

EFFECT OF BORON ON PROTEIN AND STARCH IN MAIZE GRAINS

M. GHANI SHAH*, AKHTAR NAWAZ**, JEHANGIR KAN KHATTAK***, HAMIDULLAH ALI ZAI**, AND ABDUL RASHID***

ABSTRACT

The effect of boron fertilization on the protein and starch contents in maize grains was studied in 1980-1981. Starch and protein contents decreased in the grains with increase in Boron concentration. Increase in starch and protein was obtained in grains under one Kg/ha of B concentration only. It appears that B has an important role in translocation of starch and protein synthesis in maize grain.

INTRODUCTION

Boron has been recognized as an essential element for plant growth for more than fifty years. To date, no clear functional role has been assigned to B and there are contradictory reports in the literature as to its effects on starch and protein synthesis. Maize is one of the important crop of this region. It is surprising to note that very little work is reported on this crop. The deficiency of B is though obvious in maize. Bose-well and Touchton (1953) compared the effect of broadcast and foliar spray application of boron in corn at the rate of 0 to 3.36 kg/ha and found that percentage of crude protein in the grain was not effected by method or rate of application of boron. Gills and Radechen ko (1967) noted that B increased the nitrogen content of maize grain and sugar content of sugar beet.

Radchen ko (1970) found that combined B and Mo application increased sugar and protein contents in corn plant. Rodrin (1977) was of the view that boron facilitated the transport of carbohydrates from the leaves of maize to other parts specially the grain and it had no effect on protein distribution. The rest of the work

* Agriculture Development Bank, D.I. Khan.

** College of Agriculture, G.U.

*** Agricultural University, Peshawar.