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Original Article

Commercial Ostrich Farming in Botswana: A Case Study of Dibete Ostrich Multiplication Unit

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ABSTRACT

Commercial ostrich population in Botswana has declined by about 74.36% from 7800 in 1996 to 2000 currently, indicating that the industry is performing poorly. A study was conducted to ascertain challenges faced by Dibete Ostrich Multiplication Unit (DOMU), a government owned and operated farm. Data were collected through oral interviews of DOMU staff, direct observation and by examining secondary sources of data such as monthly and annual reports from May to July 2011. The challenges faced by DOMU included *inter alia* high feed costs, poor quality feeds, inadequate extension service, prolonged closure of the ostrich abattoir and high bird mortality. It, however, appears that the prolonged closure of the abattoir is the main contributor to poor performance of the industry. The challenges in this study pointed to the poor performance of DOMU and the ostrich industry in its entirety.
Keywords: Biosecurity, Botswana, challenges, DOMU, ostrich farming

INTRODUCTION

Botswana has the world's largest population of wild ostriches, indicating that the local climate is suitable for ostrich production (Moreki and Koloka, 2010), which Johnson (2008) estimated to be 77 000. Dzoma et al. (2009) pointed out that the large population of wild ostriches clearly dictates Botswana to be a potential candidate for rearing ostriches. Commercial ostrich production is still in its infancy in Botswana (Moreki and Koloka, 2010; Sunday Standard, 2012) despite the suitable climate and existence of an ostrich abattoir which was built by government in 2002 and thereafter given to the Ostrich Company to operate. The abattoir has the capacity to slaughter 20 000 ostriches per year but has lacked throughput since its inception resulting in frequent closures (Moreki and Koloka, 2010) leading to closure of most farms. Mushi et al. (1999) opined that the construction of the ostrich abattoir together with the securing of export markets would persuade more people to join the potentially lucrative farming business. This has, however, not happened as the population of farmed ostriches has declined over time. In 1996 domesticated ostriches were estimated to be 7800 (European Commission, 2001), 6000 in 2010 (Regonamanye, 2011) and about 2000 currently. From 1996 to date, ostrich population has declined by 74.36%. This sharp decline indicates that the industry is on the brink of collapse.

On realising that the industry is performing poorly, the Ministry of Agriculture (MoA) resolved to revive the ostrich industry by establishing Ostrich Multiplication Unit at Dibete (about 100 km north of Gaborone), popularly known as Dibete Ostrich Multiplication Unit (DOMU). The objectives of DOMU are (1) to assist in reviving the ostrich industry by acting as a catalyst, (2) to provide research, training, practical demonstration and extension services by establishing satellite farms around Dibete that will be directly supervised by DOMU, and (3) to provide breeding stock and chicks, as well as, hatching services. Of all the objectives set, it appears that DOMU has only been able to fulfill the objective of providing breeding stock and chicks.

Commercial ostrich production in Botswana is faced with a number of challenges despite efforts by government to revive the industry in order to diversify the agricultural sector (Regonamanye, 2011). Therefore, a study was conducted to identify the major challenges faced by DOMU in its endeavour to achieve its objectives.

MATERIALS AND METHODS

Study area

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The study was carried out at DOMU from May 2011 to July 2011. Dibete Ostrich Multiplication Unit is located in Dibete in the Central district of Botswana. It lies within latitude 22° S and 24° S north of Gaborone (the capital city of Botswana) and longitude 26° W and 28° W. The location comprises trees and bush savannah vegetation which favour ostrich production.

Data collection and analysis

Data were collected through oral interviews of DOMU staff, direct observation and by examining secondary sources of data such as monthly and annual reports.

RESULTS AND DISCUSSION

This study identified some major challenges that DOMU faces including poor quality feeds, high feed costs, irregular supply of feeds, shortage of transport, prolonged closure of the ostrich abattoir, high bird mortality, lack of hatching services, predation, inadequate technical expertise, unsatisfactory working conditions and shortage of staff accommodation.

In the current study, ostriches were fed diets of relatively poor quality resulting in poor performance in terms of growth rates and egg production. Leg deformities and retarded growth were observed in chicks and juveniles, indicating that the nutritional requirements of ostriches were not met, especially calcium and phosphorus requirements. Calcium and phosphorus are important minerals in bone formation, as well as, egg shell formation. This calls for Botswana Bureau of Standards (BOBS) to intensify monitoring quality of ostrich feeds through regular visits to the manufacturing plants and regular sampling of feeds for laboratory analysis.

Ostrich feeds are expensive as most of the ingredients (*e.g.*, fish meal, maize and sorghum) used in their manufacture are imported from the neighbouring countries. Sorghum is imported from South Africa, Zambia and lately Australia, whereas maize is from Zambia (Morula, 2012). According to Botswana Daily News (2012), Botswana produces 24% (47 932 MT) of its annual maize and sorghum requirements of 207 150 MT. On average a 50 kg bag of feed costs BWP230 (equivalent of USD30.67). Despite the unsatisfactory quality of feeds, their price continues to escalate, thus making ostrich production unprofitable given that ready-to-slaughter birds cannot be slaughtered because the abattoir has bas been closed since 2008 resulting in escalation of feed costs. This challenges DOMU to consider mixing its own feeds and also to consider growing fodder crops such lucerne.

It was observed that feed supply to the farm was irregular resulting in the birds going for some days without feed or alternatively feed intake being reduced in order to keep birds alive. This scenario leads to poor growth rates, low egg production, higher incidence of bone deformities and high mortalities. Additionally, underfeeding breeding stock is likely to result in low fertility, poor eggshell quality, poor hatchability, reduced egg size, emaciation and finally death.

