



Chapter Seven

VALUE ADDITION TO TRADITIONAL FOODS IN NIGERIA

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Abstract

Key trends shaping global agriculture such as increasing population, food security challenges, health and wellness, sustainability issues and changes in consumer preferences reiterate the need for value addition to foods. This chapter presents an overview of the concept of value addition with particular reference to traditional African foods. In addition to drawing out the relationship between value addition and topical issues such as youth unemployment and national development, the paper explore opportunities and threats to enterprises built around food systems in Nigeria. It concludes with policy recommendation to optimize the potentials of value-added agriculture in the country.

Introduction

Ensuring food security for the rapidly increasing population in many developing countries has been on the front burner for over a decade and persists. Nigeria for instance with a population of over 170 million people and a population growth rate of 3.5% has the third largest number of malnourished children in the world and records a death in every 3.6 seconds resulting from hunger-related issues (UNICEF, 2017). Food production for many countries has failed to meet local demand resulting in massive importation which in turn cripples the economy hence, the vicious cycle of poverty of the nations. The insufficient production is often further reduced and devalued by agents of post-harvest loss due to poor processing and storage. The traditional benefit of value-addition to developing countries is the opportunity it presents for producers to increase the shelf life of their produce. However, new trends that have continued to shape agriculture have introduced new dimensions to the concept of value-addition. Consumers do not only have higher incomes, changing tastes and preferences, they now focus more on convenience (Ajibade et al., 2017), quality, variety, service, health, and social consequences. Increasing demand for consumers' time is another driving force for the request for value-added products (See Box 1).

Richards and Wechsler (1996) described value-addition as "selling the sizzle, not the steak"; the sizzle here referring to information, education, entertainment, image, and other intangible attributes. In addition to providing higher returns, value addition can open new markets, increase recognition for a firm, broaden market season and contribute positively to community and national development.

The Concept of Value Addition

The United States Department of Agriculture (USDA) defined Value-added agriculture as one that brings about a change in the physical form or state of an agricultural product or the adoption of any production method or handling process which results in an enhancement in the consumer base for the product, increases the portion of the consumers' spending on the product that accrues to the producer. Value addition in

agriculture can, therefore, be explained as the process of increasing the customer appeal and economic value of an agricultural commodity (Silva, 2002; Boland, 2009). It is a production and marketing tool which reveals the difference between the economic worth of agricultural products and the cost expended on inputs to produce them. Falola *et al.*, (2016) also defined value addition as the transformation of raw agricultural produce into consumer-ready food products. It is clear from the foregoing that, though there are as many definitions of value addition and value-added agriculture, as there are authors, all submission on the concept, acknowledges the fact that an agricultural commodity must be subjected to a process which changes it from a lower quality offering to a superior one thereby creating increased economic value. To further understand the concept of value-addition, it is important to distinguish clearly between the “consumer value” and the “producer value”. Knowledge of how value is created will also enrich the discussion on value-addition.

Value and its Creation in Agriculture

Value is whatever is done to a raw product to take it to the next level of production. It can be as simple as the addition of a physical input such as salting as in fish or the performance of an operation such as sun drying as in grains. It can also be as elaborate as taking produce through an entire value chain, for example, the production of beverage line for cocoa beans. Irrespective of the scope, value addition must be based on customer value as opposed to producers’ perception of value. According to Anderson and Hanselka (2006), customers’ value reflects the relationship between benefits received by consumers and the price they pay for the goods. It is, therefore, such that, the higher the benefits derived compared to the price paid, the more the customers’ value of the product. Hence, it is the consumers’ perception of the value of any product that is of significance in value addition and not necessarily how highly the producer thinks of the product. This analogy brings to fore; the customer-centered nature of value addition.

