

INFLUENCE OF TILLAGE PRACTICES AND FARM YARD MANURE ON SOIL MOISTURE, NUTRIENT AND MAIZE GRAIN YIELD IN FOUR SOIL SERIES UNDER RAINFED CONDITION

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ABSTRACTS

The results of field studies on maize revealed that mold board plough is effective in increasing soil moisture within the plough depth in Khaur, Missa and Satwal Soil series. However the soil moisture increase in Balkassar soil is not significantly greater than that with cultivator. Within any one of the selected soils, the highest soil moisture is conserved with FYM followed by FYM mixed with fertilizer. After harvesting, the nutrient levels decreased without input of fertilizer in all the soil series, however, with fertilizer there was increase in nutrient content in all the soils, although to different percentage and for different soil depth. With mold board plough nutrient utilization was better than that with cultivator. The grain yield was invariably higher with mold plough although to different levels. The tillage and treatment interaction ignoring soil types was significant in all series. This shows that any soil management response within soil series is variable and therefore soil type may be taken as a basis for improved soil productivity.

INTRODUCTION

Seedbed preparation is one of the most important soil manipulation operations in crop production. It not only provides the favourable environment for seed germination but also helps in weed eradication and proper water and nutrient

Mian *et al.* 1989 have reported improved wheat yield and reduction in phosphorus fixation in calcareous soils.

Most of the fertilizer management research in Pakistan is not, in general, based on the soil classification units. Presently the fertilizer recommendations have been based on the crop and climate of a region. In such recommendations, the irrigation and/or moisture variability status and sometimes the ambient fertility status of the fields are also considered ignoring the soil variability component. Such generalized recommendations may not be appropriate for realizing the maximum crop production potential of all fields in the region because of the differential variability in the soil characteristics. Therefore, it is extremely essential to devise the soil management recommendations keeping in view the soil variability. In the present publication, an effort has been made to study and highlight the variable response of four soil series receiving two tillage practices and nitrogen and phosphorus from inorganic and organic sources for maize production.

MATERIAL AND METHODS.

Experiment was conducted during Kharif 1995 on four soil series namely Khaur, Satwal, Missa and