



## Maximizing The Potentials Of Beni Seed Sesame (*Sesamum indicum L*) Production In Adamawa State, Nigeria

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### ABSTRACT

Sesame (*Sesamum indicum L*) is an annual flowering plant which is cultivated for its seeds, grows in pods and is believed to be the oldest cultivated oilseed in the world. Although with a doubtful origin, it is widely believed to have originated from Africa. The world over, there are about 4.8 million tons of sesame seed produced. While Myanmar is the largest producer, India and China are the largest exporters. The largest importers of this seed are Japan and China. In Africa, Nigeria comes about the seventh largest producer after Ethiopia and Sudan. As a result of the drought-resistant nature of the plant, it thrives well in the Northern part of Nigeria and some parts of the West. It can also be grown in some part of the South East and South South. It has been successfully grown in Ebonyi and Northern part of Cross River States. Sesame is often called by different names based on the location, some of its common names are Beni seed, Gingilly, Simsim, Tahini, and Til. Sesame was introduced to Nigeria after the Second World War and was mostly cultivated as a minor crop in the Northern and Central part of Nigeria until 1974 when it began to gain prominence as a major cash crop. The plant is usually 60 to 120cm tall and the fruit is a dehiscent capsule held close to the stem. When ripe, the capsule shatters to release a number of small seeds. The seeds are protected by a fibrous 'hull' or skin, which may be whitish to brown or black depending on the variety. 1000 seeds weigh some 4-8g. The seeds have a high oil content of 44-60%. Beni seed is adaptable to many types of soils, it does best on well drained fertile soils of loamy texture. The selected site for Beni seed production should be fairly flat and well drained loamy or loam soil. Varieties: NCRIBEN O1m (530-6-10) matures between 102-115, NCRIBEN-02M, TYPE 4 also takes 102-115 days while NCRIBEN O -31 (Goza-25 ) takes 125-140 days. Yandev -55 takes 125 days while E-8 matures in 90 days. Sesame is grown for its seeds, and the primary use of the sesame seed is as a source of oil for cooking. The young leaves may also be eaten in stews, and the dried stems may be burnt as fuel with the ash used for local soap making, but such uses are entirely subordinate to seed production. A pilot project undertaken jointly by the National Sesame Seeds Association and the First Bank of Nigeria in 2007 to increase sesame production and utilization for economic empowerment in the Northern States revealed that sesame seeds farming can provide one million jobs and earn \$1.5b for the Northern States, thereby empowering the people of the region economically. Adamawa State has a vast area of land, if properly managed and put to use for sesame production will be a hub for employment and foreign currency earner of the state and the Nation. With the right investment in processing plants, the earning will be a minimum of 300 per cent of the \$1.5b from production. Additionally, there will be direct employment generation, rural development, enhanced rural income and improved livelihoods of farming households. This will be a far departure from the national earning of \$798.05m from sesame seeds in 2012. The processing plants will supply oil for the food and drug manufacturing industries and cake for livestock and poultry industry. Other forms, such as raw seeds, crushed unrefined and refined oil could be supplied as desired.

**Keywords:** *Sesamum indicum L*, Gingilly, Simsim, Ibrous 'hull' and Yandev 55.

## INTRODUCTION

Sesame (*Sesamum indicum L*) is an annual flowering plant which is cultivated for its seeds, grows in pods and is believed to be the oldest cultivated oilseed in the world. Although with a doubtful origin, it is widely believed to have originated from Africa. The world over, there are about 4.8 million tons of sesame seed produced. While Myanmar is the largest producer, India and China are the largest exporters. The largest importers of this seed are Japan and China. In Africa, Nigeria comes about the seventh largest producer after Ethiopia and Sudan.

As a result of the drought-resistant nature of the plant, it thrives well in the Northern part of Nigeria and some parts of the West. It can also be grown in some part of the South East and South South. It has been successfully grown in Ebonyi and Northern part of Cross River States. While it also grew in Delta, its hybrid did not yield much seed although the leaves were bigger.

