

Soybean Seed Packaging For The Maintenance Of Seed Quality

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ABSTRACT

Seeds of three soybean varieties (PK 416, Bragg & Shivalik) produced commercially for two seasons were stored in three packaging materials (cloth, polylined and high density polyethylene bags) separately with different initial germination and field emergence potential, to find out a viable and better seed packaging material. Seed quality was assessed at storage time (immediately after processing), before 1st and 2nd sowing seasons. Polylined followed by HDPE packaging was significantly superior over the cloth bag. Minimum seed certification standards (MSCS) were retained for germination and field emergence in polylined packaging upto 2nd sowing season, which was for one season in cloth bags.

Key words: Soybean, seed, packaging material, germination, field emergence.

INTRODUCTION

A seed crop raised under good field conditions and yielding to its full potential, does not give the uniform performance of the seeds if post-harvest and storage techniques are not followed properly. Seeds deteriorate fast if not dried properly and stored safely in moisture proof packaging. The yielding potential of a crop primarily depends upon the plant stand. However, in Indian conditions the seed storage of high volume crop is practiced in cloth (small quantities upto 5-10 kg) or gunny bags, where these seeds are most sensitive to the changes in the ambient climatic conditions. The seeds supplied by the outlets in such packaging usually lose their germination and field emergence potential by making use of ambient moisture. This invites infection by microorganisms during storage. The seeds of soybean are most vulnerable to deterioration if they face slight changes in moisture. The study was thus designed to find out a viable and better seed packaging for soybean, a high volume seed crop, so that their seed viability and field emergence are maintained for prolonged duration.

MATERIAL AND METHODS

Seed material:

The study was conducted from 2001 to 2003. Seeds of three soybean varieties viz. Bragg, PK 416 and Shivalik were grown at the Seed Farm of CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur during Kharif 1999 and 2000 seasons, were taken for the study. The produce of 1999 was classified as unfavourable weather produce (untimely rains during harvesting and threshing) and of 2000 as favourable weather produces (good weather

conditions during the season). The moisture content of the seed lot after processing was brought to 9% through appropriate drying. Visual examination of the processed seed was observed to be normal.

Seed packaging:

The processed seeds of all the three varieties of 1999 produce were packed during January, 2000, in three packaging materials i.e. cloth bags, polylined and high density polyethylene (HDPE) bags of 40 kg capacity each. Similar packaging was done for Kharif 2000 produce in January, 2001.

Sampling and testing:

One sample from each packaging was drawn immediately at packaging time, other at 1st sowing season (May 2000 and 2001, respectively) and final at the start of 2nd sowing season (May 2001 and 2002, respectively, for two seasons produce). After drawing the samples, the packaging were again sealed to make them air tight. These samples were examined for percent germination, field emergence, mechanical damage and moisture content. Mechanical damage was tested using FeCl₃ method, while germination, field emergence and moisture content were tested as per ISTA (1976).

RESULTS AND DISCUSSION

The quality parameters of seed i.e. percent germination, field emergence, mechanical damage and moisture content, of all the three soybean varieties viz. Bragg, PK 416 and Shivalik, obtained from three packaging materials i.e. cloth, polylined and HDPE bags is presented in Table 1 for 2000 packaging and in Table 2

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