

Botswana Ostrich Industry and Its Commercial Development

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Abstract

This paper gives an overview of commercial ostrich farming in Botswana, which started in the mid 1980s but is still in its infancy. Botswana boasts the largest number of wild ostriches estimated to be approximately 60000, probably indicating that the country's hot and dry climate is ideal for ostrich production. Generally, ostrich population has declined over time. The number of farmed ostriches declined from 6000 in 2010 to approximately 2200 in 2015. This decline occurred despite government support in the form of grants and highly subsidized loans, as well as, availability of the state of the art export abattoir and Dibete Ostrich Multiplication Unit (DOMU). Some major challenges faced by the industry include high input costs especially feed costs, prolonged closure of the abattoir, lack of access to finance and inadequate extension service. For the industry to grow, it appears that additional government support in the form of feed subsidies, provision of additional transport resources and training of technical staff in ostrich production are required. Despite the challenges, the industry seems to have a bright future given the high demand of ostrich meat and products in the EU and untapped local market.

KEYWORDS: Botswana, DOMU, European Union, ostrich farming, ostrich meat

Introduction

Ostriches (*Struthio camelus*) and guinea fowl (*Numida meleagris*) are indigenous to Africa. Together with emus, rheas, cassowaries, kiwis and tinamous, ostriches belong to a group of flightless birds called ratites. In the wild, ostriches live an estimated 20 to 30 years (Jefferey, 1996). The ostrich is the largest bird on earth and the weight of its egg ranges from 1 to 2 kilogrammes. It produces a plume of high quality, high quality meat and hides. Ostrich meat is in high demand in some countries because of its low fat and cholesterol contents (Ndelekwuteet *al.*, 2009; DAFF, 2010) and it is rich in protein and iron (DAFF, 2010). Ostrich meat is extremely popular in Europe due to its health characteristics such as low cholesterol and fat contents (DAFF, 2010).

Commercial ostrich farming started in the Republic of South Africa (RSA) in the mid 1800s. Shanawany (1999) stated that the first commercial ostrich farm was established in RSA around 1865 solely for harvesting the feathers every 6 to 8 months, whereas Erasmus (2008) mentioned that it was established in 1864. As early as 19th century, ostriches were the fourth export earner for RSA after gold, diamonds and wool. Ostrich meat and product exports contribute approximately R1.2 billion annually to the economy of RSA with about R700 million coming from the ostrich meat alone (DAFF, 2010). The ostrich has largely been regarded as a single product animal at various times in the past, with the focus of market interest passing through several phases, from feathers to hides and then meat. It is only recently that the multi-product nature of the ostrich has begun to

become an economic necessity. Republic of South Africa is the world leader in ostrich production with 75% (DAFF, 2010) to 80% (Ramodisa, 2014) of global market share.

Ostriches and their products are new entrants in the livestock industry. Commercial ostrich farming in Botswana is in its infancy (Seleka, 2005; BIDPA and World Bank, 2006). Birds that were initially reared in Botswana were captured from the wild while their progenies were sold to new ostrich farmers (Masilo and Madibela, 2003). Breeding stock was also purchased from commercial farms in RSA, Namibia and Zimbabwe. Although Botswana has lagged behind in developing the commercial potential of ostriches in comparison to RSA (BIDPA, 2005), Namibia and Zimbabwe, it boasts the world's largest population of wild ostriches (BOPA, 2015; Letsholo, 2015) suggesting that the local environment is favourable for ostrich production. However, BIDPA and World Bank (2006) argued that it should not be assumed that just because the country has the largest population of wild ostriches in the world it is automatically suitable for effective farming. Mushiet *et al.* (1999) mentioned that the ostrich industry in Botswana is in the breeding phase with very little marketing taking place and is developing. Ndelekwute *et al.* (2009) estimated the population of wild ostriches in Botswana to be 60000. Recent surveys estimated wild ostriches in Botswana to be 55916 (Department of Wildlife and National Parks, 2012), indicating a decline of about seven percent over three years. The decline in ostrich population could be due to the drought that occurred in 2013.

