

Yield potential of some advance genotypes of wheat (*T.aestivum* L.) under late sown condition in terai zone of West Bengal

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Area and productivity of wheat is gradually declining in West Bengal. In spite of disease susceptibility and older one, *Sonalika* is still widely most cultivated variety. Present study was conducted under late sown condition comprising of nine advance genotypes to estimate yield potentiality along with other disease reaction and ancillary informations about these genotypes. All the genotypes were early to very early in maturity and dwarf to semi dwarf in nature. The genotypes did not show any kind of rust development but they were all susceptible to foliar blight. Yield data of the genotypes revealed that all the genotypes were moderate to high yielder having more than 35q/ha. Yield potential. Among these genotypes, highest productivity was found in the genotype DBW 14 which is having the productivity of 39.4 q/ha.

Key words: Wheat, productivity, late sown condition

INTRODUCTION

Wheat is the second most important staple food after rice consumed by nearly 65% of the population in India and is likely to increase further due to changes in food habit. India is one of the most important wheat growing countries, being second in terms of area and in case of production; it is only next to china. At present, India produces more than 72 million tones of wheat which is 11 times higher relative to the same during 1950-51.

Although, West Bengal as a state is not a major wheat growing state, area under this crop increased significantly during seventies after the introduction of HYVs like *Sonalika*. But during last few years, both area and production of wheat are declining in the state. Area under wheat declines from 426 '000 ha. in 2003-04 to 400 '000 ha. in 2004-05. Productivity of wheat also declines from 2315kg/ha in 2003-04 to 2103 kg/ha in 2004-05 (economic review, 2005-06, Govt. of West Bengal).

The major bottleneck of poor productivity of wheat in this region is the unavailability of suitable variety of wheat under the late sown condition of production. Predominant wheat variety cultivated in this area is still *Sonalika* which has been released in 1967 and became susceptible to rusts diseases in 1969 and has succumbed in 1974 (Kumar, 2007). Analysis of

yield gap under wheat FLDs reveals that there was 1157 kg/ha yield gap in NEPZ (North Eastern Plain Zone comprising of Eastern UP, Bihar, Jharkhand, Orissa, West bengal, Assam and plains of NE states) during 2003-04 crop season (Technical Bulletin No.8, Directorate of Wheat Research, October, 2005). It is important that these gaps could be filled by supplying good quality seed of recently released varieties.

In the present study various advance wheat genotypes are evaluated under late sown condition of production to evaluate the production potential of these genotypes and also to get other ancillary informations regarding these genotypes.

MATERIALS AND METHODS

The experimental material consists of nine advance wheat genotypes of various origins. The parentage of these genotypes is as follows : WH 1046 : VEE/PJN//2* HUI/3/WH 756; DBW 31 : DBW 14/ PBW 343 ; HD 2982 : PBW 175/PRIVIA//HW 2006/LOK-1; HD2983 : PYN/BAU/MILA/3/HP 1744; HD 2985 : PBW 343/PASTOR; MP 3224 : MP 403-2/GW 322; DBW 14: RAJ 3765/PBW 343; NW 2036:BOW/ CROW/BUC/PVN; and HUW 234 : HUW 12*2/ CPAN 1666

Field experiment was conducted at University

Research Farm, Uttar Banga Krishi Viswavidyalaya, Pundibari, Coochbehar, West Bengal (26° 19' 86" North latitude and 89° 23' 53" East longitude, 43 m above mean sea level). The area is hot and humid, sub tropical climate with alluvial soil which is sandy loam and acidic in nature. The experiment was conducted during 2007-08 crop season under late sown condition with four replications. Each cultivar was grown at 5.0 m x 1.8 m plot having 10 rows of 5 m length spaced by 18 cm. Disease data and other ancillary information were taken at appropriate growth stage of the crop.

RESULTS AND DISCUSSION

Plant height, days to heading, days to maturity, thousand grain weight and disease data of the genotypes were presented in Table 1. The genotypes did not show much variation in terms of heading and maturity (105 days only). Other genotypes also fall in the category of early maturity.

