

## Effect of sowing dates and fertility levels on yield attributes and grain yield of wheat (*Triticum aestivum* L.) cv. GW-273

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### ABSTRACT

Field experiment conducted at Gujarat revealed that, yield attributing characters of wheat were increased with 16<sup>th</sup> November sowing. However fertility levels 180-90 and 150-75 kg N-P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> did not show any remarkable difference in increasing the yield attributing characters of crop. Highest grain yield was recorded with 16<sup>th</sup> November sowing and fertilized with 150-75 kg N-P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>. Significant reduction in grain yield was observed in early and subsequent sowing dates. 16<sup>th</sup> November sowing proved remarkably superior to the rest of sowing dates which was 25.53 and 17.70 per cent higher over early and late sowings, respectively in grain yield production. Where as significant increase in grain yield was recorded with increased fertility level. Fertility levels 180-90 and 150-75 kg N-P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> produced appreciably higher grain yield to the extent of 41.32 and 40.43 over 90-45 kg N-P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup> and 21.85 and 21.07 per cent over 120-60 kg N-P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>, respectively. Interaction between sowing date and fertility level was found significantly with 16<sup>th</sup> November sowing and highest level of fertility i.e. 180-90 kg N-P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>.

**Key words :** Wheat, Sowing dates, Fertility levels, Yield attributes, Yield.

### INTRODUCTION

Wheat (*Triticum aestivum* L.) is one of the important staple food crop followed by paddy in India. In Gujarat, wheat is cultivated under irrigated as well as rainfed conditions. Among the crop management factors sowing time is an important non-monitory crop production practice. It is well known that maximum yield can be obtained only, if the crop is sown in time. In addition to sowing time, fertilizer plays an important role in crop production, since the information on this aspect is meagre particularly for Gujarat. An attempt was made to find the, optimum sowing time and effect of different fertility levels on grain yield and related parameters of wheat variety GW-273.

### MATERIALS AND METHODS

The field experiment with wheat cv.GW-273 was conducted at Instructional Farm, Gujarat Agricultural University, Junagadh during *rabi* season of 1998-99 in slightly alkaline soil with 8.0 pH, 0.64% organic carbon and 273, 22.30 and 270 kg available N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O ha<sup>-1</sup>, respectively. Twelve treatments combinations of three sowing dates (1<sup>st</sup> and 16<sup>th</sup> November and 1<sup>st</sup> December) in main plot and four fertility levels (90-45, 120-60, 150-75 and 180-90 kg N- P<sub>2</sub>O<sub>5</sub> ha<sup>-1</sup>) in sub plot were replicated four time in split plot design. The gross and net plot size were 4.50 x 3.60 m and 4.00 x 2.70 m, respectively. The crop was sown accordingly to their sowing schedule and fertilized with nitrogen and phosphorus as per treatments.

The source of nitrogen and phosphorus was urea and single super phosphate, respectively.

### RESULTS AND DISCUSSION

#### Effect of sowing :

Yield attributes *viz.* number of effective tillers per plant and number of spikes per meter row length increased remarkably under 16<sup>th</sup> November. Length of spike was appreciably more under 16<sup>th</sup> November sowing than rest of the sowings. Early and late sowing were at par in respect of length of spike. This could be due to vigorous growth of plants which was influenced by climatic parameters and favourable longer reproductive growth phase (Table 1). The results are in agreement with those of Nanda *et al.* (1988).

The 16<sup>th</sup> November sowing resulted in higher number of spikelets and grains per spike. This was due to increase in length of spike, which is a seat of spikelets and grains on spike. Same results were obtained by Bali *et al.* (1988).

Grain weight per spike and test weight recorded appreciably higher over 16<sup>th</sup> November sowing than rest of sowings. This was due to higher number of spikelets per spike and thereby increase number of grains per spike as well as favourable temperature prevailed for longer period from reproductive phase to grain filling stages. This results were also reported by Bali *et al.* (1988).

Grain yield of wheat was affected significantly by sowing dates (Table 1). Crop sown on 16<sup>th</sup> November gave significantly higher grain yield than early and late sowings. The increase in grain yield in 16<sup>th</sup> November

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