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"Solidarity in a competing world — fair use of resources"

On-Farm Maize Storage Systems and Rodent Postharvest Losses in Maize Growing Agro-Ecological Zones of Kenya

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Abstract

Rodents are one of the major postharvest pests that affect food security in impacting food availability and safety. However knowledge of the impact of rodents in the on-farm maize storage system in Kenya is limited. A survey was conducted in 2014 to assess the magnitude of postharvest losses in on-farm maize storage systems in Kenya, and rodents contribution to the losses. A total of 630 farmers spread across the six maize growing agro-ecological zones (AEZs) were interviewed. Insects, rodents and molds were the main storage problems reported by farmers. Storage losses were highest in the moist transitional and moist mid-altitude zones, and lowest in the dry-transitional zone. Rodents represented the second most important cause of storage losses after insects, and were ranked the main storage problem in the lowland tropical zone, while insects were the main storage problem in the other AEZs. Where maize was stored as cobs, the total storage losses were 11.1 ± 0.7 %, and rodents contributed up to 43 %. Contrastingly, where maize was stored as shelled grain, total losses amounted to 15.5 ± 0.6 % with rodents accounting for 30 % of the losses. Regression analysis showed that rodents contributed significantly to total storage losses ($p < 0.0001$), and identified rodent trapping as the main storage practice that significantly ($p = 0.001$) lowered the losses. Together with insecticides, rodent traps were found to significantly decrease total losses; it was concluded that the proper application of these practices needs to be strengthened to effectively mitigate losses in on farm-stored maize.

Keywords: Food security, Kenya, maize, on-farm storage, post-harvest losses, rodents

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