

Camel Couture: Exploring Camel Products in Contemporary Fashion



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Executive Summary

2024 is the Year of the Camel in Saudi Arabia - a Ministry of Culture initiative to celebrate this most beautiful of animals and the role it has played in facilitating the development of the Kingdom, for example, through provision of transportation, as well as a range of high value products such as milk, meat, hair, and leather.

Camels are an icon of the Arab world and are a fundamental part of Saudi culture. While camel leather and hair have not received a large amount of attention as global fashion materials, they have long been widely used in the Arabian Peninsula. They have been a source of income for generations, with their associated tools and processes referenced in pre-Islamic writings¹. Camel hair has recently embedded itself as a luxury material through its use in the polo coat sold by global luxury brands such as Louis Vuitton, Prada, and Ralph Lauren². Given the rapid growth of the luxury fashion market in the Middle East broadly, and Saudi Arabia more specifically, further substantial growth in demand for luxury camel fashion products is anticipated. Projected Saudi luxury market revenue growth of 18% from 2023 to 2028 illustrates the magnitude of the opportunity³.

The global luxury leather goods market was valued at **US\$75.8 billion** in 2023, and could reach **US\$92.4 billion** by 2028¹².

Camel leather could contribute revenue of up to **US\$98.7 million** per annum for the Saudi economy¹³.

The durable quality of camel leather makes it well suited to the production of timeless luxury products. This applies to a range of potential purchases, including shoes, bags, and accessories such as belts and wallets^{4,5}. However, taking advantage of these opportunities will require a shift in how the Saudi camel value chain is presently configured.

With many regions of the world becoming dryer, the camel presents an attractive alternative to cattle and is increasingly being adopted into modern farming systems⁶. Traditional Bedouin systems for raising livestock are typically less environmentally demanding and require less water for their operations compared to more commercial scale practices of all livestock types, including camels⁷. Developing a sustainable value chain through inclusive buy-in from key stakeholders, like farmers, is therefore an important part of a differentiating strategy that could give Saudi Arabia a competitive edge. Critically, there is a strategic opportunity to connect designers with local weaving and camel leathercraft artisans and manufacturers. If realised, this link will support the industry to meet the demands of the market with high quality, relevant designs in consistent volumes, and to ensure sustainable skills development^{8,9}.

Commercial scale opportunities exist within the camel leather value chain. Specifically, there is an opportunity to explore increasing the capacities and capabilities of tanneries that work with camel leather.

Learning from regional players will be key, as progressive tanning techniques are already widely in use. These encompass natural vegetable dyes (chromium-free) and a lifecycle management approach ensuring leather off-cuts are not wasted. Sourcing sufficiently large volumes of high quality leather sustainably requires a partnership with pastoralists and nomadic communities to ensure an improvement in camel raising methods^{10,11}.

Leather from alternate sources such as camel, yak, crocodile and ostrich, accounts for approximately 2% of the global market. There is potential for camel leather to be marketed in a more luxury category, given its rare status. The global luxury leather goods market was valued at US\$75.8 billion in 2023, and could reach US\$92.4 billion by 2028¹².

Currently, the main demand for camels is as a regional meat delicacy. However, should a greater share of hides be utilised from existing sources, as revealed by abattoir numbers, camel leather could contribute revenue of up to US\$98.7 million per annum for the Saudi economy¹³.

Camels used in fashion



Key insights

- The Arabian camel is the **only camel native to Saudi Arabia** and its hair, leather, teeth and bones are used in fashion.
- The **Bactrian camel**, from Mongolia and China, has fine, soft hair that is **highly suitable for luxury apparel**.
- The global population of camels is **42 million**, of which **94% is the Arabian camel**.
- Saudi Arabia has **the fifth largest camel population globally**, estimated at 2 million in 2022.

A brief history of camels in the region

Arabian camels are the national animal of Saudi Arabia.