Major destinations for Nigeria sesame seed are China, Turkey, Japan and India. Other countries like Poland and Netherland also receive Nigerian Sesame in smaller quantities. The Middle East is beginning to be of interest and there is a high likelihood for an increase in demand from UAE, Saudi Arabia and Kuwait. This new frontier in sesame exportation market could provide better pricing, culminating in improved rewards for the sesame farmer. The Nigerian Export Promotion Council (NEPC 2018)

Sesame is often called by different names based on the location, some of its common names are Benniseed, Gingilly, Simsim, Tahini, and Til. Sesame was introduced to Nigeria after the Second World War and was mostly cultivated as a minor crop in the Northern and Central part of Nigeria until 1974 when it began to gain prominence as a major cash crop. Although sesame cultivation is on the increase in terms of areas cultivated, its full potential is yet to be explored in Nigeria due to lack of local farmers adherence to best farm practices suitable to its growth.

**Morphology:** The plant is usually 60 to 120cm tall and the fruit is a dehiscent capsule held close to the stem. When ripe, the capsule shatters to release a number of small seeds. The seeds are protected by a fibrous 'hull' or skin, which may be whitish to brown or black depending on the variety. 1000 seeds weigh some 4-8g. The seeds have a high oil content of 44-60%.

The plant is deep rooting and well adapted to withstand dry conditions. It will grow on relatively poor soils in climates generally unsuitable for other crops, and so it is widely valued for its nutritional and financial yield from otherwise inclement areas. It is well suited to smallholder farming with a relatively short harvest cycle of 90 –140 days allowing other crops to be grown in the field. It is often intercropped with other grains.

Sesame is now cultivated around the dry tropics between the latitudes of 40° N and S. It is scarcely cultivated in the USA or Europe, not only because of climate but also because of the low returns per unit area. Non-shattering varieties have been bred in order to mechanize the crop, but the great majority of the world's output is still harvested by hand.

**Planting methods:** The following are recommended for beniseed production based on research and experiences from the National Cereals Research Institute (NCRI) Badeggi Niger State, the National Agricultural Extension and Research Liaison Services Ahmadu Bello University, Zaria. and other agricultural research development organizations in Nigeria.

**Site selection:** Beniseed is adaptable to many types of soils, it does best on well drained fertile soils of loamy texture. The selected site for beniseed production should be fairly flat and well drained loamy or loam soil.

**Site clearing:** The cut down thrash should be parked to the edge of the farm. Burning should be minimized in order not to destroy some of the essential soil elements and micro-organisms.

**Soil tillage:** Plough and harrow one week after clearing. This will loosen the soil lumps into fine texture, for easy germination and rooting of seedlings. Hoes can also be used to loosen the soil if the farm is small or tractor service is not available.

**Beniseed varieties:** NCRIBEN O1m (530-6-10) matures between 102-115, NCRIBEN-02M, TYPE 4 also takes 102-115 days while NCRIBEN O -3l (Goza-25 ) takes 125-140 days. Yandev -55 takes 125 days while E-8 matures in 90 days.

**Planting date:** Beniseed is planted at different times in different ecological zones. The presentation below gives a generalized guide. But adjustments may need to be made depending on when the rains are fully established.

**Guinea savanna:** Early planting is by March/April · Late planting is by mid-July/year August

**Sudan Savanna:** Planting should be conducted as from the last week of June to first week of July

**Sahel Savanna:** Planting should be conducted by the first rain which usually occurs between June and July.

**Method of sowing:** i. Sow on flat with inter-row and intra-row spacing of 60cm x 10 cm · Sowing seed by drilling on flat beds makes the operation very easy. · The spacing between plants will ensure vigorous growth and high yield. A tractor, where available, can be used to draw the lines for seed drilling for large-scale production ii. Sowing on ridges at an inter-row and intra-row of 75 x 15 cm is also recommended. Sowing on ridges is ideal when Beni seed is grown as intercrop with other crops. iii. Sowing by broadcasting is useful where area of cultivation is small.

**Seed rate:** The recommended seed rates are: 5kg/ha where sowing method is by broadcasting; 4kg/ha when sowing is by drilling on flat land and 3.5kg/ha when the drilling is on ridges.

**Thinning:** When your plants have fully germinated, thin the plants at three weeks after sowing (3WAS) to about 2 plants per stand along the rows, this permits maintenance of appropriate plant density and also alleviates the attendant problems associated with high-density. Leaving too many plants per stand will make the plants grow tall excessively and induce lodging.

**Fertilizer application:** · Beni seed does not require much fertilizer except where the soil is very poor. · NPK fertilizer is required where the soil fertility is low. /two bags of NPK fertilizer is enough to fertilize one hectare.

### **Cultivation and Suitable Farm Practices for Optimal Performance of Sesame in Nigeria:**

The potential for sesame cultivation in Nigeria is very high as an estimated 3.5 million hectares of the country's agricultural land are suitable for the production of sesame seed. Sesame seed should be cultivated on a fairly flat and well-drained loam or loamy soil with a pH range of 5.5 - 6.7 and at a soil depth of 1.5 - 2.5cm, depending on the ecological zone, sowing should be done between March/April to Mid-July/ August. Sowing on flatbed should be with inter-row and intra-row spacing of 60cm x 10 cm at a seed rate of 4 kg/ha<sup>-1</sup> when drilling or 5 kg/ha<sup>-1</sup> when broadcasting. Constant weeding should be carried out for the first 25 days after planting as young seedlings are poor competitors with seed. Thinning should be done three weeks after sowing (3WAS) to about 2 plants per stand along the roll. This is for optimal maintenance and to avoid problems associated with high density.

Nigeria currently produces about 300,000 tonnes of Sesame Seed with the largest producing states being Jigawa, Nassarawa, Benue and Taraba. About a total of 26 States grow sesame presently and the production is expected to increase given the good prices obtained by farmers and increased demand worldwide.

**Cultivars of Sesame Seed adapted to Nigeria:** For optimal performance and yield in Nigeria, five cultivars of sesame seed are advocated for use. They are namely:

- i. NCRI BEN - 01M (530-6-10) with a potential yield of 1000 kg/ha and oil content of 45% ,
- ii. NCRI BEN - 02M Type 4with a potential yield of 750 kg/ha and oil content 45% ,
- iii. NCRI BENO - 31 (Goza-25) with a potential yield of 600 kg/ha and oil content of 40% ,
- iv. E8 with a potential yield of 1000 kg/ha and oil content of 50% and
- v. Yandev-55 with a potential yield of 600 kg/ha and 45%

**Characteristic of sesame grown in Nigeria**

Variety	Days to maturity	Seed color	Seed size (mm)	Oil content	Potential yield Kg/ha <sup>-1</sup>
<b>NCRI BEN – 01M</b>	102 - 115	White	3	45%	1,000
<b>NCRI BEN – 02M</b>	102 - 115	Light	3	45%	750
<b>NCRI BEN – 031</b>	125 – 140	Brown	2	40%	600
<b>E – 8</b>	90	White	3.6	50%	1,000
<b>Yandev – 55</b>	125	Light	2.5	45%	600

**Source:** National Cereal Research Institute, Badegi.

**Pest and Diseases:** Sesame seed like most plant comes under attack by diseases and pest, sesame seed is often attacked by insects, nematodes, fungi, bacteria and weed. Most of these attacks can cause a great reduction in yield and quality. Common diseases of the sesame seed are: *Cercospora sesame* which causes leaf rot, *Fusarium sp* which causes leaf rot, collar rot, and sudden death. Controlling the diseases can be done by firstly verifying the extent to which the damage has being done, then applying suitable remedies.

**Harvesting and processing:** Harvesting and processing are key aspects of cultivation as it has a bearing on the yield and quality of the seed. Hence, Sesame seed is best harvested when 50% of its capsules turns yellow, delaying harvesting might result in seed shattering and loss. Manual harvesting is currently being practiced in Nigeria whereby the stem is being cut with a sickle in order to prevent contamination with soil. Seventy percent (70% ) of the sesame seed grown are exported as seed because there is no major processing facility for oil extraction. Locally consumed sesame seed are processed by different manual means.

**Uses and By-product of Sesame:** Sesame is grown for its seeds, and the primary use of the sesame seed is as a source of oil for cooking. The young leaves may also be eaten in stews, and the dried stems may be burnt as fuel with the ash used for local soap making, but such uses are entirely subordinate to seed production. The use of the sesame seed are wide and varied, and are dependent on the parts of the seed being processed. These are some of the uses and by-product of the sesame seed. The sesame seed is used in confectioneries, biscuits and in bread making.

Oil extracts from sesame seed has a wide range of application; it is used for cooking, used in medicine for treating ulcer and burns, used in making aerosols and in manufacturing margarine. Also, low-grade oil is used locally in manufacturing soap paints, lubricants, and illuminants. The by-product gotten from processing sesame seed is used in making animal feeds. Beyond these listed applications, sesame is also used in different countries for their local dishes and delicacies.

Sesame Seed has many uses. It is a very important source of vegetable oil, which contains no cholesterol. It is used in confectionery, pharmaceuticals, cosmetics and other industries. A famous women body lotion Neutrogena is made from sesame oil.

**Importance:** Sesame ranks eighth in the world production of edible oil seeds, with higher oil content than other oilseed crops. It is grown mainly for its seeds that contain approximately 50% oil and 25% protein. The presence of some antioxidants (sesamum, sesamol, and sesamol) makes the oil one of the most stable vegetable oils in the world. In addition to having high oil content, sesame seed is known for its nutritional and medicinal qualities. The seed contains all essential amino acids and fatty acids and it is a good source of vitamins (pantothenic acid and vitamin E) and minerals such as calcium (1450 mg/100g) and phosphorous (570 mg/100g). Sesame Seed has many uses. It is a very important source of vegetable oil, which contains no cholesterol. It is used in confectionery, pharmaceuticals, cosmetics and other industries. A famous women body lotion Neutrogena is made from sesame oil.

**Advantages and reasons to grow sesame:** Sesame is one of the most versatile crops that can be grown in dry arid regions due to the following characteristics:

- a. It has unique attributes that can fit most cropping systems.
- b. It is an easy crop to consider producing because equipment used for other crops can be used to grow sesame.
- c. Sesame is more profitable with limited resources than other crops using the same level of resources.
- d. It offers more return for less cost (less risk) than other crops and
- e. A first-time grower can easily experiment with sesame because of the low input requirements without risking too much.

**Opportunities for Investment in Sesame in Nigeria:** In 2013, 4.8 million metric tons of sesame seed was harvested with the lead producer being Myanmar, but as at 2012 Nigeria only harvested 158,000 metric tons. Although Nigeria became the biggest exporter of sesame to Japan (the largest importer of sesame) in 2001, the full potential of sesame cultivation in Nigeria is yet to be achieved. There are two major opportunities for sesame seed cultivation in Nigeria and they are: 1. Cultivation of sesame seed for export purposes: about 118,000 metric tons of sesame seed was exported in 2012, making it the third largest products Nigeria exported in 2012. With sesame seed still in demand globally and with vast areas of land suitable for its cultivation, sesame seed is a viable investment opportunity in Nigeria.

2. Processing facilities: currently, the sesame market in Nigeria has few cleaning facilities and no dehulling facility. A processing plant will help make seeds meet international standards and help with pricing.

