

Forest Protection and Conservation Education of Agricultural Youth for Increase Forest Products and Economic Growth in Enugu State Nigeria

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Abstract

Review Article

The study is an opinion paper which determine to expose agricultural youth in forest protection and conservation skills for increased productivity. The study was carried out in Enugu State. Enugu state is one of the states in South East Nigeria. The study examined the following key concepts: Agricultural Education, Objectives of agricultural education, Forest protection and conservation, need for forest protection and conservation, Aim and Objectives of forest protection and conservation. Educating youths in forest protection and conservation skills, which include – Beating up, weeding, cleaning, fertilizer application, thinning, pruning, brushing and control of fire hazard. The paper also discussed youths and youth in agriculture. The benefit of increased productivity was also outlined. The paper finally concluded and made some recommendations among which is that government should make all effort to organize various activities and educative interactive forum in forest conservation and management for youth and to organize the identified skills in a pamphlet and place in the skill development center.

Keywords: Agricultural Education, Forest Protection, Forest Conservation, Youth Empowerment, Skill Development, Enugu State.

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INTRODUCTION

Agricultural education is a program designed for learners to acquire knowledge skills and attitude in farm and other related works in areas of agriculture. According to Fafunwa in Aneke (2014) agricultural education is a form of education that provides training and develop skills knowledge of learners to be self-employed. It is acquired in the four walls of the school and also out-of-school. In the four walls of the school, agriculture education grooms the recipient through primary school, secondary, universities and other tertiary institutions to produce, manage and grow in Agro-business. Agricultural education acquired through out of school is provided by extension agent who are trained to educate farmers and help them in their farming activities and sales.

Agricultural education is therefore a formal and non-formal system programme designed to educate youth and other adults in animal husbandry, crop production, horticulture, fishery, forestry, among others.

This paper will focus on forest protection and conservation education for youths. Forest protection and

conservation is one of the courses in agricultural education in universities. FAO (2017) highlighted the objectives of agricultural education in formal setting to include:

- To equip students with skills and knowledge.
- Promote agricultural awareness and appreciation (NCA 2020).
- Prepare students for career in agriculture or related fields (USDA2015)

While in informal sector of agriculture of education, the objectives are:

- Improve farming practices and productivity (world bank 2019).
- Enhances food security and nutrition (IFAD 2020).
- Support rural development and livelihood (UNDP 2018).

The objectives highlighted above are meant to equip youths in career for food security, nutritional balance, healthy living and self-reliance. This is in tandem with the objectives of forest management and conservation which among others include: To enhance

both formal and non-formal agricultural education which exposes learners to skills in various areas including forest protection and conservation.

Forest Protection

Forest protection is a form of management practice which is keeping the forest safe from damage and extinction. According to Omotoye (2017), forest education is an act, science and practice of keeping the forest resources in good order and using for human benefits. It is also concerned with acquiring knowledge in preserving, developing and utilizing forest and forest related materials. Forest protection also noted by food and agricultural organization (FAO2017) is the practice of preserving and conserving forest, including preventing deforestation, promoting sustainable forest management and protecting forest ecosystems from harm. Alwaya, Abanyam and Okeme (2015) explain that forest protection involves the management and conservation of forest to maintain their health, diversity and productivity, while also providing benefits to people and the environment.

Need For Forest Protection and Conservation

About 10,000 years ago, before the time of modern agriculture, reach forest and open woodland covered an estimate 6.2 billion hectare of earth's land surface now at total forest land is about 4.3 billion hectares (Osinem 2008). This shows that forest land is being exploited and need to be salvaged because forest is one of man's widespread and useful natural resources. Forest provides shelter, fruits, firewood and protection of the environment.

In our contemporary time, forest provide man with timber, lumber, plywood, fuel, pulp for paper production (Azunku 2017). Further Abebola (2018), added that insulation materials, plastics, man-made fires, explosives, paints, dyes, medicines, perfumes, guns, resins and home for bees in hives among others are welcomed by forest. There is need to maintain vegetations so that animals and human life will not be endangered. There is therefore need to stick to the objectives of forest protection and conservation and to promote best practices for sustainability of forest products such practices include: Sticking to appropriate legal and policy framework related to forest management, Promoting commitment and participation of local people in forest guards, Develop appropriate institutional mechanism associated with forest for increased output, Having capacity to detect signs of excessive resource exploitation through monitoring indicators, Uphold multi-use concept of forest management instead of a single forest commodity, among others.

