Chatibura *Journal of Ethnic Foods* (2023) 10:41
https://doi.org/10.1186/s42779-023-00199-y

Journal of Ethnic Foods

REVIEW ARTICLE

Open Access

Beef as intangible cultural heritage in Botswana: a documentary review

Delly M. Chatibura[1*]

Abstract

This article reviews the critical role of cattle and beef production, consumption practices, and symbolic values, among other elements, in instituting Botswana's beef heritage. The rise of gastronomic tourism and the dearth of literature on Africa's intangible food heritage has necessitated such a review. Using a document analysis methodology with Google, Google Scholar, and Web of Science Core Collection, the article narrates how the historical, economic, and sociocultural reliance on cattle led to a distinctive intangible beef heritage in Botswana. In conclusion, the article motivates the recognition of *seswaa,* a beef-related cuisine, as worthy of inscription under UNESCO's List of Intangible Cultural Heritage and for the continued documentation of food heritage amidst the limited regional studies of such in Africa.

Keywords Beef, Document analysis, Food heritage, *Seswaa*, Botswana

Background of the study

Cultural tourism is emerging as one of the fastest-growing segments, accounting for an estimated 40% of global tourism revenues [110]. Cultural tourism is centred on heritage and religious sites, crafts, festivals, and gastronomy, amongst other subsegments. The segment is now a leading priority in the national tourism policy frameworks of at least 90% of 156 member states [111]. This is primarily because of UNESCO's drive to harness the global protection of local cultural assets by introducing the Convention for the Safeguarding of the Intangible Cultural Heritage (ICH) [108], hereafter referred to as the Convention in this article. The mandate of the Convention was to safeguard ICH [108].

However, scholars are divided on whether culinary or food traditions should be safeguarded. Regarding food heritage, described by Romagnoli [47, 109]. On the other hand, supporters of the Convention, like Deacon [24], were optimistic that culinary traditions could be safeguarded with careful research and proper attention to the requirements of UNESCO's intangible heritage nomination process.

The goal of creating a destination identity around traditional foods echoes the momentum of safeguarding culinary traditions. This is because unique food-related aspects of a destination are perceived as essential resources with the potential to create a unique value proposition [42, 52, 99] that supports the goals of the Convention. In response, there has been some growing interest in documenting the food heritage of African countries. For example, Oktay and Sadıkoglu [81] studied the culinary cultures of four African countries, Zimbabwe, Nigeria, South Africa, and Morocco, and noticed how they were all influenced by Western cultures. Gagaoua and Boudechicha [34] also documented the food preparation techniques of traditional meat products, which represented the ancient cultural heritage of North Africa and the Mediterranean. The authors noted how the lack of food preparation knowledge, commercial availability, and the gradual decadence of traditional

*Correspondence:
Delly M. Chatibura
delly.chatibura@canterbury.ac.uk; dchatibura@gmail.com
[1] Department of Tourism and Hospitality Management, University of Botswana, P. Bag UB00701, Gaborone, Botswana

meat practices in North Africa due to globalization led to the extinction of most products.

Though literature is emerging on the importance of gastronomy in a destination's brand activities [52, 99], there is limited literature on the features of gastronomic heritage resources that could be used to define gastronomic destinations [55]. As Lin et al. [55] suggested, systematic studies of gastronomy as an intangible cultural heritage of tourist destinations are rare. This is also exacerbated by the lack of consensus on what constitutes gastronomic heritage at the UNESCO level [92]. Conclusively, Okech and Timothy [80] noted that African food heritage is underrepresented in the academic literature. Limited research exists specifically on the food heritage of Botswana.

Botswana is a medium-income country located in the southern part of Africa (Fig. 1). The country shares its borders with Namibia, South Africa, Zambia, and Zimbabwe. It covers an area of 581,730 km^2, and close to 46%

Fig. 1 Botswana (*Source*: GISGeography, 2023 [35])

of this area is dedicated to commercial and traditional agricultural production from crops and livestock [44].

Cattle production is a critical agricultural activity that accounts for an estimated 80% of the farm GDP [44]. The semi-arid climate and erratic rainfall the country receives has traditionally favoured pastoral over arable farming [17]. Botswana currently boasts a population of 1,596,605 cattle [98], with 80% in the communal/traditional sector and 20% in commercial farmlands [11]. Cattle production is critical for rural livelihoods and sustenance, as it also caters to the most significant proportion of the rural workforce [63, 94].

In the case of Botswana, Chikanza and Graham [18] and Kasimba et al. [46] specifically argued that the country has a strong culture that can be embodied through traditional foods, however, there has been limited research in this field. Sello [95] and Bultosa et al. [16] further advocated the need for a more comprehensive understanding of the evolution of Botswana's cultural food practices and tendencies, arguing that such a wealth of information was vital in driving solutions to the challenges of food and sociocultural sustainability. Therefore, in the context of this study, the recognition of a food heritage for Botswana, while serving the interests of cultural heritage preservation, would also promote social cohesion and cultural sustainability, albeit with challenges associated with loss of authenticity.

Based on the preceding arguments, the main aim of this article was to document Botswana's cattle and beef farming and consumption practices as part of the country's beef heritage. Amidst the lack of a universal consensus on what constitutes gastronomic heritage, the study adopted the term food heritage to account for this form of heritage. The article analysed the features of food heritage that could be considered representative of Botswana's beef heritage and worthy of inscription on UNESCO's Representative List. The food heritage features developed by Zocchi et al. [115], i.e., agricultural products, ingredients, dishes, cooking implements, techniques, and recipes, the symbolic dimension of food (e.g., rituals), eating practices, behaviours, and beliefs, were specifically reviewed using documentary evidence, thus adding value to the knowledge of the food heritage landscape of Africa.

Research methods

Research design

Document analysis, a systematic procedure for reviewing and evaluating documents relevant to historical and cross-cultural research, was used as the critical analytical method [15]. This method examines and interprets data to elicit meaning and develop empirical knowledge from print or electronic sources [15].

Data collection: document sources and search scope

The critical data sources were Google Scholar (GS) and Web of Science Core Collection (WoSCC), some of the most significant citation databases. They were selected based on their timelines (e.g., covered articles as far back as 1915), accessibility (databases that were under subscription by the University of Botswana [UB] Library), and quality in terms of their accuracy with search results [90]. The two databases search for articles indexed by publishers, libraries, repositories, or bibliographic databases [85]. In addition to GS and WoSCC, Google was also used to retrieve relevant sources of grey literature [86].

Data collection: inclusion and exclusion criteria

The scope and quality criteria used in this article were guided by Gusenbauer and Haddaway [38], who suggested three indicators: relevance, reproducibility, and transparency. The main goal of the author was to select databases and search systems that provided appropriate coverage of the selected search query, [(Beef OR Cattle) AND (Heritage OR Culture) AND Botswana]. The inclusion of multidisciplinary databases, such as GS, and the exclusion of discipline-specific databases, such as IEEE Xplore, was considered crucial at this stage. The ability to manipulate the search query by the author with GS and WOL (using advanced search options) to derive meaningful search results was also favourable. Considering these points led to the inclusion of sources under the UB Library subscription, with the expectation that university databases provide access to a wide range of resources [73]. Secondly, regarding reproducibility, if the search query produced similar results later, the results would be considered consistent [38]. Lastly, to account for transparency, a detailed step-by-step procedure of how the search results were analysed was provided [38]. Overall, the scope and quality criteria followed are listed in Table 1.

Table 1 Scope and inclusion criteria

Criterion	Aspects
Relevance	Multidisciplinary databases and search systems, i.e., GS, WoSCC, and Google
	Subscription by UB Library
	Title, abstract, and keywords; title and snippet screening
	Full-text English documents
Reproducible	Similar or varying results
Transparency	Detailed data collection and analysis procedure

Google was used for information specific to (1) country statistics and (2) *seswaa* (a beef-related cuisine). Internationally accredited authoritative sources (e.g., International Trade Administration), local authoritative sources (e.g., Botswana Meat Commission), and other grey sources (e.g., newspapers and blogs) were used.

Data analysis procedure

The analysis involved skimming, reading, and interpreting the sampled documents [15]. First, skimming involved scanning and screening the records in GS and WoSCC for search query terms in the title, abstract, or keywords (Fig. 2).

Documents that met the skimming criteria were exported as Microsoft Excel citations. Any duplicate sources were removed. Skimming on Google involved searching for documents with specific country statistics and information on *seswaa* in the title and result snippets. The second step involved reading all the documents and copying relevant information onto a Word document. In the third step, the text was organized into groups and coded based on its relevancy to the article's aim, using a reflexive thematic analysis method. This method led to a coding process that helped uncover new meanings and themes in the data [73]. A series of validation steps by the author with a reviewer was later used to increase the validity of the interpreted content.

Conclusion

Overall, while document analysis gave the researcher access to data that would otherwise take enormous time and financial resources to collect, its main disadvantage was working with limited data [73], as credible electronic data sources on specific topics (for example, on the history of some beef-related cuisine) were not available. In the future, triangulation with primary data would be required to develop a deeper understanding of the topic [15].

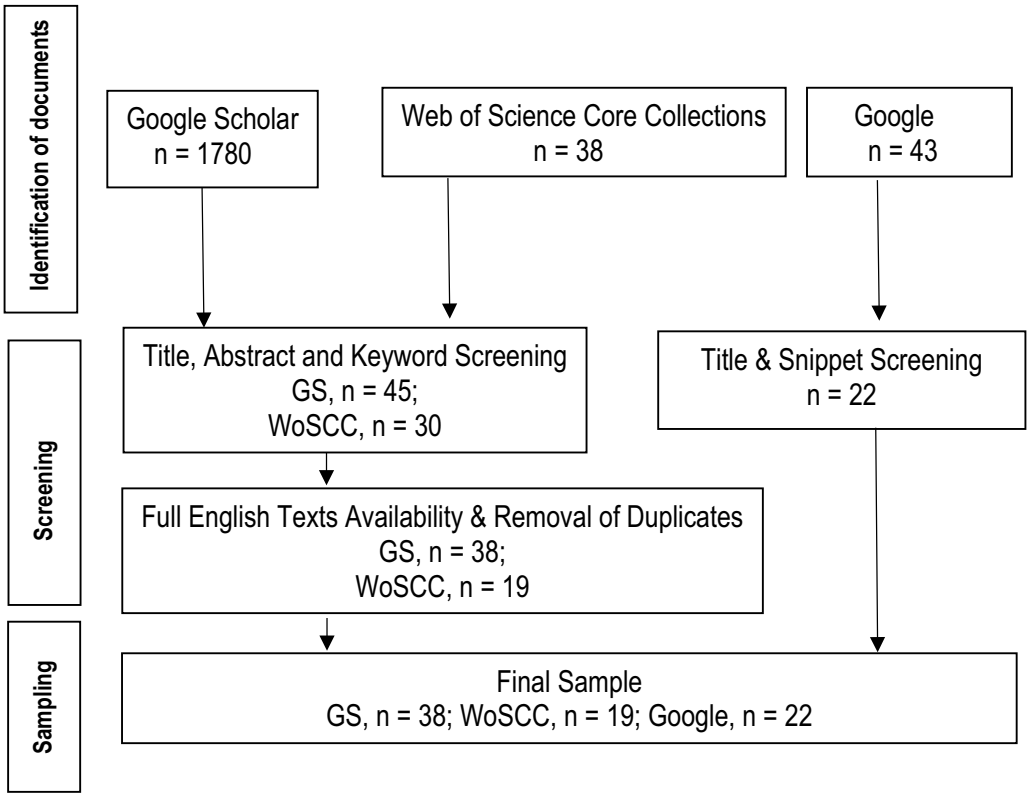

Fig. 2 Flow chart of the document selection process

Presentation and discussion of key findings

Description of search results

The documents retrieved using the search queries from the three electronic sources were varied. Out of 79 documents, 48 (60.8%) journal articles, two (2.5%) book chapters, four (5.1%) conference proceedings, three (3.8%) dissertations, and 22 (27.8%) websites were reviewed, and the year of publication ranged from 1974 to 2023. The complete lists of documents reviewed are presented as Tables 2–4 in "Appendix".