Ostriches are a valuable, renewable resource; hence the government of Botswana (GoB) intends to utilize this resource as a way of diversifying the economy. According to Government Policy No. 1 of Botswana (Botswana Government, 1994), the government strives to manage ostriches according to domestic and international legislation through an approved policy and management plan. There is lack of information and little expertise in ostrich farming (BCA Consult, 2008), perhaps explaining the poor performance of this sector. This paper endeavours to provide insights into the development of commercial ostrich industry in Botswana.

Population trends of commercial ostriches in Botswana

The number of ostrich farmers in Botswana has declined over time. In 1996, van Schalkwyk (1998) reported 10 operation commercial ostrich farms were operational with a total of 5000 birds which included breeders and chicks, whereas BIDPA and World Bank (2006) reported 29 active farmers in the country that held about 500 breeding hens only. Recently, Letsholo (2015) observed that there are no active farmers in the country except Botalana Ventures in the Tuli Block. In 1996, domestic ostriches in Botswana were estimated to be 5000 (van Schalkwyk, 1998) and/or 7800 (European Commission, 2001) compared to slightly over 2000 currently. Moreki and Seabo (2011) reported that the population of commercial ostriches in Botswana increased from approximately 2500 in 2008 to 6000 in 2010, representing an increase of 140%. The main contributors to the population increase were Dibete Ostrich Multiplication Unit (DOMU) and Botalana Ventures, the two major industry players. The two farms had 3800 and 1500 ostriches, respectively while the remainder was distributed among the small-scale farmers (Regonamanye, 2011). Presently, DOMU and Botalana Ventures account for approximately 98% of the country's commercial ostriches. The population of commercial

ostriches declined from 6000 birds in February 2010 to approximately 2200 in December 2012. Thereafter, it increased slightly to 2412 in June 2014 (DAP Report, 2014) but declined to about 2200 currently (DAP Report, 2015). This indicates that commercial ostrich population generally declined over time. The decline in ostrich population from 2010 to 2013 is ascribable mainly to the prolonged closure of the abattoir, which gave rise to Citizen Entrepreneurial Development Agency (CEDA) and other financial institutions not willing to fund new projects.

Role of Government in the development of ostrich industry

Attempts have been made by GoB to diversify the economy away from the mining sector. For instance, the Financial Assistance Policy (FAP) was introduced in 1982 as a source of private sector investment grants for venturing into productive activities. The primary objectives of FAP were to reduce the economy's dependence on large-scale mining, beef cattle production and the public service, and to promote employment creation (Seleka, 2005). In 2002, FAP was replaced by CEDA which provides subsidized loans to citizens that venture in productive activities such as ostrich farming. Like FAP, the primary objective of CEDA is to promote economic diversification and employment creation. However, unlike FAP which gave grants to entrepreneurs, CEDA gives highly subsidized loans to entrepreneurs. The following are available under CEDA: an entrepreneur mentoring system to promote long-term viability and sustainability of the projects; a credit guarantee facility to promote entrepreneurs' access to credit; and venture capital to promote equity funding (Seleka, 2005).

The GoB has also supported the industry by constructing export abattoir and DOMU, by providing technical support to farmers through Ministry of Agriculture (MoA) extension services and through the current apportionment of incubator ostrich farms (Kganyane, 2015). In addition, the ostrich feed standard (BOS 8-2: 2002) was developed by Animal Feedstuff Technical Committee of the Botswana Bureau of Standards (BOBS) to facilitate production of quality diets. This shows that government has attempted to create an enabling environment for the ostrich industry. However, it appears that more government support is needed to raise the status of the industry to significant levels.

The setting up of DOMU contributed to the increase of the country's ostrich population in 2010. The DOMU was established to assist in reviving the ostrich industry by acting as a catalyst; providing research, training, practical demonstration and extension services; establishing satellite farms in the area, which will be under the direct supervision of DOMU; providing breeding stock and chicks; and providing hatching facilities. However, DOMU barely lived up to its expectations, as it took long for the facility to hatch its own eggs resulting in the hatching being outsourced to Botalana Ventures. Ngatungue (2010) stated that government and Botalana Ventures signed an agreement in 2009 that allowed Botalana Ventures to provide hatching service for government on chick sharing basis. According to the agreement, government took 60% of the chicks hatched while the remainder went to Botalana Ventures. After hatching, Botalana Ventures raised ostrich chicks up to five days and thereafter transferred them to Dibete. Birds from DOMU are available to farmers to buy.