Aim and Objectives of Forest Protection and Conservation

Forest is an expense of land where trees are grown. They may be growing naturally without being

cultivated (natural forest) or planted by man using scientific approach (silviculture). They are useful for survival and need to be protected from becoming infected by pathogen or are consumed by herbivores. If appropriate protection is not giving to forest products they may go in extension. Forest protection according to Osinem in Udensi (2018) is aimed at achieving the following objectives:

1. To preserve biodiversity at source of products and industrial tree plantations.
2. To provide resources for sawn timber, pulp fuel, fodder.
3. To provide shelter belts and windbreaks.
4. To conserve and protect the environment, including soil, water, fauna and flora.
5. To protect the forest from damaging phenomena such as fire, flood and illegal grazing.
6. To minimize forest depletion and curtail farming practices which threaten food security and other goods and services.

For the above benefits to be in place measure should be placed to protect and conserve forest in all aspects.

Areas of Protecting Forest and Forest Products

Forest should be protected from:

Man-Made Damage:

According to Adeyoju (2020) the greatest problem associated with forest protection, conservation and management is man. The author noted that people have problem of uncontrollable rate of depletion of forest resources especially in the tropics which Enugu state is one of the states in the tropics. This is done as a result of greed and quest for quick money. Youth should be made to understand that indiscriminate cutting and deforestation will reduce yield, alter the natural habitat which were once the home of many species of wildlife.

Population Increase:

According to Osinem & Mama (2008) the high rate of population growth, leads to poverty and remains the major cause of deforestation in its quest to have access to more land and the need to meet domestic wood requirements. It is believed that deforestation is heightened for people to have land for farming because the available land could not reach the demand of the people. Therefore, forest owners should guard their forest properly to avoid depletion as a result of increased population.

Educating Youth in Forest Protection and Conservation Skills

The youth should be made to understand that when clearing, puddling, stumper is made and tree starts to establish, tendering operation of the plantation is required for effective protection and conservation.

This education could be through:

- Organizing seminar
- Call for workshop on forest management
- Use extension agent to teach youths
- Send interested youth on scholarship-based training.

Some of the conservative practices include:

Beating up:

Beating up is replacement of failed crops mdpi.com/livetoplant.com explains that beating up is a silver culture technique where your trees are deliberately damaged or personally broken to encourage a more robust growth pattern. The process can help promote healthy development and increase the overall resilience of the forest ecosystem. In silviculture technique beating up is used to achieve specific goals like promoting species diversity, resilience and ensuring continuous timber supply. Mdpi.com/livetoplant.com.

Weeding:

They need to read the forest cannot be overemphasized especially for the first year or few years after planting. Aneke & Ugwuode (2020) noted weeding agricultural farm gives way for plants to establish effectively and reduce all competition that may cause death to plant. Such weeding may be done:

- Manually (hand pulling weeding) which is the oldest and most common method used in the tropics.
- Mechanically - this is the use of machines to weed and such has made great programs in the tropics recently with expansion of plantation silviculture into savannah zone. Mechanical weeding also helps to keep the soil in a good filth. Aneke and Ugwuode (2020).
- Weeding may be chemically done using chemical that will not be harmful to the trees. Weeding of the forest plantation reduced competition with other plants, reduce weeds that harbor diseases and pests for forest trees and reduces the incident of fire outbreak especially during dry season.

Cleaning:

Cleaning according to Alawa, Abanyam and Okeme (2015) is a tending operation carried out in plantation between the end of weeding. According to FAO 2014, cleaning in forest management and conservation refers to removal of unwanted vegetations, debris, or inferior trees to promote the growth of desired tree species this process like thinning helps to reduce competition for resources like water, light and nutrients, enhancing the overall health and productivity of the forest.

Food and Agricultural Organization (2014) described cleaning as a silvicultural practice which promotes forestry. Cleaning also eliminates alternate

hosts of favored food plants of dangerous pests of the crop trees. Diseased and insect infested trees belong to this group and should be removed if such action would really reduce the risk to attack on the desirable trees.

Application of Fertilizer:

Fertilizer is necessary before the one supplied naturally by the rocks of the soil and atmosphere. Most putting compost already contains fertilizer which may almost be used up during nursery stage. For most trees additional fertilizers after planting may be beneficial especially where the soil is deficient in nutrients. Care must be taken when applying fertilizers because they may provoke mortality possible due to high concentration of salt in the soil solution if adequate rain does not fall.

Eucalypt species are susceptible to boron deficiency in the soil causing leaf deformation, serious dieback at later parts of dry season and frequent death to plants. Eucalypt usually benefits from NPK fertilizers its application should be 11:22:11 at 200 g to be applied to the ground at least 15 cm away from the tree on the upper side of the slope from the tree. Phosphate fertilizer is essential for pines in most of the Savannah region in Nigeria Okereke 2021.

