



STATE OF INFRASTRUCTURE, TECHNOLOGY AND ANIMAL PRODUCTS PROCESSING IN NIGERIA: THE MISSING LINK

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Abstract

Animal product and processing is a very important aspect of animal production and Nigeria is a major hub of animal product consumption in West Africa. It is also one of the largest livestock-raising countries in the region. Meeting the ever-increasing domestic demand and access to these flourishing markets are major status for Nigeria and for the neighboring Sahel countries that raise livestock. However, post-harvest processing and infrastructural management of the food production chain remains a major challenge. Some of the factors militating against successful animal products and processing amongst many include: need for trained human capital, low level of education, product safety and quality, effective communication, adoption of new knowledge, information and technology and lack of facilities. This paper aims at reviewing the state of infrastructure, technology and animal products and processing in Nigeria.

Key words: products, processing, infrastructure, technology, challenge.

Introduction

Science and technology are central to developmental prospects of poor countries. They can provide tools that help alleviate the specific problems that afflict many countries and which impede their development prospects, such as disease, infrastructural (energy, communication, transport etc.) decay and loss of agricultural produce and products (Olukayode and Shangodayo, 2011).

Nigeria is a major hub of animal product consumption in West Africa. It is also one of the largest livestock-raising countries in the region. Meeting the ever-increasing domestic demand and access to these flourishing markets are major status for Nigeria and for the neighboring Sahel countries that raise livestock (Christophe *et al.*, 2010a). The strong rise in demand for animal products is due not only to the high rate of urbanization (60% of Nigerians are city dwellers), but above all, consumer's greater purchasing power and emergence of a new middle class. (Christophe *et al.*, 2010b).

Although the meat-processing industry is growing, meat consumption in Nigeria is still below the regional average (2kg per person and per year in Nigeria, compared to 8kg per person per year in ECOWAS). To meet the protein requirement per person per day in Nigeria, infrastructure and technology is very crucial to prevent post-harvest loss in animal production, ensure value addition of animal product and safety.

This paper reviews the state of infrastructure, technology and animal products processing in Nigeria.

Literature review

Animal production is very essential to food security and development of any nation. It provides: foreign exchange for the economy, employment for the citizens, rich source of protein which is essential for power, transportation, provides raw material for clothing and shoe industry and by products that can be used in various other industries such as cosmetic industry (Obeta 1990, Babatunde, Quim 2010, Agbola and Baleilue, 2012). Animal products are responsible for one-sixth of the human food energy and also more than one-third protein requirement on the global basis (Bradford, 1990).

Martin Philip (1994) noted that many different businesses are involved in the animal processing industry. Some processors purchase the raw animal product (mineral, milk or eggs) from the producers and process into wholesale products. Other processors purchase the raw product and do all the processing needed to make the edible products available at retail level. Still many other processors not only process the edible produce but process the by products as well.

Nigeria has 36 states and is the most populous country in Africa with a population of about 170 million as of 2012 (Population, 2012) with over 70% of the population living on less than a dollar a day (Walts, 2006).



By the year 2050, the projected population of Nigeria will be 402 million making Nigeria the 4th most populous country on earth after India, China and United State (Population, 2012). Fagoyero and Taiwo (2012) stated that the fast growing population of Nigeria is threatened with the problem of food insecurity and poverty which can be addressed with a more developed animal production and processing sector in addition to other sectors.

The average Nigerian still consumes far less animal protein than counterparts in the developed world because the animal production industry is still in its infancy due to hydra-headed problems and the per capita income is low leading to a consumption of less than 9 grams of animal protein per capita per day compared to over 50 grams per capital per day in North America and Europe (Grigg 1995, Beland et al, 2013). Milk and meat are the most important source of protein and calcium in human nutrition (G. Heinz). In northern Nigeria, most local milk processing farms operate at a small scale with a capacity of about 50 litres per day. The local processor utilizes semi-mechanical processors to produce traditional milk products which include nunu (soar milk), kindirmo (soar yoghurt), manshanu (local butter), cukwi (Fulani cheese). The lack of advances technology and inadequate dairy infrastructure has resulted in substandard milk products (Celestine A, 2015).

Imported milk accounts for 75% of milk processing inputs and the high utilization of imported milk does not encourage backward integration within the value chain (Nigeria Dairy Enterprise Initiative Final Report, 2007). Our primary research identified lack of cold chain infrastructure, exchange rate fluctuations and logistics as major challenges encountered by dairy processors in Nigeria (PwC, 2017).

