RESEARCH PAPER

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Effect of seed invigouration treatments on growth parameters of soybean

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An experiment on soybean variety JS-335 with two different lots L_1 and L_2 (72% and 57% germination, respectively) was conducted at the experimental farm of department of Agril. Botany, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola to study the effect of seed invigouration treatments on growth parameters. The experiment was laid out in Factorial Randomised Block Design with 7 treatments and three replications. Results showed that growth parameters *viz.,* plant height, leaf area, total dry matter were significantly increased by invigouration treatments. The results indicated that at all the stages of development invigouration treatment of seed with IAA+NAA (10 ppm and 6 hrs hydration) *i.e.* T_1 showed maximum plant height, leaf area and total dry matter.

Key words : Invigouration treatments, Plant height, Leaf area, Dry matter

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INTRODUCTION

Soybean [*Glycine max* (L.) Merrill] is a miracle "Golden Bean" of the 21st century mainly due to its high protein (38-41%) content and about 20% cholesterol free oil. In India it is mainly grown as a oilseed crop. Total area under soybean cultivation in Maharashtra is 24,400 ha and production is 27,078 tonnes of seed. In Vidarbha area under soybean was 6,431 ha with the production of 7,054 tonnes of (Anonymous, 2006). The productivity of soybean is a result of interactions between genetic make up and environmental conditions. The genetic make-up is expressed through the physiological processes operating within the plant. Efficiency of physiological processes depends on morphological characters of plant. Thus, productivity can be manipulated to some extent through manipulation of morphological characters. The important morphological characters, associated with "Effect of seed invigouration treatments on growth parameters of soybean" productivity are plant height, leaf area and dry matter per plant. In view of above, the present investigation was undertaken to study the effect of invigouration of growth parameters.

RESEARCH METHODOLOGY

The field experiment was conducted at the experimental farm of Department Agril. Botany, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola with the object to know the influence of seed invigouration treatments on growth parameters of soybean. This experiment was carried out in Factorial Randomised Block Design with three replications and seven treatments of soybean cultivar JS-335 with two different lots *viz.,* L_1 and L_2 (72% and 57% germination, respectively). The observations were recorded from 15 DAS to 75 DAS at an interval of 15 days.

For recording the plant height, leaf area and total dry matter, five plants in each plot in each replication were randomly selected and labelled. For recording periodic observations on growth parameters, five plants were randomly selected from each plot. These plants were watered before uprooting and were removed with the help of fork to keep root system intact. These plants were washed thoroughly and were used for recording observations.

Plant height was measured from the ground level up to the tip of the main axis in centimeters at an interval of 15 days. Leaf area was measured by taking third leaf from apex amongst fully opened leaves which is supposed to fully active. Leaf area was calculated with the help of formula given by (Babich and Makrov, 1969). After the measurement of leaf area, leaves and stem of all the plants were dried in oven at 70°C till the samples showed constant dry weight.

The details of treatments are given below: