

RESPONSE OF SUNFLOWER TO DIFFERENT NITROGEN LEVELS AND  
PHOSPHORUS APPLICATION METHODS

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ABSTRACT

*In a field experiment, nitrogen application @ 50, 75, 100 and 125 Kg ha<sup>-1</sup> to sunflower (Pioneer 6480) gave higher ( $P < 0.05$ ) grain yield of 2.27, 2.39, 2.55 and 2.58 t ha<sup>-1</sup> respectively over control. Similarly plant height, stover yield and number of seeds per floral disc increased at higher rate of nitrogen. However, optimum economic dose appeared to be 100 Kg N ha<sup>-1</sup>. A gradual increase in oil content of seed was also obtained with successive doses of nitrogen. Application of phosphorus @ (50 Kg P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>) either by fertigation or by broadcast methods had no effect on yield attributes of the crop.*

INTRODUCTION

Pakistan is chronically deficient in production of edible oils. Sunflower under such prevailing stringent circumstances seems to have good prospective to bridge up the gap between production and consumption of edible oils.

(Pioneer 6480) at the Land Reclamation Research Station Layyah, Irrigation and Power Department; during autumn 1993 and it matured in 1994. It was triplicated in RCBD factorial with a net plot size of 3.0 x 7.7 m. The soil was a silt loam with 0.06% N, 7.2 mg extractable phosphorus Kg<sup>-1</sup> soil and 198 mg K Kg<sup>-1</sup> soil. The crop seed @ 7 Kg ha<sup>-1</sup> was sown on 25<sup>th</sup> of the August using a single row hand drill in 60.0 centimeter apart rows. An interplant distance of 22 centimeter was maintained by thinning out the extra plants when the crop acquired a height of 20 centimeter.

Sunflower received nitrogen as prilled urea in two splits, half at sowing and half at flowering. In addition, it received a basal dose of Potassium (25 Kg K<sub>2</sub>O ha<sup>-1</sup>) as Sulphate of Potash. Phosphorus as S.S.P. was applied in two ways viz (i) at sowing (P<sub>1</sub>) (ii) by fertigation (P<sub>2</sub>) with first irrigation (20 days after planting). For fertigation solution of P fertilizer was taken in a plastic bucket fitted with a