

EFFECT OF DIFFERENT TILLAGE PRACTICES ON THE SEED YIELD OF WHEAT ROP UNDER THE RAINFED CONDITION AT DERA ISMAIL KHAN.

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ABSTRACT :

Experiments were conducted in rabi 1994-95 and 1995-96, to determine the effect of different tillage as a moisture conservation on rainfed wheat crop at Arid Zone Research Sub-Station, Dera Ismail Khan. Tillage treatments included (Control, Cultivator, Disc plough and Moldboard plough). Among the treatments, moldboard plough significantly increased the seed yield over treatments in 1994-95 apart from disc plough treatment while during in 1995-96 it also appeared the best. The said treatment produced 59 % & 127 % higher seed yield during 1994-95 and 1995-96 over the cultivator. This was due to increased yield components, better root developments which ultimately had the positive effect on seed yield both the year respectively. Deep primary tillage with moldboard and disc plough had showed the ability for moisture conservation, better rooting, weed control under rainfed conditions. These factors appeared the contributing factors toward increase wheat yield with deep tillage compared to the control as well as cultivator.

INTRODUCTION :

The improved package of technologies have been mostly developed for irrigated lands only. Recently, emphasis has been placed on barani lands enriched with productivity potential, can be exploited to enhance overall national level of crop productivity. Pakistan constitutes with an area of 79.61 mha (40 percent), productive land that is further divided into 43 percent irrigated, 19 percent barani (rainfed) land and remaining 38 percent as arid rangelands (Mansab and Nizami, 1987). Crop productivity can be increased in the rainfed tracts of Pakistan by moisture conservation.

Regard to this, different types of tillage practices play an important role in improving the production of barani lands. Lindemann et al. (1982) compared five tillage treatments and found that the seed yields of soyabean were more (over 200 kg/ha) with mouldboard ploughing than chisel ploughing. Oswal and Dakshinamurt (1975) reported that sub-soiling was significantly superior to all other treatments. Vittal et al. (1983), reported that the advantage of deep tillage to crop yields was dependent on rainfall pattern and plant type.

Some recent deep tillage experiments were beneficial under some situations. Rouse and Stone (1980) noted that deep cultivation increased the dry matter production; 13 % of potato; 12 % broad bean; 30 % summer cabbage and 26 % red beet, over that obtained by conventional ploughing. Danilove and Karign (1979) showed that deep ploughing reduced weed and soil compaction, and promoted accumulation of nitrates and moisture.

Kamprath et al. (1979) reported that subsoiling (45 cm) or chiseling (27 cm) of soils with compacted pans increased soybean yields during the years in which below average precipitation occurred during late flowering and beginning of pod sets.

Little work has been done on an improved implement and right technique for land preparation of wheat to conserve the moisture for wheat crops in Pakistan. Therefore, current research study was started to see the effect of different tillage as moisture conservation technique on yield of wheat in the rainfed areas of Pakistan.