EXPANDING EXPORT OF SESAME SEED AND SHEANUT/BUTTER THROUGH IMPROVED SPS CAPACITY BUILDING FOR PUBLIC AND PRIVATE SECTOR

PRINCIPLES AND APPLICATION OF TRACEABILITY SYSTEMS FOR SHEANUT/BUTTER AND SESAME SEEDS

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1. PRINCIPLES AND APPLICATION OF TRACEABILITY SYSTEMS FOR SHEANUT/BUTTER AND SESAME SEEDS

1.1. INTRODUCTION:

Food safety and consumer health protection have assumed global significance and attention due to the elaboration of international standards and trade in agricultural commodities and food products coupled with increased consumer awareness. The integrity of the food supply chain from farm- to- table must therefore be maintained. It is expedient for both the competent authorities responsible for food inspection and certification and the operators all along the food value chain to implement food safety management systems and utilize additional tools such as traceability to ensure that food safety objectives and outcomes are achieved and consumers have safe, nutritious and good quality foods..

Traceability is a tool intended to enable tracking of a product throughout the production, processing and distribution chain, from the source of raw materials and the supplier up to the final stage of consumption of the product by the consumer. The use of the word "traceability" to describe the process of identifying the origin of a product and reconstructing its movements from production to distribution started in the mid 1980's as an answer to a basic logistics problem: it guaranteed control over the flow of goods within a chain of partners and enabled significant savings[1].

It has now become a requirement for more than purely logistics reasons as it ensures consumer confidence in the food supply system, compliance with regulatory and legal requirements, standardization, recalls of defective products, e-commerce etc. A traceability system is essential to facilitate the tracking and tracing of food such that unsafe food is promptly removed or withdrawn from the market. Traceability also protects the consumer from deceptive marketing practices and provides enough information for making wise food choices.

"Traceability has been mandatory for all foods consumed or imported in the European Union since 1 January 2005" (European Regulation 178/2002).

1.2. WHAT IS TRACEABILITY?

Traceability/product tracing is a tool that can be used within a food inspection and certification system to contribute to the protection of consumers from foodborne hazards and deceptive marketing practices and the facilitation of trade on the basis of accurate product description. Codex Alimentarius Commission defines traceability as the ability to follow the movement of food through specified stages of production, processing and distribution[2].

Traceability involves:

- Tracking which entails the determination of the exact location and status of the produce along the movement chain. It answers the questions where and when?
- Tracing which refers to the process of reconstructing the historic flow of the produce based on the records maintained all along the food value chain. It answers the questions what? How? by whom and why?

A good traceability system requires that every operator in the chain has a unique way to identify their products, keep records of their destinations and of the links between incoming and outgoing products in databases. It should be able to identify at any specified stage of the food chain (from production to distribution), from where the food came (one step back) and to where the food went (one step forward).

Each link in the chain has the responsibility to ensure that their data is correct and accessible to other operators in the chain.

Traceability/product tracing makes it possible to track and trace the movement of an agricultural or finished product from production, processing, distribution through to the consumption stage. The use of traceability/product tracing in itself does not improve food safety outcomes unless used in conjunction with appropriate measures and requirements.

An effective product tracing improves the efficiency and speed of response to a food safety event and greatly contributes to public health protection and maintaining consumer confidence

in the food safety system after such an incident. The traceability process starts from tracking and keeping records which include:

- The source(s) of the agricultural or processed food product
- The components of the food product and their suppliers
- The storage facility for the product and its components
- The control measures and tests carried out on the agricultural or processed product and its components
- The equipment and utensils used during processing
- The vehicles of transportation
- The distributors and retailers
- The customers/consumers who bought the product etc

1.3. IMPORTANCE OF TRACEABILITY:

The traceability tool when combined with appropriate measures and requirements improves food safety outcomes and the effectiveness and efficiency of the actions of the competent authority. A product can be traced back through the supply chain to the site of production, including the inputs used, operations undertaken during production, post-harvesting and marketing. Traceability also allows the product to be tracked as it moves along the food chain from the producer to the consumer.

