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Cereals have been the most important source of plant food for mankind since time immemorial. Their cultivation dates back to the ancient times when the Romans used to worship at harvest time Ceres, their goddess of agriculture. Easier cultivation, short span of life, stability as well as adaptability has enabled the cereals to enjoy a place of pride among crop plants. Their superiority lies in higher percentage of carbohydrates together with considerable amount of protein as well as some fats and vitamins (Hill, 1952). It is, therefore, no wonder that they constitute the staple food of the majority of mankind.

For thousands of years, attempts have been made to improve the yield and quality of cereals by proper selection. Since the dawn of scientific agriculture, this art has been pursued more vigorously on scientific lines. Constant research has been carried out in various agro-climatic regions of the world, keeping the same objective in mind. These have lately resulted in the release of a number of high yielding varieties suited for cultivation in various regions of the world. Their high productivity coupled with sufficiently good quality has, thus, helped bring about the "Green Revolution" in India and elsewhere. The resultant enhanced food production has helped tide over food shortages temporarily but has failed to keep pace
with the explosively increasing population of the developing countries. That the increase in cereal production has reached a plateau is obvious from the fact that neither arable land area nor the potential of productivity can be increased indefinitely. Moreover, urban encroachment and deforestation, on the one hand, and transfer of land from other crops to cereals, on the other, has made the situation more alarming (Anonymous, 1976a).

The need of the hour, therefore, is that efforts should be continued not only to achieve another breakthrough by crossing the productivity barrier again in the case of traditional cereals but also to select and improve promising new food plants that can withstand various stresses such as cold, drought, disease and poor quality of soil. At present, triticale is recognised as the foremost contender for this honour by farm scientists. This "man-made" cereal, obtained by crossing wheat and rye, has been claimed as the future staple food for mankind as it has inherited the high productivity of wheat, on the one hand, and winter hardiness, disease resistance and protein as well as lysine content of rye, on the other (Villegas et al., 1968; Knipfel, 1969; Hulse and Spurgeon, 1974). In addition, amino acid composition of triticale grain and the results of animal feeding experiments indicate that this cereal has a higher protein value than wheat (Kies and Fox, 1970). Further, triticale is adaptable to unfavourable environmental conditions. It has specially been found to do better than wheat in disease prone production areas.
and also in semi-tropical highlands. For example, triticale has been grown in the mountain valleys of Nepal, particularly in low pH soils, with 50% yield benefit over wheat (Anonymous, 1979b). Superiority regarding yielding ability of triticale over wheat in many areas, including Australia, Brazil, East Africa, Europe, Himalayan foothills and the central high plateau of Mexico has been proved beyond doubt (Anonymous, 1982).

At present, triticale has exhibited wide-spread adaptability all over the world. It is grown on about 500,000 hectares of land around the globe. Argentina, Australia, Canada, China, Hungary, Kenya, Mexico, South Africa, Spain and the USA have started commercial production of triticale. Certain other countries, such as Brazil, Chile, India, Portugal and Tanzania, are increasingly involved in researches on this cereal (Anonymous, 1982). In India, cv. TL 419 has been released to the farmers of Punjab (Gill et al., 1981; Abdalla et al., 1986).

Thus triticale, with its better potential for grain yield and qualitative values, deserves due attention to be paid by plant breeders, agronomists, cereal chemists, animal and human nutritionists and baking and food technologists. In this connection, newly released varieties, with their improved genetic potential for yield and quality, are required to be tested in different agro-climatic conditions. CIMMYT (Mexico) has, recently, developed new genetic stock capable of producing more grain coupled with superior quality. The genetic potential of
the new cultivars can, to a large extent, be exploited by working out their optimum requirements of fertiliser and other inputs as balanced fertiliser application plays an indispensable role in controlling yield and quality of grain. However, fertiliser can be beneficial only if the crop is sown at the proper time with appropriate seeding rate so as to utilise the environmental factors fully as well as to maintain minimum competition among and within the plants.

Considerable work on various triticale varieties has been done at Aligarh for about a decade (Inam, 1978; Abbas, 1980; Alvi, 1984) and the results have been highly encouraging. With new cultivars of triticale having been received from CIMMYT (Mexico) and from other parts of India, the author decided to extend this commendable work to study the performance of these cultivars keeping one variety each of wheat and rye as check. It was, therefore, proposed to undertake four field experiments with the aim:

(1) to screen the available triticale cultivars under local conditions to select those whose performance is superior,
(2) to establish the optimum sowing date for the selected triticales,
(3) to determine the appropriate seeding rate for these cultivars; and
(4) to establish the nitrogen and phosphorus requirement of these triticales.
In each experiment, the performance of the crop was assessed on the basis of population count, growth characteristics, leaf-NPK content and yield as well as quality attributes. In addition, NRA in flag leaf and second leaf was also assayed in Experiment 4.

The data found significant on statistical analysis have been briefly described and discussed in the light of the findings of other workers on cereals, particularly triticale.