Thematic analysis

The three key themes derived from the analysis covered these aspects: (1) agriculture and beef production in Botswana, (2) symbolic dimensions of cattle and beef, and (3) beef-related cuisine.

Agriculture and beef production in Botswana

The significant agricultural activity in Botswana is beef cattle farming [17]. Cattle rearing in the country can be traced to the precolonial period, approximately 1850–1930, and the colonial period from 1930 to 1975 [40]. During this time, the Tswana (locals in Botswana) were agro-pastoralists with an agricultural system based on cattle rearing and crop farming. However, unlike other African pastoralist populations, the Tswana were not nomadic. Instead, they established residential villages surrounded by arable fields and grazing ranges, and depending on the season, household members moved between these three residences [40], forming the traditional land tenure system [31]. In the grazing lands, community members could graze their cattle without restrictions [31]. This was the status quo until the introduction of first, the Tribal Land Act in 1968, which transferred power over tribal land distribution from the tribal chiefs to the Land Board, a public institution accountable to the Central Government and not the community, and secondly, the Tribal Grazing Land Policy (TGLP) in 1975 [75]. The TGLP brought radical changes to the traditional land tenure system as three grazing zones, the Commercial Grazing Areas, Communal Grazing Areas, and Reserved Grazing Areas were introduced, conferring different interests in land [31]. Under the Commercial Grazing Area, land was allocated to commercial ranchers. In the communal grazing areas, tribal communal land was unaffected, while the reserved grazing areas were kept for future allocations [31]. However, the implementation of the TGLP was not wholly successful, as it was later discovered that much of the designated commercial land was intensively used by tribal communities, thus creating controversy, which stands to date in the administration of land in Botswana [75, 113].

However, the history of cattle and land ownership rights became the basis for economic wealth and social status, further constituting the foundation of postcolonial economic production in Botswana [23, 40]. Due to the pre- and colonial cattle ownership status, a vibrant cattle and beef export market was promulgated in postcolonial Botswana [41]. With the opening of the Lobatse Abattoir in 1954, cattle exports increased steadily [41], making beef the country's most significant primary agricultural export product [29, 44]. In 2016, the country accounted for Africa's most considerable beef exports and was ranked 18th globally, contributing 0.5% in total world exports by value [30]. In 2019, Botswana became the ninth largest beef exporter to the European Union, notably to the Netherlands, Greece, and Italy [30]. The two key companies responsible for the bulk of the current beef exports (frozen and processed meat) are the Botswana Meat Commission (BMC) and Senn Foods.

The government enjoys a monopoly over the beef export sector [12], which was instituted through the creation of the BMC in 1965 [88]. The monopoly was unavoidable, as it ensured that the BMC promoted the livestock industry and the interests of livestock producers, including slaughtering cattle and its exports [43]. The BMC still controls Botswana's privileged premium beef export market access.

Beef cattle farming techniques

Botswana's national herd comprises indigenous and exotic cattle breeds [79]. The Tswana is the predominant indigenous breed [17]. Other indigenous breeds include the Tuli, the Bonsmara, and the Africander, while exotic breeds include the Brahman, Simmental, and Hereford, to mention a few [79]. Both breeds are exposed to free-range and natural beef farming methods [79]. In the communal grazing system, cattle are kept in open rangelands with no defined property rights (free-range). In contrast, in the commercial sector, they are kept in ranches, where over 90% of the feed requirements are provided from natural grazing with limited supplements during the dry season [60]. These farming methods, also practiced in Namibia [64] and other southern African countries, ensure that cattle live on unmodified pastures and roam freely [79].

Farmers slaughter their cattle at various abattoirs throughout the country. The largest export abattoirs, the BMC Export Abattoirs at Lobatse and Francistown, serve the country's southern and northern key

cattle-producing areas, respectively [65]. BMC slaughters 44% of Botswana's annual cattle slaughter, while smaller municipal abattoirs owned by the local governments and other butcheries, often unlicensed, account for the rest [106]. The cattle are brought to the abattoirs on foot or by road or rail transport. Upon arrival, the meat is inspected by certified meat inspectors [65].

However, several authors (e.g., [23, 48, 49, 60, 67]) noted with concern how the demand for beef globally has been cited as one of the leading causes of range degradation, bush encroachment, and grass composition changes in Botswana due to overgrazing, among other factors. Beef production is also prone to land use conflicts between livestock and wildlife, which are intensifying [67, 112]. Because of such factors, the heavy reliance on natural pastures is slowing, paving the way to a feedlot system, which could be financially and economically profitable but whose development is still in its infancy in the country [60]. Significant differences in production technology also exist between traditional and commercial farming production systems, leading to considerable differences in profit generation [4] and production efficiency [5, 7, 102].

The economic contribution of beef has also been hindered on several occasions by its sensitivity to disease outbreaks. In 1895–96, for example, close to 95% of the national herd was lost to rinderpest [41]. In 1995 Contagious bovine pleuropneumonia (CBPP) also infected around 320,000 cattle [76]. Cattle in the Okavango Delta, the Chobe, and the Nata River Basin are also at constant risk of infection with viral foot and mouth disease transmitted from buffalos [6, 89]. Furthermore, conditions such as sleeping sickness (nagana) were re-discovered in the Ngamiland district in 2001 [96].

By 1905, Botswana had set up a Veterinary Department to control lung sickness, East Coast fever, and other related diseases [41] that affect the beef value chain. In 1928, lung sickness was eradicated, and others, such as East Coast Fever, were controlled [41]. Disease monitoring occurs mostly at cattle farms [41, 66], abattoirs [65, 87, 106] and retail shops [19, 58, 74, 93]. Specifically, an automated livestock identification and trace-back system (LITS) that ensures the traceability of beef products to the farm has been adopted [82].

Despite such measures, Oladele [82] argued that most farmers in the Kgalagadi, for instance, had unfavourable attitudes towards the LITS system and experienced high constraints in its use. Amanfu et al. [3] also argued that it was essential that Botswana continuously uses the latest technologies at farms [3] to detect viruses [68] and other diseases, that have received limited attention in the literature [56]. Producers could also consider the use of ethnic knowledge [32] and the use of alternative responses to disease control [62].

Symbolic dimensions of cattle and beef

A strong connection exists between cattle and communal politics, where cattle, as beasts of burden, are symbolic of power and wealth [14, 39]; the more significant the herd size, the greater the influence the family or individual has in the community [97]. Under the traditional land tenure system, cattle were initially controlled by the *Kgosi* (Chief), or it was held as private property by wealthy members of the society [40]. In this system, women were excluded (until recently) from owning or controlling any land or cattle [45, 107]. Although women's cattle ownership is rising in Botswana [88, 107], it is historically engraved as a masculine activity, a connotation consistent across other agro communities [50].

Furthermore, Ribeiro and Corção [91] contended that developing countries in contact with developed countries with high levels of beef consumption often tend to adopt a symbolism of meat as food par excellence, which could apply to Botswana. Botswana's reliance on a lucrative Westernized beef export market has led to a representation of imageries in marketing that communicate excellence in beef quality. For example, Botswana beef is portrayed as high-value lean beef, known for its exceptional quality at the international level [11], and is 'exceptionally tasty and full of flavour' [13]. In these contexts, beef not only serves as an agricultural product but also serves to gratify political and economic interests.

Botswana beef has always been determined to meet the export quality indicators of high hygienic standards and acceptable veterinary conditions, resulting in investments in infrastructure and capacity that would not have otherwise existed [8]. However, position insinuates led to the institution of a monopolistic approach to beef production, as reiterated, which serves as a source of tension and conflict. For example, the monopolistic system by BMC has been attributed as one of the reasons why the total cattle holding figures and population numbers have remained steady but have depicted an overall declining rate [107]. The decreasing contribution of beef farming has also been attributed to a national agricultural extension system that, since 1926, has failed to address the needs of farmers adequately [105], resulting in the poor utilization of artificial insemination centres by cattle farmers [72], among other challenges. Livestock farmers also lack knowledge of advanced farming technologies [105], such as cattle feeding methods and alternative

feeds [101] and could benefit from cooperative efforts with other countries like China in technology transfer and infrastructure [71]. Most farmers still need to cope with the capital-intensive nature of beef farming, resorting to small-stock (sheep or goats) rearing [84].

Above all, economic and political factors that have favoured a transition from agricultural to diamond-led earnings following the boom of the mineral sector in the 1980s also led to the reduced importance of the agricultural sector [53]. Love [53, p. 71] specifically argued that the pattern of state intervention facilitated the 'transition by a traditional dominant group of cattle owners to a contemporary capitalist class of commercial farmers and industrialists', transforming traditional cattle breeding into commercial production. Because of such government policy, between 2011 and 2015 alone, the number of traditional cattle holdings fell by nearly 50% from 74,664 to 37,755 [107]. This position insinuates a threat to the country's traditions around cattle production [107] because, as Frimpong [31, p. 14] advised, interference with this status quo should be treated with "absolute caution", since cattle are sacred and essential to the Tswana, being deep-rooted in their social traditions and customary practices [31]. Traditionally reared for meat and milk, draught power, social events, and prestige [17], cattle are central in Botswana [88]. First, cattle are used in building social relationships and as a traditional medium of exchange [20]. Social disputes can be settled with cattle payments, while men also pay their bridal price (*Bogadi*) in cattle [97].