Traceability is very useful for product recalls and withdrawal as it greatly enhances the efficiency of the competent authority and assists in identifying the origin of the food safety problem.

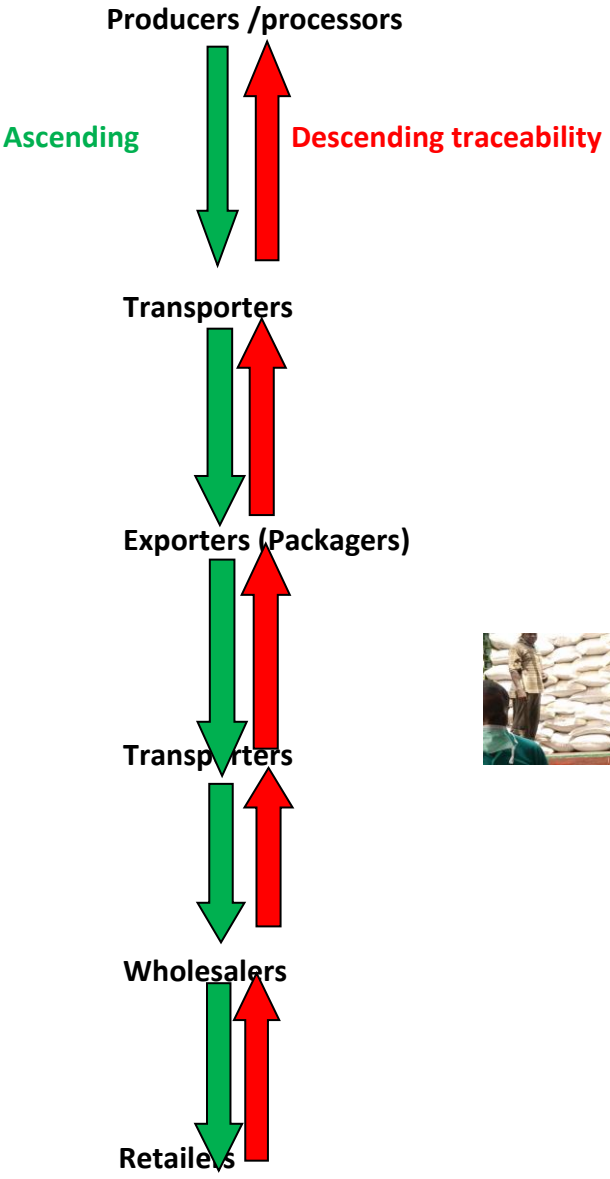
1.4. KEY COMPONENTS OF TRACEABILITY:

The Key Components of Traceability include:

- Records which must be kept at each step of the supply chain.

- A documentation system for keeping and retaining records of data generated must be available to ensure that the agricultural or processed product is followed from the farm to the consumer.
- Personnel that should be trained, dedicated and honest as this is required for good records keeping and documentation.

1.5. TRACEABILITY DIRECTIONS[1]:



1.6. PRINCIPLES OF TRACEABILITY:

The Codex *Alimentarius* Commission Guidelines on the Principles for Traceability/Product Tracing as a Tool within a Food Inspection and Certification System states that the principle of traceability/product tracing covers the context, rationale, design and application of the system[2].

1.6.1. The Context:

- Traceability/ product tracing is one of the tools used for food inspection & certification by competent authorities.
- An Importing country should take into account that a food inspection & certification system without traceability may meet the same food safety objectives and outcomes as one with traceability.
- It should not be mandatory for the exporting country to replicate the traceability/product tracing tool as used in the importing country, when applicable.

1.6.2. The Rationale:

- Traceability/Product tracing is a tool used to improve the effectiveness and/or efficiency of the actions of the competent authority in terms of measures and requirements of food inspection and certification.
- It does not in itself improve food safety outcomes unless combined with appropriate measures and requirements.
- The use of traceability/product tracing tool within a food inspection and certification system should be justified and the purpose, objectives and specifications clearly described.

1.6.3. The Design

- The Traceability/Product tracing tool may apply to all or specified stages of the food chain (from production to distribution), as appropriate to the objectives of the food inspection and certification system.