Dibete Ostrich Multiplication Unit has not been instrumental in training of farmers most probably because of the frequent changing of operation's leadership. The closure of the ostrich abattoir for nearly three consecutive (*i.e.*, 2010 to 2013) years resulted in the loss of the abattoir's EU status giving rise to DOMU selling eggs for human consumption but not as a genetic material. This led to the decline in ostrich population.

Since its inception in 2002, the ostrich abattoir was managed by Botswana Ostrich Company (BOC). The abattoir received certification to export directly to the EU in August 2004. The success of the ostrich industry depended upon the viability of the BOC as the sole marketing channel for ostrich products in Botswana (BIDPA and World Bank, 2006). After it was granted EU export status, the ostrich abattoir has exported 3 tonnes of meat per month to the wholesale trade in Belgium (BIDPA and World Bank, 2006) while other EU market destinations have not been targeted due to insufficient volumes (BIDPA, 2005). This indicates that the abattoir lacks throughput though it has the capacity to slaughter about 20000 birds *per annum*. Seleka (2005) observed that the abattoir only slaughters about 3000 birds per year because of low volume of supply. According to the author, the abattoir requires a minimum of 15 000 birds per year in order to operate profitably. On the other hand, BCA Consult (2008) stated that for the ostrich abattoir to be economically viable it requires 12 000 to 15 000 birds per year, providing over 360 metric tonnes of non-export quality ostrich meat for value-added products. In the opinion of Ramodisa (2014), 100 to 150 birds should be slaughtered daily in order for the abattoir to operate at full capacity.

Since its inception in 2002, the abattoir has been closed more than once due to BOC's failure to maintain the facility with the last closure occurring in 2010. Following this, government took a decision to lease the abattoir to another company, Multispecies Abattoir Botswana (MASB) in 2013, which in addition to slaughtering ostriches slaughters cattle to farmers around Gaborone. According to BOPA (2013), MASB slaughters about 1200 cattle per month on average. As most of farms have collapsed, Farmers Magazine Botswana (2013) reported that currently all ostriches slaughtered are targeted for local consumption. Following the opening of the abattoir in 2013 major quality assurance concerns arose which had to be addressed, thus affecting exports to EU market.

Some major industry challenges

The industry challenges are summarized in Table 1. These challenges are related to extension service, research, marketing (lack of awareness consumer related), land and infrastructure, input costs and abattoir operations (closure and lack of throughput). Mushi *et al.* (2003) pointed out that some of the major challenges to ostrich rearing are nutritional deficiencies, poor management and unsanitary conditions.

The cost of starting a commercial ostrich operation is prohibitively high (MoA, 2009). Similar observations were made by Osei-Asare *et al.* (2009) in Ghana. The major cost in an ostrich enterprise is feed which accounts for 70 to 80% of the production costs mainly because most of the ingredients used in the manufacture of ostrich feeds in Botswana are imported from neighbouring countries such as RSA and Zambia, usually at high expense. The location of ostrich farms far away from the feed manufacturing plants and abattoir

also increases the cost of feeds and transportation, thus rendering ostrich operations unprofitable, especially small-scale operations.

According to Seleka (2005), ostrich farming is a very complex business that requires farmers to be well trained in both technical production and business management aspects. In addition, the author argued that there is need to carry out research on the viability of ostrich farming under Botswana conditions to ensure the successful take-off and long-term viability of the industry. This confirms earlier reports by Tabane (2014) who reported lack of scientific research to support the local industry.