Factors that may affect the ability of a nation to meet the demand for animal products are: need for trained human capital, product safety and quality, effective communication, adoption of new knowledge, information and technology and lack of facilities (NAP, 2015). These factors are further elucidated as described below:

Need for Trained Human Capital:

Training is one of the important issues in meat technology, facilitating the introduction of proper meat processing and meat preservation methods (FAO, 1990). The Federal Ministry of Agriculture and Rural Development is the principal government body with the responsibility for articulating national policy on animal husbandry. The ministry performs the role through its various departments and agencies. However, institutions and key stakeholders has created huge gaps between policy and practice in Nigeria meat industry. (Kolawole Talabi, 2015). The training could be strategically positioned at farmers who command a lot of market and fellowship who will in turn influence other farmers. Unfortunately, in Nigeria, the number of qualified agricultural extension workers is grossly inadequate make meaningful impacts on the nation's economy through products and processing. (Pwakeno H Bamaïyi, 2013).

Low Level of Education:

It is a well-known fact that farmers have a low level of education or are illiterates making it difficult for them to employ modern animal production techniques where traditional techniques have failed (Pwaveno, 2013). A study carried out in Osun State has found that education level had significant and positive relationship with average production (Adebayo and Adeola, 2005). In Nigeria today animal product and processing is still at its lowest output per capital income as a result of the poor state of education of farmers and local processors. As a result, some farmers can not adopt new methods of processing technology and value additions evolving in counterparts' countries.

Poor Hygiene and Handling of Animal Products during processing:

Unhygienic issues related to food animals could emanate from slaughtering processes, inefficient standard operating procedures, marketing and improper meat handling practices (Olanike, 2002). In developing nations like Nigeria, abattoirs are not maximally utilized and even the meat passed for human consumption in many instances is not adequately monitored (Kundu et al, 2015). One of the major constraints in the improvement of hygiene and technical quality of slaughtering, meat handling and by-product utilization is the lack of adequately trained personnel at all level (FAO, 1993).

Poor Transportations:



Transportation is very important to the animal products and processing industry. Lack of access roads to farms and from farms to the market hampers the development of the animal production industry. The movement of animal produces from production to consumption point requires good transport networks that are either not existing or in very bad shape in the Nigerian context (Ibitayo, 2012, Gujbu et al, 2013). There is a need to improve on these transport systems for maximum animal production and product processing because good road transport is essential for food security (Prie, 1993).

Lack of Processing Equipment:

Many countries have problems with infrastructure for animal production (Van Der Zijpp, 1999) and Nigeria is not an exception. There is generally lack of proper mechanized farming using modern infrastructure such as improved milking machines that could reduce the incidences of zoonotic diseases and improve shelf life of milk and milk products (Pwaveno H Bamoiyi, 2013). Lairage facilities available in most abattoirs in Nigeria are grossly inadequate and most time animals are slaughtered in the lairage instead of rested as result of congestion in the slaughter houses (O. O. Omotosho *et al*, 2016). Most fish processing communities in Nigeria still employ the use of traditional technologies and crude equipment in the processing of harvested fish and this has resulted in high level of post-harvest loss in fish production. Tawari (2006) and Davies and Davies (2009).

Poor Storage and power supply:

Storage is a problem for Nigeria as a large number of food produce perishes, because of the lack of storage and processing facilities (Kelvin Akpososo Ufiober, 2017). Animal products such as meat, milk and egg provides a major medium for microbial proliferation without immediate processing and storage. Unfortunately, in Nigeria, the state of infrastructure and technology does not encourage backward integration within the value addition chain through storage. Ayuba and Omeji (2006) is of the opinion that lack of adequate processing techniques and storage facilities contribute significantly to the low supply of fish to poor rural dwellers that form three quarters of the population in developing countries like Nigeria. The epileptic nature of power supply on Nigeria industries affect virtually all aspects of production. Animal production and processing equipment require electricity to function and this is either in little or no supply. The effect is seen in post-harvest losses and spoilage of animal produce and products from poor storage.

Conclusion

Agricultural performance in Nigeria is greatly impaired by low level of development of infrastructure. In the rural areas where majority of the small holders operate, inadequate infrastructure constitutes a major constraint to agricultural investment. The infrastructure inadequacy is mirrored by poor road transport system, epileptic electricity and poor communication system (Oni Timothy Olakunle, 2013). Agricultural losses are caused by poor handling in the fields, lack of proper transportation, inadequate storage facilities and slow movements of produce compounded by lack of infrastructural development and/ or poorly maintained infrastructure (Banake Elisha *et al*., 2016).

In Nigeria today, post-harvest (processing) and infrastructural management of the food production chain remains a major challenge.

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