Also, urea has been found to be injurious to pines but ammonium sulfate has increased height growth if used in conjunction with phosphate.

Food and agricultural organization 2014 outlined the importance of fertilizer application to forest trees as

- ✓ Boost tree growth
- ✓ Improve forest productivity and
- ✓ Enhance nutrient cycling.

Fertilizer application can be beneficial in certain forest context like afforestation.

Woboshi (2000) explain that fertilizer can be effective in establishment of plantation crops. The knowledge of this skills would enhance the competence of agricultural youth.

Thinning:

In silvicultural practice it is good to reduce or remove excessive tree stands. Thinning is the act of removing some number of trees so that those remain are allowed for better conditions for growth and production of high-quality wood. Thinning reduces the competition between trees so that the remaining ones are given more room and growing space.

Majorly, Osinem (2008) explained that thinning is of three major benefits:

- ✓ It reduces the time needed to produce marketable products where minimum size is a limiting factor,
- ✓ It increases harvest and

- ✓ Enhance the quality of yield.

Pruning:

This equally a silvicultural operation which agricultural youth need to understand the skills. Pruning is the act of removal of life and dead branches along lower trunks of tree in order to produce clear not freezing bar that may grow along the stem to stop the tree may be prune at different stage of development so that the:

- ✓ Timber quality is improved
- ✓ To create access to penetrate and manage the forest and reduce thinning or to reduce fire outbreak.

Pruning can be done in two ways, natural pruning or self-pruning which is caused by biotic factors in the locality to eliminate the branches after their death while artificially the forest star may aid nature to accelerate the rate of production of high quality not free timber by officially removing the branches of the chosen portion of the stem (Sigh 2015).

Brushing:

The international union of forest research organization (UFRI 2015) described brushing practice as a cutting or controlling competing vegetation or promoting growth of desire tree species while the undesired ones are cut off. Most of the small items cut off are at the ground level up to an including about force cm diameter at breast height and the severing of all climber in order to facilitate access for subsequent chainsaw phase. Sharp objects such as machetes are relevant in brushing.

FAO (2014) explain that if the forest is not brushed, the small growth may dry up during dry season and may catch fire if per adventure hunters spark fire around.

Control of Fire Hazard

It is always good to set up a tower where the forest guard would mount and watch over for hunters who may cause fire outbreak.

Osinem & Mama (2008) explain that fire occurs frequently in the most forest zones due to seasonal drying of grasses. Apart from hunters, humans might ignite fire around the forest and this may burn to consume or harm forest trees.

These conservation practices should be taught to the youth to make the competent in forest management. Youth of agriculture are graduates or continuing students in agriculture or other area of study who may wish to go into farming especially managing the forest. More so, people who do not have educational background of agriculture may wish to manage forest and its products. Onu in Aneke (2016) described youth are people who are within the age of 18-30 years and explain that these youth are vibrant, innovative and

energetic to carry out any farm activity if exposed to the skill involved in the particular farming area. Such exposure to the skills would improve productivity of forest products.

Increase forest products/productivity involve:

- ✓ Provision of more timber resources
- ✓ Provision of non-timber resources
- ✓ Improve bio prospecting found in the forest (fauna & flora)
- ✓ Modification of local climate and hydrology
- ✓ Improve sources of medicinal herbs
- ✓ Better home for wildlife
- ✓ Reduce land degradation such as erosion

Production of food and valuable resources for human nutrition such as honey and forages for animal feed. (Osinem and Mama 2008). The skills discussed in this study when kept in the skill development center would be of great advantage in exposing them to effective forest management.

Therefore, there is need to expose youth to forest protection and conservation skills for increased productivity in Enugu state and beyond.

CONCLUSION

The study looked into ways of protecting and conserving forest products. The study was basically on youth development in skills involved in forestry. It dealt with the needs for forest protection and conservation. It discussed mainly the skills involved in beating up, weeding, cleaning, fertilizer application, thinning, pruning, brushing and fire hazard control. It also discussed the target interest who are youth and how to help them understand skills for effective forest protection and conservation. The paper made some recommendations among which is to place the identified skills in the skill development center for easy access by other youth who may be interested in forest management.

Recommendations:

The following recommendations were made:

1. Interested youth need to be encouraged by the government through formal and informal education on forest protection and conservation by teachers and extension agents.
2. Youth who need to establish a forest should be empowered by giving them loans.
3. Seminar and workshop should be organized from time to time by government and philanthropist to improve youth skills on various agricultural activities.
4. The identified skills should be organized and placed in the skill organization center.

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