At funerals and celebratory functions, beef also serves a central position in the food hierarchy and is used to display social cohesion. Symbolic values are observed in preparing and eating certain beef dishes at such functions [21, 36, 78]. For generations, for example, traditional beef slaughtering was considered of profound cultural importance in Botswana to the extent that it was a highly regarded skill commanded by cultural experts who are proficient in this respect [70, 83]. The beef carcass is slaughtered and butchered in a distinct style at traditional weddings and funerals across the Barolong, Bakwena, Bangwato, Bakalanga, and Hambukushu ethnic groupings [70] and the Bangwetse Tribe [83]. Instead of the typical English cuts of chuck, brisket, or sirloin, the carcass, in the Bangwaketse Tribe, for example, is cut into eleven distinct pieces, and each piece is ascribed specific cultural relevance [83]. The *mokoto*, one of the pieces cut along the spine, is eaten at the *Kgotla* (communal gathering place) and not at the homestead by all men (and only men) attending a traditional wedding celebration in most ethnic groups [83]. In some traditions, *mokoto* is cooked with other pieces of meat, such as the intestines [70]. Grave diggers (known as Diphiri) are also served unique cuts from the backbone of the slaughtered beast. The meat is believed to strengthen them as they prepare other final resting places.

Cattle have also been used as a symbolic gesture of philanthropy and self-reliance among the Tswana. For example, cattle were used to raise money for the construction of the UB (the first university in Botswana) campus through a fundraising event code-named '*Motho le motho kgomo*' (one man, one beast), in 1976 [69]. In front of the UB library, even lies the statute of a man herding an ox, representing the many cattle that contributed to the construction of the University [69].

Lastly, beef festivals in the country also strongly connect to beef, geography, and tourism. Notably, the Lobatse International Beef Festival and the Ghanzi Meat Festival, held in Lobatse and Ghanzi, respectively, tie tourism to historic beef strongholds. By showcasing inclusive activities between hosts and visitors, the festivals provide a vehicle through which communally agreed values and interests are shared [28]. For instance, the Meat Festival brings awareness to the importance of the cattle hides and skins market as raw materials for the leather industry. This aspect has yet to receive attention in the literature [51]. These festivals are thus an outward manifestation of the identity of geographical and historical places associated with beef production in Botswana.

Beef-related cuisine

Okech and Timothy [80] note that each African country has its distinct blend of cuisine. Beef is a national favourite, given that cattle are the predominant livestock in Botswana [61]. Beef is cooked in various ways, including *Seswaa*, a preferred meat dish [61]. A summary of the critical characteristics of *Seswaa* is presented.

Description of Seswaa *Seswaa* (Fig. 3) is indisputably recognized as Botswana's national dish [59, 77]. The dish assumes many names depending on the lexical variations that characterize the Setswana-speaking people [100]. *Seswaa*, as it is known by most tribes, including the Bangwato, one of the dominant ethnic tribes in Botswana, is pounded beef [33]. The Bangwaketse Tribe calls it *loswao*, a word that the Bangwato uses to refer to the two-pronged stick used for pounding instead [100]. Among the Bakgatla, another tribe, *seswaa* is known as *chotlho* (that which has been chewed), while among the Bakwena, the dish is known as *tshwaiwa* (that which has been pounded) [100].

Fig. 3 *Seswaa* (*Source*: Author)

History of Seswaa

The Bakwena Regent, Kgosikwena Sebele, attributed the origins of *seswaa* to gastronomic necessity [22]. He claimed the pounded meat was easier to share and chew for the young and old. He also asserted that *seswaa* emerged from slaughtering extremely aged cattle (known as *mekodua*), which were more flavourful and succulent than younger and lesser mature cattle.

Seswaa preparation

Seswaa is made of three ingredients: beef, water, and salt. The meat is boiled in water with a considerable amount of salt for approximately 4 h until it is well done and soft [25]. It is then pounded with a wooden stick known as *Tswaiso* [57] or *loswao* in other dialects.

Seswaa is mainly prepared at significant public events or ceremonial occasions, including the opening of new government buildings [114], Independence Day, weddings, funerals [10], or local community meetings [54]. The cuisine was also featured at the Letlhafula Festival, a harvest festival showing traditional food, which was often held in Gaborone (the capital city) in May annually [27], and at the annual National Culture Day before COVID-19. It was also a prominent feature at past international beef festivals.

Seswaa is considered a delicacy whose preparation requires special skills and knowledge. First, butchery skills are necessary to identify the correct type of beef to use [54]. Not all kinds of beef cuts are used in traditionally preparing *seswaa.* Second, when pounding, the meat must reach a particular thread stage, that is, of the 'right consistency' and a perfect balance between dry and soggy, a process that requires some food preparation knowledge [54]. At Kgotla meetings, such as the ones held in Molepolole Village, predominantly under the Bakwena tribe, the task of preparing *seswaa* is reserved for an elite group *of 'seswaa* chefs' who have perfected the skill over decades [54]. At funerals and weddings, men cook *seswaa*, often considered the centerpiece [70], while women prepare starch (sorghum or maize meal porridge) and vegetable accompaniments [114].

Seswaa: traditional eating practices

While most traditional beef cuts follow gendered lines in that men and women are ascribed specific cuts to eat, *seswaa* is considered a communal meat dish [70]. The delicacy is served hot with starchy meals like soft maize or sorghum porridge. In traditional homestead dining settings, older guests are served first before family members and children. The norm is to also wash one's hands before eating, although this is changing as modern utensils, like forks, gain preference.

Seswaa: recipe variations and modifications

One modification to the *seswaa* recipe is the addition of onions and cracked black pepper [104], [103], and bay leaves [2]. In other recipes, the beef is pressure cooked and lightly fried before pounding. Others add chili powder to create a spicy *seswaa* version [27]. Chef Kgafela, a prominent chef in Botswana, also created a new range of finger foods, including *seswaa* dumplings, *seswaa* and English mustard spring rolls, and *seswaa* samosas, served at tea parties [9]. Another notable fast-food chain, Debonnairs, recently introduced a *seswaa* pizza in 2022 [26]. Furthermore, Hilton Garden Inn introduced a new menu item, the *seswaa* taco, served with spicy salsa [37].

The recipe modification processes are driven chiefly by contemporaneity in the consumption behaviours of the Tswana. This trend is provoked by exposure to other cultures through television, travel, or direct cultural contact [1, 83]. The food preparation methods at traditional weddings and funerals in Botswana have also experienced considerable changes due to globalisation [61, 78, 83].

While the recipe modification process may contradict the goals of ICH preservation, failing to safeguard

the original recipe, the process has conferred some distinction and exoticism to *seswaa,* awarding the cuisine a place in contemporary gastronomy. This proves that the cuisine is revered from traditional and modern platforms and is a testament to UNESCO's claims that ICH is a living heritage [92]. *Seswaa* is, therefore, undoubtedly a cuisine that should be nominated for inscription on UNESCO's Representative List, as it is community-based, inclusive, and representative of Botswana's beef heritage, critical criteria essential for consideration on the list.

Conclusions, implications, and recommendations

Conclusions

Through an analysis of electronic documentary evidence, this article concluded with the position that the food heritage of beef in Botswana is recognizable as ICH, a testament to the importance of cattle production in the Tswana economy and culture. Cattle and beef as agricultural products, including beef farming practices, the symbolic representations of cattle and beef from political, economic, and socio-cultural positions, the preparation techniques of beef-related cuisines, such as *seswaa*, and their associated eating practices, behaviours, and recipe modifications, are all part of the living cultural heritage of the Tswana in Botswana.

The article reviewed the historical development of a vital cattle and beef production system over the precolonial and colonial periods that formed the foundation of Botswana's postcolonial beef political and economic system. The system serves the interests of a profitable cattle and beef export trade system that is in existence to date. A national veterinary system was invested to support the export trade system, through disease outbreak monitoring, for example. Although there are challenges in administering the veterinary system highlighted in this article, it still stands as one of the best in Africa [23].

Evidence from the documents reviewed also supported the symbolic importance of cattle and beef from the political, economic, and socio-cultural contexts. However, the place of beef as a significant export product gratified political and economic interests more than socio-cultural interests. Government policies in the agricultural system, for example, have been blamed, in part, for the ailing traditional cattle system, a move some authors (e.g., [31, 53, 107]) purported would threaten the existential and symbolic value of cattle and beef in Tswana society. However, as reiterated, some socio-cultural traditions of cattle slaughtering and beef preparation practices among the Tswana are also threatened by contemporaneity. For example, the preparation of seswaa, a national delicacy, is prone to recipe modification. Due to several factors, the traditional beef heritage is thus slowly giving in to commercialisation and the effects of globalisation, thus heightening the call for safeguarding it.

Implications and recommendations

Botswana's beef heritage is a crucial resource that defines the country's historical and economic development and socio-cultural legacy. Therefore, the article advocates for a motion to nominate the inscription of *seswaa* as a gastronomic element on UNESCO's Representative List. *Seswaa* is a gastronomic resource significant in formulating Botswana's beef heritage. By inscribing *seswaa* on the List, the cuisine will be accorded its long-overdue gastronomic recognition nationally and internationally.

The article also calls for the continued documentation of other forms of food heritage by researchers using either preexisting or primary data sources. Elderly residents in local communities, who are vital participants in safeguarding the transmission of ICH to future generations, could be used as potential data sources. With their assistance, other meat-related cuisines, such as *serobe* (made from ox tripe, intestines, kidneys, heart, or liver) or *segwapa* (dried meat), considered delicacies in Botswana [61], could be fully documented. It is also possible to corroborate the findings from this study using primary empirical data from interviews with relevant cultural representatives or observations at specific ceremonies, such as weddings and funerals.

In conclusion, this article argues that the several elements of Botswana's beef heritage are currently fragmented across several disciplines, e.g., agriculture, economics, history, anthropology, culinary arts, and several socio-cultural spaces. Adopting an appropriate cultural heritage tourism policy is required to amalgamate these elements into a representative heritage at the national level.

Appendix

See Tables 2, 3, 4.