An icon of the desert, camels have been an important part of Saudi culture throughout history¹⁴. Camel leather and hair, and their associated tools and processes are widely referenced in pre-Islamic writings; and were

an important source of income in the Arabian Peninsula¹⁵. Camel leather was used for clothing and footwear, as well as for water storage, weaponry and saddles. The value of these ships of the desert, as they are affectionately known, has continued through the ages, providing Saudis with important services such as transportation, as well as a range of high value products such as milk, meat, hair and leather¹⁶.

Camels of the world

The Arabian (or Dromedary) camel is one of two domesticated camel species that belong to the *Camelus* genus. The other is the Bactrian camel. The two species are easily distinguishable. The Arabian camels has a single hump while the Bactrian camel has two humps and a thicker coat suited for the much colder climates in which it is found. The Arabian camel originates from the hot, arid regions of northern Africa and the Arabian Peninsula; and is the only camel that is indigenous to the Kingdom. Bactrian camels are found in China, Mongolia, and elevated areas bordering the Gobi Desert. With few exceptions, the geographic ranges of these two camel species do not overlap¹⁷.



Global camel population

There were an estimated 42 million farmed camels globally in 2022^{18,19}. Most of the global domesticated camel population comprises the Arabian camel (an estimated 94%, or 40 million), with the Bactrian population forming the balance²⁰.

The number of farmed camels has grown significantly since 1961, increasing by 275% over the period²¹. This long-term growth outstrips the growth rates of other domestic livestock, including sheep (121%) and cattle (158%)²². The top 5 countries with the largest camel livestock populations in 2022 were Chad (10m), Somalia (7.5m), Sudan (5m), Kenya (4.6m) and Saudi Arabia (2m)²³. Saudi Arabia has the largest farmed camel population in the GCC, followed by the UAE, Oman, and Qatar²⁴. Due to growing demand for their milk and meat²⁵, camel numbers in the Kingdom have

increased by an astounding 312% since 2017, from 486,000 to 2 million. The Sawani Company, one of the Public Investment Fund (PIF) companies, is working to bring camel dairy products to the commercial market through the launch of Noug's range of camel milk, butter, cream and gelato^{26,27}. "At Sawani, we are captivated by camels, their untapped potential, and the incredible opportunity they offer to the camel dairy industry. As we celebrate Saudi Arabia's Year of the Camel in 2024, we proudly honor Saudi's rich cultural heritage. Through our brand, Noug, we integrate the finest locally sourced ingredients and sustainable, eco-friendly production methods to meet the growing demand for innovative camel milk products²⁸". This highlights how local Saudi companies are recognising the opportunity for developing camel products.

The types of camel products used in fashion

Leather from the Arabian camel is typically collected as a by-product of the camel meat industry and is used to manufacture a wide range of fashion items, including bags, shoes, belts, and wallets. Arabian camels are not typically farmed for their leather and yet camel leather is known to be highly durable and can be made softer and more suitable for the fashion industry through the finishing and dyeing process²⁹.

Hair fibres from Arabian camels are suited for making bags³⁰ and are also used to make bisht (men's cloaks used for formal occasions). Historically, bisht in Saudi Arabia were made using hair from the Arabian camel and sheep wool, and artisans making bisht still use camel fibre today. The larger scale manufacturing of bisht is however currently made using hair from llamas³¹, and can be made using a combination of camel yarn blended with other natural fibres such as sheep's wool³². There is research into the blending of hair from young Arabian camels (considered softer than hair from adults) with merino wool to increase its range of potential uses in the fashion industry³³. If deemed suitable, this blend could reveal opportunities for the use of Arabian camel fibres in modern bisht manufacturing. Bisht usually come in natural sandy tones, such as tans, beiges, browns, and greys as camel hair is sensitive to strong dyes³⁴.