Seven main areas in which value can be created to produce have been identified based on the benefits that could accrue to consumers from agriculture-related products. These areas are quality, functionality, form, place, time, ease of possession and information. All value addition activity must focus on one or more of these areas in creating additional benefits for the consumers. One of the areas of focus is to explore the possibility of exceeding customers’ expectation of the quality of products or services. For example, parboiling of paddy, hygienic drying, proper sorting of processed grains, etc. will produce locally grown rice of excellent quality which can compete favorably with the imported polished rice in Nigeria. Value can also be added in terms of changing the form of a produce. This involves creating other forms of the produce which can have alternative uses. An example of this is the case of some farm produce which has been made into forms suitable for breakfast, lunch, and dinner. Beans is popularly taken in the form of bean cakes (*Akara*) for breakfast, boiled as porridge for lunch (*Ewa*) and bean pulp (*Moinmoin*) for dinner among the Yorubas in Nigeria. The differentiation arises from the presentation forms as all three meals are made from the same produce

(beans). Soya bean milk has also been adopted in many homes as an alternative to dairy milk and is being made at the home level through a simple procedure. It is the major component of a new weaning diet being promoted among rural women who lack access to manufactured baby foods. Another way of creating value is to increase the functionality of a product. This is evident in the renewed drive towards sustaining and increasing shea butter production all over the world. Research report of several uses of shea butter in cosmetics, healthcare, and lubrication in food engineering has created more uses for the product. Efficient advertising, marketing, and distribution of a commodity take the commodity to the right place at the right time for it to be purchased and used which in itself adds value to the product. The importance of this aspect of creating value is of particular importance in agriculture where agro-climatic conditions dictate where crops are grown resulting in the need to transport produce around. The importance of time cannot be overemphasized for perishable products such as fruits and vegetables giving the poor state of agro storage in the country. The value-added to produce or products may be in creating ease of possession. An example of this is the packaging of various sizes of products such that it is possible for every consumer to obtain the size that best fits his/her purse or available space. Finally, value-added may be the provision of information about the characteristics, "hidden" benefits, functions, etc. of well-known products.

Captured versus Created Value

Brees *et al.*, (2010), made a unique differentiation between capturing and creating value. Each strategy offers its opportunities and risks to the value addition process. Capturing value deals with acquiring some value through processing and marketing while creating value focuses on products or services that are different from the mainstream equivalent. Producers can market directly to consumers on a small or large scale such as selling at local food markets, direct sales to restaurants or companies. This is made easier with the e-commerce facilities made possible by information and communication technology. Producers who take advantage of capturing value enjoy a lower risk level as production processes are well known to them. They, however, face an extremely competitive marketing environment.

A created value strategy thrives on real quality attributes such as organic certification, brand image, and identity preservation. The risks are higher as creating value involves learning and applying new skills such as dealing with food safety and other regulations. Effort is needed in introducing a new product to markets through advertising, promotion, and consumer education. Though laborious and expensive, once successful, the created value is more stable, usually leading to more earnings than captured value and deals less with market competition.

Why Value Addition?

The food processing sector is no doubt one of the largest manufacturing sub-sectors in the world. Though developed countries have taken the lead in food processing, it is more relevant to developing countries where it can become a tool to combat several of the challenges to the national economies and livelihood of the populace. Some of the significant contributions of value-addition to foods are discussed in this section.

Zeb (2011) observed that for most developing countries, the bulk of food produced is consumed fresh. The poor level of forward and backward linkages has implication for the development of the economy. The implication of this is that both local and foreign earnings accruable from food processing are lost. Value addition to foods is crucial for attaining food security in developing countries. One of the threats to food security in Nigeria is post-harvest loss which has been estimated to be as high as 60% depending on the crop under consideration. Simple value addition activities such as drying have the capacity to slow down the rate of deterioration and extend the shelf life of products. Also, adding value to commodities can conserve essential nutrient thereby contributing to the nutrient security of consumers.

Value-addition is an economic empowerment tool (Womach, 2005). It presents an opportunity for a steady source of income to the teeming population of unemployed people (mainly youths) in developing countries like Nigeria (See Box 2). By creating a source of livelihood, poverty is not only reduced, but vices occasioned by the predominance of unemployed youths are also reduced in the society. Small start-up businesses can spring up in food processing and contribute to national earnings through payment of taxes and even foreign exchange when international standards are met, and their products are passed on to international markets.

Value addition is a tool for enhancing income from farming. Rather than sell off produce at rock bottom prices to middle-men, farmers can earn additional income by taking the product to a more superior level before selling off. Giving that agriculture in Nigeria is primarily rain-fed; food processing can keep farmers engaged and provide means of livelihood during the off-season months when there are limited on-farm activities.

The significance of value-addition in rural communities stems from the fact that agricultural production in most developing countries is characterized by millions of small-scale farmers who reside mainly in the rural communities. The menace of rural-urban migration can be curbed by vibrant food processing activities/enterprises during the off-season. This will not only provide gainful employment but will also accelerate the development of infrastructures in rural communities.

