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Effect of seed dropping heights on mechanical damage resistance and seed quality in soybean [*Glycine max* (L.) Merril] varieties

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SUMMARY

The influence of four height of dropping *viz*., D_0: 0 feet (No dropping), D_1: 3 feet dropping, D_2: 6 feet dropping, D_3: 9 feet dropping on varieties *viz*., V_1: JS956, V_2: JS335, V_3: JS9305, V_4: PK1029, V_5: Dsb-1 and V_6: NRC-7 were studied for both seed quantitative parameters and seed qualitative parameters. The variety NRC-7 recorded significantly highest hundred seed weight (15.03g) and dehusks seed weight (11.24g). Whereas, the highest seed density (1.37g/cc) was in JS9560; seed mechanical damage (93.50%) and seedling vigour index (2804) in JS-335 variety. The significantly maximum hundred seed weight (13.90g), seed germination (68.00%) and seedling vigour index (2215) were recorded in the seeds without dropping against those dropped from nine feet height which recorded minimum values.

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Key words : Seed dropping, Mechanical damage, Seed quality, Soybean

Soybean [*Glycine max* (L.) Merril] is called as the miracle crop of the 20th century. For centuries, Chinese used to call soybean as the yellow jewel or great treasure. Now-a-days, this prodigious bean is being seen worldwide as a weapon to fight against human hunger as its rich in both high quality seed protein (40-43%) and oil (19-21%) contents. Apart from protein and oil, it is also rich in vitamins, iron, mineral salts and other essential amino acids. It can augment the supply of vegetable protein for the developing country like India, where majority of its population are purely vegetarians.

In India, soybean has witnessed a phenomenal growth both in area and production during last two decades, wherein, it is presently grown in about 9.67 million hectares area contributing to 9.73 million tonnes production annually (Anonymous, 2009).

Soybean seed is regarded as a poor storer, generally it losses its viability and vigour readily since it is easily susceptible to mechanical injuries caused during harvest and post harvest operations. Soon after harvest, soybean seed is subjected to several post harvest operations like threshing, drying, grading, transportation and other handling operations. During these operations, soybean is subjected to the mechanical damages /injuries due to susceptibility and breakage of the seed coat and it losses its viability and vigour at a faster rate due to looses of membrane permeability of seeds. In soybean, there are several improved varieties available for commercial cultivation but they are likely to loose viability and vigour more due to differential mode of mechanical forces causing damages and injuries to the seeds. Some varieties are known to loose viability and vigour more rapidly. While, some varieties retain their quality for longer time, the research work on the response of various soybean varieties on mechanical damage and seed quality are very scanty and hence, it has been investigated.

MATERIALS AND METHODS

An experiment was conducted at College of agriculture, Dharwad, Karnataka, india during 2009-2010

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