The undercoat hair from the Bactrian camel is soft and is used globally for luxury apparel due to its downy qualities³⁵. The fibre is known for its high durability



and insulating properties^{36,37}. In the early 20th century, the coat made from Bactrian camel hair was introduced and popularised globally during a period of wool shortages³⁸. Bactrian camel hair has embedded itself as a luxury material through its association with the polo coat and has become a timeless piece of luxury fashion sold by global luxury brands such as Louis Vuitton, Prada, and Ralph Lauren. The highest quality Bactrian hair is sourced from Mongolia, where generations of selective breeding have accentuated the luxurious, downy properties of the fibre. It is well suited for men's and women's coats, jackets, blazers, robes, skirts, scarves, and gloves. It can also be blended with nylon for the manufacture of hosiery³⁹.

Another by-product used in fashion is teeth and bones from the Arabian camel. These by-products are used to make

items of bead and pendant jewellery, such as bracelets and necklaces^{40,41,42}. Camel bone is sometimes used as a substitute for ivory in carving souvenirs^{43,44}.

Leather from the Arabian camel is typically collected as a by-product of the camel meat industry and is used to manufacture a wide range of fashion items.

From camel to catwalk

Camel leather insights and opportunities

Key insights

- The global luxury leather goods market was valued at **US\$75.8 billion** in 2023, of which leather from alternate sources including camel accounted for 2% of the market (US\$1.5 billion). The market is projected to grow by a very healthy 22% over the next 5 years, reaching US\$92.4 billion by 2028
- Saudi Arabia is expected to see a **26%** growth rate in leather footwear revenue, over the next 5 years (2023-2028), this is significantly above projected worldwide revenue growth of only 12%. Luxury footwear is expected to grow by 24% in the Kingdom over the same period.
- The current camel leather market potential in Saudi Arabia is approximately **US\$98.7 million** per annum.
- In respect of products, the 24.7 million square feet of camel hide available in 2022 could produce 24.7 million pairs of sandals valued at **US\$1.87 billion**.



Saudi Arabia's current strength in the global camel leather value chain lies in design and retail.

The value chain

Several steps are required to transform camel leather into fashion products.

First, the animal hides are currently sourced from abattoirs or traditional Bedouin farmers. Once at the tannery, the camel hide is cleaned several times to remove impurities and then undergoes several processing steps either at the same location or at a specialised facility for dyeing and finishing. The finishing steps can vary considerably depending on the final product characteristics required⁴⁵. Given that camel leather is typically a very tough leather, repeated dyeing helps to make it both durable and soft. Camel leather is more durable than bovine leather, ensuring it maintains a high level of brand loyalty with customers that have experienced its properties.

The preparation of leather is becoming more environmentally sustainable using 'green'

chemicals. The traditional process of preparing leather involves the use of potentially harmful chemicals, like chromium, which is used to preserve the leather to prevent it from degrading. The release of wastewater containing these harmful chemicals is associated with negative side-effects to humans and broader environmental health risks and for this reason many tanneries have switched to using natural alternatives in the tanning process.

Once leather is prepared, most of the subsequent activity involves cutting and sewing it into a finished fashion form. Additional items such as soles and buckles, as well as any embroidery, are then added as part of the product development phase and vary depending on the nature and design of the product. The manufacture of leather fashion products takes place at several scales. At the smallest scale, artisans manufacture bespoke products for the tourism and



corporate gifting market, as well as for niche export. These artisans typically acquire their skills through their families. Processes such as tanning and finishing take place at small facilities or finished leather is sourced from tanneries. Medium to large firms operate at much greater scale, using advanced machinery to manufacture a range of camel leather products to exacting standards for regional and/or global markets.

The global market for camel leather goods

The global luxury leather goods industry (handbags, suitcases, briefcases, and small leather goods) was valued at US\$75.8 billion in 2023⁴⁶. The market is projected to grow by a very healthy 22% over the next 5 years, reaching US\$92.4 billion by 2028⁴⁷. As an alternative leather, camel is often grouped with deer, kangaroo, crocodile, and ostrich as exotic leathers. These alternate leathers supply 2% of the world's leather market⁴⁸

or US\$1.52 billion in 2023. Sales are projected to reach US\$1.85 billion by 2028 (see Figure 1 below). Should camel leather be effectively marketed as an alternative luxury leather material and capture up to 1% of the growing global luxury leather goods market, the camel leather goods market could be valued at as much as US\$827 million in 2025, growing to US\$924 million by 2028.

