



FACULTY OF ENGINEERING

DEPARTMENT OF AGRICULTURAL MECHANIZATION & IRRIGATION

ENGINEERING

FINAL YEAR PROJECT

**APPLICATION OF GEO-SPATIAL TECHNIQUES TO ASSES BANANA
CULTIVATION POTENTIAL ZONES.**

A case study of Tororo district in Eastern Uganda.

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A final year project Report Submitted to the Department of Agricultural Mechanization and Irrigation Engineering in Partial Fulfilment of Requirements for the Award Of a BSc. Agricultural Mechanization and Irrigation Engineering.

23rd/08/2022

DECLARATION

I **MUGUME JONAN**, hereby declare to the best of my knowledge, that this project report is an outcome of my original work and that it has not been presented to any institution of learning for an academic award.

Date

Signature.....

APPROVAL

This final year project for the program of Agricultural Mechanization and Irrigation Engineering has been submitted to the Department of Agricultural Mechanization and Irrigation Engineering for examination with the approval from my supervisor.

Supervisor

Mr. MUGISHA MOSES

Signature

Date

DEDICATION

I dedicate this report to myself for the tireless efforts towards its accomplishment and family for the good support provided unto me since childhood, and for the spirit of hard work, courage and determination instilled into me, which attributes I have cherished with firmness and which have indeed made me what I am today, may God's blessings be upon them.

Amen.

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Contents

DECLARATION	i
APPROVAL	ii
DEDICATION	iii
Acknowledgement	iv
LIST OF FIGURES	vii
LIST OF TABLES	viii
LIST OF ACRONYMS	ix
CHAPTER 1	1
1.1. BACKGROUND.	1
1.2. Problem statement.....	3
1.3. Justification	3
1.4. Main objective	3
1.5. Specific objectives	3
1.6. The scope of the study	4
CHAPTER TWO	5
2.0. LITERATURE REVIEW	5
2.1. Banana Growing in Uganda.....	5
2.2. Nutritional requirements for Banana production	5
2.3. Magnesium.....	6
2.4. Soil fertility.	6
2.5. Optimal ecological requirements	6
2.6. Other requirements for banana cultivation.....	7
2.6.2. Wind.....	7
2.6.3. Soil.....	7
2.7. Land suitability analysis	7
2.8. Land suitability classification	10
2.9. Multi-criteria Decision Making (MCDM)	12
2.10. Multi-Criteria Evaluation.....	12
2.11. Multi-Criterion analysis	13
2.12. AHP pairwise comparison	13
2.13. Standardization and reclassification of Criteria	15
2.14. Overview of geographical information system.....	15
2.15. Other methods of land suitability.....	15
2.16. Fuzziness in land suitability Decision making.....	16
2.17. Gap in Knowledge	16

2.18. VALIDATION.....	16
2.18.1. Laboratory tests	17
2.18.2. Empirical procedure for testing soil chemical properties.....	17
2.18.3. CATION EXCHANGE CAPACITY	17
2.18.3.1. Scope and field of application.....	17
2.18.3.2. Apparatus:.....	17
2.18.3.3. Reagents:	18
2.18.3.4. Procedure:.....	18
2.18.4. SOIL ORGANIC CARBON	18
2.18.4.1. Apparatus.....	19
2.18.4.2. Reagents.....	19
2.18.4.3. Procedure:.....	19
2.18.5. Soil PH	20
2.18.5.1. Apparatus:.....	20
2.18.5.2. Procedure for testing soil PH	20
CHAPTER 3	22
3.0. METHODS AND TOOLS.....	22
3.3. RESEARCH DESIGN	22
3.4. Methodology for specific objective one.....	22
3.4.1. Methods and tools	23
3.4.2. Basis for criterion identification.....	23
3.4.3. CRITERION 1: CLIMATE.....	23
3.4.4. Criterion 2. Topographic factors	23
3.4.6. Criterion 4. Drainage	25
3.4.8. Data sources for the above criteria.	25
3.4.9. Clipping features	26
3.4.10. Digital Image processing	27
3.4.11. Masking	27
3.5. Methodology for specific objective two	27
3.5.1. Equipment and tools.....	27
3.5.2. Soil suitability evaluation	27
3.5.3. Applying multi-criteria evaluation and assigning weights to the attributes of the selected criteria	28
3.6. Methodology for specific objective three.....	29
3.6.0. To validate the generated suitability model for accuracy and reliability	29
3.6.1. Equipment, tools and methods.....	29