Value addition to food items is a means of rescuing indigenous food from neglect and underutilization. By adding value, new products can be created that will continue to keep relevant, crops which would have gone into extinction. Close to this is the fact that

value addition helps to satisfy the constantly changing tastes and preferences of consumers. Special dietary requirements compelled by health conditions such as diabetics and obesity are made achievable by new forms into which existing products can be translated. The production and marketing of heirloom, ethnic and specialty food requirements (e.g. Halal food) are also made possible by value addition. Seasonal food shortages are also eliminated or reduced by the possibility of converting them into forms with better storability.

Conventional and Improved Methods of Carrying Out Some Value Addition Activities

Activities detailed in Table 1 shows that although value addition could be as simple as the washing of commodities, it could be as elaborate as a complete change in the form (taste, use, and presentation) of commodities.

Table 1: Common activities in Value Addition to Nigerian Traditional Foods

Activity	Objective	Conventional Methods	Improved Methods	Examples of commodities
Washing	Carried out to clean or remove dirt	Manually using basins, buckets, baskets, and available water sources	Power operated cleaners	Melon
Threshing	To detach grains from panicle	Trampling on grains, beating out grains with sticks	Mechanical threshing with threshers	Sorghum
Winnowing	To separate grains from chaff	Bowls and baskets; relying on the wind for blow-out	Motor-powered machines capable of separating chaff	Beans
Peeling	To take out covering or skin from edible part of crops	Use of knives and other sharp observed	Mechanized peelers	Cassava
Dehulling	To remove hull (shells) from seeds	Manual use of hand or light pounding	Mechanized dehulling machines such as the hot dehulling machine	Soya beans
Dry Milling	To achieve a	Pounding in a	Milling	Yam

	powdery form of produce	mortar or grinding on stone	machines of various sizes, blenders and smoothie makers	
Wet Milling	To create pulp or liquid form of produce	Pounding in a mortar or grinding on stone	Milling machines of various sizes, blenders and smoothie makers	Tomato
Cooking	To change forms, produce table ready forms and also for preservation	Indigenous tripod devices	Stoves, gas cookers electrical cooking devices	Cheese
Roasting	To enhance palatability and reduce anti-nutritional agents	By stirring in heated containers such as earthen pots sometimes with sand	Mechanized devices such as ovens	Nuts such as groundnuts and cashew nuts
Smoking	It imparts desirable sensory qualities, reduces moisture and enhances shelf life	The use of earthen kilns and cut drums etc	Electric and gas-powered kilns	Meat
Parboiling	To facilitate milling and conserve nutrients usually lost to polished rice	Manual steaming in pots, drums, etc	Gas and electric powered devices	Rice
Blanching	To inactivate plant enzymes and reduce oxidative changes	Heating in pots with water for various durations	automated processes involving electric boilers with timers	Potato
Drying	To reduce moisture	Spreading in thin layers	Mechanized dryers such as	Maize

	content and increase shelf life	commonly along roadsides or rooftops	the solar dryers	
Fermentation	To increase palatability and preserve shelf life	Heaping up or covering to generate heat to facilitate fermentation	Fermentation facilities in which temperature and other conditions can be regulated	Cassava
Cooling	To reduce deterioration and increase palatability	Use of earthen pots and watering	Refrigerators, deep freezers, cooling vans, etc	Fruits and Vegetables
Extraction	To remove the raw product from harvest	Pounding, hand squeezing, placement of heavy objects on sacks containing produce	Mechanical extractors	Oil palm
Storage	To extend shelf life and make more revenue at the offseason	Earthen pitchers, mud bins or bags	Metal bins, silos, refrigerators, etc	Grains and Vegetables
Packaging	To ease transportation and also standardization	Poor standardization and use of any available size and make of bags, baskets, etc	Standardized weighing of commodities and use of standard packaging, e.g., jute bags for grains	Grains
Distribution/ Marketing	To earn revenue	Farm gate sales to middlemen	Value-added products offered directly to consumers, supermarkets, etc. and cooperative marketing	

Value addition activities in agriculture are not limited to those listed in Table 1. Other activities not listed include churning, culturing, acidification, pasteurization, curing, extrusion, and food fortification.

