



AGROFORESTRY PRACTICES AND CONCEPT IN A SUSTAINABLE LAND USE SYSTEM IN ETSAKO WEST LOCAL GOVERNMENT AREA OF EDO STATE, NIGERIA

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ABSTRACT

Agro forestry is defined as a dynamic ecology based natural resources management system that through the integration of trees on the farm and the agricultural landscape diversifies and sustain the production of increased economic and environmental benefits for the land users at the various levels. Agro forestry helps to conserve and protect natural resources by mitigating nonpoint. Control of soil erosion and creating wildlife habitat. This paper draws attention to the agro practices and concept in sustaining land use system .The benefits derived from the interface between forest trees and agricultural crops are too numerous to mention. These consists of the optimum use of the land both for agricultural and forestry production on a sustainable basis including the improvement of the soil quality. This is also the socio economic benefit that are gotten from forestry .The merit of agroforestry is all encompassing and good to a sustainable production system and livelihood.

Key words: Agroforestry, Concept, practices, Sustainable and land use system.

INTRODUCTION

Agro forestry practices offers a practical way of applying the various specialized knowledge and skills acquired to the development of a sustainable rural production systems. Agro forestry is recognized as a land use option in which trees provide both products and environmental services in agro forestry systems. The trees grown on different farmlands in the same region when processed can bring about improved wood situation thereby enhancing environmental protection (Otegbeye 2002).

In most agroforestry systems. The trees that are grown do not possess the normal silvicultural recommendations in terms of the spacing (Owonrubi 2002). Given the reality of awareness among the farmers of multiple land use management. The need to improve on the existing forestry practices becomes necessary in the face of increasing population and limited nature of land. The rural populace have discovered to have a wealth of the indigenous knowledge and have incorporated trees in production systems in areas where they lived for a very long period of time (Evans and Alexander 2004) .Agroforestry have

both the protective and socio economic benefit. Kang (1993) reported that outside the agricultural benefit trees exhibit socio economic values. The benefit of the trees components derived by farmers from agroforestry was evaluated from a social economic benefits of agroforestry can be evaluated in terms of productivity stability and sustainability. The aim of this paper is to highlight the importance and concept of agro forestry as a veritable tool in sustainable land use system.

TYPES OF AGROFORESTRY SYSTEMS

There are various types of agroforestry systems some of which are listed below;

1. Scattered trees: This characterized by well grown scattered trees on cultivated and presently fallowed land area. These trees develop and are scattered a distance apart on a piece of land so that they do not compete with their neighbors. The parkland trees comprises of indigenous trees such as *Tamarindus indica* etc. The park land trees possesses the following characteristics. They are deep rooted preferably reaching ground water table. They possess the capacity to fix nitrogen produce litter that decomposes well and add as much as possible to the soil organic matter.
2. Alley cropping as described by (CTA 2003) is termed as a system in which strips of annual crops are grown between rows of trees. Lining up the woody plants in hedges should ensure that there is little interference with cultivation of the field. The extension of alley cropping to include animal husbandry by the International livestock Research Institute (ILRI) has led to the concept of alley farming.
3. Wind breakers and shelter belts. Their major purpose is primarily to control wind erosion. The species used include *Musa* species, *Mangifera indica* etc. Alao and Shuaibu (2011) have shown that these practices are commonly practiced by farmers as indicated in table 1.

BENEFITS OF AGROFORESTRY

The benefits created by agroforestry practices are both economic and environmental. Agroforestry can increase farm profitability in several ways.

1. Crops and livestock are protected from the damaging effects of wind and more productive.



2. The total output per unit area of tree, crops, and livestock combinations is greater than any single component alone.
3. New products add to the financial diversity and flexibility of the farming enterprise.

KEY TRAITS OF AGRO FORESTRY PRACTICES

Intentional: This is termed the combination of trees. Crops and animals which are intentionally designed and managed as a whole unit. Rather than an individual elements which may occur in close proximity but are controlled separately.

Intensive: Agro forestry practices are intensively managed to maintain their productive and protective functions and often involve annual operations such as cultivation. Fertilization and irrigation.

Interactive: Agroforestry management seeks to actively manipulate the biological and physical interactions between the trees. Crop and animal components. The goal is to enhance the production of more than one harvestable component at a time. While also providing conservation benefits such as non-point source water pollution control or wildlife habitat.

Integrated: The tree .crop and or animal components are structurally and functionally combined into a single .integrated management unit. Integration may be horizontal or vertical and above or below ground. Such integration utilizes more of the productive capacity of the land and helps to balance economic production with resource conservation.

CONCEPTS OF AGROFORESTRY

Agroforestry is termed as a dynamic ecologically based natural resources management system that through the integration of trees on farms and in the agricultural landscape diversify and increases the production economically, socially and environmental benefit for land usage. (Leakey, 1995). Agroforestry is generally termed as a land use system in which trees are grown in association with agricultural crops. Livestock and the economic interaction between them. An example of such practice is the taungya system which is characterized by the environment. Plants, Species and the arrangement of social and economic function.

CLASSIFICATION OF AGROFORESTRY Agro silviculture was aptly regarded as a variant of taungya to be practiced outside of forest reserve (Nwoboshi 1982). It envisages multiple land use involving arable and tree crops

which are of dominant interest. Agriculture could be likened to shifting cultivation (Nwoboshi.1982). Except that the fallow vegetation is planted with economic trees whose gestation period is equivalent to the fallow period.

SILVO PASTORAL

These are mostly trees with pastures and livestock. It is essentially the practice of animal production along with trees and pastures.

SHIFTING CULTIVATION

Shifting cultivation was the farming system widely.

Table 2 . Uses and relevance of agroforestry to farmers in Etsako West Local Government area, Edo State. Nigeria.

Uses of Trees	Respondents	Percentage (%)
Additional income	22	20.37
Human nutrition	7	6.50
Reduce weeding	4	3.70
Fuel, Stakes and Timber	32	29.63
Shade for livestock	8	7.41
Medicinal Herb	7	6.50
Wind break	4	3.70
Soil improvement	24	22.2
Total	108	100.0

Source. Alao and Shuaibu.2011

This kind of farm is no longer rampant because of the rapid population growth which has drastically increased the food demand to the level that fallow the period had reduced and the forestry sector have to give way gradually to agricultural needs. This has led to the unprecedented falling of trees. Lowering the fertility of the soil productivity. And weed infestation and consequently lowered crop yield (Okigbo 1984). It is certain that not all the land are equally productive (Okigbo 1984) which is not even economical on the long run. Intensive rather than extensive use would be the way out of the long jam (Banuri 1992) In order to achieve the twin goal of satisfying increasing demands for food as well as retain the biologically beneficial effects of shifting cultivation. A lot of persons in the previous decades advocated the development of land use systems based on age old practices of intentionally mixing trees in crop animal production fields (Nwoboshi 1980).



MIXED FARMING

Mixed farming refers to as the combined activities of rearing animals and growing of crops on the same piece of land at the same time has effects on the soil. The droppings and urine from animals decompose and add to the organic matter in the soil. The practice improves soil fertility and soil utilization. (S.A.Omoruyi).

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