The market is projected to grow by a very healthy

22%

over the next 5 years, reaching US\$92.4 billion by 2028⁴⁷.

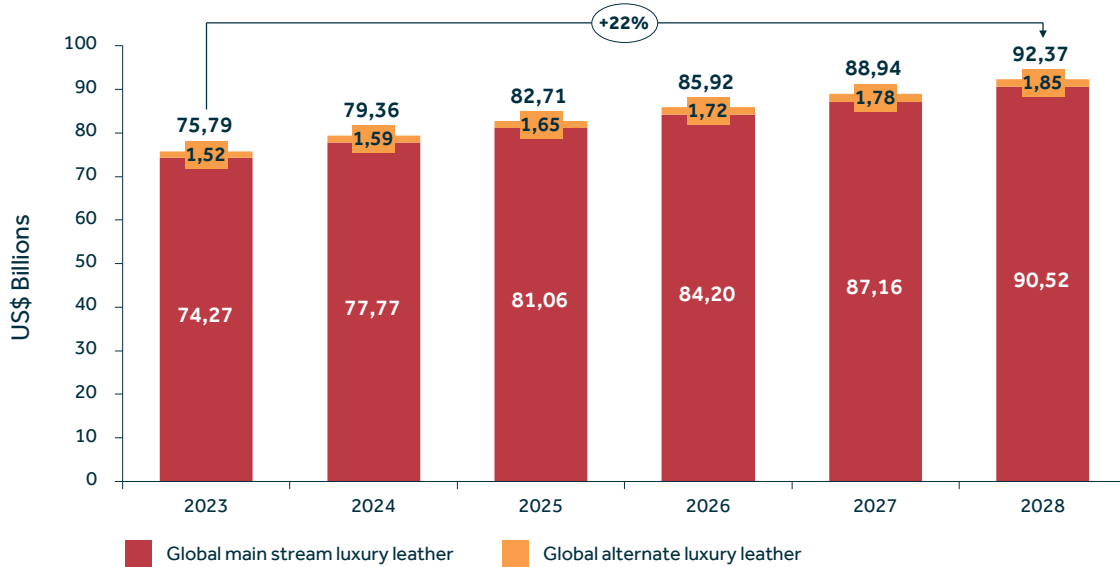


FIGURE 1:
Global luxury leather goods revenue, 2023-2028.

NOTE: MAINSTREAM INCLUDES BOVINE, SWINE, SHEEP AND EQUINE. ALTERNATE LEATHER INCLUDES CAMEL, YAK, KANGAROO, AS WELL AS EXOTIC LEATHERS SUCH AS CROCODILE, PYTHON, AND OSTRICH.

SOURCE: STATISTA (2024)

Saudi's role in the global camel leather ecosystem

Saudi Arabia's current strength in the global camel leather value chain lies in design and retail, but potential exists to broaden capabilities and increase capacities in established, commercial-scale tanneries in the Kingdom. Al-Ahli Leather Factory Company in Riyadh processes skins from various

animals such as sheep, goats, cows, and camels⁴⁹. The tannery has five areas of expertise: wet-blue processing, crust and finishing, fur processing, wool processing, and leather goods manufacturing (including shoes, bags, belts, wallets, and jackets). Al-Dagal Leather Factories in Madinah is another

well-established tannery and the largest leather producer in the Kingdom⁵⁰. The company's activities include slaughterhouse management, leather tanning, and the production and retail of leather footwear, bags, coats, and jackets.