**Available Markets:** Nigeria exports 70% of its sesame seed to Japan but according to FAO, sesame seed is imported into over 100 countries (with particular emphasis on Asian countries), thus creating a vast and untapped market for Nigerian sesame seeds.

**Financial Implication:** In 2010, Nigeria exported 140,850 metric tons of sesame seed grossing an income of \$139,000,000, considering the fact that sesame cultivation in Nigeria is a small holder affair, there is a huge potential for farmers, who know what they are doing to make a lot of money from investing in Sesame seed cultivation.

**Constraints and Challenges of Cultivating of Sesame Seed in Nigeria:** Although sesame cultivation is a business worth venturing into, it does have some challenges which can pose a threat to the unprepared; such as its yield per hectare is small when compared to other oilseed.

Absence of proper processing plants that can enhance the quality of seeds, especially for export and also commodity pricing can be unpredictable and prone to fluctuations.

Sesame seed cultivated in Nigeria is also limited to only oil extraction and animal feed, once exported because confectionary and bakery users have specific seed attributes and requirement such as color and flavor which the Nigerian sesame seed does not meet.

The world over, there are about 4.8 million tonnes of sesame seed produced. While Myanmar is the largest producer, India and China are the largest exporters. The largest importers of this seed are Japan and China. In Africa, Nigeria comes about the seventh largest producer after Ethiopia and Sudan.

As a result of the drought-resistant nature of the plant, it thrives well in the Northern part of Nigeria and some parts of the West. It can also be grown in some part of the South East and South South. It has been successfully grown in Ebonyi and Northern part of Cross River States. While it also grew in Delta, its hybrid did not yield much seed although the leaves were bigger.

Nigeria currently produces about 300,000 tonnes of Sesame Seed with the largest producing states being Jigawa, Nassarawa, Benue and Taraba. About a total of 26 States grow sesame presently and the production is expected to increase given the good prices obtained by farmers and increased demand worldwide.

Two farming seasons ago were especially good for producers. Farm gate prices started off at ₦160,000/ton. Prices then dropped to ₦140,000/ton and then it began an upward swing and currently is about ₦300,000/ton.

If one wants to go into farming Sesame Seed, best to begin by learning best practices and how to get improved seeds. The best state to site your farm would be Adamawa and Taraba States with their two farming cycles a year. The first harvest comes in August while the second usually comes around in October. They are the only two states with this unique features. One may also want to try Jigawa, Niger and Bauchi.

One should also be thinking of space to production ratio. With best practices a hectare of land can produce between 1 - 1.5 tons of sesame seed. While investment/hectare should fall at about ₦60,000. This will go into payments for land preparation, seeds, fertilizer sowing and harvesting. Sowing can be done by a mechanical planter in ridges or by broadcasting on plain land. A hectare of land would require 4kg of seed, 4 bags of NPK and 1 bag of urea.

Too much rainfall reduces the yield of the seed so it is important to obtain the right information for the sowing period. For this one can rely on data from the Nigerian Metrological Agency (NIMET). Access to and use of the soil map of Nigeria will also be of great advantage.

As explained earlier, one needs to have a ready market for Sesame seeds, as about 95% of the production is exported. Major destinations for Nigeria sesame seed are China, Turkey, Japan and India. Other countries like Poland and Netherland also receive Nigerian Sesame in smaller quantities. The Middle East is beginning to be of interest and there is a high likelihood for an increase in demand from UAE, Saudi Arabia and Kuwait. This new frontier in sesame exportation market could provide better pricing, culminating in improved rewards for the sesame farmer. A visit to The Nigerian Export Promotion Council (NEPC) will provide with the best information to rely on. Sesame has been one of the sought-after cash crops after cocoa in Nigeria, West Africa, Nigeria has been one of the largest producing countries of sesame with its major producing areas in; Benue, Nasarawa and Jigawa States. Others include; Yobe, Gombe Kano, Plateau, Katsina and Kogi States.

