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Effect of pulsed electromagnetic field treatment on seed quality enhancement and storage in soybean

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Maintenance of seed quality during storage and seed quality enhancement at the time of sowing are the most critical factor in soybean due to its fragile seed coat and present on the surface of seed.

The present study has been attempted to analyze the positive field treatment on seed storage and enhancement of seed quality parameters of soybean and also worked on screening the optimum frequently of pulsed electromagnetic field treatment to enhance storage potentiality of soybean fresh and revalidated seed lots.

An experiment was conducted to study the effects of pulsed electromagnetic field treatment on seed quality of fresh and revalidated seeds of soybean cv.JS9305 at Seed Quality Testing and Research Laboratory, National Seed Project (NSP), University of Agricultural Sciences, Dharwad. Seeds were exposed in four pulsed electromagnetic field treatment frequencies viz., control (untreated), 1 Hz, 10 Hz, 50 Hz and 100 Hz. The seed quality parameters were influenced by the pulsed electro-magnetic field treatment in both fresh and revalidated seed. Among the seed lot the effect of pulsed electromagnetic field treatments was more pronounced by recording higher seed quality parameter as compared to revalidated seed lot during the storage period. Irrespective of pulsed electromagnetic field treatments, significantly higher germination (61.87%), seedling dry weight (0.80g), vigor index (62), protein content (35.39%) and oil content (16.13%) of seeds recorded from the fresh seed lot (L1) compared to revalidated seed lot (L2) during the storage period. Among pulsed electromagnetic field treatments the 50 Hz (F4) recorded enhanced seed quality parameters by registering higher seed germination (62.67%), seedling dry weight (0.77g), vigor index (63), seed protein content (35.20%) and seed oil content (15.79%) compared to untreated seeds at the end of ten months of storage period.