Table 2 Sample: Google Scholar

	Authors	Year	Title	Purpose	Methods/research design	Results
1	Adams, T	2015	Nutrition transition of adolescents (15–18 years) in the Francistown area, Botswana	To find out how current food habits and food choice behaviour reflect the nutrition transition of 15–18 year olds	Survey of adolescents in Francistown	Although the respondents were knowledgeable about healthy eating, it was not a regular practice, and specifically evident in the low consumption of fruit, vegetables, and dairy products
2	Barnes, JI; Cannon, J; MacGregor, J	2008	Livestock production economics on communal land in Botswana: effects of tenure, scale, and subsidies	to review the economic and financial characteristics of three range-based livestock systems on communal land in Botswana	Enterprise characteristics from empirical data assembled from unpublished and published sources	The current subsidies to livestock production might be more economically efficient if they were redirected from input cost reduction to directly support initiatives that enhance average herd productivity
3	Bennet, B; Rich KM	2019	Using preferential trade access to promote global development goals: the case of beef and market access to Norway from Namibia and Botswana	To assess whether market access to high-value markets for livestock products developmental benefits	Interviews with stakeholders in the beef commodity value chain	Access to high-value markets has resulted in investment in infrastructure and capacity to meet international food safety and animal health standards
4	Coester, M	2016	Funeral rituals of the Tswana people in South Africa	An in-depth account of funerals in Botswana	Travelling and collecting data in Botswana and Lesotho	Many Batswana and Africans that are not in Botswana are not completely well-versed in their traditional burial procedure. Several funeral practices are used
5	Frimpong, K	1995	A review of the tribal grazing land policy in Botswana	To examine the Tribal Grazing Land Policy (FGLP), which was developed in the 1970s to address the growing number of cattle in Botswana	Literature review	The policy was, in part, successful. However, there was a poor estimation of land and the presence of sensitivity surrounding the role of cattle in land issue rights
6	Gabalebatse, M; Ngwenya, BN; Teketay, D; Kolawole, OD	2013	Ethno-veterinary practices amongst livestock farmers in Ngamiland District, Botswana	To determine the ethnoveterinary knowledge used to treat and prevent livestock diseases in the Ngamiland District of Northwestern Botswana	A simple random sampling of 45 households in Toteng Village using structured questionnaires	Local farmers and herders generalized knowledge and experience in ethnoveterinary, as well as in performing some veterinary tasks
7	Grant, S	1987	Death and Burial in Mochudi: A Study of Changing Traditions	To encourage others (to resist popular academic fashion and) to produce related studies revealing something of the regional differences, which must persist but are bound to disappear in the seemingly inevitable quest for standardisation and uniformity	Using local documents to get information on each and every step of a funeral procedure	There are many detailed steps to a traditional funeral that are neglected in modern society

Table 2 (continued)

	Authors	Year	Title	Purpose	Methods/research design	Results
8	Hall, M	1986	The Role of Cattle in Southern African Agropastoral Societies: More than Bones Alone Can Tell	The paper reviews the evidence for cattle-keeping in Southern African	Literature review	Livestock is seen as part of the signification through which households established and maintained connections with one another, playing out power relations that enabled communities to manage the risks inherent in agropastoral economies
9	Hillbom, E	2014	Cattle, diamonds and institutions: main drivers of Botswana's economic development, 1850 to present	To review the role of political and economic institutions, endowments, and geography as main drivers of change in Botswana's long-term economic development from 1850 to 2014	Literature review	Existence of a pre-colonial (1850–1930) and a colonial cattle economy (1930–1975)
10	Hermans, Q	1974	Towards budgetary independence A review of Botswana's financial history, 1900 to 1973	To examine the evolution of Botswana's public finances and to attempt to isolate the main factors which retarded or contributed to the achievement of budgetary independence	Government offices and private collections & financial records of the Bechuanaland Protectorate, contained in the National Archives	Several factors influenced performance in the financial sector of the beef economy in Botswana from 1885
11	Kalabamu, F	2005	Women's inclusion and exclusion from property ownership in Botswana	Review of practices, policies, rules, and laws that either enable or inhibit women from accessing and owning properties in their private capacities with special reference to Botswana	Critical review	Traditionally women owned the houses but not the land on which they were built. The land belonged either to the husband, son, or father
12	Koloka, O & Moreki, J.C	2010	Performance of hides and skins subsector in Botswana: A critical review	To investigate the production of hides and skins in Botswana and skins, highlight constraints, and suggest ways of improving hides quality	Hides and Skins Annual Reports 2003, 2007 and 2009	A potential market exists for cattle hides and skins, with synergies between the beef and leather industry market
13	Love, R	1994	Drought, Dutch disease and controlled transition in Botswana agriculture	To demonstrate the rapid expansion of the mineral sector and its effects on the rest of the economy.	Narrative review	It is shown that, principally through exchange rate movements, the exceptional growth of the mineral sector in Botswana created relative price disadvantages in the agricultural sector and that these were positively correlated to output. Economic and political factors also account for low agricultural productivity in Botswana
14	Magogodi, C. L	2022	Featured example: Gastrotourism in Botswana, Zambia and Zimbabwe. Berlin	To review the potential of gastrotourism in improving local and international tourist experiences	Literature review and observations	Cuisines of Botswana, Zambia, and Zimbabwe are featured to have high potential use for gastro-tourism

Table 2 (continued)

	Authors	Year	Title	Purpose	Methods/research design	Results
15	Magwira, CA; Gashe, BA; Collison, EK	2005	Prevalence and antibiotic resistance profiles of Escherichia coli O157: H7 in beef products from retail outlets in Gaborone, Botswana	To assess the prevalence and antibiotic resistance profiles of Escherichia coli in beef products from retail outlets	Four hundred meat samples (134 meat cubes, 133 minced meat, 133 fresh sausages) were collected from 15 supermarkets and butcheries in Gaborone, Botswana	The isolates showed single, double, and triple antibiotic resistance
16	Malope, P., Tsopito, C.M., Aganga, A.A & Madibela, O.R	2007	Profitability of dry season beef feed-lotting in grain deficit countries: the case of Botswana	To determine the profitability of beef feed lotting during the dry season of 2002	Forty-nine beef cattle comprising indigenous Tswana, pure exotic breeds and crossbred animals	Thus, the results of the study show that feed lotting can both be financially and economically profitable
17	Masole, C; Ayuya, OI; Moreki, JC	2019	Determinants of adoption of alternative response to foot and mouth disease: micro-level evidence of smallholder pastoralist in north East District, Botswana	To examine factors influencing the adoption of alternative responses to Foot and Mouth Disease (FMD) among smallholder beef producers in the Northeast district of Botswana	Principal component analysis was used to categorize FMD responses, and a multivariate probit regression model was used to examine the effect of socio-economic and institutional factors on response to the FMD	Producers are aware of the effects of the FMD on their livelihood but still choose not to adopt the responses and the socioeconomic and institutional characteristics to make a difference
18	Mochankana, ME; Robertson, ID	2016	A retrospective study of the prevalence of bovine fasciolosis at major abattoirs in Botswana	To determine the prevalence of bovine fasciolosis in Botswana	Meat inspection records of monthly and annual returns from the two main export abattoirs in the country were examined, as well as the data collected on the total number of cattle slaughtered and the number of livers condemned due to Fasciola gigantica infection	The present study indicated that the prevalence of fasciolosis in cattle is low, and the disease is, therefore, of less significance in Botswana than in other African countries for which information is available
19	Modise, O.M.; Lekoko, R.N.; Thakadu, O.T; Mpotokwane, M.A	2018	Toward sustainable conservation and management of human–wildlife interactions in the Mmadinare Region of Botswana: villagers' perceptions on challenges and prospects	To better understand the magnitude and intensity of human-wildlife interactions with elephants and other native wildlife species in Botswana	Meeting with the community and personal observations	Despite the increasing damage, the community emphasized that harmonious coexistence is desirable and sustainable
20	Modise, BM; Settypalli, TBK; Kgotlele, T; Xue, DR; Ntesang, K; Kumile, K; Naletoski, I; Nyange, JF; Thanda, C; Macheng, KN; Marobela-Raborokgwe, C; Viljoen, GJ; Cattoli, G; Lamien, CE	2021	First molecular characterization of poxviruses in cattle, sheep, and goats in Botswana	To characterise poxvirus infections of small ruminants and cattle	A high-resolution melting (HRM) assay was used to detect and differentiate poxviruses in skin biopsy and skin scab samples from four cattle, one sheep, and one goat	The HRM assay revealed lumpy skin disease virus (LSDV) in three cattle samples, pseudocowpox virus (PCPV) in one cattle sample, and orf virus (ORFV) in one goat and one sheep sample
21	Mokopakgosi, B. T	2008	Self-reliance and the History of Higher Education: The Botswana University Campus Appeal (BUCA)	To explore the role of the rhetoric of self-reliance in the founding of a national university in Botswana, following the unceremonious break-up of a three nations' University of Botswana, Lesotho, and Swaziland in 1975 (UBLS)	Based on archival research in the Botswana National Archives and interviews with those who were involved in the national appeal	Helped to raise the much-needed capital to establish the foundations of a future national university

Table 2 (continued)

	Authors	Year	Title	Purpose	Methods/research design	Results
22	Morapedi, W.G & Manatsha, B. T	2015	Prospects and challenges for China-Africa agricultural cooperation: the case of Botswana	Some crucial lessons that can be learned from China's experience in agriculture	Literature review	Cooperation in agriculture has been relatively neglected. It is weak compared to other areas of cooperation
23	Moreki, J.C & Pelaelo-Grand, D. T & Ranko, A	2019	Artificial insemination in Botswana: Challenges and opportunities-A review	To highlight farmers' uptake of Artificial insemination service, challenges, and opportunities in the use of artificial insemination technology in Botswana	Records from artificial insemination centres	Underutilisation of insemination centres leads to the decline of inseminated cows and conception rates
24	Mooketsi, C	2001	Butchery Styles and the Processing of Cattle Carcasses in Botswana	To determine if butchery styles can be distinguished amongst different communities in Botswana	Focus on five societies: Barolong of Hebron, Bakwena of Molepolole, Bangwato of Serowe and Mosu, the Bakalanga of Masunga and the Hambukushu of Maun. Interviews were conducted with both men and women aged from 45 to 95	Shows that different cultures butcher and process cattle carcasses in different ways
25	Mrema, N; Mpuchane, S; Gashe, BA	2006	Prevalence of Salmonella in raw minced meat, raw fresh sausages and raw burger patties from retail outlets in Gaborone, Botswana	To determine the presence of Salmonella species in raw minced meat, raw fresh sausages, and raw burger patties in retail outlets	Meat samples were purchased from 33 butcher's shops located in Gaborone, and a laboratory analysis was run on all of them within 6 h of the purchase	Varying prevalence rates in meats selected
26	Mulale, K &Hambira, W.L	2007	An overview of the policy and legislative framework for the management of rangelands in Botswana and implications for sustainable development	To investigate the extent to which the policy and legislative framework in Botswana facilitates or constrains sustainable communal rangelands management and utilization systems	Review of policy and legislative framework for the management of communal rangelands resources	The study findings show that despite their high dependence upon communal rangelands resources, rural communities have limited and insecure rights over these rangelands, hence their vulnerability. Findings also show that state policies and legislation tend to favour central regulation and privatization of communal rangelands resources
27	Mullins, GR; Fidzani, B; Kolanyane, M	2000	At the end of the day—The socio-economic impacts of eradicating contagious bovine pleuropneumonia from Botswana	To report the major findings of the monitoring exercise of the depopulation of cattle in 1995 intended to eradicate contagious bovine pleuropneumonia	Household surveys	Economic recovery for many of Ngamiland's households is likely to be prolonged
28	Ngwenya, B.N	2000	Gender and social transformation through burial societies in a contemporary southern African society: The case of Botswana	To explore what burial societies, as emergent local institutions in contemporary Tswana society, do to organize social relief for households in distress via the immediacy of death as a sociocultural event	An ethno survey which is an empirically based study that is situated within an identifiably concrete community was used; an interactive multimethod data collection; multistage cluster sampling; multilevel data collection; direct participation; and quantitative methods like interface measuring and meaning	Overall, burial societies are predominantly women-based institutions across all social and ethnic groups