It is also widely grown in tropical areas and has a range of varieties that is mostly grown in Africa such as Nigeria (where it is an important cash crop in the agricultural sector) and Asia such as India.



Sesame with the botanical name *Sesamum indicum* is one of the flowering plants of the genus *Sesamum* (benne seed). It grows in pods and is mostly cultivated for its edible seeds; it is drought-tolerant yields well in relatively poor climatic conditions. Sesame seed is small and flat and has the shape of melon seed, it comes in different shades of colour such as light yellow, light brown, white, black, cream and more. Sesame is harvested around 90 - 150 days after planting and it is best to harvest the seed when dry with at least a moisture content of about 4-6%, because the small nature of the seed makes it hard to dry after harvest due to difficult passage of air around the seed.

The seeds, after harvesting are cleaned and hulled, and in order to get a particular colour mostly for commercial use, the seed are passed through an electronic colour-sorting machine to remove the seeds with unwanted colour, most times the unwanted and the off-sized seeds are used for oil production.

Sesame' seed oil content is high and has a rich, nutty flavour and is widely grown for its use as cooking oil.

The leaves which are commonly called perilla leaves are edible when tender and can be used as flavours in food, and its stem when dried may be burnt as fuel, the ash is collected and used in the making of local soap.

### **How Nigeria can maximize potentials of sesame**

Sesame production in Nigeria is said to be capable of providing one million jobs for the teeming populace and can fetch \$1.5b for Northern States alone. The Federal Government in collaboration with the Northern state Governors can be pro active in making a policy on sesame production with some financial assistance to middle and large scale sesame farmers in the north, more especially in the producing states. It was estimated that, 90% of sesame seeds are exported for processing. Processing plants needs to be stationed in the states where it is produced for the improvement of seed quality for the farmers. Sesame seed is considered Nigeria's second largest agro export earner, with the potential of generating billions of naira in foreign exchange yearly, if given the necessary attention it deserves. It is a cash crop with wide varieties in Africa. It is one of the oldest oilseed crops, with one of the highest oil contents of any seed. With a rich, nutty flavor, it is a common ingredient in cuisines across the world. Based on its color, it is classified into the white and brown varieties. The white grain (Food Grade) is used by bakeries for pastry, garnishing and salad, while the brown grain, often referred to as the oil grade, is used in the production of sesame oil.

The commodity is cultivated in 24 countries in the continent-Sudan, Guinea, Morocco, Togo, Gambia, Cameroon, Cote d'ivoire, Angola, Senegal, Sierra Leone, Ethiopia, Benin, Kenya, Mozambique, Mali, Chad, Egypt, Central Africa Republic, Somalia, Burkina Faso, Niger, Uganda and Nigeria.

Nigeria is the second largest producer in Africa after Sudan, and the third largest in the world, with about 580,000 tonnes produced in 2017. In the first quarter of 2018, it was the most exported non-oil commodity, contributing 0.57 per cent to the total export value and 36.39 per cent of agricultural exports. The recent merchandise trade intensity index analysis released by Nigerian Bureau of Statistics (NBS) in 2016, shows that sesame seeds worth N6.46b was exported during the period, representing 39.4 per cent of agricultural exports between October and November 2016. Sesame presents huge opportunities for the country in terms of generating export revenue. Aside the fact that it has numerous health and industrial benefits and widely used for baking, medicine, cosmetics and animal feeds, it also has high oil content of about 44–60 per cent.