Establishing and Managing a Value-added Food Business

The considerations in creating and running a value-added food business are similar to those of any other enterprise albeit with some peculiarities. There are six crucial factors to any successful food business. These factors are the careful formulation of operations, personnel, sales, management, and financial plans. The operations plan contains a detailed explanation of the flow of the business concerning quality and cost control. The “quantity” and quality of staff required to run the business as well as skills and training needs constitute the personnel plan. The sales plan contains a realistic projection of market performances and specific, measurable goals to be met in the short, middle and long run of the business. The SWOT and PEST of the proposal is the fundamental element of the management plan. The strength, weaknesses, opportunities, and threats to the proposed business must be assessed. In addition, the political, environmental, social and technological context in which the business will operate must be understood and factored into all plans. Value addition enterprises can be capital intensive and time is required to put together a consumer base that guarantees break-even or profit line. Therefore, proper investment and financial plans which see to a realistic cash flow projection are needed for the smooth take-off of the enterprise. Born and Bachmann (2006) opined that the traditional five “W” questions must be answered in the considerations towards opening a food processing concern. They are illustrated as follows;

- What? Helps to decide on what product or service to focus on
- Why? Tells the need for the product or service
- Who? Defines the potential customers of the business
- When? Produces a timetable of events leading to the opening of the business
- Where? Tells the location of the business

Useful tips for success in the terrain include starting small and watching the business grow naturally, keeping good records and relying on the records for decision making, ensuring high-quality products and services, entrenching demand-driven approach, involving family and partners, information gathering, continuous evaluation of performance, perseverance, and focus. An entrepreneur in the food processing business will do well to adapt to market changes, be open to new ideas, operate as a resource manager, establish networks and alliances.

Value Addition to Traditional African Foods

In addition to traditional forms in which indigenous Nigerian foods are consumed, new products, many of which are ready to eat, are now available. Table 2 summarises selected native Nigerian foods and some of their value-added products

Table 2: Value-added products of Selected Nigerian Indigenous Foods

S/N	Indigenous Foods	Value-added products
1.	Cassava	Cassava flakes (<i>Gari</i>), <i>Fufu</i> , Tapioca, Cassava flour (<i>Lafun</i>), cassava chips, glucose syrup, cassava bread, livestock feed, ethanol, starch,
2.	Maize	Pap, maize flour, popcorn, <i>tuwo</i> , Locally brewed liquor, <i>donkunnu</i> , corn flakes, <i>abari</i> , maize oil
3.	Cowpea	Pudding (<i>Moin-moin</i> and <i>Ekuru</i>), bean cake (<i>akara</i>), bean chips
4.	Soybeans	Soymilk, soybean cake, <i>kunnu</i> , soynut
5.	Rice	<i>Tuwo</i> rice, rice flour, rice bran oil
6.	Potatoe	Chips, potato flakes, potato flour,
7.	Yam	Yam flour, chips, porridge,
8.	Groundnut	Oil, <i>Kulikuli</i> , soup
9.	Millet	<i>Kunnu</i> , Pap
10.	Hibiscus	<i>Zobo</i> drink, tea
11.	Cocoa	Beverages, chocolate
12.	Oil palm	Broom, palm oil, palm wine, soap,
13.	Fruits	Fruit drinks, candy, jam
14.	Bambara nut	Milk, Extruded form (pasta), flour, cement, ruminant livestock feed.
15.	Plantain	Chips, wine, Roasted plantain (<i>booli</i>)

Constraints Faced by Enterprises in the Agricultural Value Chain

In spite of information available on the possibilities of value-added agriculture in reducing poverty and improving the livelihood and well-being of people, its potentials are not optimized. This is due mainly to constraints faced by start-ups and even existing food-related businesses. Perhaps one of the most crucial of such challenges is funding. The initial capital outlay is usually high and thus keeps away many aspiring entrants into the enterprise. The situation is further worsened by the reluctance of commercial banks to lend to start-ups as evidence of consistency in the business is a prerequisite for eligibility in most cases. Markets are also not always structured or predictable. Markets here include the markets for raw produce which is mostly weather dependent. The markets for output are too erratic and demand a thorough knowledge of trends and consumer behavior. The dearth of technical know-how and inefficiency of personnel is also a constraint to the survival of many food chains. It is also important to mention the deplorable state of infrastructures and amenities in many developing countries. For instance, the power supply situation often makes cold storage a problem. Other processing equipment and appliances which run on electricity supply are also not readily available for use as alternative sources of power such as electricity generating sets increases the cost of doing business. The rigorous procedure and the requirements for certification to become registered as a producer of processed food have been