3.6.2. To achieve this objective, the following will be required	30
3.6.3. On field analysis	30
3.6.4. Empirical analysis	30
CHAPTER FOUR.....	30
4.0. RESULTS	30
4.1. Study Area.....	31
4.2. SOIL TYPE SUITABILITY MAP.....	31
4.3.CEC SUITABILITY	32
4.4. Soil organic carbon.....	33
4.5. SOIL NITROGEN SUITABILITY MAP	34
4.6. LAND USE AND LAND COVER SUITABILITY MAP	35
4.7. Slope suitability map.....	36
4.8. Suitability for coarse fragments.....	37
4.9.DIGITAL ELEVATION SUITABILITY MAP	38
4.9. RAINFALL SUITABILITY MAP	39
4.10. SUITABILITY MAP FOR SOIL PH	40
4.11. Model validation	42
4.11.1. Observed field GPS coordinates.	42
4.11.2.PH laboratory results analysis.....	45
4.11.3. Laboratory analysis for soil organic carbon data (SOC)	46
4.11.4. Laboratory analysis of Cation Exchange capacity	48
4.11.5. Laboratory analysis for soil Nitrogen	49
5.0. CHAPTER FIVE.....	50
5.1. CONCLUSION AND RECOMMENDATIONS.....	50
5.2. Conclusions	50
5.3. Recommendations	52
REFERENCES	54

LIST OF FIGURES

Figure 1:shows Uganda census of Agriculture showing percentage distribution of production of Musa spp (food -type) on a regional basis	2
Figure 2 shows Land use Sustainability. Source (de le Rosa)	9
Figure 3 Showing General flow-chart for methodology	22
Figure 5:showing data processing methodology for specific objective one	27
Figure 6:Flowchart for AHP methodology for specific objective two.....	29
Figure 7:showing a combined pie-chart for the area suitability distribution for Banana cultivation in Tororo district.	44

Figure 8:showing a graph of observed and model data for soil pH	45
Figure 9:showing a graph of observed and model data for soil SOC	47
Figure 10:showing a graph of observed and model data for soil CEC	48
Figure 11:showing a graph of observed and model data for soil Nitrogen	50

LIST OF TABLES

Table 1 Data source (Opportunities, n.d.).....	Error! Bookmark not defined.
Table 2 Data source (Production, 2015.)	6
Table 3 FAO Structure of land suitability classification.....	8
Table 4:showing data sources and the respective functions.....	26
Table 5 showing Saaty's rating scale.....	28
Table 6:showing soil type suitability	32
Table 7:showing CEC suitability	33
Table 8:showing SOC suitability	34
Table 9:showing Nitrogen suitability.....	35
Table 10:showing LULC suitability	36
Table 11:showing slope suitability	37
Table 12:showing coarse fragments suitability.....	38
Table 13:showing Altitude suitability.....	39
Table 14:showing rainfall suitability	40
Table 15:showing soil pH suitability	41
Table 16:showing the overall suitability for Tororo district	42
Table 17:showing coordinate points with their respective sub-counties.....	42
Table 18:showing observed, model data and summary of regression statistics for pH	44
Table 19 Showing regression statistics for validation of pH observed and Model data using excel regression method.....	45
Table 20:showing observed, model data and summary of regression statistics for SOC	46
Table 21 Showing regression statistics for validation of SOC observed and Model data using excel regression method.....	47
Table 22:showing observed, model data and summary of regression statistics for CEC	47
Table 23Showing regression statistics for validation of CEC observed and Model data using excel regression method.....	48
Table 24:showing observed, model data and summary of regression statistics for Nitrogen	49
Table 25 Showing regression statistics for validation of Nitrogen observed and Model data using excel regression method.....	50
Table 26:Land suitability index for agricultural crops.....	51