Saudi camel leather market

Luxury leather goods revenue in the Kingdom is projected to achieve tremendous growth from US\$360 million in 2023 to US\$450 million in 2028 (of 25%)⁵¹. Saudi Arabia is expected to see a 26% growth rate in leather footwear revenue over the next 5 years (2023 – 2028), from USD390 – 490 million⁵². This

is significantly above projected worldwide leather footwear revenue growth of only 12% over the same period⁵³. Furthermore, luxury footwear revenue in Saudi Arabia is expected to grow by 24%, from US\$146 million in 2023 to US\$181 million in 2028⁵⁴. Growing demand for leather footwear and luxury

Luxury leather goods revenue in the Kingdom is projected to achieve a growth of

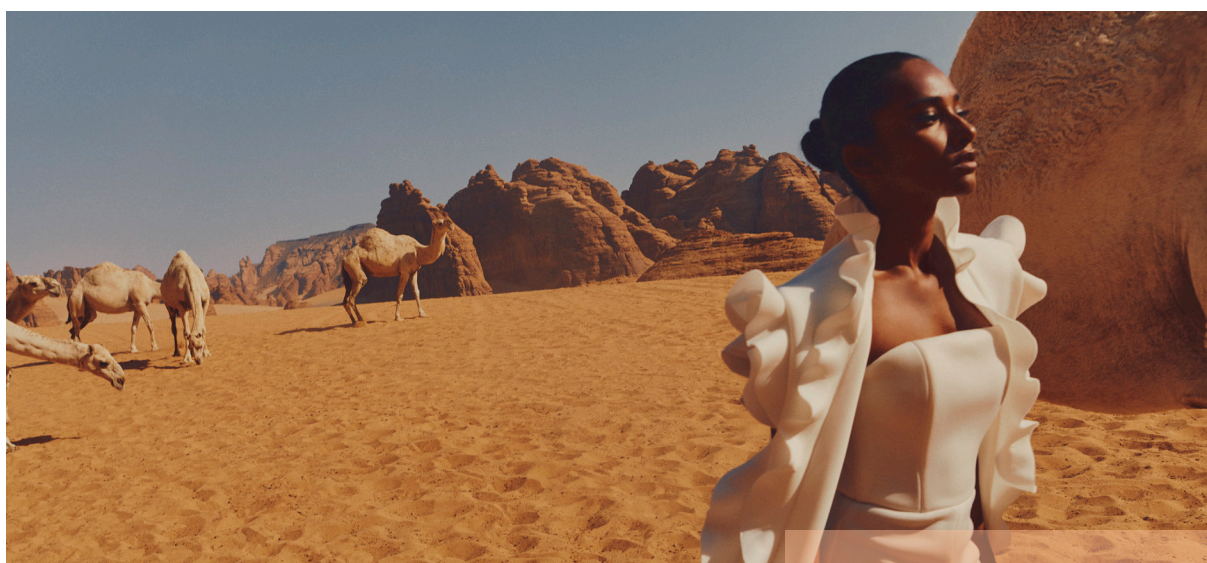
25%

leather products indicates an opportunity to evaluate how to increase camel leather products in the growing domestic luxury market.

The recent growth of the camel population in Saudi Arabia, combined with the traditional use of camel leather in local apparel and associated accessories, suggests there may be a major and potentially

unique opportunity to upgrade the camel value chain in the Kingdom and stimulate greater value. Although there is a lack of reliable data on the volume of camel hides and products traded, numbers from abattoirs provide a useful proxy for the available supply of camel leather in Saudi Arabia⁵⁵. In 2022, there were an estimated 469,753 camel hides generated in Saudi Arabia⁵⁶. The average selling price of a

finished camel hide is estimated at US\$262.50 for a hide that is 52.5 square feet⁵⁷. If 80% of the camel hide can be used through effective processing, the current camel leather market potential in Saudi Arabia is approximately US\$98.7 million per annum⁵⁸⁻⁶⁰. In respect of products, the 24.7 million square feet of hide could produce 24.7 million pairs of sandals valued at US\$1.87 billion⁶¹⁻⁶³.