Table 2 (continued)

	Authors	Year	Title	Purpose	Methods/research design	Results
29	Nsoso S.J; Morake, TG	1999	A critical look at the use of exotic bulls in traditional beef farming in Botswana	To find out which exotic breeds have been used in traditional beef farming between 1987 and 1995	Data available at Ramatlabama Stud Bull and Artificial Insemination Laboratory	Demand for Brahmans was higher than for indigenous breeds in national service and semen collection
30	Patel, SM; Shaik-Dasthagirisaheb, YB; Congdon, M; Young, RR; Patel, MZ; Mazhani, T et al	2022	Evolution of pneumococcal serotype epidemiology in Botswana following the introduction of 13-valent pneumococcal conjugate vaccine	To describe temporal trends in pneumococcal serotype carriage among children in Botswana following the introduction of 13-valent pneumococcal conjugate vaccine.(PCV-13)	The vaccine was administered at 2, 3, and 4 months of age and its effects were monitored	*S. pneumoniae* was identified in 1,304 of 2,494 (52%) nasopharyngeal samples collected from 550 of 841 (65%) enrolled children
31	Petit, A	2016	Women's cattle ownership in Botswana	How different women benefit from their cattle ownership with regard to their social position and material welfare in the commercial beef industry in Botswana	Through ethnographic fieldwork and an intersectional analysis of gendered property relations to grazing land and cattle	Women from different social groups benefit in various ways from cattle production—in supporting and administrative roles; and hands on cattle tasks
32	Raboloko, OO; Ramabu, SS; Guerrini, L; Jori, F	2020	Seroprevalence of Selected Tick Borne Pathogens and Diversity and Abundance of Ixodid Ticks (Acari: Ixodidae) at the Wildlife-Livestock Interface in Northern Botswana	To determine (i) the seroprevalence of selected tick-borne (TB) pathogens and (ii) the diversity and abundance of ixodid ticks among 301 cattle foraging around two protected areas in northern Botswana	Competitive inhibition enzyme linked immuno-sorbent assay (cELISA) was used to test for *Anaplasma* spp. infection and Indirect Fluorescence Antibody Test (IFAT) was used to test for *Theileria parva, Babesia bovis*, and *B. bigemina*	Work provided baseline data on TB pathogens and tick infestation in cattle populations exposed to different levels of contact with adjacent buffalo populations. The presence of a veterinary fence did not significantly influence the seroprevalence of the selected TB pathogens (except for Babesia spp.) but seemed to reduce tick burdens in cattle
33	Sharma, SP; Losho, TC; Malau, M; Mangate, KG; Linchwe, KB; Amanfu, W; Motsu, TK	2001	The resurgence of trypanosomosis in Botswana	To determine the prevalence of trypanosome infection in cattle in Maun and Shakawe areas of Ngamiland district	Parasitological survey of blood samples	Overall, trypanosome infection rate was 15.98%, with 5.94% and 27.29% in Maun and Shakawe, respectively
34	Tladi-Sekgwama, F.M	2019	An overview of agricultural extension in Botswana and needed reforms	To discuss the evolution, intervention, challenges, initiatives, and policies implemented in order to make the extension effective agricultural extension in Botswana	Qualitative study: Botswana government documents, conference proceedings, journal articles, informal interviews, and discussions with Ministry of Agriculture officials, extension workers, extension experts, and farmers	Various factors constrain extension work
35	Uchendu, GO; Aganga, AO; Ama, NO; Madibela, OR	2020	Investigation of Cysticercosis bovis prevalence using passive abattoir post-mortem inspection and active administration of structured non-participatory questionnaire to farmers in Botswana	To probe the prevalence of bovine cysticercosis	Cross-sectional study through passive abattoir inspection, covering a wider scope (more regions) and some lower throughput abattoirs previously not accounted for. Furthermore, non-participatory interview using structured questionnaires	Abattoir prevalence was 17.17% (SE = 1.70027), and survey prevalence was 42.35%; both of which were higher than the published prevalence of 13.5% and BMC prevalence of 10% (SE = 0.006576)

Table 2 (continued)

	Authors	Year	Title	Purpose	Methods/research design	Results
36	Uchendu, G. O.; Ama, N. O; Aganga, A. O; Madibela, O. R	2021	Demographic profiling and characterization of cattle and cattle farmers in Botswana	Demographic and characterization study estimating cattle population, its spread, and ownership	Non-participatory questionnaires, interviews, physical enumeration, and measurements were used to collect primary data from farmers (n = 149)	Results show gaps for gender inequality and discrimination against women in land tenure system (for cattle farming), land ownership, cattle ownership, and cattle inheritance
37	Weise, FJ; Tomeletso, M; Stein, AB; Somers, MJ; Hayward, MW	2020	Lions Panthera leo Prefer Killing Certain Cattle Bos taurus Types	Lion predation on cattle	Interview with human subjects and monitoring of livestock and lions	Lions mostly killed cattle at night and targeted the easiest prey, such as cattle without horns
38	William, T	1988	Local administration in Botswana	To review the functions of four main institutions at the district level–the District Administration, the District Council, the Land Board, and the Tribal Administration	Document analysis	District Councils have displayed an improved capacity for plan implementation. The Land Boards are no longer subordinate to the District Councils in administrative matters but are hampered by a shortage of transport and finance; and Tribal Administration staff still work under very poor conditions, though their salaries and pensionable status are much improved

Table 3 Sample: web of science core collections

	Authors	Year	Title	Purpose	Methods/research design	Findings
1	Amanfu, W; Sediadie, S; Masupu, KV; Raborokgwe, MV; Benkirane, A; Geiger, R; Thiaucourt, F	2000	Comparison between c-ELISA and CFT in detecting antibodies to Mycoplasma mycoides mycoides biotype SC in cattle affected by CBPP in Botswana	To test the specificity and sensitivity of the complement fixation test (CFT)and c-ELISA in detecting Contagious bovine pleuropneumonia (CBPP) in Botswana	Assessment of 82 cattle affected by the disease and held in a double fenced quarantine camp	The CFT was found to be slightly more sensitive than the c-ELISA, and this could be related to the stage of the disease
2	Bahta, S; Baker, D	2015	Determinants of Profit Efficiency among Smallholder Beef Producers in Botswana	To investigate the profit efficiency and competitiveness of three farm size categories of small holder livestock farmers	Cross section of farm-level data gathered from 556 randomly selected livestock producers	There is considerable capacity to improve beef profitability. Scale effects on profit efficiency are generally positive
3	Bahta, S; Malope, P	2014	Measurement of competitiveness in smallholder livestock systems and emerging policy advocacy: An application to Botswana	To measure competitiveness of the Botswana livestock sector, focusing on beef and small stock subsectors	600 livestock producers in which data was collected through a household survey	Farmers incur varying costs on feeds, fuel and maintenance and variable costs' patterns across different herd sizes
4	Baipoledi, EK; Matlho, G; Letshwenyo, M; Chimbombi, M; Adom, EK; Raborokgwe, MV; Hyera, JMK	2004	Re-emergence of foot-and-mouth disease in Botswana	Report on the re-emergence of foot-and-mouth disease (FMD) in Botswana	Disease affected cattle only	Out of the 40 animals examined physically, 15 (37.5%) showed signs and lesions suggestive of FMD
5	Chabo, RG; Koka, DC; Oageng, T	2003	Milk yield during the first four months of lactation and cow productivity of Brahman and Tuli beef cattle in south-east Botswana	Comparison of cow productivity and milk production between Tuli (n = 15) and Brahman (n = 24) cattle breeds using the weigh-suckle-weigh technique	Cattle samples.	Differences between Tuli and Brahman cattle
6	Chingwaru, W; Mpuchane, SF; Gashe, BA	2003	Enterococcus faecalis and Enterococcus faecium isolates from milk, beef, and chicken and their antibiotic resistance	To assess the occurrence and antibiotic resistance of enterococci, especially Enterococcus faecalis and Enterococcus faecium, in milk, beef, and chicken in Gaborone, Botswana	Faecal samples	Among the 1467 enterococci isolated from the samples, E. faecalis (46.1%) and E. faecium (29.0%) were found to be the predominant species
7	Darkoh, MBK; Mbaiwa, JE	2002	Globalisation and the livestock industry in Botswana	Review of the impacts of globalisation on the beef industry	Literature review	Positive and negative effects of globalisation on the cattle industry
8	Kgosikoma, OE; Mojeremane, W; Harvie, BA	2012	Pastoralists' Perception and Ecological Knowledge on Savanna Ecosystem Dynamics in Semi-arid Botswana	To investigate vegetation dynamics in relation to livestock grazing in regions of Botswana	Structured questionnaire was used to collect farmers' understanding of vegetation changes and causes within three different grazing lands	The different factors perceived by pastoral farmers to cause changes in vegetation composition included rainfall, overgrazing, and fire
9	Kgosikoma, OE; Mojeremane, W; Harvie, BA	2015	The impact of livestock grazing management systems on soil and vegetation characteristics across savanna ecosystems in Botswana	To determine the impact of livestock grazing management systems on soil and vegetation dynamics under different environmental conditions of Botswana	Soil and vegetation were randomly sampled along transects located in three ranches and adjacent communal grazing land in 2009 and 2010	Results showed that grazing management systems did not consistently affect soil texture, organic carbon, pH and bulk density

Table 3 (continued)