The National President, Association of Sesame Farmers of Nigeria, Mutairu Mamudu, confirmed to The Guardian that the commodity has higher financial benefits. It is cultivated majorly in the northern part of the country, in states like Adamawa, Bauchi, Benue, Borno, Gombe, Jigawa, Kaduna, Kano, Katsina, Kebbi, Kogi, Nassarawa, Niger, Plateau, Sokoto, Taraba, Yobe and Abuja. Jigawa is considered the highest area of production, followed by Benue. Adamawa State is also now keyed in to the production in a large scale by farmers due to the income gained from sesame production, ease of cultivation and safe from animal's destruction by not feeding on the leaves, M.D Toungos 2019 personal communication with some sesame farmers.

The stakeholders in collaboration with nutritionist are also considering its health benefits and the growing preference for organic foods, the demand is likely, continue to grow the crop, which is positive for Nigeria. Reports have it that the global demand for the commodity is expected to grow at 4.2 per cent compound annual growth rate between 2018-2024, which Nigeria is expected to key-into, considering its land mass, coupled with the fact that sesame is also drought-resistant and requires little or no fertilizer, which makes it cheaper to cultivate than other crops.

It was gathered that for the Country to take advantage of these opportunities, enhance its competitiveness and maximize the potentials, it needs to focus on improving processing and yields. On Processing; The Processing methods has being a major challenge confronting the sesame seed industry in the Nigeria, as 90 per cent of the produce is taken outside for processing. A stake holder, identifies colonial mentality

and finance as hindrance to availability of processing plants and also added that, government is also not helping the farmers, as there are no incentives to boost their ego.

That, from the beginning, there is colonial mentality, where the colonizers want our raw materials and after the processing abroad, they will then return it into the country at exorbitant price and that is what they do to most of the agricultural produce from African countries. The second bottle neck is finance and technical-know how from the local populace. As establishing sesame Oil Company is a capital-intensive project and the process of obtaining loan from banks is always cumbersome discouraging. There is no available system where one will submit his feasibility study of a project and get approval within the shortest time. This is a serious set back in sesame production in Adamawa State and to Northern Nigeria.

Another aspect is related to awareness on the consumption of sesame oil, which is still very low to the populace. It should be noted that, it has more benefits than vegetable oil, but many people do not know it. Majority of those who are actually consuming the oil are outside Nigeria and they always hide their technology; they have not given us the right technology for processing. There is also politics associated in the processing as the local processed ones in Africa is termed as produced under uncondusive environment, there by discouraging would be buyers.

Another major challenge Nigeria is the fact that the commodity is still cultivated at the peasantry level. While the number of sesame farmers are increasing based on the fact that the crop has higher financial benefits, like a 100kg being sold for N40, 000 is seen as the motivating factor encouraging more farmers into the business, there is no standard incentive from the government to boost the farmers morale in production of sesame. It is hope that in no small distant future the governments for all levels give the farmers the necessary backing.

Executive Director, National Agricultural Extension and Research Liaison Services (NAERLS), Ahmadu Bello University Zaria, Prof. Mohammed Khalid Othman said that, “factors hindering processing of the cash crop are-lack of appropriate infrastructure in terms of processing equipment and facilities; and non-availability of steady power and high cost of alternative (private) power supply”. That in Nigeria, sesame has remained a popular cash crop among farmers due to its good Local and International market potentials. A pilot project undertaken jointly by the National Sesame Seeds Association and the First Bank of Nigeria in 2007 to increase sesame production and utilization for economic empowerment in the Northern States revealed that sesame seeds farming can provide one million jobs and earn \$1.5b for the Northern States, thereby empowering the people of the region economically.

With the right investment in processing plants, the earning will be a minimum of 300 per cent of the \$1.5b from production. Additionally, there will be direct employment generation, rural development, enhanced rural income and improved livelihoods of farming households. This will be a far departure from the national earning of \$798.05m from sesame seeds in 2012. The processing plants will supply oil for the food and drug manufacturing industries and cake for livestock and poultry industry. Other forms, such as raw seeds, crushed unrefined and refined oil could be supplied as desired. Adamawa State with a vast land, given the support can boost the economic growth of the state, the entire northern Nigeria and Nigeria at large.

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