Technical support to ostrich farmers is inadequate (MoA (2009); Ngatangue (2010); Regonamanye (2011); Moreki *et al.* (2012); Tabane (2014)). Johnson (2008) argued that although extension and training services are provided by the Department of Animal Production, Botswana Ostrich Company (BOC) and CEDA, the methods, frequency, quality and effectiveness of these services have not produced satisfactory results.

Welfare and transportation issues also do arise given the inadequacy of technical information to both farmers and extension service. Recently, Bejaei and Cheng (2014) in Canada and United States cited lack of scientific information about welfare of ostriches during handling and transport; unfamiliarity of handlers and birds with handling and transport practices and lack of a specific vehicle designed for ratite transportation as some of the potential ostrich handling and transport welfare concerns.

Opportunities

The market for the high quality ostrich meat and hides is vast, especially in the EU with a strong health conscious market. Ramodisa (2014) argued that due to the outbreak of Avian Influenza in RSA, the country has been allowed to export only pre-cooked meat to the EU in past two years, thus creating a marketing opportunity for the local ostrich farmer to export to the EU market. The emphasis on the export market resulted in the local market not being developed; hence the need to mount awareness campaigns to encourage consumption of ostrich meat in the country. Ngatangue (2010) suggested that there is an urgent need to promote consumption of ostrich meat locally as dependency on export market does not seem to be profitable given the low number of birds slaughtered at the ostrich abattoir. In Zimbabwe, Cooper (2002) mentioned that in order for a local market to be developed, cultural norms concerning consumption of ostrich meat must be addressed through positive advertising and promotion. Similarly, in Wessels (2003) recommended that in order to raise consumption of ostrich meat in RSA, extensive marketing should be done on consumer's attitude towards ostrich meat and their knowledge about its health benefits.

Does ostrich industry have a future?

This is a question that begs honest answers from all stakeholders. Given a myriad of challenges faced by the industry, it appears that the local ostrich industry does not have future. On the other hand, the industry appears to have a future given that there is high demand for ostrich meat and products across the globe, especially in the EU. Again, the

local market has not been fully tapped. In addition, government support is available though it appears to be inadequate.

Recommendations

In order to grow the industry the following are recommended:

1. Subdivision of land in Dibeete should be done in such a way that there is only one integrator with a few small-scale contract farmers. This is purely for biosecurity reasons.
2. Additional Government support in the form of subsidies and transport resources for extension staff to carry out extension service is required.
3. There is need to train extension staff in ostrich production in order to equip them with knowledge and skills.
4. A culture of eating ostrich meat must be created by advertising it in the media as low cholesterol and low fat meat. This should appeal to the growing health conscious market.

Conclusion

Despite the challenges faced by the industry, the future looks bright. The fact that Botswana has the world's largest population of wild ostriches suggests that the local climate is ideal for commercial production.

References

Bejaei, M. and Cheng, K.M. (2014) A survey of current ostrich handling and transport practices in North America with reference to ostrich welfare and transportation guidelines set up in other countries. *Poult Sci.* 93:296–306.

BIDPA (Botswana Institute of Development and Policy Analysis) (2005) The potential for export diversification in Botswana: Ostrich products case study. Available online at <http://dspace.africportal.org/jspui/bitstream/123456789/31815/3/TheOstrichSector.pdf>

BIDPA (Botswana Institute of Development and Policy Analysis) and World Bank (2006) Prospects for export diversification in Botswana. Available online at <http://www-wds.worldbank.org/.../696800ESW0P0990UBLIC00PROSPECTSBOOK.pdf>

Botswana Government (1994) Ostrich Management Plan Policy. Government Paper 1 of 1994. Botswana Government Printer, Gaborone, Botswana.

