

Effect of invigouration treatments on seed quality parameters of soybean

DEEPA P. NAIR AND G. V. DEOGIRKAR

Received : October, 2010; Accepted : November, 2010

SUMMARY

A field experiment was carried out to evaluate the effect of seed invigouration treatments on seed quality parameters of soybean viz., germination percentage, seed vigour index and field emergence with two different lots of soybean cultivar *i.e.* JS-335 having 72% (L_1) and 57% (L_2) germination. Results revealed that seed invigouration treatments viz., IAA+NAA 10ppm 6 hrs hydration (T_1), IAA+NAA+Thiram *i.e.* T_1 +Thiram (T_2) and GA_3 50 ppm *i.e.* hydration in GA_3 50 ppm for 6 hours+Thiram (T_6) recorded maximum germination percentage, seed vigour index and field emergence. Lot L_1 was superior to lot L_2 in respect of above seed quality parameters. In the present studies, it was noted that the progeny obtained from vigorous seed produced good seed quality parameters and *vice-versa*.

Nair, Deepa P. and Deogirkar, G. V. (2011). Effect of invigouration treatments on seed quality parameters of soybean. *Internat. J. Plant Sci.*, 6 (1): 167-169.

Key words : Invigouration treatments, Germination, Seed vigour index, Field emergence

Soybean [*Glycine max* (L.) Merrill] is an important pulse as well as oil seed crop as it contains high quality protein (43.20%) and about 20% cholesterol free oil. It contains 21% carbohydrates, 0.69% phosphorus, 0.0115% iron, 0.024% calcium, vitamin A, B, C, D, E, K and all other essential amino acids. In India, it ranks third place in production, groundnut and mustard being first and second, respectively. Due to its low water requirement and greater response to applied nitrogen, it is gaining increasing popularity among farmers.

The seedling emergence and their establishment are two important factors affecting yield potential. With good field stand and vigorous plant growth, one can expect desirable level of crop yield. Seed invigouration treatments help to improve germination, seed vigour and ultimately it establishes a good field stand which results in high yield. Therefore, keeping this in view, present study on effect of seed invigouration treatments on seed quality parameters was undertaken.

MATERIALS AND METHODS

The field experiment was conducted at the experimental farm of Department of Agricultural Botany,

Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. The experiment was laid out in Factorial Randomised Block Design with three replications, seven treatments on two different lots of soybean cultivar JS-335 viz., Lot L_1 with 72% germination and lot L_2 with 57% germination (Table 1).

Quality tests were conducted in laboratory of seed Technology Research Unit and Department of Agril. Botany, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. The germination percentage was calculated by conducting towel paper germination test of control and treated seeds. From each treatment, 100x4 seeds were placed on moist towel paper, covered with another moist paper, wrapped with wax coated paper, rolled properly and kept in seed germinator, at constant temperature (25^oc) and 80% relative humidity. First germination count was taken on 4th day and final germination count on 8th day and total was reported as a standard germination.

Seed vigour index was calculated by multiplying per cent normal seedlings with normal seedling dry weight with formula given by Abdul Baki and Aderson (1973). For this on eight days per cent normal seedlings were determined and the seedlings were kept in hot air oven for determining its dry weight. The field emergence count was studied on the experimental plot on 7th day after sowing. Count was taken on each plot. Seedlings were deemed to have emerged once they broke the soil surface.

The treatment details are given below.

T_0 -untreated (control)

T_1 -IAA+NAA (10 ppm, 6hrs hydration)

T_2 -IAA+NAA Thiram

Correspondence to:

DEEPA P. NAIR, Department of Agricultural Botany, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA

Authors' affiliations:

G.V. DEOGIRKAR, Department of Agricultural Botany, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA