

PDF - RESPONSE OF OKRA (*ABELMOSCHUS ESCULENTUS* (L.) MOENCH) VARIETIES TO POULTRY MANURE RATE AND STAND DENSITY IN THE NORTHERN GUINEA SAVANNAH - researchcub.info

CHAPTER ONE

INTRODUCTION

1.1 Origin and Distribution of Okra

Okra (*Abelmoschus esculentus* (L.) Moench) originated in Ethiopia in the year 120 BC. It is a common vegetable in tropical and sub-tropical countries, native to west and central Africa. It is known as a fast-growing annual vegetable commonly grown in field and home gardens in Africa (Fayemi, 1999 and Schippers, 2000). It belongs to the family, Malvaceae and was domesticated in West and Central Africa (Kochhar, 1986). It is known as 'Okro' in the Anglophone African countries. Okra is cultivated throughout the tropical and warm temperate regions of the world for its fibrous fruits (N.R.C., 2006). Okra is mainly cultivated in African countries such as Nigeria, Sudan, Egypt, Niger and Cameroon. It is also important in other tropical areas including Asia and South America.

1.2 Soil and Climatic Requirement

A range of soil types have been found suitable for okra production even though it thrives best in moist, friable, well-drained soils. Sandy loam soils high in organic matter are the most desirable. A pH of about 6.0 – 6.8 is recommended for Okra production. In Nigeria, production is mainly during the rainy season. Okra requires a moderate rainfall of about 800-1000 mm. Studies on the optimum weather requirement for high yields of Okra showed that it performs best (growth, flowering and fruiting) when the minimum and maximum temperatures are between 20 and 30 Celsius, respectively. Okra is sensitive to low temperature and develops poorly below 15 Celsius. The seeds germinate in relatively warm soils only (Tindall et al., 1986).

1.3 Production and Economic Importance of Okra

Okra ranks third in Nigeria in terms of production area and consumption, following tomato and pepper in that sequence. India is the major producer of Okra, producing about 5,784,000 metric tons per year (FAO, 2015). Production statistics of 2016 shows that Nigeria produces an estimated 1,978,286 tons of Okra per annum, placing the country at second place after India.

In Nigeria, there are two distinct seasons for Okra production, the peak and lean seasons. During the lean season, okra fruit are produced in low quantities, scarce and expensive to get while in the peak season, it is produced in large quantities much more than the local population can consume (Bamire and Oke, 2003). The approximate nutrient content of edible Okra pod is as follows: water, 88%; protein, 2.1%; fat, 0.2%, carbohydrate, 8.0%; fiber, 1.7% and ash, 0.2% (Tindall, 1983). The green pods are rich sources of vitamins, calcium, potassium, and other minerals. In Nigeria, Okra is distributed and consumed either fresh (usually boiled, sliced or fried) or in a dried form (Fatokun and Chedda, 1983). Young leaves may also be used in cooked or processed forms. Fresh Okra fruits are used as vegetable while the roots and stems are used for preparing brown sugar (Chauhan, 1972). The protein found in Okra helps to build muscle tissue and constituent of enzymes which control all the hormone's activities. The soluble fiber in Okra helps to lower serum cholesterol, reducing the risk of heart disease. The insoluble fiber helps to keep the intestinal tract healthy, reducing the risk of cancer especially colorectal cancer. Okra has also found medical application as a plasma replacement for the body. Nearly 10% of the recommended level of vitamin B6 and folic acid are present in half a cup of cooked Okra. The vitamin is required for good vision, proper circulation of blood,

bone growth and normal digestion(Wolford and Banks, 2006). Okra is a good source of calcium which helps to keepbone strong and lessen the chance of fractures (Grubben and Denton, 2004). Theseeds however can be roasted and used as substitute for coffee (Farinde andOwolarafe, 2007). Okra mucilage is used industrially for glace paper productionand is also used in making confectionaries. (Akinyele and Temikotan, 2007).

Interestingly, Okra's potential as an oilseed crop and itsability to tolerate drought in a world facing global climate change underscoresits growing importance (Ibeawuchi, 2007). Oil content of Okra seed can be ashigh as that in poultry eggs and soybeans (Robert et al., 2011) Okra fruits areconsidered to be of good quality in the Nigerian context when they are smooth,small, narrow and highly mucilaginous. Fruits that have exceeded physiologicalmaturity rarely give these characteristics and are generally not commonlyconsumed. They are frequently left on the plants to dry and then preserved forseeds (Splittstoessor, 1990). Fruits are often sliced and dried to easepreservation when it cannot be sold in the market and has become hard or toughand unsuitable for use in fresh form.

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