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FACULTY OF AGRICULTURE AND ANIMAL SCIENCES

DEPARTMENT OF CROP PRODUCTION AND MANAGEMENT

ASSESSMENT OF THE EFFECT OF COFFEE DEFFECTS ON CUP QUALITY

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A RESEARCH DISSERTATION SUBMITTED TO THE DEPARTMENT OF CROP PRODUCTION AND MANAGEMENT IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF A DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE AT BUSITEMA UNIVERSITY

FEB, 2024

DECLARATION

I, Egesa Julius, declare that this dissertation is my original work, and that neither part nor whole has been presented or submitted by anyone elsewhere for any award. The sources used for its compilation are presented and where another person's work has been used, acknowledgement is made.

Signature…….

Date 25/03/2024……

SUPERVISOR'S APPROVAL

This dissertation is submitted for the award of a Degree of Bachelor of science in agriculture of Busitema University with my approval as a university supervisor.

Signature

……

ASSOCIATE PROF. : MICHAEL MASANZA

DEDICATION

I dedicate the work of this report to my parents and my family members for the continuous and enormous support towards my academic journey. Above all, to God Almighty for the gift of life, spiritual guidance and the gift of knowledge and wisdom

ACKNOWLEDGEMENT

First and foremost, I would like to thank the ALMIGHTY GOD without Whose blessing it would not have been possible for all my expectations to become reality.

I am deeply indebted to my supervisor, professor Michael Masanza for his endless commitment he offered towards the completion of this research report and continuous guidance, critical comments, encouragement and timely suggestions and his educative comments and good spirit contributed much to make this report a success.

I would like to express my gratitude to coffee laboratory staff at UBORA Specialty Coffee Limited for their support during field work and data collection. Indeed, I am very grateful.

Finally, I would like to thank my parents for their enduring love and financial support during all my activities. I also thank my lectures for the impact they made in my academic journey and I wouldn't have gotten to this point without their tireless efforts.

May the almighty GOD bless and reward you all abundantly.

ABBREVIATIONS/ACRONYMS

ISO	International Organization for Standardization
CRD	Completely Randomized Design
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
UCDA	Uganda Coffee Development Authority
CV	Coefficient of Variation
ICO	International Coffee Organization

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ABSTRACT

Coffee is one of the most popular beverages worldwide. Coffee quality is declining due to several improper pre and post-harvest management practices. With the demand for high quality coffee for consumption continually increasing, the effect of the defects on coffee affects the consumption of coffee products among the coffee consumers. The defects of the coffee beans contribute to the quality of the coffee cup produced after the coffee has undergone a brewing process. Shape and size of the coffee bean significantly affect the cup quality parameters depending upon the variety. Different coffee samples were collected from different districts in Bugisu sub region. Completely Randomized Design (CRD) was used with 4 replicates. Coffee bean samples were assessed for defect analysis at a laboratory at UBORA Specialty Crops limited and the results showed higher levels of defects in Arabica coffee beans from different regions in Bugisu sub region. For the cup quality attributes (aromatic intensity, acidity, body, flavor, uniformity, clean cup and total cup quality) were assessed by a team of certified cuppers at Ubora specialty crops limited and the results showed significant variations in the samples of defected coffee on cup quality with the coffee cup quality positively affected by the presence of defects in coffee beans. Coffee beans with defects produce different aromas. The results of the analysis of variance showed that the defects in coffee beans had significant ($P \leq 0.05$) effect on cup quality attributes. (Aromatic intensity, acidity, body, flavor, uniformity, clean cup and total cup quality).

CHAPTER ONE

1.0 Introduction

1.1 Background of the study

Coffee (*Coffee arabica)* is a nonalcoholic stimulant beverage crop that belongs to the family of Rubiaceae and genus Coffea (Teshome *et al*., 2019). Among more than 100 species of coffee, *Coffea arabica*, *Coffee canephora* and *Coffea libercia* of are the most economically important species worldwide (Teshome *et al*., 2019). Coffee Arabica is believed to originate in humid high rain forests of south and south western Ethiopia (Woyesa & Kumar, 2020). Coffee is the world most important internationally traded commodity in terms of monetary value after petroleum and primary exports of many developing countries. Coffee ranked as the fifth most important trade commodity after wheat, cotton, maize, and rice (Melese & Kolech, 2021). Brazil is the leading coffee producing country followed by Vietnam, which accounted for about 40% and 20% of the global coffee supply, respectively (Melese & Kolech, 2021).

Coffee production contributes between 20 and 30% of Uganda's foreign exchange earnings (Ganazi, 2023).Uganda's production comprises 80% Robusta coffee and 20% Arabica coffee (Bunn *et al*., 2019). Uganda is well known not only for being the home of Arabica coffee, but also for its very fine quality coffee acclaimed for its aroma and flavor characteristics. Even though there is a suitable climatic condition, generally coffee quality exported to abroad or locally consumption is not satisfactory. Thus, it has been repeatedly mentioned at various forum that providing good quality coffee is the only way out and viable option to get in to world market and to remain help producers to hedge their marketing risks in Africa (Ganu & Razafiarivony, 2018).

Despite favorable climatic conditions, high genetic diversity of coffee Arabica for quality improvement and long history of production in Uganda, coffee quality is declining from time to time due to several improper pre and post-harvest management practice (Sualeh *et al*., 2020) which are still practiced by the majority of coffee producers/farmers, from which larger proportion of the product is obtained; these quality problems are mainly associated with poor agronomic practices, like lack of stumping, pruning and weeding (Lemma & Megersa, 2021). However, there is wide gap in review and documentation of factors affecting coffee quality

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APPENDINCES

Appendix 1: Specialty Coffee Association of America Coffee Cupping Form