

EFFECT OF DIFFERENT SEED COATINGS AND STORAGE TEMPERATURE ON QUALITY OF MAIZE SEEDS

G.G.A. Sandamali¹, M.G.D.L. Priyantha², U.S. Herath¹ and W.C.P. Egodawatta¹

¹*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.*

²*Seed Certification Service, Gannoruwa, Peradeniya, Sri Lanka.*

The seed quality of maize deteriorates during storage resulting low germination and poor crop establishment. Seed coating is a technology that involves applying a thin polymer layer to the surface of seeds. This safeguard germinating seeds and seedlings against biotic and abiotic stresses. The present experiment investigated the effect of different seed coatings and storage temperatures on the quality and storability of maize seeds. Two film-coating polymers: ready-made polymer and carboxymethyl cellulose + distilled water + Homai (Thiophanate-methyl 50% + Thiram 30%) WP + Thiamethoxam 70% WS were applied to the seeds of two maize varieties, namely MI hybrid 5 and MI hybrid 4. Six different seed-film coating formulations were tested with a non-coated control of each seed lot. A factorial, completely randomized design was used to test 28 treatments with four replicates. Coated seeds were packed in triple-laminated aluminium foil packets and stored at ambient temperature (25°C) and cold room temperature (15°C). Seed quality parameters: germination percentage, seed moisture percentage, shoot length, root length, seedling length, and seedling vigour index (SVI) were evaluated before storage and one, two, and three months after storage using standard protocols. Compared to the non-coated control, the germination percentage and SVI of seeds coated with formulations remained unchanged. In contrast, no significant difference ($p > 0.05$) was observed between seed coating formulations during the three-month storage period. During storage, the seed moisture percentage was below 12% in the coated treatments, while the moisture content of the non-coated seeds exceeded 12%. No significant changes in seed and seedling quality were observed between cold and ambient air storage. The seed and seedling quality of coated seeds remain unchanged during the storage period, even under ambient air conditions. Hence, seed coating is an effective technique to enhance the storability of maize seeds while retaining their quality.

Keywords: Germination, Seed-film coating, Seed quality, Seed storage, Seedling vigour index