1. INTRODUCTION

Wheat being a chief cereal among grain crops both in regards to its antiquity and its use as a main source of human diet has been growing in India since pre-historic times. The area occupied by this crop in India during 1983-84 was estimated about 24.4 million hectares with a production of about 45.1 million tonnes, the corresponding figures for U.P. being 8.6 million hectares and 16.3 million tonnes respectively. The normal sowing of wheat in the major wheat growing tract of India is November (Tomer and Mathur, 1966; Singh and Rathi, 1970; Mehta and Mathur, 1972; Verma and Rathi, 1976). The wheat crop sown after November and specifically after mid-December to second or third week of January is known as 'late sown'. Since the release of short duration dwarf varieties of wheat in 1965, the area under late sown wheat has very much increased.

Although sowing of wheat after the optimum time results in reduction of yield, yet it has to be sown under late conditions after harvesting of previous crops like sugarcane, potato, late paddy, groundnut, arhar etc. The areas under late sown wheat has been estimated to be 20% in U.P. (Singh and Verma, 1977), 33% in Punjab (Anonymous, 1973) and 10 to 12% in the country as a
whole (Rathi, 1976) of the total area under wheat cultivation. The low yield of late sown wheat is the result of unsatisfactory germination (Mathur, 1966) poor development of individual plants, including high temperatures at grain formation & forced maturity (Mathur, 1966; Singh and Rathi, 1970; Rathi et al., 1976 and Verma & Rathi, 1976).

Various recommendations have been made to increase yield of wheat under late sown conditions, the recent among which is the sowing of sprouted seed (Singh and Verma, 1976; Singh and Verma, 1977 and Tomar and Verma, 1980). Sowing of soaked seed has also been recommended by Misra and Dwivedi (1980), Khan and Chatterjee (1981). But Kumar and Singh (1980) reported that pre-soaking of seed with irrigation water did not show any appreciable impact on yield and yield components. In order to develop definite recommendations, it becomes essential to compare sowing of dry, soaked and sprouted seeds for better yield.

Crown roots initiation stage which is the best time for first irrigation in wheat under all conditions results after about 20 days in wheat sown under normal conditions. Although it is expected that crown roots
initiation stage takes a longer period in late sown wheat than in normally sown wheat, yet no definite recommendation is available for this period of time. Hence it becomes imperative to explore the optimum period for first irrigation on wheat sown under late conditions.

In crop husbandry balanced fertilization is equally important with the genetic make up and yield potential of a crop. Among the major nutrients, nitrogen acts as a great limiting factor in crop production and our soils are deficient in this nutrient. Impact of nitrogen fertilization on wheat has been reported by various workers (Borse and Mahajan, 1980; Reddy and Frasad, 1980; Kumar and Singh, 1990; Rana et al. 1982). But no definite recommendation has been made for late sown wheat with different seed conditions and different times of first irrigation for this locality.

Till now Sonalika variety of wheat has been the most popular late sown variety in this region. But with the evolution of other varieties in recent years, it is desirable to compare performance of the different varieties recommended for late sown conditions with various seed treatments.
Keeping the above points in view, the present study was conducted at A.S. College, Lakhaoti with the following objectives:

**OBJECTIVES:**

1. To work out optimum time of first irrigation and Nitrogen dose for late sown wheat.

2. To select out the suitable variety of wheat for delayed condition.

3. To test the performance of different seed conditions of wheat varieties under late sown conditions of Western U.P.

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