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#### **Thesis Title**

**A Comparative Analysis of the Costs and Benefits of Maize Storage Structures in Kenya**

#### **Thesis Abstract**

Cereals constitute the major source of food for a majority of the population in Kenya. However, 30 to 40 percent of the total grain production is lost due to inefficiencies in post-harvest handling and these impacts negatively on farmer's income, market supply, cereal prices and food security. One of the major causes of post-harvest losses on the farm is storage. Yet, farmers use inappropriate and dilapidated storage structures that lead to high post-harvest storage losses. Even though several storage technologies have been developed to reduce postharvest losses, there is little, if any, evidence on the costs and benefits associated with these storage structures.

This study compared the costs and benefits of storing a 90 kilograms bag of maize in 10 different storage structures. It uses secondary data from household surveys undertaken by the International Maize and Wheat Improvement Center (CIMMYT) in October 2010 and in March 2011 targeting 1,344 and 124 maize farmers respectively. The results showed that maize storage over fire, in the traditional crib, large pots and baskets and in a room in the house were not viable as the benefit-cost ratios (BCR) were less than one. The internal rate of return (IRR) computed at a discount rate of 15 percent, indicates that only the metal silo and the separate structure were feasible with IRRs of 39 and 18.2 percent respectively. Sensitivity analysis with a ten percent cost increment and up to 50 percent price reduction showed that only the metal silo was viable for maize storage. The study recommends the metal silo as the most feasible storage structure which although expensive has zero storage losses. Financial institutions should extend credit facilities to maize farmers to invest in the metal silo. The Government through the extension workers, CIMMYT and KARI should provide information to the farmers on the costs they incur in using the current maize storage structures and the benefits of the metal silo so as to make more informed investment decisions.