Table 1 : Genotypes taken for study with their ancillary information and disease data

| Genotype | Days to head | Days to maturity | Height (cm) | 1000 Gr. wt.(g) | BL | BR | YL | Foliar blight |
|----------|--------------|------------------|-------------|-----------------|----|----|----|---------------|
| WH1046 | 68 | 110 | 77 | 39.7 | - | - | - | 68 |
| DBW31 | 66 | 106 | 77.8 | 37.8 | - | - | - | 46 |
| HD2982 | 70 | 115 | 79.8 | 36.5 | - | - | - | 57 |
| HD2983 | 63 | 105 | 76.5 | 35.4 | - | - | - | 68 |
| HD2985 | 67 | 110 | 78.3 | 32.2 | - | - | - | 57 |
| MP3224 | 64 | 105 | 76.4 | 30.9 | - | - | - | 68 |
| DBW14 | 61 | 105 | 65.3 | 38.0 | - | - | - | 46 |
| NW2036 | 64 | 105 | 78.4 | 36.9 | - | - | - | 57 |
| HUW234 | 62 | 105 | 79.4 | 32.6 | - | - | - | 79 |

(BL = Black rust, BR = Brown rust, YL = Yellow rust)

HUW 234. whereas, this was lowest in case of both DBW 31 and DBW 14. High humidity of this area favours the foliar blight development of wheat genotypes (Chowdhury and Singha, 1995). Yield data of the genotypes (Fig.1) revealed that, all the genotypes were moderate to high yielder having

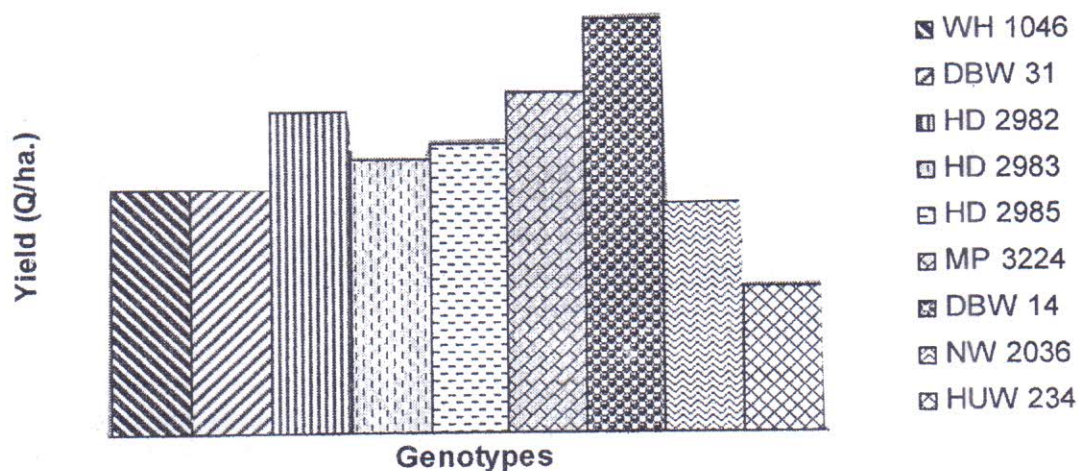


Fig. 1 : Yield potential of wheat genotype

In terms of plant height, the genotypes were all dwarf to semi dwarf in nature. Medium range of height (63.3cm- 79.8cm) was shown by all the genotypes. Thousand grain weight (TGW) also did not vary very much (30.9 g -39.7g).

In terms of disease reaction, the genotypes did not show any kind of rust development which signified that the area was under non rust epidemic area. But, all the genotypes showed high to very high development of foliar blight disease. Highest foliar blight development was shown by the genotype

more that 35 q/ha. yield potential.

Among these genotypes, highest productivity was found in the genotype DBW 14 which was having the productivity of 39.4 q /ha.

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