

**QUALITY OF FARM-MADE WHEAT SEED IN NAKURU COUNTY AND THE
EFFECT OF SEED TREATMENT ON VIABILITY AND VIGOUR**

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DECLARATION

This thesis is my original work and has not been presented for the award of a degree in any other University.

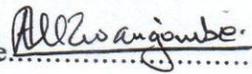
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GENERAL ABSTRACT

Wheat farmers use farm-saved seeds whose quality is largely unknown. Farm-saved seed contributes to build up of seed borne pathogens that increase disease incidences leading to poor germination, poor crop stand and reduction in yield. This study was carried out to determine quality of farm-saved wheat seeds and the effect of seed treatment on viability and vigour.

A survey was conducted during the 2015 cropping season in Nakuru County to determine wheat seed production practices. Data was collected on land size under wheat production, varieties grown, seed source, frequency of using certified seed, duration of recycling seed, seed treatment practises, emergence problems and wheat production constraints. Wheat seed samples were collected and subjected to physical purity. Data collected included weight of pure seed, other varieties, other crop seeds, discoloured/ shrivelled seed, insect damaged seeds, weed seeds and inert matter. Germination test was carried out using paper towel method and data was collected on number of germinated seeds, normal seedlings, abnormal seedlings, seedlings with infection, mouldy, hard seeds, shoot and root lengths. Seeds were treated with Murtano super[®], Seed plus[®], Monceren[®] 125 DS, Rootgard[®], Achook[®], Score[®] 250 EC and Thunder[®] and germinated in the laboratory and green house. Seedlings were dried in an oven at 65°C for 48 hours. Data collected included number of emerged seedlings and weight of dried seedlings.

Robin was the main variety grown by 53.3% of the farmers. Majority (42%) of the farmers used own-saved seeds with 19.7% recycling seeds for up to two years and only 24.6% treated their seed before planting. The main production constraint was diseases and stem rust was the main disease. The seed samples had low purity of less than 99% and germination of less than 85% with samples from agro-ecological zone LH3 being less vigorous. The effect of seed treatments varied significantly. Seedplus, Murtano super, Monceren, Rootgard and Achook improved

viability, vigour, emergence and seedling dry weight. Farmers use poor production practises which contribute to reduction in seed quality and yield. Seed treatments with appropriate chemical formulations increased viability and vigour. Farmers should be sensitized on the importance of using certified seed, seed selection and seed treatments for seed quality management.

Key words: Wheat, farm-saved seed, seed treatment, seed quality.