

## Yield, quality and yield potential of wheat [*Triticum aestivum* (L.)] cv. GW-273 as influenced by sowing dates and fertility level

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### ABSTRACT

An experiment was conducted on slightly alkaline soil at Junagadh (Gujrat) revealed that, significantly higher grain yield 39.43 q/ha, protein content 12.16 per cent and maximum net realization of Rs.28424/ha was recorded with November 16 sowing date. This sowing date harvested 25.53 and 17.70 per cent higher grain yield over early and late sowings. The fertility level 150-75 kg N-P<sub>2</sub>O<sub>5</sub>/ha harvested grain yield 39.25 q/ha, protein content 12.14 per cent and net realization of Rs.28005/ha. The highest benefit cost ratio of 3.82 and 3.72 per rupee invested were also recorded with November 16 sowing and fertilizing the crop with 150-75 kg N-P<sub>2</sub>O<sub>5</sub>/ha, respectively.

**Key words :** Yield, Quality, Yield potential, Sowing dates, Fertility levels.

### INTRODUCTION

Wheat (*Triticum aestivum* L.) has been described as the 'Staff of life' or 'King of cereals' and one of the most important staple food crops cultivated in at least 43 countries of the world. This crop as its own outstanding importance as a human food, it is rich in carbohydrates and protein. About 35 per cent of the world's population directly or indirectly depends upon wheat for food and about 20 per cent of protein supply of the world comes from wheat alone. In Gujrat, wheat is cultivated under irrigated as well as rainfed conditions. Real cold period is hardly of 60 days which falls in middle of November to January.

The wheat cv. GW-273 recommended under timely sown conditions. Optimum temperature for good germination, which ranges from 20 to 25°C is prevailing during the month of November under Gujrat 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. If wheat is taken as early sown crop, growths as well as tillering are adversely affected, while under the late sown conditions the higher temperature at grain filling stage resulted into shriveling of grains which reduce the yield.

In addition to sowing time, fertilizer plays an important role in crop production. It is well established fact that there is a positive correlation between fertilizer and productivity. In 1997-98 India's wheat production dropped by 35 million tones to 65.9 million tones due to bad weather, which result in late sowing and loss on yield (Singhal, 1999).

It is therefore, a dire need to determine the optimum

sowing time for wheat cv.GW-273 under Saurashtra region.

Therefore, supply of balanced nutrients is considered as one of the basic needs to achieve the potential yield. Fertilizer recommendation needs to be matched with genetic material and agro-climatic situation to exploit maximum yield potential of a crop. The present work was thus undertaken to study the effect of different sowing dates and fertility levels on wheat cv.GW-273.

### MATERIALS AND METHODS

The field experiment with wheat cv.GW-273 was conducted at Instructional Farm, Gujarat Agricultural University, Junagadh (21.5°N Latitude and 70.5°E Longitude with an altitude of 60.0 meters above the mean sea level) during *rabi* season of 1998-99. The climate of this region is sub-tropical with mean and maximum temperature of 42.7°C and 13.0°C, respectively. The soil samples were collected from each replication of the experimented plot to the soil depth of 0-15 and 15-30 cm before basal application of fertilizers and a composite sample was prepared and analyzed for physico-chemical properties of the soil. The soil was slightly alkaline 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, respectively. From the fertility point of view the soil was low in available nitrogen and phosphorus and high in available potash. Twelve treatments combinations of three sowing dates (D<sub>1</sub>-November 1, D<sub>2</sub>-November 16 and D<sub>3</sub>-December 1) in main plot and four fertility levels (F<sub>1</sub>-90-45, F<sub>2</sub>-120-60, F<sub>3</sub>-150-75 and F<sub>4</sub>-180-90 kg N-P<sub>2</sub>O<sub>5</sub>/ha) in sub plot were replicated four times in split plot design. The gross and net plot size were 4.50 x 3.60 and 4.00 x 2.70 m, respectively. The seed rate was 100 Kg/ha and sowing

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