- It should be able to identify at any specified stage of the food chain (from production to distribution) from where the food came (one step back) and to where the food went (one step forward).

- It should be transparent and made available to competent authorities of the exporting country upon request.

1.6.4. The Application

- The application of traceability/product tracing should be practical, technically feasible and economically viable.

- Traceability/product tracing tool within the context of a food inspection and certification system should be implemented when and as appropriate on a case by case basis

- It should take into account the capabilities of developing countries.

- The importing country should consider assistance to the exporting country that does not meet their requirements, especially in the case of a developing country e.g. longer time frame for implementation, technical assistance, flexibility of design , so that the objectives or outcomes of the food inspection and certification of the importing country can be met.

- It should not be made more trade restrictive than necessary.

- In deciding whether and how to apply the traceability/product tracing tool, in the context of a food inspection and certification system, the competent authority should take into account the assessed food safety risks and/or the characteristics of the potential deceptive marketing practices being addressed.
- Traceability/product tracing tool within the context of a food inspection and certification system should be implemented when and as appropriate on a case by case basis.

1.7. TRACEABILITY PLAN FOR SESEME SEEDS IN NIGERIA:

1.7.1. Introducing the Plan

- Record keeping begins with the farmer, even before planting. Farming, planting, harvesting and sales records for each planting season should be conscientiously kept.

- Since good record keeping has not been in place before now, each farmer should make up his/her mind to make the extra effort required to enshrine record keeping and be a Change Agent in this regard.

- It is the duty of Extension Officers of Agricultural Development Programmes (ADPs) to encourage and implement record keeping by showing farmers how to do so and also securing their buy-in<

- As the produce moves along the value chain, each inspection and standards officer along the line should also play their roles of introduction, advocacy and implementation of the plan.

AT FARM LEVEL

Information Required at Farm level	
1. Farm Details (to be recorded by farmers)	
Name of farm	
Address	
Location	
Soil type	
Vegetation	
Previous land use history	
Size of farm	
2. Planting Area:	
Total area of farm (ha).	
Current year planting area (ha)	
3. Land preparation	
Date	
Operation	
Method.	
4. Fertilizer application	
Date	
Area	
Type/Brand	
Source/Amount	
5. Records of Pesticides used	
Date	
Class/Brand	
Active ingredient(s)	
Method of application	
Rate of application	
Reason for application	
6. Records of Harvest	
Date.	
Area	
State of crop	
Method of harvest	

Information Required at Farm level	
7. Semi-processing	
Date	
Drying method	
Sorting method	
Cleaning method	
Washing method	
8. Packaging & Sales	
a. Date	
b. Variety	
c. Grade	
d. Packaging material	
e. Quantity	
f. Buyer's GSM No	

AT BUYING AGENT LEVEL

Information Required At Buying Agent Level	
1. Record of Buying Agent	
Name of Buying Agent.	
Address of Buying Agent	
Farm address bought from	
Farm/area code	
Date makings & Batch No	
Size of Purchase (weight, bags, etc)	
2. Store record	
Name of store	
Location of store	
Capacity	
Date stored	
Quantity Delivered/Purchased	
Source	
Type of storage facility	
Product treatment	
3. Collation by Buying Agent	
Lots-Forming Products Batch numbers	
Date Markings on Lots-Forming Batches	
Quantity of New lots (wt, bags, etc)	
Batch number of new lots formed	
Date Markings on New Lots	
4. Sales and Distribution Records to Be Kept By the Supplier	
Date of sale	
Name and address of buyer or exporter	
Destination	
Date of departure	
Quantity.	

