

## "Market Link: Understanding Small Malawi Farmers' Profits"

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### **Abstract:**

Malawi is food insecure due, in part, to lack of consistent market place access. When small farmers are forced to sell at harvest, they receive low prices because of the huge supply shock. However, on-farm storage often leads to food waste through insect infestation and malnourished diets through limited varieties. A solution is storing commodities in secured facilities located in cities. Moving the products is difficult due to infrastructure challenges.

This essay analyzes a linear simulation model in excel. The objective is to maximize smallholder farmer profit by evaluating uncertain revenue and cost variables associated with Malawi's markets and logistics infrastructure. It is based on the pigeon pea value chain, but could be applied to any food commodity with secured storage available.

Specifically, the variables in the model are base price, infrastructure rate, distance traveled, warehouse rate, and days to sell date. Due to inconsistent data in rural Africa, the model's input variables may be easily changed. For example, the user of the model could see how changes in base price affect the quantity shipped to that specific warehouse. The model provides insights on economies of scale, accurate, real-time price information, road quality and optimal warehouse locations.