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THE EFFECT OF SEED PRIMING ON SOYBEAN (*Glycine max*) AND MUNG BEAN (*Vignaradiata*)

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Soybean (*Glycine max*) and Mung bean (*Vigna radiata*) production in Sri Lanka cannot meet the local demand due to poor seed quality. Seed priming is an effective and convenient physiological seed development method. During seed priming, seeds are pre-soaked and dehydrated prior to sowing without allowing radicles to emerge. This study was conducted to assess the potential use of seed priming technology in cultivation of *G. max* and *V. radiata* in Sri Lanka.

Glycine max seeds were primed by imbibing seeds in 0.1M KCl solution for six hours and *V. radiata* seeds for seven hours in distilled water. The effect of priming on seed germination, seed vigour and storage potential were tested under laboratory conditions. During storage test, primed and unprimed seeds from both species were stored separately in brown paper bags or polythene bags at ambient laboratory temperature or at 5 °C for 3 months. Field emergence, growth rate, leaf number, days to flower, and pods per plant for plants raised from primed and unprimed seeds were tested under field conditions.

Seed priming significantly improved seed germination (100%) & vigour (Electrical conductivity <90 µS) of *V. radiata* seeds under laboratory conditions over unprimed seeds (Germination=90.7%, Electrical conductivity >115 µS). Primed seeds of both species, stored in polythene bags and kept under refrigeration, showed the highest vigour at the end of their storage period. When seeds are stored in polythene bags, they are usually surrounded by a limited amount of air. This allows seeds to reach the moisture equilibrium with the air without changing the seed moisture. Storage temperature can affect microbial activities on seeds. Microbial activities could also be minimized when seeds are stored under low temperatures. Primed *G.max* seeds performed well under field conditions where the plants showed an early onset of flowering, higher growth rate, number of leaves and number of pods per plant over unprimed seeds. In contrast *V. radiata* seeds performed well under laboratory conditions. The probable reason for the success in seed priming is the metabolic repair of damages caused by rapid increase in protein synthesis which eventually enhances the production of storage materials metabolizing enzymes and cell wall loosening enzymes. This eventually affects germination events and thereby shortening the lag phase of germination.

Considering the parameters tested, seed priming seems to be an appropriate technique for *G. max* but not for *V. radiate*, in the Sri Lankan scenario.