

ADOPTION OF PASTURE PRODUCTION TECHNOLOGY BY NIGERIAN LIVESTOCK FARMERS: THE NEED FOR PARADIGM SHIFT FOR SUSTAINABLE LIVELIHOOD. A REVIEW

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ABSTRACT

The bulk feeds consumed by the animals comes from rangeland or pasture. Nigeria has about 93 million hectares of which 40 million are offered for grazing by national herdsmen under permanent pasture. It is expected that only about 3% of over 101 million domestic ruminants in Nigeria are raised on improved pastures; the remaining 97% are raised on low nutrient native pastures. The poor performance of ruminant in Nigeria has been attributed to large need on natural pastures which on several occasions has been stated to be low both in quality and quantity of nutrients composition. This paper is a review of the adoption of pasture production technology by livestock farmers. A critical review of this pasture production technology adoption is vital for their increased animal production and improvement in national development. Concept of rangeland and pasture, adoption of pasture production technology in Nigeria and the way forward for adoption of pasture production technology among Livestock Farmers were key areas looked into. From the review it was concluded that pasture production is an integral part of livestock production and livestock production is based on natural pasture as the major sources of feed for their animals in Nigeria. It is recommended that, the extension specialists through extension agents should mobilize and synergize their efforts by establishing good and effective networking and linkages in various rangeland/pasture projects by government.

Keywords: Adoption, Pasture Technology, Livestock Farmers Livelihood

INTRODUCTION

In ruminant livestock production the bulk feeds consumed by the animals comes from rangeland or pasture. Whether animals grazed in situ or fed in dry lots pasture provide the cheapest source of feed for livestock (Amodu, 2019). Rangelands are those lands on which the native vegetation (climax or natural potential plant community) is predominantly grasses, grass like plants, forbs, or shrubs suitable for grazing or browsing use. Rangelands include natural grassland, savannas, many wetlands, some deserts, tundra, and certain forb and shrub communities. While pastures are those lands that are primarily used for the production of adapted, domesticated forage plants for livestock. Other grazing lands include woodlands, native pastures, and croplands producing forages.

The major differences between rangelands and pastures are the kind of vegetation and level of management that each land area receives. Rangeland supports native vegetation, and this includes areas that have been seeded to introduced species (e.g., crested wheatgrass), but which are extensively managed like native range. As well there is native and indigenous forage grass land which is growing year after year naturally. Pastures refer to the lands that have been seeded, usually to introduced species (e.g., tall fescue) or in some cases to native plants (e.g., switch grass), and are intensively managed using agronomy practices and control of livestock during use. Under the extensive system of pastoral livestock production practice in Nigeria, forage constitute 80-98% of the animal diet, where even under intensive system, at least 10-30% of the diet comes from forages (Amodu, 2019).

Nigeria has about 93 million hectares of which 40 million are available for grazing by national herdsmen under permanent pasture. It is estimated that only about 3% of over 101 million domestic ruminants in Nigeria are reared on improved pastures; the remaining 97% are raised on low nutrient native pastures and farmlands (Amodu, 2019). The poor performance of ruminant in Nigeria has been attributed to large dependence on natural pastures which on several occasions has been reported to be low both in quality and quantity of nutrients composition when compared to those in the temperate region (Tian *et al.*, 2000).

Muinga *et al.* (2007) reported that tropical grasses are typically known to have low crude protein that cannot solely sustain ruminant animals throughout the year. Low quality forage and fodder crop species, inadequate input supply, poor land preparation, increase of human activities and inadequate forage and fodder scientists will be a major problems facing forage and fodder crop production in Nigeria. According to Gaddafi *et al.* (2019) stated that the proper forage establishment, development of more grazing reserves, use of biotechnology, proper forage and fodder conservation and other management measures was the key step in having a profitable pasture in Nigeria.

Livelihood means supporting one's existence, especially financially or vocationally; For example, to earn a livelihood as a pastoral farmer. In other hand livelihood defined as methods and means of making a living in the world. The term is centered on resources such as land property, crops food, knowledge, finances, social relationship and their interaction with the political, economic and socio-cultural characteristics of an individual community (Abdulwahab, Salau and Bayei 2020).

Adoption is a process of composed of learning deciding and acting over a period of time; it is a decision to make full use of innovation as the best course of action available. The decision to adopt technical innovation is assumed to be associated with social, economic and psychological characteristics of the potential adopter as well the type of innovations, that is, their characteristic and complexities (Ogunbameru 2001).

With all the above importance of pasture production for livestock farmers to improve their livelihood, and with all effort exploited by Federal Ministry of Agriculture and Rural Development and research institutes, NGOs like Milk Value Chain Foundation and other bodies in trying to shift the livestock farmers from traditional modern livestock production by given them the package of pasture production technology and training, but all in vain, the rate of adoption is very low which leading the livestock productivity such as milk, meat and other byproducts remain low productive, and the livelihood of livestock farmers is not up to standard in Nigeria, compare to developed countries who are utilizing the pasture technology for their livestock production. However, this paper is going to review the past research, why adoption on pasture technology by the Nigerian livestock farmers is low.

Adoption of Pasture Production Technology in Nigeria

Livestock interventions in Nigeria have all along been with feed and fodder production but as a demoted component. These efforts date back to pre-colonial period to the present day livestock colony concept by the Federal Government of Nigeria. Kallah (2004) stated that over the years, there had been some efforts on the development of forage resources based on planned programmes, rational technology of utilization, conservation and management of the resources. Technological change has been the key driving force for growing agricultural production and stimulating agriculture development. The choice of technologies and their adoption was to increase production, productivity and farm incomes.

The adoption of technologies that have the possible to add to sustainable livelihood and farming systems. Technology adoption is a wider concept. It is affected by the development, dissemination and application at the farm level of existing and new biological, chemical and mechanical techniques, all of which are comprised in farm capital and other inputs; it is also affected by education, training, advice and information which formula the basis of farmers' knowledge (Organization for Economic Cooperation and Development, 2001).

The techniques involve in sown pasture establishment or pasture production technologies in Nigeria include site selection, soil testing and correcting soil nutrient deficiencies, seedbed preparation/land preparation, species selection, date of planting, seed dressing and treatment, seeding methods, weed control, fertilizer application, pasture disease and pest control, grazing management, forage/seed harvesting, conservation (Garba *et al.*, 2022).

The Way Forward for Adoption of Pasture Production Technology among Nigerian Livestock Farmers

The way forward for pasture production technology adoption among Nigerian Livestock farmers in Nigeria is by providing the recommended pasture production technologies and adequate extension workers among them. The livestock farmers themselves need to change their mind of dependence on

government by establishing commercial rangeland/pasture for self-reliance and modernizing livestock farming.

The livestock farmers in Nigeria need to demand and press for inclusion in the development process, seek for assistance locally and from international community. The extension specialists through extension agents should mobilize and synergize their efforts by establishing good and effective networking and linkages in various rangeland/pasture projects. The promotion and encouragement of active livestock farmers through Nomadic and adult education would be of great importance in actualizing the agenda of livestock farmer's empowerment and development by the Nigerian Government.

According to Garba *et al.* (2022) stated that there is a need for pasture technologist and other livestock researchers to strengthen exertions to fully explore modern-strategic methods for pasture establishment and management through assimilation of low-cost and collective ways that entails less technical labour skills, land and other input.

The possibility of introducing/updating nomadic education in the curriculum of schools and tertiary institutions should be explored as this will expose people to the challenging of confronting them nationwide. It will also facilitate knowledge, understanding and an appreciation of the efforts of governments, NGOs and social entrepreneurs involved in livestock farming, adoption of pasture production technology and development. There is also need for, intensive publicity of livestock farming activities in the media (particularly radio) and through publications that should be widely circulated.

CONCLUSION

It can be concluded that pasture production is an integral part of livestock production and serve as a means of making a living. Livestock production is based on natural pasture as the major sources of feed for their animals in Nigeria. Pasture production is vital to the improvement of any livestock initiative chiefly under circumstances where income gain and environmental sustainability are the aims of livestock production for sustainable livelihood.

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