BCA (Botswana College of Agriculture) Consult (2008) Botswana situational analysis on agricultural research and training: Final report. Available online at <http://faraafrica.org/wp-content/uploads/2015/04/LesothoSitAnalysisFinalReport-for-ICART-Annor-Frempong.pdf>

BOPA (Botswana Press Agency) (2013). Multispecies manages ostrich abattoir. Botswana Daily News, January 15, 2015. Available online at <http://www.dailynews.gov.bw/mews-details.php?nid=1532>

Cooper, R.G. (2002) Ostrich producer's attitudes in ostrich farming in Zimbabwe. *World Poultry*— Elsevier, 18(2): 22-25. Available online at www.worldpoultry.net/.../001_boerderij-download-WP6259D01.pdf

BOPA (Botswana Press Agency) (2015) BOFA brings together ostrich farmers. *Botswana Daily News*, January 15, 2015. Available online at <http://www.dailynews.gov.bw/mews-details.php?nid=16945>

DAFF (Department of Agriculture, Forestry and Fisheries) (2010) A profile of the South African ostrich market value chain. www.daff.gov.za/docs/AMCP/OstrichMVCP2010-11.pdf

DAP (Department of Animal Production) Report (2015) Ministry of Agriculture, Gaborone, Botswana.

DAP (Department of Animal Production) Report (2014) Ministry of Agriculture, Gaborone, Botswana.

DAP (Department of Animal Production) Reports (2005 to 2014) Ministry of Agriculture, Gaborone, Botswana.

Department of Wildlife and National Parks (2012) Aerial census of animals in Botswana 2012 dry season. Ministry of Environment, Energy and National Parks. Gaborone, Botswana.

Dipholo P (2005) Importation of ostriches from neighbouring countries. *Agrinews*, 36(11): 10.

Erasmus, J. (2008) Botswana revives ostrich farming, 19 November 2008. Available online at <http://www.medioclubsouthafrica.com/africa/839-ostrich-farming-botswana.181108>

European Commission Report (2001) Final report of a mission carried out in Botswana from 2 to 4 May 2001 concerning live raptures and farmed feathered game meat - DG (SANCO)/3248/2001 - MR Final. Available online at http://ec.europa.eu/food/fs/inspections/vi/reports/botswana/vi_rep_bots_3248-2001_en.pdf

Farmers Magazine Botswana (2013) EU compliance issues bedevil ostrich industry. Available online at <http://www.fmb.co.bw/EU%20compliance%20issues%20bedevil%20ostrich%20industry.html>

Jeffrey, J.S. (1996) Ostrich production. Texas Cooperative Extension, The Texas A&M University System.

Johnson, H. (2008) Report and recommendations on the ostrich industry and Dibete Ostrich Multiplication Unit, October 2008. Department of Animal Production, Ministry of Agriculture. Gaborone, Botswana.

Kgamanyane, M. (2015) Botswana need to resuscitate ostrich industry - Dube. Mmegi Newspaper, Thursday 15 January 2015. Available online at <http://www.mmegi.bw/index.php?aid=48497>

Letsholo, A. (2015) Botswana urged to resuscitate ostrich farming. Sunday Standard Newspaper. Available online at <http://www.sundaystandard.info/article.php?NewsID=21941>

Masilo, B.S. and Madibela, O.R. (2003) Report on the State of the World Animal Genetic resources (AnGR): Botswana Country Report. Available online at <ftp://ftp.fao.org/docrep/fao/011/a1250f/annexes/CountryReports/Botswana.pdf>

Ministry of Agriculture (2009) Annual Report. Ministry of Agriculture. Gaborone, Botswana.

Moreki, J.C. (2009) Livestock production in Botswana: A review. Botswana Business Diary, November 27, 2009.

Moreki, J.C. and Seabo, D. (2011) Critical review of the ostrich industry in Botswana. Int J Trop Agric and Food Sys. 5(2): 125 – 129.

Moreki, J.C., Kebonye, N.M. and Tiroesele, B. (2012) Commercial ostrich farming in Botswana: A case study of Dibete Ostrich Multiplication Unit. J Life Sci Biomed. 2(5): 192-195.

Mushi, E.Z., Isa, J.F.W., Chabo, R.G., Modisa, L. and Kono, P. (1999) Commercial ostrich farming in Botswana. S. Afr J Anim Sci. 29(3): 262-266.

Mushi EZ, Isa J.F.W., Chabo, R.G., Modisa, L. and Kono P. (2003) A note on endoparasites of wild ostriches (*Struthio camelus*) in the Mokolodi Nature Reserve, Gaborone, Botswana. J S Afr Vet Assoc. 74(1): 22-23.

