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Impact of Rodent Infestation on Availability, Safety and Nutritional value of Maize Stored On-farm in Lowland Tropical Zone of Kenya

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Rodents are the second most important storage problem after insects during on-farm maize storage in Kenya, and the greatest storage problem in the lowland tropical agro-ecological zone. However, there is limited information on the actual magnitudes of food lost, and food safety issues associated with rodent grain damage. Such information would help to improve maize postharvest management. Farmer stores were monitored over 3 months under natural infestation conditions to quantify actual weight losses due to rodents. Rodent trapping was also carried out to determine rodent species associated with the losses and their population. Additionally, samples of rodent-damaged and non-damaged grain were analysed for total mould count (CFU/g), mould incidence, total aflatoxin contamination, proximate content, and amino-acid and fatty acid profiles. Cumulative weight losses ranged from 2.2 to 6.9% in shelled maize grain, and from 5.2 to 18.3% in dehusked cobs during 3 months of storage. Rattus rattus was the only rodent species captured over the whole trapping period with a trap success rate of 0.62 -10%. Total mould count and Fusarium spp. incidence were significantly higher in rodent-damaged grains than in the non-damaged ones (P= 0.001; P= 0.011, respectively), whereas no significant difference was observed for Aspergillus spp incidence (P=0.239) and total aflatoxin contamination (P = 0.077). Contents of methionine, valine, proline and all fatty acids were significantly lower in the rodent-damaged grains.

Postharvest losses of agricultural commodities in Trincomalee, Sri Lanka

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