Camel hair insights and opportunities

Key insights

- Camel hair is included as a “fine animal hair” in global trade data, with this category seeing a 30% increase in value per kilogram from 2013–2022⁶⁴.
- The volume of camel hair produced by 1 million Bactrian camels is estimated at 1,200 tons, with each kilogram of exported camel fibre fetching US\$6– US\$36^{66,67}. Once camel fibre is spun into yarn, its value reaches an average of US\$70 per kilogram in the online market⁶⁸.
- Based on the existing Saudi camel population, 2,800 tons of camel hair could be produced annually, valued at US\$2 million⁶⁹⁻⁷².

The value chain

Using camel hair in garments and home textiles requires a multi-stage value adding process. Camel hair is typically collected when the camel moults its thicker coat in spring. The hair can be combed or plucked off the camel, sheared, or collected after it falls off during moult.

Importantly, the collection of camel hair that has naturally fallen is considered a sustainable and ethical practise⁷³. Camel hair is first washed to remove impurities. It is then carded, a process which separates the more valuable undercoat fibres from the outer guard hair and lays

them into strands⁷⁴. The hair is then spun into yarn and washed again before it is transformed into either woven or knitted fabrics. Most camel hair is left undyed but can be dyed depending on the product.

Global Animal Hair Market

The global animal hair market, valued at US\$802.2 million in 2022, comprises hair from many different types of animals, including camels, goats, rabbits and many more⁷⁵. As shown in Figure 2 below, global trade (measured in exports) has steadily increased since the pandemic slowdown in 2020. Trade data combines camel hair data with other fine hair animals under the category "fine animal hair"* shown in beige in Figure

2 below. This category has seen a 30% increase in US Dollar value per kilogram from 2013 to 2022⁷⁶. In contrast, wool prices have only increased by 1.31% over the same period, with a 20% decrease in the volume of wool traded since 2013.

Mongolia mainly exports raw Bactrian camel fleece, while countries like China, Italy, and the United Kingdom manufacture and process camel hair into

knitwear and textiles, thereby ensuring they capture a larger portion of the value in the camel fibre value chain⁷⁷. The estimated volume of camel hair produced by 1 million Bactrian camels is 1,200 tons⁷⁸ (clean weight, ready for textile processing), with a kilogram of exported camel fibre fetching US\$6- US\$36^{79,80}. Once camel fibre is spun into yarn, its value reaches an average of US\$70 per kilogram in the online market⁸¹.

