JWPR
Journal of World's Poultry Research

J. World's Poult. Res. 1(1): 4-6, 2011

Review Article

A Review of Egg Production in Botswana

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ABSTRACT

The egg industry has grown significantly over time, thus leading to the country becoming self-sufficient in table egg production. Currently, the *per capita* consumption of eggs in Botswana is estimated to be about 62 eggs per person per year. The five major egg producing districts are South-East, Kgatleng, Francistown, Selebi Phikwe and Kweneng with South East being the largest producer of eggs in the country. It appears that only Chobe district does not produce eggs but relies on supplies from other districts. The industry is challenged by *inter alia* high feed costs, inadequate extension service, disease outbreaks, poor infrastructure, unorganized marketing and irregular supply of pullets. It is suggested that further processing of eggs should be started in the country and also that egg production should be promoted in Chobe District.

Keywords: Commercial sector**,** egg production, *per capita* consumption, traditional sector

INTRODUCTION

A remarkable dynamic global growth in poultry meat and eggs as well as trade was experienced during the last 35 years. Between 1970 and 2005 poultry meat and eggs increased faster than beef, veal and pig meat (Windhorst, 2006). Compared to poultry meat, the egg industry in Botswana has performed exceptionally well. As a result, the country is reported to be nearly self-sufficient (Moreki, 2011) or self-sufficient in egg production (Kelebemang, 2009) because only fewer or no eggs are imported.

The poultry industry is considered one of the most important success stories of Botswana's policy of agricultural development and import substitution (Grynberg and Motswapong, 2011). To promote local production, Botswana uses the licensing and restrictions on the imports of some agricultural products including beef, fish produce, milk, eggs, chicken and some horticultural products. The objective of these restrictions is to protect domestic suppliers from competition. Grynberg and Motswapong (2011) mentioned that the most powerful and enduring instrument of government policy in the poultry sector has been protection from foreign competition through restrictions of imports which have been available since 1979 with the introduction of the Control of Goods (Importation of Eggs and Poultry Meat) Regulations (SI 120, 1979, 7th December, 1979). These restrictions have contributed enormously to the growth of the poultry industry as imports are only allowed when a production deficit occurs.

There is limited information on the performance of the egg industry. The objective of this review is to evaluate the performance of the egg industry over a period of five years (i.e., 2006 to 2010). Opportunities and challenges facing the industry will also be highlighted.

Main poultry production systems

The poultry industry in Botswana is broadly classified into commercial and traditional sectors. The commercial sector uses exotic high yielding bird strains (high egg production), whereas unimproved low producing indigenous breeds predominate in the traditional sector. The commercial sector is further categorized into small-scale enterprises that rear up to 20 000 birds, medium-scale (20 001 to 50 000 birds) and large-scale (>50 000 birds). Layer operations are concentrated on the eastern side of the country because of better transport links and proximity to markets (Badubi and Ravindran, 2004). Additionally, the egg operations are predominant in urban and peri-urban areas due to good infrastructure and other supporting amenities such as input supplies and markets.

Previous study of Badubi and Ravindran (2004) reported that 80% of egg production projects fall under the small-scale category and employs a high proportion of the industry's work-force. However, recent data from the Ministry of Agriculture show that small-scale farmers constitute about 68% of all farmers, indicating a decline of 12%. Small-scale farmers have limited resources and lack economies of scale, and hence lack production continuity. On the other hand, medium and large-scale enterprises are characterized by improved husbandry practices due to availability of resources and

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Journal homepage: http://jwpr.science-line.com/

skilled personnel. Despite being few, medium and large-scale enterprises are the major suppliers of table eggs in the country and have a bigger market share.

Egg production per district

Figure 2 illustrates egg production across the districts. The five major egg producing districts in Botswana are South East (including Gaborone), Kgatleng, Francistown, Selebi Phikwe and Kweneng. South East, which is the largest producer of eggs in the country accounts for approximately 50% of the country's egg production. The three districts (i.e., Kgatleng, Kweneng and South East) account for approximately 76% of the eggs produced in Botswana, thus making the southern part of the country the main producer and supplier of eggs. Only Chobe district does not produce eggs even though it is one of the country's top two tourist destinations. Therefore, it is apparent that egg production should be encouraged in the district given the strong tourist activities in Chobe district. Starting egg production projects in Chobe should go a long way in creating employment opportunities and also in availing a rich source of protein in the district that is heavily dependent on tourism and has high HIV/AIDS prevalence rate. Central Statistics Office (2009) reported that Chobe had HIV/AIDS prevalence rate of 23%, which is considered one of the highest in the country.