	Authors	Year	Title	Purpose	Methods/research design	Findings
10	Lysholm, S; Ramabu, SS; Berg, M; Wensman, JJ	2019	First-time detection of bovine viral diarrhoea virus, BVDV-1, in cattle in Botswana	To study the occurrence of bovine viral diarrhoea which is largely unknown	Blood samples obtained from 100 goats and 364 cattle from villages around Gaborone	The detected antibody prevalence was 0% in goats and 53.6% in cattle when using a competitive enzyme-linked immunoassay
11	Masole C; Ayuya OI; Moreki JC.	2019	Determinants of adoption of alternative response to foot and mouth disease: microlevel evidence of smallholder pastoralist in north East District, Botswana	To examine factors influencing the adoption of alternative response to Foot and Mouth Disease (FMD) among smallholder beef producers.	Multivariate probit regression models of socioeconomic and institutional factors.	Household size, opportunity cost, frequency of contact with extension officers, training on FMD, distance to the nearest market, and distance to grazing and water areas had a positive effect on the adoption of alternative responses to the outbreak.
12	Mazhani, B; Masitha, E; Ntwaetsile, M; Thutwa, K; Sehularo, K	2022	Distribution of bovine cysticercosis prevalence in the southeastern districts of Botswana from 2015 to 2016	To (1) estimate the prevalence of bovine cysticercosis in Botswana's southeastern districts, (2) describe the distribution of bovine cysticercosis through geospatial mapping, and (3) investigate the effect of seasonality on bovine cysticercosis occurrence	Abattoir records of cattle slaughtered from August 2015 to July 2016	The prevalence of bovine cysticercosis was determined to be 6.2%. The prevalence in the veterinary districts differed significantly at $p < = 0.000$. Seasonality did not have a significant ($p = 0.651$) effect on the prevalence of bovine cysticercosis
13	Mochankana, ME; Robertson, ID	2018	Cross-sectional prevalence of Fasciola gigantica infections in beef cattle in Botswana	To determine the prevalence and distribution of Fasciola gigantica infections in communally grazed and ranch-grazed beef cattle through coprological examination	A total of 8646 cattle (4618 adults, 2843 weaners and 1185 calves) faecal samples were collected during 24 months of study	Results from this study indicated that only 64 (0.74%; 95% CI 0.57, 0.94%) of the samples were positive for F. gigantica eggs
14	Oladele, OI	2011	Determinants of Constraints to Livestock Identification and Trace-back System Use for Disease Monitoring Among Cattle Farmers in Botswana	To examine the determinants of constraints to Livestock Identification and Trace-Back System for disease monitoring	Survey of 58 cattle farmers	Farmers had unfavourable attitudes towards the system. Various factors constrained their use of the system
15	Otlogetswe, T	2020	Beef cuts amongst the Bangwaketse: the case of motlhakanelwa	To investigate how a special cow, the motlhakanelwa is butchered and discuss the social functions that are associated with its principal beef cuts and bones	Interviews conducted with ten village butchering experts in Kanye during wedding celebrations plus researcher observations of the slaughtering, skinning, and butchering of carcasses	Motlhakanelwa is one of the most important cows in the Setswana wedding ceremony because of its ritualistic significance

Table 3 (continued)

	Authors	Year	Title	Purpose	Methods/research design	Findings
16	Panin, A	2000	A comparative economic analysis of smallholder cattle and small ruminant production systems in Botswana	To study the economic importance of cattle and small ruminant production systems	Survey of cattle- and goat-rearing enterprises	The estimated capital invested in cattle per average household was five times that for goats. This confirms the widely held view that cattle rearing is capital intensive and may explain why considerable numbers of smallholder farmers do not own any cattle
17	Samaxa, RG; Matsheka, MI; Mpoloka, SW; Gashe, BA	2012	Prevalence and Antimicrobial Susceptibility of Salmonella Isolated from a Variety of Raw Meat Sausages in Gaborone (Botswana) Retail Stores	To provide baseline data on the prevalence and antimicrobial susceptibility of Salmonella in different types of raw meat sausages directly accessible to the consumers in Gaborone, Botswana	A total of 300 raw sausages comprising 79 beef, 78 pork, 72 chicken, and 71 mutton samples were analyzed using a conventional culture method and a validated PCR method	Raw sausages pose a risk of transmitting multidrug-resistant Salmonella isolates to consumers
18	Temoso, O; Villano, R; Hadley, D	2016	Evaluating the productivity gap between commercial and traditional beef production systems in Botswana	To measure and compare the production technologies and productivity of traditional and commercial beef production systems in Botswana	Statistics of Botswana panel data (2004–2013)	Significant differences in production technology exist between traditional and commercial beef farming. Farms under freehold land tenure performed better
19	Temoso, O; Hadley, D; Villano, R	2015	Performance Measurement of Extensive Beef Cattle Farms in Botswana	To examine the technical efficiency of extensive beef farms in different regions of Botswana and attempts to explain differences in regional performance in terms of environmental and economic constraints	Panel dataset of 26 agricultural districts (distributed across six agro-ecological regions) for the period 2004 to 2012	Farmers use available technology suboptimally and produce far less than potential output

Table 4 Sample: Google

	Author	Title	Year	Url
1	Agameals	Tasty seswaa recipe	2023	https://agameals.com/tasty-seswaa-recipe/
2	Bloombury	Seswaa & English Mustard 'Sausage' Rolls recipe from The Platinum Jubilee Cookbook	2023	https://www.bloomsbury.com/uk/discover/recipes/sausage-rolls-recipe/
3	Botswana Investment and Trade Centre (BITC)	Investment opportunities in the beef and beef derivatives value proposition	n.d	https://www.gobotswana.com/sites/default/files/BITC%20-%20Beef%20%26%20Beef%20Derivatives%20Value%20Proposition%20-%20Final.pdf
4	Botswana Investment and Trade Centre (BITC)	Botswana export ready database	2023	https://www.gobotswana.com/botswana-export-ready-database
5	Botswana Meat Commission	Botswana Beef	n.d	https://www.bmc.bw/botswana-beef/
6	Botswana Tourism Organization	Customs	2021	https://www.botswanatourism.co.bw/customs
7	Culture Botswana 2.0	Theories about the origins of Seswaa	2018	https://www.facebook.com/culturebotswana/posts/theories-about-the-origins-of-seswaaon-wikipedias-list-of-national-dishes-culina/178289136386875/
8	Debonnairs Pizza Botswana	Debonnairs Seswaa Pizza	2022	https://m.facebook.com/DebonairsPizzaBW/posts/1506638509806738/
9	European Union	SADC-EU EPA creates impetus for Botswana cattle farmers	2018	https://www.eeas.europa.eu/node/40619_en
10	Finmark Trust & Imani Development International Ltd	Agricultural Finance Scoping	2021	https://finmark.org.za/system/documents/files/000/000/510/original/FMT_SADC_FI_Agriculture_Botswana.pdf?1629903278
11	Guardian Sun	Hilton premiers new menu	2022	https://guardiansun.co.bw/lifestyle/food/hilton-premiers-new-menu
12	International Trade Administration	Botswana country commercial guide	2021	https://www.trade.gov/country-commercial-guides/botswana-market-overview
13	International Trade Administration	Botswana Country Commercial Guide (Agricultural sectors)	2022	https://www.trade.gov/country-commercial-guides/botswana-agricultural-sectors
14	International trade Centre	Botswana CDE and ITC partnership project on value chains Beef value chain findings, strategy, and proposed interventions	2014	https://www.gobotswana.com/sites/default/files/Botswana%20beef%20VC%20report%20ITC%20051014.pdf
15	Letsididi, B	There is just something about Botswana seswaa	2013	https://www.sundaystandard.info/ocythere-is-just-something-about-botswana-seswaaoco/
16	Muyambo, F	African cuisine	2015	http://africancuisine.about.com/bio/Freda-Muyambo-126736.html
17	Siyabonga Africa	Culture and Traditions of Botswana	2022	https://www.botswana.co.za/Cultural_Issues-travel/cultural-people-botswana.html
18	Sunday Standard	Loswao, Seswao, chotlho, tshwaiwa: one language, different tongues	2015	https://www.sundaystandard.info/loswao-seswao-chotlho-tshwaiwa-one-language-different-tongues/
19	The Guardian	Seswaa recipe from Botswana	2012	https://www.theguardian.com/world/2012/oct/29/food-and-drink-africa
20	The Foreign Fork	Beef in a Slow Cooker (Seswaa) from Botswana	2019	https://foreignfork.com/seswaa/
21	World Culture Encyclopedia	Botswana	2023	https://www.everyculture.com/Bo-Co/Botswana.html#ixzz6GSgkPj9T
22	Department of Youth and Culture	Botswana Traditional recipes	n.d	Botswana Craft Marketing; Gaborone

Acknowledgements
Acknowledgments are extended to Prof. L. S Stone, who assisted with reviewing the document.

Author contributions
There is only one author.

Funding
No funding was obtained for this research.

Availability of data and materials
Only preexisting electronic documents were used. Documents used are cited accordingly.

Declarations

Consent for publication
The article has not been published in any other journal and is not currently under consideration by another journal.

Competing interests
The author declares no competing interests.

