

# Post Harvest Losses: A Dilemma in Ensuring Food Security in Nigeria

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## ABSTRACT

Nigeria is a country rich in a great supply of agricultural products but post-harvest losses is a great concern. Majority of our farm produce are lost to pest, rodents, and deterioration, due to lack of proper post-harvest process and storage. The major problems are improper handling, lack of proper storage and packaging. This paper reviews these problems, the approach that can be used in reducing this problem, the role of government and individuals in combating this problem was also discussed.

**Keywords:** Postharvest loss, Improper handling, Process, Storage

## 1.0 INTRODUCTION

Nigeria is a country endowed with variety of food, but most of our agricultural products are lost to insect attack, rodents, and micro-organisms. Losses also occur during harvesting handling; packaging, pressing and storage of these agricultural produce. Survey carried out on post harvest food losses in some communities in Nigeria revealed that as much as 20 – 30% of total grain production, 30 – 50% of root and tuber and usually high percentage of fruits and vegetables are lost with a substantial amount recorded during storage (Mijinyawa, Y. 2002).

In view of this, post-harvest losses have led to food insecurity in the country. Oganga (1995) stated that the goal of universal food security would not be attained if problems associated with post harvest losses are not prevented. Also, Okezie 1998 further explains that the perception of post harvest losses is a challenge for government, non government organization and international development organization.

### 1.1 Overview of National Food Security/Post Harvest Losses in Nigeria:

Food is a basic necessity of life. It is a basic means of sustenance and adequate food intake in terms of quality and quantity is a key for healthy and productive life. (Omonona et al 2007).

In developing countries like Nigeria, over 85% of food consumed by poor household in rural setting is obtained from the farm and the inability of food at all season are affected by post harvest food losses. Hence, this unavailability of food at all season causes food insecurity.

Therefore, food security is a concept that has evolved during the 1990s far beyond traditional focus on the supply of food at the national level. This concept has been given a general definition in time past but in recent times, there has been divergence of ideas on what food security really means.

According to World Bank: Food security is defined as access by all people at all times to enough food for active and healthy life. The committee on world food security defines it as physical and economic access to adequate food by all household members without undue risk of losing the access (Omonona et al 2007).

USA as bureau for Africa, 1986, defined it as when all people at all times have access to sufficient food to meet their dietary needs for productive and healthy like. Omo Oluokpial (2003) reported that the SADC (1997) regional conference agreed that the working definition of food security should be: Food security = Food availability + Food access and acquisition + Food use.

Post-harvest losses have been the subject of considerable debate and speculation in recent years. In Nigeria, efforts made to increase food production include the establishment of river basin authorities, agricultural development programmes, operation feed the Nation, establishment of research institutes, agricultural input supplies and bulk purchase companies. However, increased food production is not the final solution to food security. It has to be complemented by good harvest and post harvest practices to reduce the amount of food loss. A 50% reduction in post harvest food loss in Nigeria will also reduce the need for food importation.

In the field, there are five main stages of food losses - harvest, stage, processing and handling. These losses cause both qualitative and quantitative losses. Qualitative losses such as loss in edibility, nutritional quality calorie value, and consumer acceptability of the products. Quantitative losses are loss in quantity due to insect attack, rodents and micro organisms.

Therefore, post-harvest food losses are one of the greatest threats facing food security in Nigeria today, and so all efforts must be geared toward reduction of lost harvest food losses from field to the consumers. To achieve this i.e. the farmers, government non-governmental organization, extension officers, research

institute etc must be involves.

## **1.2 Estimation of Post Harvest Food Losses**

Estimates of post-harvest food losses in the developing countries e.g. (Nigeria) from mis handling, spoilage and pest infestation are put at 25%, this means that one-quarter of what is produced never reaches the consumer. For whom it was grown. Fruit, vegetables and root crops are much less hardy and are mostly quickly perishable, and if care is not taken in their harvesting, handling and transport, they will soon decay and become unfit for human consumption. Estimation of production losses in developing countries such as Nigeria is hard to judge. A 50% reduction in post harvest food losses in Nigeria will

- Reduce the need for food impartation
- Increase food supply without any further increase in the use of vital resources such as land, labour, water and agricultural input.
- Improve the livelihoods of formers and agro processors.

## **2.0 CAUSES OF LOSSES**

### **2.1 Biological and Environmental Factor**

Biological (internal) causes of deterioration include respiration rate, ethylene production and action, rates of compositional changing (associated with colour, texture, flavor, and nutritive value) mechanical injuries, water stress, sprouting and rooting, physiological disorders and pathological breakdown. The rate of biological deterioration depends on several environmental (external) factors such as temperature relative humidity, air velocity and atmospheric composition (concentration of Oxygen, Carbon dioxide and ethylene) and sanitation procedures Kader A. A. (2005).

### **2.2 Socio Economic Factors:**

The biological and environmental factors that contribute to post harvest losses are will understood and many technologies have been developed to reduce these losses, they have not been implemented due to one or more of the following socio – economic factors (Kader 1983).

#### **2.2.1 Inadequate Marketing Systems:**

Farmer can produce large quantities of quality fruits, ornamentals and vegetables but if they do not have a dependable, fast and equitable means of getting such commodities to the consumer losses will be extensive. This is because of lack of communication between producers and receivers, and lack of market information.

#### **2.2.2 Inadequate Transportation Facilities:**

In Nigeria, roads are not adequate for proper transportation of agricultural products. Also, transport vehicles and modes, especially those suited for fresh horticultural perishables, are in short supply.

