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## **Forecasting Models for the Performance of Selected Orphan Crops in Kenya**

The vagaries of climate change have resulted in decline of the yield and production of major staple crops in Kenya, resulting in food insecurity. The variability of climate has affected production of these crops hence exposing most farm households to food insecurity. To overcome these trends, the Kenyan government in partnership with other development organizations have promoted production of orphan crops such as millet, cassava and sorghum which can adapt well to the climate change. Some of the interventions include; developing high yield and disease resistant varieties, undertaking value addition among others. It is not clear whether these interventions have contributed to the achievement of some of the SDGs such as food security. The study aims at analysing the performance of these orphaned crops in terms of area under production, production and yields, with the aid of time series statistical models and trend analysis. The study found that the yields of these crops have a positive trend, since 1985. However, there is high variability in the yield and production of millet and sorghum although cassava yield and production displayed more stability compared to the other crops. The study also found that after 1980, the production and yield of the crops have a positive trend unlike that of the major crops such as maize and beans. The forecasting models obtained were cassava ARMA (3,0,0) sorghum ARMA (2,0,3) while millet ARIMA (1,0,0). The study recommends that farmers should adopt these crops since the yield per acre is increasing and the production is resistant to climate change. Farmers are encouraged to embrace production of these crops to mitigate climate change shocks.

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