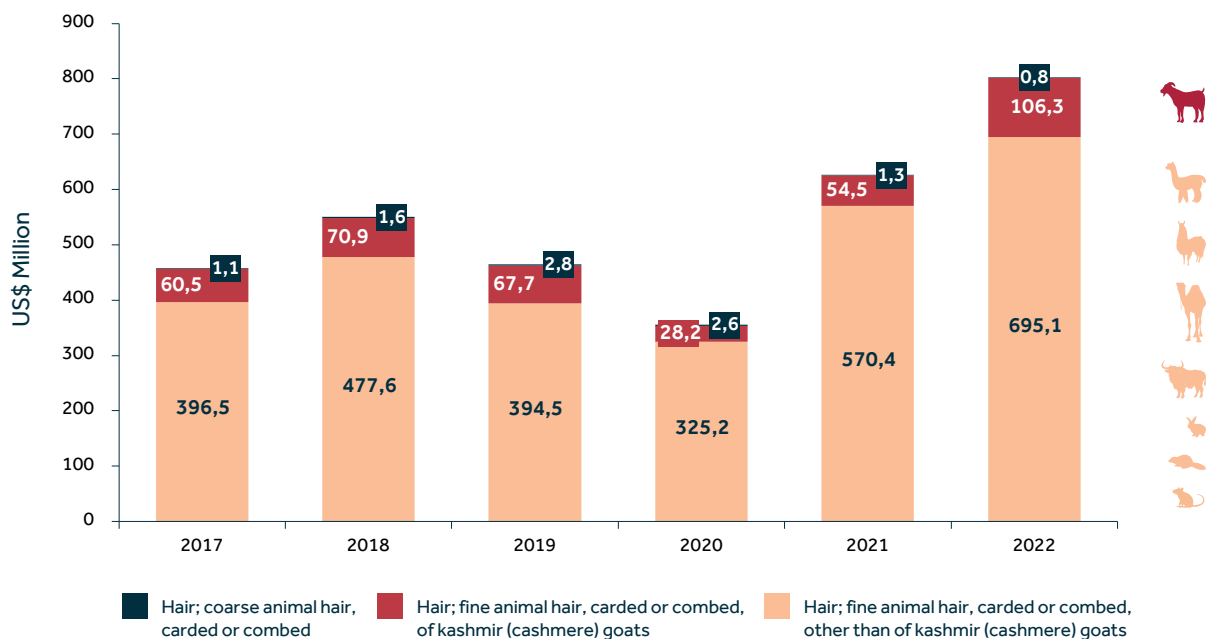


FIGURE 2:
Global exports of animal hair from 2017 to 2022.

SOURCE: UN COMTRADE (2024)⁸²

* "Fine animal hair" includes the hair of alpaca, llama, vicuna, camel (including dromedary), yak, Angora, Tibetan, Kashmir or similar goats (but not common goats), rabbit (including Angora rabbit), hare, beaver, nutria or musk-rat.

Saudi's role in the global camel hair ecosystem

Saudi Arabia has capabilities across the camel value chain, including design, manufacture, and retail operations. One of the most highly esteemed garments in the Kingdom that uses camel hair is the bisht and Saudi is recognised for skilled craftsmanship. According to Hussen Hamdan, CEO of Arabian Mshalh, this men's cloak was traditionally made using either pure camel hair or a blend of camel hair and hair from other natural fibres such as sheep, while today llama thread from Peruvian, Bolivian and Australian wool have mostly replaced these locally available materials⁸³. Bisht can be made as a thicker garment for use in the winter, or made as an extremely fine, almost transparent garment for use in the warmer seasons. Commercial farms in the Kingdom usually begin shearing operations at the beginning of summer, when merchants from Pakistan, Afghanistan and India collect the wool and process this raw material into the yarn⁸⁴.



Saudi bisht manufacturers can source materials from the National Textile Company for the manufacture of winter bisht⁸⁵. For the lighter, summer bisht these natural and synthetic threads are usually imported from China, India and Japan, due to their manufacturing capabilities and technology⁸⁶.

Historically, the bisht was worn to protect garment owners from the harsh weather conditions. Contemporary bisht garments

serve as an elegant symbol of status⁸⁷, and certain senior levels of government officials in Saudi are now required to wear bisht to the workplace. The Al-Ahsa area in the Eastern Province of Saudi Arabia is well known for its highly skilled bisht tailors, with a single garment requiring 8 meters of fabric⁸⁸. A hand-made bisht can take 15 days to create and involve more elaborately embroidered pieces, whereas a high-end electronically sewn bisht can take 3 days to manufacture⁸⁹.

The Saudi camel hair opportunity

The opportunity for Arabian camel hair is evident for non-fashion items (including rugs and carpets) and for fashion apparel (including bisht). The Saudi market for rugs and carpets is expected to grow by 15% from 2023 to 2027⁹⁰. Arabian camels in Saudi could generate 2,800 tons of camel hair annually, estimated to be valued at US\$2.1 million⁹¹⁻⁹⁴. This will likely create major

opportunities for value-added camel products. As Professional Crafts Association CEO, Mashail Al Faqeeh, indicates, demand for camel products comes from the global market, most notably the tourism sector from visitors to the Kingdom. She added how demand far outstrips supply in Saudi Arabia, suggesting an opportunity to develop the value chain and strategically to match smaller-scale artisans

with growing consumer needs. Another opportunity may present for bisht manufacturing in the Kingdom. The demand for bisht within the local Saudi market, as well as for tourist and export markets, coupled with the Kingdom's rising camel population and traditional weaving capabilities, suggests substantial growth potential for this segment of the camel value chain⁹⁵.

