**CHAPTER ONE**

**INTRODUCTION**

* 1. **BACKGROUND OF THE STUDY**

Tillage is the agricultural preparation of the soil by mechanical agitation of various types, digging, stirring and over turning. It involves applying power to break up and re-arrange the entire topsoil structure. Farming model seeks to limit mechanical disturbance of the soil by minimizing through the ploughing, harrowing or hoeing the land. Continous conventional tillage with tractor mounted ploughs, harrows and rototillers buries the soil protective cover, kills some beneficial micro and macro organism, causes rapid decomposition of organic matter and degrades soil structure by pulverizing soil aggregates.

One of the criticisms of intensive ploughing was Edward H faulkners plowman folly published 1943.Researchers gave the book little attention. Faulkners recognized the plow as a major cause of soil erosion, but did not have a workable alternative.

At the same time, researchers and a few farmers were beginning to demonstrate the successful production of crops using chemicals in seedbed preparation and almost no tillage. Economically, it was becoming harder to afford the time and equipment required to do primary tillage. No-tillage or Zero tillage allows farms to form steeper, more marginal land, and required far less fuel, machinery and time. Hence, there is need to compare the effect of tillage and zero tillage on cassava yield.

* 1. WHAT IS TILLAGE

Tillage practices is defined as mechanical manipulation of soil to provide a favorable environment for good germination of seed and crops growth to control the weeds, maintain infiltration capacity and soil aeration. A well planned tillage practice provided a favorable environment suitable for better seed germination and effective plant growth. In addition, it also protects and maintains a strong soil structure to fight erosion.

Tillage is an important and primary tool for the conservation of land.

Asper definition, its primary aim is to provide a favorable soil environment for the growth of plant which is indirectly related to soil conservation. The effect of tillage on soil erosion is the function of its several effects such as aggregation surface sealing infiltration and resistant to erosion destruction of soil structure either by excessive tillage or tillage operations at improper soil moisture condition tends to increase soil erodibility, causing significant soil loss. To achieve a best result for soil conservation, the following points should be considered for tillage operations.

1. Till no more than necessary
2. Till only when moisture is in the favorable limit
3. Vary the depth of ploughing

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* 1. STATEMENT OF RESEARCH PROBLEMS

Tillage leads to unfavorable environment effects such as soil compaction, erosion, soil degradation, acidity of soil, loss of organic matter and soil fertility and exposure of beneficial organisms such as earthworm, mycorrihizia, athropods etc to harsh weather condition or kill them.

The cost of tillage operation and total cost of crop production need to be minimized.

* 1. AIMS OF RESEARCH
* To minimize soil disturbance and promote sustainable agriculture.
* To reduce the effect of soil erosion and reduction in the application of chemicals in farming system. Hence, promoting organic farming.
* To improve the productivity of crop.
  1. OBJECTIVES OF THE STUDY
* To reduce cost of production while increasing yield.
* To reduce fuel and equipment cost in farm operation
* To reduce the possibility of land degradation through stubble retention and proper grazing management.

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