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EFFECT OF DATES OF SOWING AND PROMISING WHEAT VARIETIES UNDER IRRIGATED CONDITIONS

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ABSTRACT

For getting optimum yield in wheat, time of sowing is important. An experiment on promising wheat varieties was conducted on a clay loam soil for three years. The sowing of wheat during November 5th to 11th proved to be the optimum time for all the years. Among the varieties APAU 1577 and HD 4502 proved better than others under earlier sowing (October 22nd to 28th). Varieties DWR 39, APAU 1577, NI 8796 and NI 8841 gave more grain yield under normal sowing (November 5th to 11th). Under late sown conditions (December 3rd to 9th), varieties DWR 39, NI 8818 and HI 977 were beter than others.

Wheat is normally grown as a winter crop in Tamil Nadu with limited irrigation facilities. For getting optimum wheat yields, correct time of sowing is essential, since the winter period is very short in Tamil Nadu. But under multiple cropping system, sowing of wheat may differ from optimum time due to the delayed harvest of first season crop and onset of north east monsoon during third week of October. To secure reasonably good yields under such conditions suitable variety for early, normal and late sown conditions have to play an important role. (Patel *et al* . 1982 and Bharati *et al* 1977). The present experiment was conducted to screen the promosing wheat varieties suitable for different dates of sowing in Tamil Nadu.

MATERIALS AND METHODS

A field experiment comprising of three sowing dates viz., October 22nd to 28th (Early), November 5th to 11th (Normal) and December 3rd to 9th (late) was conducted during the years 1982-83, 1983-84 and 1986-87 with 12, 19 and 11 varieties respectively at Department of Agronomy, Tamil Nadu Agricultural University, Coimbatore under All India Coordinated Wheat Improvement Project. Split plot design with three replications was followed with dates of sowing in the main plots and the varieties in the sub plots. The soil was clay loam which was low, medium and high in available nitrogen, phosphorous and potassium respectively. A fertilizer dose of 100:60:40 kg NPK ha^{-1} was applied and six to seven irrigations were given at critical stages. All other cultural practices were done as per recommendation.

RESULTS AND DISCUSSION

The date on grain yield revealed that under Coimbatore conditions sowing of wheat during November 5th to 11th resulted in maximum grain yield in all the three years tested. Advancing the sowing to late October resulted in yield reduction of 17.2 and 45.2 per cent during first two years of experimenation. The delayed sowing also reduced the grain yield to the tune of 18.7, 52.9 and 5.5 per cent during the first, second and third years respectively. The results derive support from those of Purusothaman *et al* 1979 and Singh 1986. The yield reduction may be due to the higher weekly mean temperatures in the month of October for the early sown crop and forced maturity of late sown crop due to rise of temperature in late February and March. In the first year variety APAU 1577 gave highest grain yield over other varieties in early sown condition. But under normal and late sown conditions variety DWR 39 gave more yield over rest of the varieties. Except in DWR 39, reduction of grain yield was observed in all the other vaireties under late sown conditions when compared to normal sowing. The variety APAU 1577 gave similar yields under early and normal sown conditions, though the yield was drastically reduced in late sown conditions.

During the second year variety HD 4502 gave higher yield followed by APAU 1577 in early sown condition. Yield data further revealed that the variety APAU 1577 produced highest grain yield under normal sowing and under late sown conditions, NI 8188 was better. However, the grain yields were lower with all the vaieties under early

and late sowings, when compared to normal date of sowing. During the third year NI 8796 and NI 8841, gave more grain yield over other varieties under normal sowing, whereas under late sown conditions the variety HI 977 significantly produced more grain yield over other varieties tested. The superiority of the above mentioned varieties under dates of sowing may be due to the production of higher ear number and number of grains/earhead. In addition, the better performance of certain varieties under early and late conditions may be due to better adaptability to higher mean tmperatures during different growth periods.

It is concluded that the optimum time of sowing of wheat in Tamil Nadu is between November 5th and 11th and the varieties suitable for different dates of sowings are (i) early - APAU 1577 and HD 4502; (ii) Normal - DWR 39, APAU 1577, NI 8796 and NI 8841; (iii) Late - DWR 39, NI 8818 and HI 977.

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LINE X TESTER ANALYSIS FOR SEEDLING CHARACTERS IN COTTON (*Gossypium hirsutum* L.)

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ABSTRACT

A line x tester analysis involving 7 lines and 4 testers of upland cotton was carried out to estimate combining ability for seed in the germination, root length, shoot length and vigour index during winter 1989. The parent TCH 65/8 (Sparsely fuzzed was found to be a good combiner for all the characters studied. Both additive and non-additive genetic affects were operative in the inheritance of these traits.

The studies on combining ability help the breeders in divising efficient methodology for effecting genetic improvement in any crop. The present investigation was carried out to gather information on the combining ability and genetic constitution of four seedling characters through a line x tester analysis involving seven lines and four testers of *G. hirsutum* cotton.

MATERIALS AND METHODS

Seven lines, TCH 63/1, TCH 63/4, TCH 104/1, TCH 65/8, TCH 96/6, TCH 70/7 and TCH 89/7 differing in fuzziness (*Hutchinson and Ramiah*, 1938) were used as ovule parents. They were crossed with testers, MCU 5, MCU 7, MCU 9 and LRA 5166 as pollinators in a line X testers fashion (*Kempthrone* 1957). Representative seed samples were drawn from five plants each of the parents and the crossed seeds of all the 28, line x tester combinations. Germination test was conducted as per the procedures of ISTA (*Anon.*, 1985), with ten seeds from each samples of the parents and crossed seeds. The germination and other seedling studies were repeated three times from separate sample. For seedling study, five seedlings from each sample were taken from the germination tests. The length from the collar region to the tip of the seedling in centimetres as shoot length and the length from the collar region to the tip of the root in centimetres as root length were measured in each seedling. And for the calculation of vigour index, the following formula was used (*Abdul Baki and Anderson*, 1972).

VI = germination % x Total mean length of seedling.

RESULTS AND DISCUSSION

The analysis of variance of combining ability revealed that variance due to sca as well as gca were highly significant for all the seedling