The prolonged closure of the sole ostrich abattoir has affected the performance of DOMU and the ostrich industry in its entirety given that some birds are not slaughtered when they reach market age but are kept on the farm beyond slaughter age resulting in them developing into breeders thus encouraging inbreeding. Again, failure by DOMU to slaughter birds upon reaching slaughter age contributes to overcrowding and escalation of production costs, thus rendering the farm not economical viable. In addition, overcrowding will result in poor performance of birds, increased spread of diseases and high bird mortalities. The prolonged closure of the abattoir has resulted in the abattoir loosing ~~lost~~ its EU status (i.e., the license to export EU market).

Currently, DOMU does not hatch its own eggs; instead hatching services are provided by Golddiggers (now Botalana Ventures) in the Tuli Block area following two agreements signed between government and Botalana Ventures. In the first agreement, eggs were hatched at Talana farms at a cost of P150 an egg. In addition, Botalana Ventures provided practical training to DOMU staff and cared for chicks up to seven days of age and thereafter chicks were transferred to DOMU to be sold or for rearing up to slaughter age, i.e., usually up to 9-10 months (Moreki, 2009). In the second agreement, government took 60% of the chicks hatched and Botalana Ventures 40% (Ngatangue, 2010). Again, chicks were raised at Botalana Ventures up 5-7 days prior to dispatch to DOMU.

Wild animals such as hyenas tend to kill birds during the night. Additionally, baboons disturb the birds as they feed and drink resulting in birds becoming stressed and sustaining bruises, as well as, breaking their legs. Glatz et al. (2008) noted that ostriches are docile birds and that stress factors that would result in deaths due to trauma would contribute to increased mortality.

Table 1 shows bird mortality at DOMU during 2010/2011 (i.e., April 2010 to March 2011). According to Table 1, the mortality of females was higher than that of females. Dibete Ostrich Multiplication Unit experiences high mortality in chicks aged less than three months as they are susceptible to heat and cold stresses as well as, transport stress from Talana Farms to DOMU. Minka and Ayo (2007) reported that road transportation of ostrich chicks for four hours during early hours of the day appears to have no adverse effects on health and performance. In adult birds, mortality was usually attributable to trauma, fence traps and injuries sustained within pens.

Human and vehicular traffic into the farm is not strictly controlled, indicating that diseases are likely to occur on the farm. Although not operational, the hatchery is located adjacent to the chick sheds suggesting that biosecurity is likely to be a major concern with the possibility of disease outbreaks occurring frequently. Again, backyard chickens are kept in the government camp adjacent to DOMU and also by some ostrich attendants. Anon

(2003) stated that no other poultry (*e.g.*, chickens, ducks geese, emus, pet birds etc.) must be kept on the property as a way of minimizing disease outbreaks.

Table 1: Mortality of adult male and female breeders during 2010/2011

Months	Males died	Females died	Percent mortality	No. of birds
April	1	2	0.5	619
May	0	1	0.2	618
June	0	0	0.0	618
July	4	1	0.8	613
August	0	5	0.8	608
September	0	1	0.2	607
October	2	5	1.2	600
November	1	3	0.7	596
December	2	0	0.3	594
January	0	2	0.3	592
February	0	4	0.7	588
March	2	4	1.0	582
Total	**12**	**28**	**6.7**	**582**

Furthermore, employees should not have contact with any other poultry, caged birds, racing pigeons and pigs. Wild and domestic animals, as well as, pets should not be in contact with ostriches. As mentioned earlier, there are baboons and hyenas on the farm which are likely to be vectors.

Other challenges include inadequate technical skills, inadequate staff accommodation and shortage of transport. Regonamanye (2011) ascribed the poor performance of the ostrich industry to lack of expertise and experience by Ministry of Agriculture. In addition, staff accommodation is inadequate resulting in government being forced to pay farm employees poor housing allowance, which also contributes to the farm becoming uneconomic to operate. Transport shortage remains one of the major challenges on the farm considering the fact that most vehicles are old and are frequently sent for repairs. This results in disruption of some farm activities such as feeding of birds with the possibility of birds not being fed at times.

RECOMMENDATIONS

- There is need for Ministry of Agriculture and Ministry of Environment and Tourism to collaborate in order to reduce losses due to predation.
- Training extension staff in ostrich farming through workshops and seminars would lead to increased productivity.
- There is need for Botswana Bureau of Standards to intensify monitoring quality of livestock feeds including ostrich feeds in order to ensure compliance with the standard for ostriches - BOS 8-2:2002 (Botswana Bureau of Standards, 2002).
- DOMU should open its hatchery facility soon. This should reduce the costs of transporting eggs to Botalana Ventures, as well as, the costs of transporting chicks from Botalana Ventures to DOMU. This should contribute to increased hatchability and a decline in chick mortality.

CONCLUSION

Dibete Ostrich Multiplication Unit is not performing to its full potential due to a number of challenges; hence failure to achieve its objectives. These challenges include *inter alia* high feed costs, poor quality feeds, shortage of transport, prolonged closure of the ostrich abattoir and high bird mortality. Outsourcing hatching of eggs at Botalana Ventures has contributed to the number of ostriches increasing on the farm but it appeared to be costly in terms of high transportation costs, low hatchabilities and high mortality rates. It seems that the prolonged closure of the abattoir is the major contributory factor to the poor performance of the ostrich industry in its entirety and also to the failure and/or collapse of the majority of ostrich operations across the country.

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