Received: 4 May 2023 Accepted: 27 August 2023
Published online: 01 November 2023

References

1. Adams T. Nutrition transition of adolescents (15–18 years) in the Francistown area, Botswana. 2015. Master of Consumer Science Dissertation. University of Pretoria. Accessed 1 June 2023.
2. Agameals. Tasty seswaa recipe. 2023. https://agameals.com/tasty-seswaa-recipe/
3. Amanfu W, Sediadie S, Masupu KV, Raborokgwe MV, Benkirane A, Geiger R, et al. Comparison between c-ELISA and CFT in detecting antibodies to Mycoplasma mycoides mycoides biotype SC in cattle affected by CBPP in Botswana. Ann NY Acad Sci. 2000;916:364–9.
4. Bahta S, Baker D. Determinants of profit efficiency among smallholder beef producers in Botswana. Int Food Agribus Manag Rev. 2015;3:107–29.
5. Bahta S, Malope P. Measurement of competitiveness in smallholder livestock systems and emerging policy advocacy: an application to Botswana. Food Policy. 2014;49:408–17. https://doi.org/10.1016/j.foodpol.2014.10.006.
6. Baipoledi EK, Matlho G, Letshwenyo M, Chimbombi M, Adom EK, Raborokgwe MV, et al. Re-emergence of foot-and-mouth disease in Botswana. Vet J. 2004;168(1):93–9. https://doi.org/10.1016/j.tvjl.2003.08.006.
7. Barnes JI, Cannon J, MacGregor J. Livestock production economics on communal land in Botswana: effects of tenure, scale and subsidies. Dev S Afr. 2008;25(3):327–45. https://doi.org/10.5897/JAERD2017.0923.
8. Bennet B, Rich KM. Using preferential trade access to promote global development goals: the case of beef and market access to Norway from Namibia and Botswana. Agrekon. 2019;58(4):485–502.
9. Bloombury. Seswaa & English Mustard 'Sausage' Rolls recipe from The Platinum Jubilee Cookbook. 2023. https://www.bloomsbury.com/uk/discover/recipes/sausage-rolls-recipe/. Accessed 6 Feb 2023.
10. Bogwasi BA. Botswana traveler's companion: English Setswana phrase book. Bloomington: West Bow Press; 2015.
11. Botswana Investment and Trade Centre (BITC). Investment opportunities in the Beef and beef derivatives value proposition. Investor fact sheet. n.d. https://www.gobotswana.com/sites/default/files/BITC%20-%20Beef%20%26%20Beef%20Derivatives%20Value%20Proposition%20-%20Final.pdf Accessed 6 Feb 2023.
12. Botswana Investment and Trade Centre (BITC). Botswana export ready database. 2023. https://www.gobotswana.com/botswana-export-ready-database. Accessed 6 Feb 2023.
13. Botswana Meat Commission. Botswana beef. n.d. https://www.bmc.bw/botswana-beef/. Accessed 6 Feb 2023.
14. Botswana Tourism Organisation. Customs. 2021. https://www.botswanatourism.co.bw/customs. Accessed 6 Feb 2023.
15. Bowen GA. Document analysis as a qualitative research method. Qual Res J. 2009;9:27–40. https://doi.org/10.3316/QRJ0902027.
16. Bultosa G, Molapisi M, Tselaesele N, Kobue-Lekalake R, Haki GD, Makhabu S, et al. Plant-based traditional foods and beverages of Ramotswa Village, Botswana. J Ethn Foods. 2020;7:1–15.
17. Chabo RG, Koka DC, Oageng T. Milk yield during the first four months of lactation and cow productivity of Brahman and Tuli beef cattle in south-east Botswana. J Agric Rural Dev Trop Subtop. 2003;104:65–70.
18. Chikanza J, Graham D. Traditional food and gastronomy as a future form of cultural heritage. In: Byron BA, Mokgalo L, Chipfuva T, editors. Botswana cultural heritage and sustainable tourism development: a handbook of theory and practice. Newcastle upon Tyre: Cambridge Scholars Publishing; 2020. p. 330–43.
19. Chingwaru W, Mpuchane SF, Gashe BA. *Enterococcus faecalis* and *Enterococcus faecium* isolates from milk, beef, and chicken and their antibiotic resistance. J Food Prot. 2003;66:931–6.
20. Coertzee RD. Livestock in the social and cultural life of African communities. S Afr J Ethnol. 1986;9:129–35.
21. Coester M. Funeral rituals of the Tswana people in South Africa. 2016. https://discover.hubpages.com/religion-philosophy/Funeral-rituals-of-the-Tswana-people-in-South-Africa. Accessed 6 February 2023.
22. Culture Botswana 2.0. Theories about the origins of Seswaa. 2018. https://www.facebook.com/culturebotswana/posts/theories-about-the-origins-of-seswaaon-wikipedias-list-of-national-dishes-culina/178289136386875/. Accessed 15 February 2023.
23. Darkoh MBK, Mbaiwa JE. Globalisation and the livestock industry in Botswana. Singap J Trop Geogr. 2002;23:149–66.
24. Deacon H. UNESCO Culinary Heritage Sites Web Comment. 2010. http://www.ediblegeography.com/unesco-culinary-heritage-sites/. Accessed 23 March 2011
25. Denbow JR, Thebe PC. Culture and customs of Botswana. West Port: Greenwood Publishing Group; 2006.
26. Debbonairs Pizza Botswana. Debonnairs Seswaa Pizza. 2022. https://m.facebook.com/DebonairsPizzaBW/posts/1506638509806738/. Accessed 3 Feb 2023.
27. Department of Youth & Culture. Seswaa. In Botswana Traditional recipes. Botswana Craft Marketing. n.d
28. Derrett R. Festivals & regional destinations: how festivals demonstrate a sense of community & place. Rural Soc. 2003;13:35–53.
29. European Union. SADC-EU EPA creates impetus for Botswana cattle farmers. 2018. https://www.eeas.europa.eu/node/40619_en. Accessed 23 January 2023.
30. Finmark Trust & Imani Development International Ltd. Agricultural Finance Scoping. 2021. https://finmark.org.za/system/documents/files/000/000/510/original/FMT_SADC_FI_Agriculture_Botswana.pdf?1629903278. Accessed 23 January 2023.
31. Frimpong K. A review of the tribal grazing land policy in Botswana. Pula Botswana J Afr Stud. 1995;9:1–17.
32. Gabalebatse M, Ngwenya BN, Teketay D, Kolawole OD. Ethno-veterinary practices amongst livestock farmers in Ngamiland district, Botswana. Afr J Tradit Complement Alt Med. 2013;10:490–502.
33. Gadibolae MN. Serfdom (*Bolata*) in the Nata River area 1926–1960. Botswana Not Rec. 1985;17:25–32.
34. Gagaoua M, Boudechicha H. Ethnic meat products of the North African and Mediterranean countries: an overview. J Ethn Foods. 2018;5:83–98.
35. GISGeography. Botswana map and satellite imagery. 2023. https://gisgeography.com/botswana-map/. Accessed 30 Sept 2023.
36. Grant S. Death and burial in Mochudi: a study of changing traditions. Botswana Not Rec. 1987;19:137–49.
37. Guardian Sun. Hilton premiers new menu. 2022. https://guardiansun.co.bw/lifestyle/food/hilton-premiers-new-menu. Accessed 21 January 2023.
38. Gusenbauer M, Haddaway NR. Which academic search systems are suitable for systematic reviews or meta-analyses? Evaluating retrieval qualities of Google Scholar, PubMed, and 26 other resources. Res Synth Methods. 2020;11:181–217.

39. Hall M. The role of cattle in Southern African agropastoral societies: more than bones alone can tell. Goodwin Series. Prehist Pastoral S Afr. 1986;5:83–7. https://doi.org/10.3389/fvets.2020.00187.
40. Hillbom E. Cattle, diamonds and institutions: main drivers of Botswana's economic development, 1850 to present. J Int Dev. 2014;26:155–76.
41. Hermans Q. Towards budgetary independence A review of Botswana's financial history, 1900 to 1973. Botswana Not Rec. 1974;6:89–115.
42. Horng J, Tsai C. Government websites for promoting East Asian culinary tourism: a cross-national analysis. Tour Manag. 2010;31:74–85.
43. International Trade Centre. Botswana CDE and ITC partnership project on value chains Beef value chain findings, strategy, and proposed interventions. 2014. https://www.gobotswana.com/sites/default/files/Botswana%20beef%20VC%20report%20ITC%20051014.pdf. Accessed 5 Feb 2023.
44. International Trade Administration. Botswana Country Commercial Guide (Agricultural sectors). 2022. https://www.trade.gov/country-commercial-guides/botswana-agricultural-sectors. Accessed 4 Feb 2023.
45. Kalabamu F. Women's inclusion and exclusion from property ownership in Botswana. Promoting social inclusion in urban areas: 2005. Policies & practice, 6th N-Aereus Conference, September 16–17. Lund, Sweden. https://www.researchgate.net/profile/Faustin-Kalabamu/publication/265148022_Women%27s_Inclusion_and_Exclusion_from_Property_Ownership_in_Botswana/links/5469ea9c0cf2f5eb18064a6d/Womens-Inclusion-and-Exclusion-from-Property-Ownership-in-Botswana.pdf
46. Kasimba S, Covic N, Motswagole B, Laubscher R, Claasen N. Consumption of traditional and indigenous foods and their contribution to nutrient intake among children and women in Botswana. Ecol Food Nutr. 2019;58:281–98. https://doi.org/10.1080/03670244.2019.1598980.
47. Keitumetse S. UNESCO 2003 convention on intangible heritage: practical implications for heritage management approaches in Africa. S Afr Archaeol Bull. 2006;61:166–71.
48. Kgosikoma OE, Mojeremane W, Harvie BA. Pastoralists' perception and ecological knowledge on savanna ecosystem dynamics in semi-arid Botswana. Ecol Soc. 2012. https://doi.org/10.5751/ES-05247-170427.
49. Kgosikoma OE, Mojeremane W, Harvie BA. The impact of livestock grazing management systems on soil and vegetation characteristics across savanna ecosystems in Botswana. Afr J Range Forage Sci. 2015;32:271–8. https://doi.org/10.2989/10220119.2015.1008042.
50. Klainberger SAT. The Beef between men and animals: meat-eating and masculinity in the U.S.: a case study of objectifying fast-food advertising in the Anglosphere leviathan. Int Interdiscip J Eng. 2020;6:128–48.
51. Koloka O, Moreki JC. Performance of hides and skins subsector in Botswana: a critical review. Livest Res Rural Dev. 2010;22:5.
52. Kumar GMK. Gastronomic tourism—a way of supplementing tourism in the Andaman & Nicobar Islands. Int J Gastron Food Sci. 2019. https://doi.org/10.1016/j.ijgfs.2019.100139.
53. Love R. Drought, Dutch disease and controlled transition in Botswana agriculture. J S Afr Stud. 1994;20:71–83.
54. Letsididi B. There is just something about Botswana seswaa. Sunday Standard. 2013. http://www.sundaystandard.info/%E2%80%98therejust-something-about-botswana-seswaa%E2%80%99. Accessed 6 Feb 2023.
55. Lin MP, Marine-Roig E, Llonch-Molina N. Gastronomy as a sign of the identity and cultural heritage of tourist destinations: a bibliometric analysis 2001–2020. Sustainability. 2021;13:12531. https://doi.org/10.3390/su132212531.
56. Lysholm S, Ramabu SS, Berg M, Wensman JJ. First-time detection of bovine viral diarrhoea virus, BVDV-1, in cattle in Botswana. Onderstepoort J Vet Res. 2019;86:a1764. https://doi.org/10.4102/ojvr.v86i1.1764.
57. Magogodi CL. Featured example: gastrotourism in Botswana, Zambia and Zimbabwe. In: Gona JK, Atieno L, editors. Sustainable tourism dialogues in Africa. Berlin: De Gruyter; 2022. p. 1191–207.
58. Magwira CA, Gashe BA, Collison EK. Prevalence and antibiotic resistance profiles of Escherichia coli O157: H7 in beef products from retail outlets in Gaborone. Botswana J Food Prot. 2005;68:403–6.
59. Mahachi-Chatibura D. Local cuisine as a potential tourism attractor and marker of national identity in Botswana. J Gastron Tour. 2016;2:117–34.
60. Malope P, Tsopito CM, Aganga AA, Madibela OR. Profitability of dry season beef feed-lotting in grain deficit countries: the case of Botswana. Livest Res Rural Dev. 2007;19:6.
61. Maruapula SD, Chapman-Novakofski K. Botswana. In: Edelstein S, editor. Food, cuisine, and cultural competency for culinary, hospitality, and nutrition professionals. Sudbury: Jones & Bartlett Publishers; 2010. p. 351–60.
62. Masole C, Ayuya OI, Moreki JC. Determinants of adoption of alternative response to foot and mouth disease: micro-level evidence of smallholder pastoralist in north East District, Botswana. Trop Anim Health Prod. 2019;51(2):373–82. https://doi.org/10.1007/s11250-018-1698-0
63. Mbatha CN, Charalambides N. What is really in the economic partnership agreements for the Southern African region? A perspective from Botswana's beef export market. Agrekon. 2008;4:410–32. https://doi.org/10.1080/03031853.2008.9523808.
64. Meatco Namibia. Need to know grass-fed & free-range beef. https://www.meatco.com.na/news/466/NEED-TO-KNOW-GRASS-FED-FREE-RANGE-BEEF/. Accessed 4 Feb 2023.
65. Mochankana ME, Robertson ID. A retrospective study of the prevalence of bovine fasciolosis at major abattoirs in Botswana. Onderstepoort J Vet Res. 2016;83: a1015.
66. Mochankana ME, Robertson ID. Cross-sectional prevalence of *Fasciola gigantica* infections in beef cattle in Botswana. Trop Anim Health Prod. 2018;50:1355–63.
67. Modise OM, Lekoko RN, Thakadu OT, Mpotokwane MA. Toward sustainable conservation and management of human–wildlife interactions in the Mmadinare Region of Botswana: villagers' perceptions on challenges and prospects. Hum Wildl Interact. 2018;12:220–32.
68. Modise BM, Settypalli TBK, Kgotlele T, Xue DR, Ntesang K, Kumile K, et al. First molecular characterization of poxviruses in cattle, sheep, and goats in Botswana. Virol J. 2021;18:167. https://doi.org/10.1186/s12985-021-01634-9.
69. Mokopakgosi BT. Self-reliance and the history of higher education: the Botswana University Campus Appeal (BUCA). J S Afr Stud. 2008;34:293–304. https://doi.org/10.1080/03057070802037977.
70. Mooketsi C. Butchery styles and the processing of cattle carcasses in Botswana. Pula. 2001;15:108–24.
71. Morapedi WG, Manatsha BT. Prospects and challenges for China-Africa agricultural cooperation: the case of Botswana. Pula. 2015;29:18–31.
72. Moreki JC, Pelaelo-Grand DT, Ranko A. Artificial insemination in Botswana: challenges and opportunities—a review. J Anim Sci Vet Med. 2019;4:122–8. https://doi.org/10.1007/s11250-020-02447-8.
73. Morgan H. Conducting a qualitative document analysis. Qual Rep. 2022;27:64–77. https://doi.org/10.46743/2160-3715/2022.5044.
74. Mrema N, Mpuchane S, Gashe BA. Prevalence of Salmonella in raw minced meat, raw fresh sausages and raw burger patties from retail outlets in Gaborone. Botswana Food Control. 2006;17:207–12.
75. Mulale K, Hambira WL. An overview of the policy and legislative framework for the management of rangelands in Botswana and implications for sustainable development. WIT Trans Ecol. 2007. https://doi.org/10.1186/s12985-021-01634-9.
76. Mullins GR, Fidzani B, Kolanyane M. At the end of the day: the socioeconomic impacts of eradicating contagious bovine pleuropneumonia from Botswana. Ann N Y Acad Sci. 2000;916:333–44.
77. Muyambo F. African cuisine. 2015. http://africancuisine.about.com/bio/Freda-Muyambo-126736.html. Accessed 15 Jan 2023.
78. Ngwenya BN. Gender and social transformation through burial societies in a contemporary southern african society: The case of Botswana. ProQuest One Academic; 2000. https://www.proquest.com/docview/304609577?pq-origsite=gscholar&fromopenview=true
79. Nsoso SJ, Morake TG. A critical look at the use of exotic bulls in traditional beef farming in Botswana. S Afr J Anim Sci. 1999;18:9. https://doi.org/10.1016/j.foodcont.2004.09.019.
80. Okech RN, Timothy DJ. Culinary traditions and heritage foods in Africa, cultural heritage and tourism in Africa. In: Dallen JT, editor. Cultural heritage and tourism series. New York: Routledge; 2023. https://doi.org/10.4324/9781003153955-9.
81. Oktay S, Sadıkoglu S. The gastronomic cultures' impact on the African cuisine. J Ethn Foods. 2018;5:140–6.
82. Oladele OI. Determinants of constraints to livestock identification and trace-back system use for disease monitoring among cattle farmers in Botswana. Int J Appl Res. 2011;9:143–53.
83. Otlogetswe T. Beef cuts amongst the Bangwaketse: the case of Motlhakanelwa. Anthropol S Afr. 2020;43:233–45.