Ndelekwute E., Oke, U.K., Uzegbu, H.O., Igwe, I.R., Inyang, U.O. and Nwachukwu, C. (2009) Review of ostrich (*Struthio camelus*) production and its adaptability to the Nigerian poultry industry. Anim Prod Res Adv. 5(2). Available online at <http://www.ajol.info/index.php/apra/issue/view/6797>

Ngatangue, E. (2010) Dibete Ostrich Multiplication Unit a viable project. Agrinews, 40(05): 3.

Osei-Asare, Y.W., Incoom, R. and Kurwonu, J.K.M. (2009)The ostrich industry in Ghana: Prospects and Performance. JFDR. 40(1): 144-151.

Ramodisa J (2014). Botswana Ostrich farming on the rise.Agrinews, 44(07): 2-3.

Regonamanye J (2011). Minister admits ostrich industry is in disarray. Sunday Standard.<http://www.sundaystandard.info/article.php?NewsID=10377&GroupID=3>

Seleka TB (2005).Challenges for agricultural diversification in Botswana under the proposed SADC-EU Economic Partnership Agreement (EPA).BIDPA Working Paper 27. November 2005.

Shanawany, M.M. (1999)Ostrich production systems.FAO Animal Production and Health Paper 144. pp. 1-4. www.fao.org/3/a-x2370e.pdf

Tabane, T. (2014) Ostrich abattoir struggles to meet EU demand. Friday May 2014. <http://www.echoonline.co.bw.index/index.php/business/item/1565-ostrich-abattoir-struggles-to-meet-eu-demand>

van Schalkwyk, S.K. (1998) Improvement of fertility and hatchability of artificially incubated ostrich eggs in the Little Karoo. Master of Science Thesis.University of Rhodes.South Africa.<https://www.mysciencework.com/.../improvement-of-fertility-and-hatchability-of-artificially-incubated-ostrich-eggs-in-the-little-karoo>

Wessels, P.L. (2003) An analysis of the potential for the marketing of ostrich meat in South Africa. Master's Degree in Business Administration.Port Elizabeth Technikon, South Africa.

Table 1: A summary of ostrich industry challenges in Botswana

Challenges	Sources
High start-up costs, especially feed	MoA (2009)
Frequent closures of the abattoir	Moreki and Seabo (2011); Moreki <i>et al.</i> (2012)
Unstable abattoir management	MoA (2009)
Lack of scientific research	Tabane (2014)
Improper siting of farms	Moreki and Seabo (2012)
Limited /lack of infrastructure support or low infrastructural development.	Erasmus (2008); Regonamanye (2011); Tabane (2014); Letsholo (2015)
Inadequate consumer awareness	Tabane (2014)
Shortage of land and water	Tabane (2014)
Unreliable or shortage of feed supplies	Erasmus (2008); Moreki <i>et al.</i> (2012); Letsholo (2015); Tabane (2015)
Lack of expertise or inadequate extension service	MoA (2009); Ngatangue (2010); Regonamanye (2011); Moreki <i>et al.</i> (2012); Tabane (2014)
Shortage of transport for extension staff	Tabane (2014)
High production costs, <i>e.g.</i> , feed	Moreki <i>et al.</i> (2012); Tabane (2014)
Poor quality feeds	Ngatangue (2010); Moreki <i>et al.</i> (2012)
Lack of throughput	BIDPA (2005); Dipholo (2005); Seleka (2005); MoA (2009); Tabane (2014)
Lack of access to capital	MoA (2009)
Lack of skin processing plant	Tabane (2014)
Scarcity/shortage of birds, especially breeders	Dipholo (2005); Erasmus (2008)
High bird mortality	Moreki <i>et al.</i> (2012)
Unorganized market	Tabane (2014)
Inadequate laboratory analytical services	Ngatangue (2010)
Delays in allocating land for ostrich farming	Ngatangue (2010)
Lack of cooperation between stakeholders	Johnson (2008)