
**EFFECT OF SELECTED PHYSICAL AND CHEMICAL FACTORS ON YIELD,
PESTS AND DISEASES OF COCOA IN UGANDA**

BY

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DECLARATION

I Ateyar Fridah declare that I conducted this research and this report has never been submitted to any institute of higher learning before for any award of a degree

NAME

.....

SIGNATURE..... DATE.....

APPROVAL

ACADEMIC SUPERVISOR

NAME.....

SIGNATURE.....DATE.....

DEDICATION

This research Project is dedicated to my Parents, friends and my course mates for their Love, Moral and financial support throughout this project hence its success.

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I want to take this opportunity thank Mr Akodi David and Dr Wasige John for trusting me and proposing me this project. Also, and all other university staff for helping me and making this project possible. Many people deserve to be thanked for the help and support during this whole battle. That is why I want to thank my family above all, they have been incredibly supportive, helpful and welcoming for all kinds of problems. Secondly, I would like, through this text, to express my gratitude for the extraordinary friends I have. Seriously without you, I would never have succeeded.

ABSTRACT

This research investigated the influence of altitude and selected soil properties on yield, pests and diseases of cocoa in the three cocoa growing regions in Uganda. With that objective, in each region, 34 cocoa farmers in each of the selected regions of Central, Eastern and Western, making up a total of 102 farmers. The 102 farmers were questioned about their yields, pests and diseases while soil samples were taken. The soil was analysed for its chemical properties which included organic matter, nitrogen, phosphorous, potassium, calcium and magnesium. Overall, pod rot is attributed to altitude and soil properties of nitrogen, magnesium, organic matter and Verticillium wilt were correlated with a high positive significant relationship ($p < 0.01$), a majority of farmers had a considerably low productivity. Using correlation analysis, it was found that multiple soil properties of organic matter, calcium, nitrogen, are significantly related with pests and diseases. However, due to the time and scope of this study and the lack of research on the effect of varieties, management practices on the yield, few causal links could be established.

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CHAPTER ONE: INTRODUCTION

1.1 Background

Cocoa (*Theobroma cacao L*) is a crop of significant global economic importance, originally cultivated in Latin America. Cocoa is currently produced in other parts of the world including Africa, Asia, and the Pacific Islands. All products of cocoa are made from cocoa beans which include chocolate, cocoa butter and powder. More than 4 million tons of cocoa beans are produced worldwide annually (ICCO, 2017; Statista, 2017), and about 89% of this comes from just seven countries. From highest to lowest production outputs, these countries are: Côte d' Ivoire, Ghana, Indonesia, Nigeria, Cameroon, Brazil and Ecuador (ICCO, 2017), with West African farmers responsible for 63% of global production. More than 90% of the world's cocoa is produced by smallholder farmers, usually on a subsistence basis. Due to insufficient resources in management knowledge and crop production, smallholder farmers are not able to reach the full potential of the land they cultivate (Cacaonet, 2012).

Cocoa is one of the strategic crops in Uganda ranked fourth among the high-value export commodities after coffee, tea and fish that offer great economic opportunities for increasing farmers' incomes and foreign exchange earnings for the country. Traditionally cocoa was not considered a cash crop by farmers in Uganda but the Government of Uganda through the Ministry of Agriculture, Animal Industry and Fisheries ran a campaign to popularize cocoa as a cash crop now Statistics show that lately the demand for cocoa has gone high (Boeckx et al., 2018),

Uganda exports 41,273 tons of cocoa bean, contribution 1.15 share of the countries agricultural exports. By 2020 cocoa exportation earned Uganda US\$103.3 million. And farmers fetch \$2 per kilogram on the Local Market. The yield in the cocoa community in Uganda is low where a farmer gets 0.5 tonnes/hectare/year (500kgs/hectare/year) (20%) as compared to the potential yield of 2.5t/ha/year (80%).

The low yield is attributed to drought, low soil fertility, erratic rainfall, pests and diseases. Compared to the world's leading producer Uganda could be lagging behind because soil fertility in cocoa growing areas have heavily deteriorated coupled with low annual precipitation of below 1,250 per annum and prolonged dry spell of more than one month (Jazbleidi et al., 2016). Also cocoa production in Bundibugyo was recorded to have declined from 70% to 30% due to pests and diseases like mirids, cocoa pod borer and black pod that

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Appendices

A map showing the data collection regions