#### **2.2.3 Unavailability of needed tools and equipment:**

Even if growers and handlers of fresh agricultural products were convinced of the merits of using some special tools and/so equipment in harvesting and postharvest handling, they most likely will not be able to find them in the domestic market because most of the tools and equipment manufactured locally or imported are insufficient to meet demand. The unavailability of tool/equipment is one of the courses of post-harvest food loss.

#### **2.2.4 Lack of Information:**

The human element in post harvest handling is extremely important. Most handlers involved directly in harvesting, packaging, transportation, and marketing in Nigeria have limited or no appreciation for the need for or how to maintain quality of agricultural products. An effective and far reaching educational (extension) program on harvesting, packaging transportation and marketing of agricultural products is crucial for effective post-harvest handling.

#### **2.2.5 Poor Maintenance of Storage and handling Facilities:**

In Nigeria, some good storage facilities that were built for years ago are currently “out of order” or not functioning properly because of lack of maintenance. This problem is especially true of public sector facilities.

#### **2.2.6 Government Regulations and Policies:**

It is vital to have consistent agricultural development policies and programmes in order to keep to guiding principles, strategies and tactics that are compatible with the nature of the post harvest losses to be solved and to desired objectives. Policies, strategies and programmes should be compatible with and adjusted to the prevailing understanding and knowledge of the agricultural development process.

## **2.3 STRATEGIES FOR REDUCING POST HARVEST LOSSES**

Bell et al 1999, Kitinoga and Gorny, 1999 reported that a systematic analysis of each commodity production and handling system is the logical first step in identifying and appropriate strategy for reducing post harvest losses.

- Cost benefits analysis to determine the return on investment in the recommended post-harvest technologies an essential.

- Selection of technologies that are appropriate for each post harvest handling of the agricultural product.
- Marketing companies and cooperatives are essential for handling produce and reducing post harvest losses by providing facilities for accumulating, preparing and transporting produce to markets; by coordinating marketing activities.

### **3.0 THE WAY FORWARD**

To address the above issue properly, a system must be implemented that bring the public and private sector together for active interaction. So, therefore, the governments, Research institute, Agriculture Engineers, food scientist, farmer, Agro-processors, NGO's have important roles to play in order to ensure reduction of post harvest food losses in our country.

#### **3.1 The Role of Government**

The following policy suggestion will reduce post harvest losses and enhance attainment of food security in Nigeria.

- Government should encourage and promote local manufactures in design and fabrication of post harvest equipment.
- There is need for government to invest more in post harvest research.
- The programme being implemented by Government to facilitate the attainment of food security includes development process and storage facilities e.g. Strategic Grain Reserve (SGR) should properly maintain and improved.
- The government should also build more roads and repair dilapidated roads in the rural areas for easy transportation of agricultural produce.
- The local government is been closer to the farmer and so should be in the forefront in preventing losses by promoting the maintenance of food stocks at household and enterprise levels.
- Also, food storage at government level is a buffer to ensure price stability in the system.
- There is also need for consistency in policy by agricultural policies. Only good policies can ensure viable national farm factors, which will provide food for the people and raw materials for agro-industries. An integrated approach must be adopted in shaping policies and plans, determining strategies, formulating programmes and managing their implementation.

#### **3.2 The Role of Research Institutes/Universities**

The research institute is expected to provide post-harvest technologies for harvesting, processing and storage of agricultural produce. Therefore, for reduction of post harvest losses in Nigeria and attainment of food security the research institute should carry out the following suggestions.

- The technologies developed by research institute for harvesting processing and storage should be available for local users at a reduced price.
- The research institute should make their achievement known nationally and internationally to all those that can use the findings
- There is need for research institutes research and to develop appropriate post harvest equipment.
- The research institutes/universities should also carry out extension programmes, training on post-harvest technologies for farmers' local agro processors at the rural areas.
- All research institute universities should be involved in local processing and storage to serve their unmediated environment.

#### **3.3 The Role of NGOs. Organization (Private Sector)**

- (1) NGOs should be involved in disseminating information to local farmer/processors about developed post harvest technologies.
- (2) Co-operatives societies could help the farmers/processors in obtaining post harvest technologies at reduced price.
- (3) The banking sectors should be involved in giving out loans to farmers, agro processors to purchase post harvest technologies at low interest rate.

#### **3.4 The Role of Farmers**

To reduce post harvest losses the farmers has a paramount role to play.

- Farmers should apply the indigenous technologies developed for their harvesting, processing and storage.
- The farmers should know ad source for market demand for his/her agricultural produce.
- The farmers should endeavor to be informed in the recent post harvest technologies developed.
- The farmer should instruct or train his workers on harvesting, handling, packaging, transportation and

perishability of various agricultural produce.

#### **4.0 CONCLUSION AND RECOMMENDATION**

Minimizing post-harvest losses of food is a very effective way of increasing food availability and ensuring food security in Nigeria solving the postharvest food losses and distribution in Nigeria will require cooperation and effective communication among all researcher extension officers and industry personnel involved. In most cases, solutions to existing problems in the post harvest handling system require use of available information and application of available technologies at the appropriate scale and also trying as much as possible to improve those technologies to be more effective. Also, overcoming the socio economic constraints is essential to achieving the goal of reducing post harvest food losses.

Conclusively, reduction of post harvest losses to the barest minimum continues to be of utmost importance to the country's aspiration for the attainment and sustenance of national food security.

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