AT SEA/AIR PORT LEVEL

Sea Port/Air Port Records (to be Kept by the Exporter)	
1. Suppliers Information:	
Name of commodity Supplier	
Address	
Phone No	
2. Collation by exporter:	
Batch number of lots-forming product	
Batch number of new lots	
Quantity	
Date marking	
3. Sea port/Air port details	
Name of exporter	
Address.	
Phone No of exporter	
Destination	
Date of departure	
Batch number of lots	
Name of shipping company	
Phone No of shipping company	

1.7.2. Traceability Flow Chart in Sesame Seeds Supply

Location	Process Flowchart	Information Required	Medium of Information
Farm	Planting	Farmer, Name of farm, Land preparation, history of pesticide used, fertilizer, source of seed, soil type	Farm record book/ Computer
Farm	Harvesting	Date, Method of harvest, pesticide treatment	Farm record book/ Computer
Farm	Semi Processing	Drying method, Sorting method, Cleaning method, Washing method	Farm record book/ Computer
Farm	Packaging	Packaging material, Date, Variety, Grade, Sources and Farm code No	Label record/ farm record book
Farm/Barn	Storage/Sales	Storage date, type of storage, store and product treatment, buyer's phone No	Store record book/ computer

Location	Process Flowchart	Information Required	Medium of Information
Farm/Town	Purchase and transport by supplier	Name and address of store, quantity, sources record, date of purchase, date of departure, distribution record, mode of transport	Store record book/supplier record book
Suppliers store /town	Collation by Supplier	Farm code, batch number of sources, date marking, record of sales, destination and departure records,	Suppliers record book
Town	Exporter/lots formation	Batch number of sources, sources record, new batch number, name of supplier, address of supplier, phone No, quantity	Exporters record book/Computers
Sea ports/air port	Exportation	Shipping company, Destination record, quantity, Batch number of lot formed, date of departure, name of exporter, phone No	Sea port/air port record book

1.8. TRACEABILITY PLAN FOR SHEA NUTS/BUTTER IN NIGERIA

1.8.1. Introducing the Plan:

Traditionally, mainly women are engaged in the production aspect of the shea business and it might be quite challenging introducing record keeping to them. It is even more complicated because the shea tree is not planted, it grows wildly. Therefore there is no agricultural or treatment records to be kept.

The logical starting point would probably be the nut pickers; but they are so itinerant and the quantity collected per person may be so inconsequential that records-keeping will be considered cumbersome. However with the interventions from this project, which include processing at the pilot plants, records-keeping could now begin at the point of delivery of sheanuts at the plant

With the pilot processing plants in place, traceability and record keeping will become easier if the following things are established:

- Standardization of the final product from the factory in terms of colour, consistency, odour, packaging, etc; SON and NEPC may be of assistance in this regard.
- Availability of technical personnel as the QC officer to see to the production of sheabutter of consistent quality and safety.
- Availability of contract manufacturing or enough capital for the plant to buy off the kernels as they are brought in and
- Encouraging patronage of the plant e.g. by enactment of bye laws to promote its usage for the common good of the nation.
- There has to be a conscientious effort at keeping records of receipts, mixing, batching and sales records for each batch of production. Since traceability had not been in place for this product, before now, it is the duty of NAFDAC Inspectors to implement the system by enforcing record-keeping at various processing plants and showing the operators how to do so.
- As the produce moves along the value chain each inspection and standards officer along the line must also effectively play their role in the implementation of the plan.

Information Required At Plant Entry Level:

1. Records of Harvest/Picking:
    a. Date of Picking ……
    b. Picking Location /Area Code …….
    c. State of the Tree(s) ……..
    d. Method of harvest/picking ……..
    e. Quantity ……..
    f. Container Used ……
    g. Date of Delivery ……..
2. Details to be recorded at the Pilot Plant:
    a. Name of Plant ……..
    b. Address ……..
    c. Location ……..
    d. Phone No of the Plant ……
    e. Officer-in-charge ……
    f. Officer's phone No ……..
    g. Date of delivery of sheanuts …….
    h. Storage condition ……..
3. De-pulping of Sheanuts:
    a. Date ……
    b. De-pulping Method ……
    c. Source of Water Used ……..
    d. Drying method ……..
    e. Sorting method ……
    f. Batching and Storage ……
4. Processing:
    a. Date ……
    b. Batches Combined ……..
    c. Processes ……
    d. Batching and Type of Packaging ……
    e. Quantity ……
5. Packaging & Sales:
    a. Date ……
    b. Grade ……
    c. Packaging material ……..
    d. Quantity ……..
    e. Buyer's phone No ……
    f. Buyer's Address ……

Information Required From Buying Agent:

1. Buying Agent to record:
    a. Name of Processing Plant …….
    b. Location Address ……
    c. Storage Conditions ……..
    d. Date markings ……
    e. Size of Purchase (weight, bags, etc) ……..