decried. New entrants find it difficult to meet set requirements which sometimes are not necessarily relevant to their proposed enterprise. Worthy of mention also is the activities of unscrupulous elements that specialize in churning out adulterated versions of products thereby ruining brand names. This is particularly rampant in the food processing industries because of the low level of specialization in packaging and branding. While the relevant regulatory authorities such as the National Agency for Food, and Drug Administration and Control (NAFDAC) in Nigeria continue to work assiduously to curb this menace, it appears much still needs to be done. And finally, the quality and quantum of research and innovation in developing countries seem inadequate to meet the marketing challenges in the food industry. This is coupled with the fact that policy recommendations from research are hardly implemented.

Recommendations for Enhancing the Growth and Stability of Agricultural Value Chains

The importance of food processing and value-added food products to food security and economic development has been enunciated as well as the constraints to its optimization have been expressed. Stakeholders in the food business, as well as national development, have roles to play if the opportunities inherent in the food sub-sector will be explored.

To attract investments, markets have to be better structured. It may be productive to re-introduce a modified form of the Marketing Boards. Aside from reducing the burden of sales, the issues of standardization will be taken care of. Farmer and processor-groups should be encouraged to spring up and be strengthened where they already exist. Such alliances will enable small-scale entrepreneurs to enjoy economies of scale and better bargaining power (Omotesho *et al.*, 2016). With vibrant and robust commodity groups, governments only need to provide adequate backstopping organizations and effective regulation of the food business environment.

The poor level of commercial orientation and technical know-how issues should be tackled with adequate training by agricultural extension and business management outfits. Extension messages need to be continuously reviewed and updated while constant retraining of the extension officer should be carried out to keep them abreast of new knowledge on crop processing. It is essential that the poor state of the operational synergy of extension effort should be addressed. Food-related projects and programmes embarked on by international donor agencies, Federal and State Governments, Non-governmental agencies, etc. should be harmonized and synchronized for better impact. Students of tertiary institutions (particularly of agriculture and related fields) should be made to take compulsory courses in Value addition to food as part of their entrepreneurship training as this will help in stimulating their interest and prepare them for career choices in value-added agriculture.

A multidimensional approach to the funding of the sub-sector is recommended. This will involve donor grants, government loans, and grants, commercial and developmental

credit institutions, rural self-help groups, etc. Care must be taken to ensure that such initiatives are devoid of cumbersome requirements and granted rates that will ensure the profitability of the investments. Mentorship programmes can be built into loans and grants to start-ups to make up for their deficiencies in experience. Lease options which enabled investors to pay for equipment and appliances over convenient periods of time can also be considered.

Requirements sets by regulatory bodies for the registration of food processing concerns should be reviewed and possibly categorized into groups with different requirements based on the scale of operation. This will allow small-scale operators to begin small and then upgrade as they expand. Also, product distribution channels should be efficiently monitored by relevant offices to forestall the passage of adulterated food items.

Conclusion

Value is added in agriculture when produce is transformed from its original form into a more valuable and preferred state. More than ever before, the trend in agriculture presents excellent opportunities in the food business in Nigeria. It is evident that it is not enough to increase agricultural production as farmers' output must be conserved against further loss and earnings enhanced through processing, packaging, and distribution. There are enormous untapped opportunities to develop science and technology capability as well as research and development in the Nigerian food value chain.

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Case 1

Miss Yetunde Oshe makes a living from selling ready to use vegetables and fruits in Lagos Nigeria. The idea evolved from frequent requests by some of her banker customers that she assists them to shred vegetables or cut fruits. This was to save them time since they worked long hours and with the Lagos traffic jams were sure to get home late and tired. She decided to package shred or cut vegetables and fruits for this category of customers for a fee. It turned out most of her customers were willing to pay a premium for the added service. She did not only make more money, but her sales also increased significantly. She has several young people working with her (on a commission basis) to drive the sales of cut and packaged vegetable and fruits such as okro, ewedu, spinach, cabbage, and carrot on the streets of Lagos. She also supplies some supermarkets in Lagos. Her customers, therefore, have access to ready to make soup and salad vegetables and fruits while she smiles to her bank.