

## Relative resistance of snap beans (*Phaseolus vulgaris* L) to mechanical injury of seed as influenced by maturation temperature

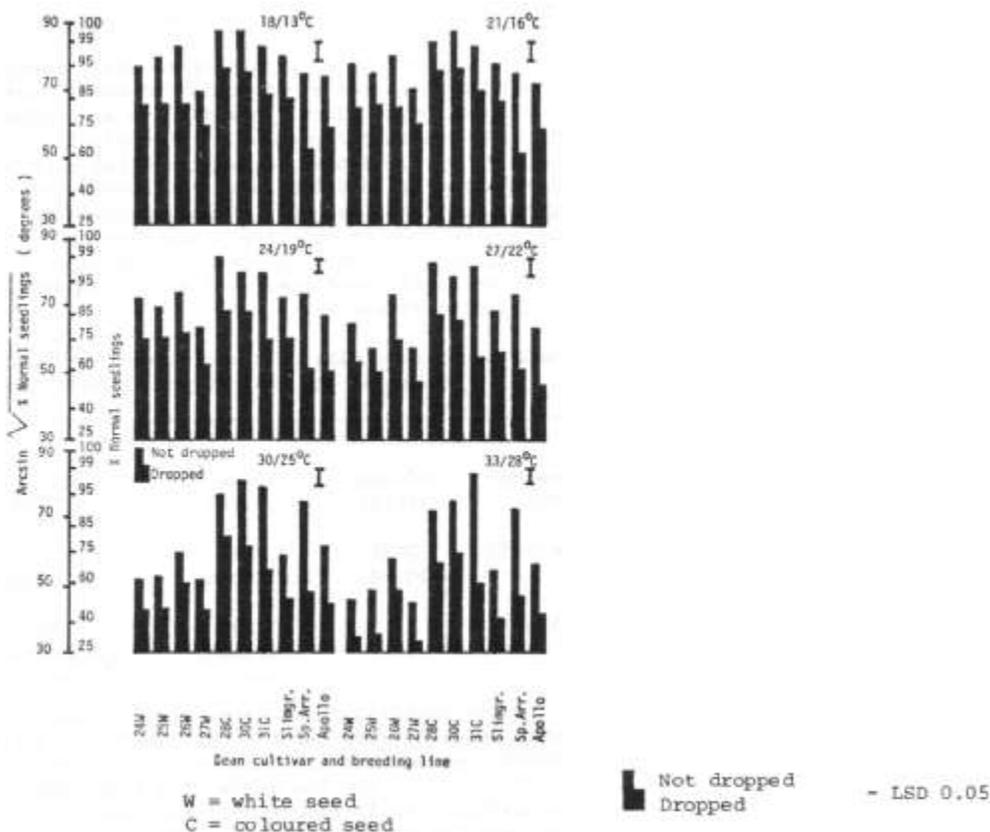
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Mechanical damage to seed is a serious problem in the bean industry. Dickson and Boettger (1976) developed some mechanical damage resistant breeding lines through crossing and selection. Our previous experience has revealed that maturation temperatures above 21/16°C (12 hour day/12 hour nights) give seed with a high susceptibility to mechanical damage in Apollo bean.

In the present investigation, the influence of maturation temperature on susceptibility to mechanical damage was tested on seven resistant breeding lines received from M.H. Dickson and on three other non-resistant cultivars. The plants were grown at 24/19°C and were transferred to six different temperature regimes at the stage of maximum fresh weight of seed for the seed maturation phase. Resistance to mechanical damage was assessed by a drop test. The seed was germinated in sand/peat mix in shallow trays.

The study indicated that cool conditions during the maturation of seed are ideal for the production of high quality and mechanical damage resistant bean seed in a range of genotypes (Fig. 1). However, genotypes resistant to mechanical damage when matured at low temperature are not necessarily resistant when matured at high temperature. The coloured seeded lines 28°C and 30°C are the most resistant selections. Among the white seeded lines, 26W appeared to be the best. It appears likely that, it is possible to breed and select white seeded lines, showing resistance to mechanical damage whether matured at low or high temperature.



**Fig. 1. Percentage seedlings from seeds of bean cultivars and breeding lines matured at six different temperature regimes and given 0 or 4 drops from 1.8 m onto a steel plate. The arcsine transformation was applied to the data before analysis.**

Dickson, M.H. and Boettger, M.A. (1976). *J. Amer. Soc. Hort. Sci.* 101: 541.