84. Panin AA. comparative economic analysis of smallholder cattle and small ruminant production systems in Botswana. Trop Anim Health Prod. 2000;32:189–96. https://doi.org/10.1023/A:1005243917193.
85. Pastor-Ramón E, Herrera-Peco I, Agirre O, García-Puente M, Morán JM. Improving the reliability of literature reviews: detection of retracted articles through academic search engines. Eur J Investig Health Psychol. 2022;124:458–64. https://doi.org/10.3390/ejihpe12050034.
86. Paez A. Gray literature: an important resource in systematic reviews. J Evid Based Med. 2017;10:233–40. https://doi.org/10.1111/jebm.12266.
87. Patel SM, Shaik-Dasthagirisaheb YB, Congdon M, Young RR, Patel MZ, Mazhani T, et al. Distribution of bovine cysticercosis prevalence in the southeastern districts of Botswana from 2015 to 2016. Vet World. 2022;15:368–73. https://doi.org/10.14202/vetworld.2022.368-373.
88. Petitt A. Women's cattle ownership in Botswana. Rebranding gender relations? Doctoral Thesis. Swedish University of Agricultural Sciences. 2016. https://pub.epsilon.slu.se/13205/1/petitt_a_160121.pdf. Accessed 5 Feb 2023.
89. Raboloko OO, Ramabu SS, Guerrini L, Jori F. Seroprevalence of selected tick borne pathogens and diversity and abundance of ixodid ticks (Acari: Ixodidae) at the wildlife-livestock interface in Northern Botswana. Front Vet Sci. 2020;7:187.
90. Rahmadian E, Feitosa D, Zwitter A. A systematic literature review on the use of big data for sustainable tourism. Curr Issues Tour. 2022;25:1711–30. https://doi.org/10.1080/13683500.2021.1974358.
91. Ribeiro CSG, Corção M. The consumption of meat in Brazil: between socio-cultural and nutritional values. Demetra Food Nutr Health. 2013;8:425–38.
92. Romagnoli R. Gastronomic heritage elements at UNESCO: problems, reflections on and interpretations of a new heritage category. Int J Intang Herit. 2019;14:157–71. https://doi.org/10.35638/ijih.2019.14.009.
93. Samaxa RG, Matsheka MI, Mpoloka SW, Gashe BA. Prevalence and antimicrobial susceptibility of salmonella isolated from a variety of raw meat sausages in Gaborone (Botswana) retail stores. J Food Prot. 2012;75:637–42.
94. Seleka TB, Kebakile PG. Export competitiveness of Botswana's beef industry. BIDPA Working paper series. 2015. https://www.researchgate.net/publication/301959638_Export_Competitiveness_of_Botswana's_Beef_Industry. Accessed 23 Feb 2023.
95. Sello KJ. Food culture in Botswana: a need for documentation. Special Issue in Honour of Prof. Moteane John Melamu. Botswana Not. Rec. 2022;54. https://www.researchgate.net/publication/368600074_Food_Culture_in_Botswana_A_Need_for_Documentation Accessed 30 Jan 2023.
96. Sharma SP, Losho TC, Malau M, Mangate KG, Linchwe KB, Amanfu W, Motsu TK. The resurgence of trypanosomosis in Botswana. J S Afr Vet Assoc. 2001;72:232–4.
97. Siyabong Africa. Culture and Traditions of Botswana. 2022. https://www.botswana.co.za/Cultural_Issues-travel/cultural-people-botswana.html. Accessed 3 Feb 2023.
98. Statistics Botswana. Agriculture. 2022. https://www.statsbots.org.bw/agriculture. Accessed 5 Feb 2023.
99. Suna B, Alvarez MD. Gastronomic identity of Gaziantep: perceptions of tourists and residents. Adv Hosp Tour. 2019;7:167–87.
100. Sunday Standard. Loswao, Seswao, chotlho, tshwaiwa: one language, different tongues. 2015. https://www.sundaystandard.info/loswao-seswao-chotlho-tshwaiwa-one-language-different-tongues/. Accessed 5 Feb 2023.
101. Temoso O, Villano R, Hadley D. Evaluating the productivity gap between commercial and traditional beef production systems in Botswana. 2016. AARES Conference, Canberra, Australia, 4th February 2016. https://pdfs.semanticscholar.org/b88e/a5ab80abf9574023211d2116867cebee955b.pdf. Accessed 6 Feb 2023.
102. Temoso O, Hadley D, Villano P. Performance measurement of extensive beef cattle farms in Botswana. Agrekon. 2015;54:87–112. https://doi.org/10.1080/03031853.2015.1116399.
103. The Foreign Fork. Beef in a slow cooker (Seswaa) from Botswana.2019. https://foreignfork.com/seswaa/. Accessed 4 Feb 2023.
104. The Guardian. Seswaa recipe from Botswana. 2012. https://www.theguardian.com/world/2012/oct/29/food-and-drink-africa. Accessed 6 Feb 2023.
105. Tladi-Sekgwama FM. An overview of agricultural extension in Botswana and needed reforms. J Agric Ext Rural Dev. 2019;11:67–77.
106. Uchendu GO, Aganga AO, Ama NO, Madibela OR. Investigation of *Cysticercosis bovis* prevalence using passive abattoir post-mortem inspection and active administration of structured non-participatory questionnaire to farmers in Botswana. Trop Anim Health Prod. 2020;53:49. https://doi.org/10.1007/s11250-020-02447-8.
107. Uchendu GO, Ama NO, Aganga AO, Madibela OR. Demographic profiling and characterization of cattle and cattle farmers in Botswana. Afr J Agric Res. 2021;17:571–81. https://doi.org/10.5897/AJAR2020.15361.
108. United Nations Educational, Scientific and Cultural Organisation (UNESCO). 2003 Convention for the Safeguarding of the Intangible Cultural Heritage, Media Kit. 2011a. Sixth Session of the Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage 22 to 29 November 2011, Bali, Indonesia. https://ich.unesco.org/doc/src/15164-EN.pdf. Accessed 10 Feb 2023.
109. United Nations Educational, Scientific and Cultural Organisation (UNESCO). UNESCO Culinary Heritage Sites. 2011b. http://www.ediblegeography.com/unesco-culinary-heritage-sites/. Accessed 6 Feb 2023.
110. United Nations Educational, Scientific and Cultural Organisation (UNESCO). The growth of cultural tourism. 2021. https://www.unesco.org/en/articles/cutting-edge-bringing-cultural-tourism-back-game. Accessed 4 Jan 2023.
111. United Nations World Tourism Organization [UNWTO]. Tourism and Culture Synergies. 2018. UNWTO, Madrid. https://doi.org/10.18111/9789284418978. Accessed 3 Feb 2023.
112. Weise FJ, Tomeletso M, Stein AB, Somers MJ, Hayward MW. Lions *Panthera leo* prefer killing certain cattle *Bos taurus* types. Animals. 2020;10:692. https://doi.org/10.1080/03057079408708387.
113. William T. Local administration in Botswana. Public Adm Dev. 1988;8:183–202.
114. World Culture Encyclopedia. Botswana. 2023. https://www.everyculture.com/Bo-Co/Botswana.html#ixzz6GSgkPj9T. Accessed 7 Feb 2023.
115. Zocchi DM, Fontefrancesco MF, Corvo P, Pieroni A. Recognising, safeguarding, and promoting food heritage: challenges and prospects for the future of sustainable food systems. Sustainability. 2021;13:9510. https://doi.org/10.3390/su13179510.

Publisher's Note