources and their application times on the yield and uptake by maize crop.

MATERIALS AND METHODS

The study was conducted in field with maize cv. "Akbar" according to randomized complete block design with three replications in the research area, Department of Soil Science, University of Agriculture, Faisalabad during the year 1990-91. After seed bed preparation fertilizers were applied as given under treatments and the maize crop was sown on 28.8.1990. Urea and calcium ammonium nitrate (CAN) were applied each @ 150 Kg N ha⁻¹ as follows.

T1 = No fertilizer (0-0-0)

T2 = N (control)

T3 = Urea all at sowing