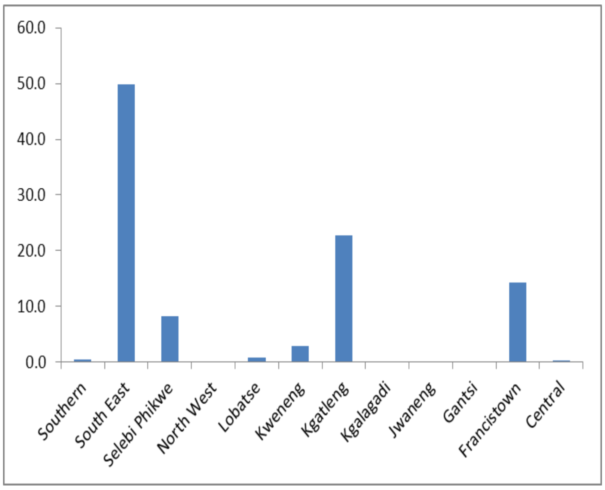

Figure 1: Egg production across the districts. (Poultry Annual Reports, 2011)

Egg production and *per capita* consumption

The performance of the egg industry and *per capita* consumption from 2006 to 2010 is shown in Figure 2. As illustrated in Figure 2, there was a decline in egg production in 2007 which Kelebemang (2010) attributed to delayed importation of pullets since the country is entirely dependent on the Republic of South Africa (RSA) and Zimbabwe for the supply of pullets. In addition, Moreki (2007) reported that the decline in egg production was due to the outbreak of foot and mouth disease (FMD) which resulted in movement restrictions being placed on imports of livestock and their products, as well, as movement of these within the country. Furthermore, extremely high ambient temperatures that occurred from October 2006 to March 2007 resulted in low egg production and high bird mortalities.

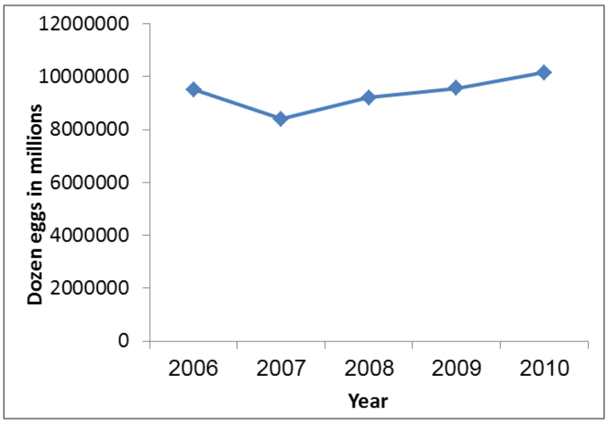

Figure 2: Egg production from 2006 to 2010. (Poultry Annual Reports, 2006 to 2010).

Data on the *per capita* consumption of eggs are presented in Table 1. Generally, the consumption *per capita* of eggs has not increased during the study period. The only notable increase ocurred in 2008, which was thereafter followed by a decline. Currently, the *per capita* consumption of eggs in Botswana is estimated to be 62 eggs per person per year, indicating a slight decline of about 1.64% from 66 eggs per person per year in 2010 (Table 1). These consumption *per capita* estimates exclude consumption from family poultry, the population of which is currently unknown. Kelebemang (2010) attributed the decline in *per capita* consumption to shortage of pullets in the country and extremely high temperatures. The sporadic cases of Newcastle disease (NCD) that occurred in Botswana in 2006 and 2007 (National Veterinary Laboratory Report 2006, 20007), as well as, outbreaks of the NCD in RSA and Avian Influenza in Zimbabwe also contributed to the decline in consumption *per capita* of eggs.

Table 1: Egg production from 2006 to 2010

Year	Egg production (dozen eggs)	*Per capita* consumption
2006	9517500	65.4
2007	8402039	65.4
2008	9205796	67.4
2009	9556100	66
2010	10157608	62

Source: Poultry Annual Reports (2006 to 2010)

Challenges to commercial egg production

Some reported challenges include:

- lack of finance (LEA, 2009);
- limited access to infrastructure and to government tenders (LEA, 2009);
- limited feed resources (Moreki *et al.*, 2011);
- high feed costs (Kelebemang 2008);
- supply of poor quality feeds (Poultry Annual Report, 2000; Moreki, 2011) and chicks (Poultry Annual Report, 2000; Reddy (1991) reported that there is no strict and compulsory quality control measures either in the hatchery or on feed millers;
- outbreaks of diseases (Moreki *et al.*, 2011);
- inadequate extension service (Poultry Annual Report, 2000; Moreki, 2011) probably due to

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inadequacy of staff, large areas to be covered by extension agents and shortage of transport;

- unorganized marketing (Poultry Annual Report, 2000; Moreki, 2011);
- lack of utilities such as water, electricity and telephone system in the farms (Mosinyi 1999; and
- inadequacy of breeding stock, thus leading to imports of birds (Moreki, 2010)

Prospects of the industry

- The industry should be developed in a sustainable way by establishing a breeder operation in order to supply pullets locally, which are imported from the neighbouring countries. This should save the country the much needed foreign exchange and create jobs for the locals.
- There is need for the egg producers to consider further processing of eggs into various products such as liquid eggs, powdered eggs, etc. This would reduce egg spoilage that occurs in summer due to high ambient temperature.
- Exports to countries such as Angola and Namibia should be considered in the future, as commercial poultry production in these countries is in its infancy.

CONCLUSION

It is apparent that the egg industry has developed rapidly over time mainly due to government support. The growth has resulted in concomitant increases in *per capita* consumption values with the current estimate being 62 eggs per person per year. Eggs were produced in all districts except Chobe district. The major egg producing districts are South East, Kgatleng, Francistown, Selebi Phikwe and Kweneng with South East district being the largest producer of eggs in the country. It is suggested that egg production should be promoted in Chobe District which possibly has the highest tourism activities in the country.

ACKNOWLEDGEMENT

We would like to thank Mr. Samuel Tjetjoo from the Department of Animal Production for supplying the required data.

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