LIST OF ACRONYMS

FAO.....	Food and Agriculture Organization
LULC.....	Land Use and Land Cover
LUT's.....	Land Use Types
MCDM.....	Multi-Criteria Decision Making
MCE.....	Multi-Criteria Evaluation
AHP.....	Analytic Hierarchy Process
LSA.....	Land Suitability Analysis
ANOVA.....	Analysis of variance
SS.....	Summation of squares

Abstract

The population of the planet and Uganda in particular is growing dramatically which is a challenge to food security. Tororo's population growth rate is estimated at 2.7%. It is therefore, important that the district increases its agricultural productivity to a rate that supersedes its population growth rate in order to improve food availability as well as access to food.

Musa spp is the world's fourth most important food commodity after rice, wheat and maize(Arinaitwe, 2016) and so increasing its production would find a sustainable development solution to zero hunger.

This is because of the crop's all-year-round fruiting habit coupled with high yield, and this ensures continuous supply of food. Due to food insecurity and poor economic growth in the country, there is a strong need for assessments of agricultural potential of the existing soils in order to determine their suitability for banana cultivation.

Physical and remote sensed data has been used in this research and validated for accuracy and reliability using both actual and empirical data models.

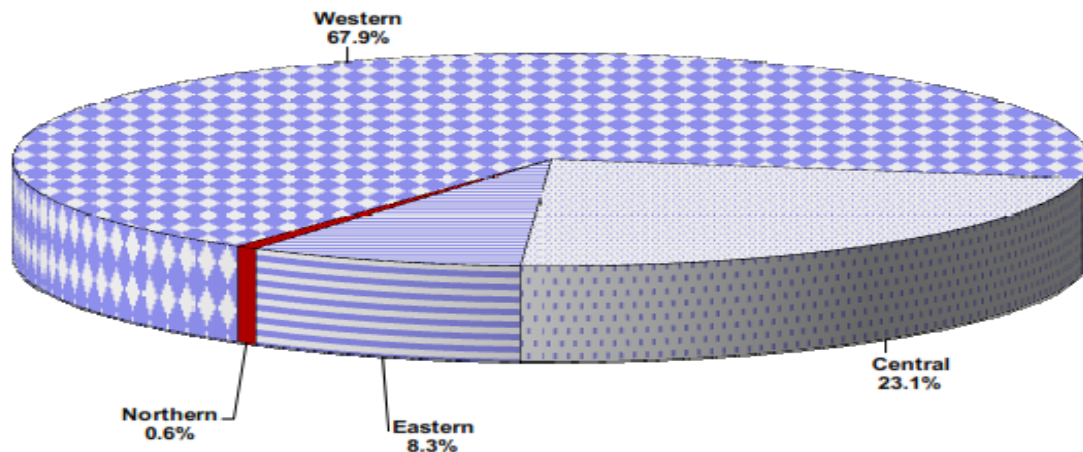
CHAPTER 1

1.1. BACKGROUND.

The population of the planet is growing dramatically which possess a demographic challenge to the food security (FAO, 2015). In fact, there is a triple challenge associated with the current population demographics. About 78 million people are added to the world's population every year. This means that, by 2050, the global food supply should triple (FAO, 2016). The annual population growth rate was 3.4% (K Nyombi, 2013), the third highest in Africa (2012) and is forecasted to remain high in the next decades. In 2012 the cultivable area was 9.15 million hectares or 37.8 percent of the area of the country regardless of the unlimited population increase (UBOS, 2018)

In 2011, Tororo's population was estimated at 487,900 and was at 2.7% growth rate. It is therefore, important that the district increases its agricultural productivity to a rate that supersedes its population growth rate in order to improve food availability, access to food

Agriculture in Tororo district is mainly subsistence (75%) and takes place on small holdings of approximately two acres, using mainly simple tools such as hoes and pangas. The district has two seasons for growing crops, with the first season stretching from January to May and the second season from June to December. The major agricultural enterprises in Tororo District are crop farming and fish farming. Various food crops are grown in Tororo District including finger millet, soybeans, potatoes, maize, sorghum, groundnuts, musa spp, beans, cowpeas are mainly grown for food consumption, while maize, rice and ground nuts are mainly grown for sale.



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