2. Store record:
    a. Name of store ……..
    b. Location of store ……..
    c. Capacity ……..
    d. Date ……
    e. Quantity Delivered/Purchased ……..
    f. Source ……
    g. Type of storage facility ……
    h. Product treatment (if any) ……

3. Collation by Supplier:
    a. Lots-Forming Products Batch numbers ……..
    b. Date Markings on Lots-Forming Batches ……..
    c. Quantity of New lots (wt, bags, etc) ……..
    d. Batch number of new lots formed ……..
    e. Date Markings on New Lots ……

.4. Sales and Distribution records to be kept by the Supplier:
    a. Date of sale ……
    b. Name and address of buyer ……..
    c. Phone No of buyer ……..
    d. Destination ……..
    e. Date of Departure ……
    f. Quantity ……..

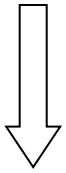
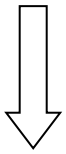
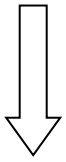
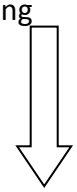
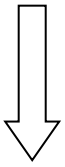
Sea Port/Air Port Records To Be Kept By The Exporter:

1. Suppliers Information:
   a. Name of commodity Supplier ……..
   b. Address ……
   c. Phone No ……

2. Collation by exporter:
   a. Batch number of lots-forming product ……..
   b. Batch number of new lots ……
   c. Quantity ……
   d. Date marking ……..

3. Sea port/air port:
   a. Name of exporter ……
   b. Address ……
   c. Phone No ……
   d. Destination ……..
   e. Date of departure ……..
   f. Batch number of lots ……
   g. Name of shipping company ……
   h. Phone No of Shipping Company ……..

1.8.2. Traceability Flow Chart In Shea-nuts Supply

Location	Process Flowchart	Information Required	Medium of Information
Factory Gate	Receipt of Picked Kernels	Name of Picker, Location of Picking, Area Code, Conditions of Tree and Kernel,	Factory record book/ Computer
Raw Material Store/Room	 Release to Production	Date, Details of Lots released for production	Store record book/ Computer
Production	 Semi processing of Kernel	Records of volume of water used, temperature and duration of boiling	Production record book / Computer
Production	 Sorting Weighing and Packaging	% Rejects, Packaging material, Labelling (Weights, Date, Grade)	Production records
Finished Products Store	Sorting Weighing and Packaging  Storage	Storage date, Quantity received, store and product treatment (if any)	Store record book/ computer
	 Sales	Name and address of buyer, Phone number and email address, Quantity Purchased	Sales record book

Location	Process Flowchart	Information Required	Medium of Information
		and Price	
Sales	Collation by Buyer	Batch number of sources, date making, area code, record of sales, destination and departure records	Buyers record book
Major Buyer	Exporter/lots formation	Batch number of sources, sources record, name of supplier, address of supplier, phone No, quantity, new batch number.	Exporters record book/Computers
Exporter in Town	Exportation	Destination record, quantity, Batch number of lot formed, date of departure, name of exporter., phone No, shipping company, phone No	Sea port/air port record book
Sea ports/air port		FPIS Inspector Stamp Information	Government Records and Exporter's Record

1.9. REFERENCES:

1. **www.Coleacp.Org/Edes** EDES Safe Food In ACP Handbook 7.1: Traceability & Labelling
2. Codex Alimentarius Food Import and Export Inspection and Certification Systems 3rd Edition: Principles For Traceability / Product Tracing As A Tool Within A Food Inspection And Certification System (CA/GL 60-2006)
3. Report of the STDF Project 172 on Expanding Nigeria's Export of Sesame Seed & Shea Butter from Field Work/Pilot Project Facility