Strategies for growth

Key insights

- There is global demand for camel fashion products, most notably from other countries in the GCC, as well as from Europe and Asia.
- Local artisans and handcrafters require continued strategic support to ensure traditional skills will endure for future generations.
- Given the Kingdom's large camel population, developing the use of camel products in the fashion (and other) value chains will boost demand for this growing resource.

Support for the utilisation of camel products in fashion

Growing the use of camel products in fashion has the potential to support Saudi's deep heritage in camel husbandry. Events such as the Annual Saudi Crafter's Week provide a platform where Saudi artisans who do knitting, weaving, beadwork, and leather tanning, are able to showcase their designs and products, including

camel leather goods and woven textiles. The Week attracts Saudi and international artisans and is led by the Saudi Heritage Commission. The inaugural event took place in 2023 and the next event is scheduled for October 2024 in Riyadh. Furthermore, training institutions such as the Royal Institute of Traditional Arts, through its 24-week

apprenticeship program⁹⁶, provide the knowledge and skills for learners to manufacture bisht under the supervision and guidance of master artisans who have practised the craft in its most authentic form⁹⁷. These support events and programmes are vital for the sustainable development of the camel value chain in the Kingdom.

Positive lessons from the region



Tamashee⁹⁸, a brand based in Saudi Arabia with production houses in different countries including UAE and Spain, designs, manufactures and sells leather shoes and bags, with camel leather products forming part of their range.

Tamashee's story serves as a

positive lesson for other brands looking to enter the camel leather market. Tamashee CEO, Muneera Al- Tamimi, who is from Saudi Arabia, recalls starting the business at a time when many designers were highly sceptical of her vision to use camel leather. Through perseverance and by leveraging capabilities in the

region with her business partner, the brand has been steadily built. Muneera drew on leather expertise in the UAE as well as resources in Spain, Italy, and China to develop a high-quality product suitable for the Saudi and international markets. The unique value of Tamashee's

leather sandals is that it brings Saudi heritage together in its materials and design. These create a versatile sandal that appeals to a variety of clients. Sustainability is a core theme, which supports the traditional Bedouin ways of raising camels, as well as old methods of

chemical-free dyeing of the leather. Tamashee, meaning "to walk" with "compatibility" is an example of entrepreneurial vision focused on harnessing regional skills and resources to build a successful brand.

Elevating camel leather products in luxury markets

Findings from the investigations into camel leather and camel hair indicate significant market opportunities, particularly in the luxury segment. Fashion items are considered luxury when they are perceived to be of the highest possible quality, exclusive, and thus deserving of a high price. Given its low commercialization compared to bovine leather, camel leather meets the luxury criteria for exclusivity. However, camel leather is not currently perceived as high-quality⁹⁹⁻¹⁰¹. This is due to hides typically having imperfections and markings¹⁰². Yet, in terms of material strength, camel hide is considered more durable than bovine hide,

making it highly suitable for the construction of shoe uppers, bags, and a range of other fashion accessories^{103,104}. Productivity improvements, combined with strong marketing to create awareness of the product's strengths, the sustainable nature in which camels are raised, and the cultural legacy and exclusivity of camel leather, could result in camels being considered a compelling, luxury alternative to bovine and competing exotic leathers¹⁰⁵. In doing so, a major global market opportunity could be created – potentially US\$924 million by 2028 (refer to "The global market for camel leather goods").

Given its low commercialization compared to bovine leather, camel leather meets the luxury criteria for exclusivity.

Looking ahead: Key insights from ecosystem stakeholders

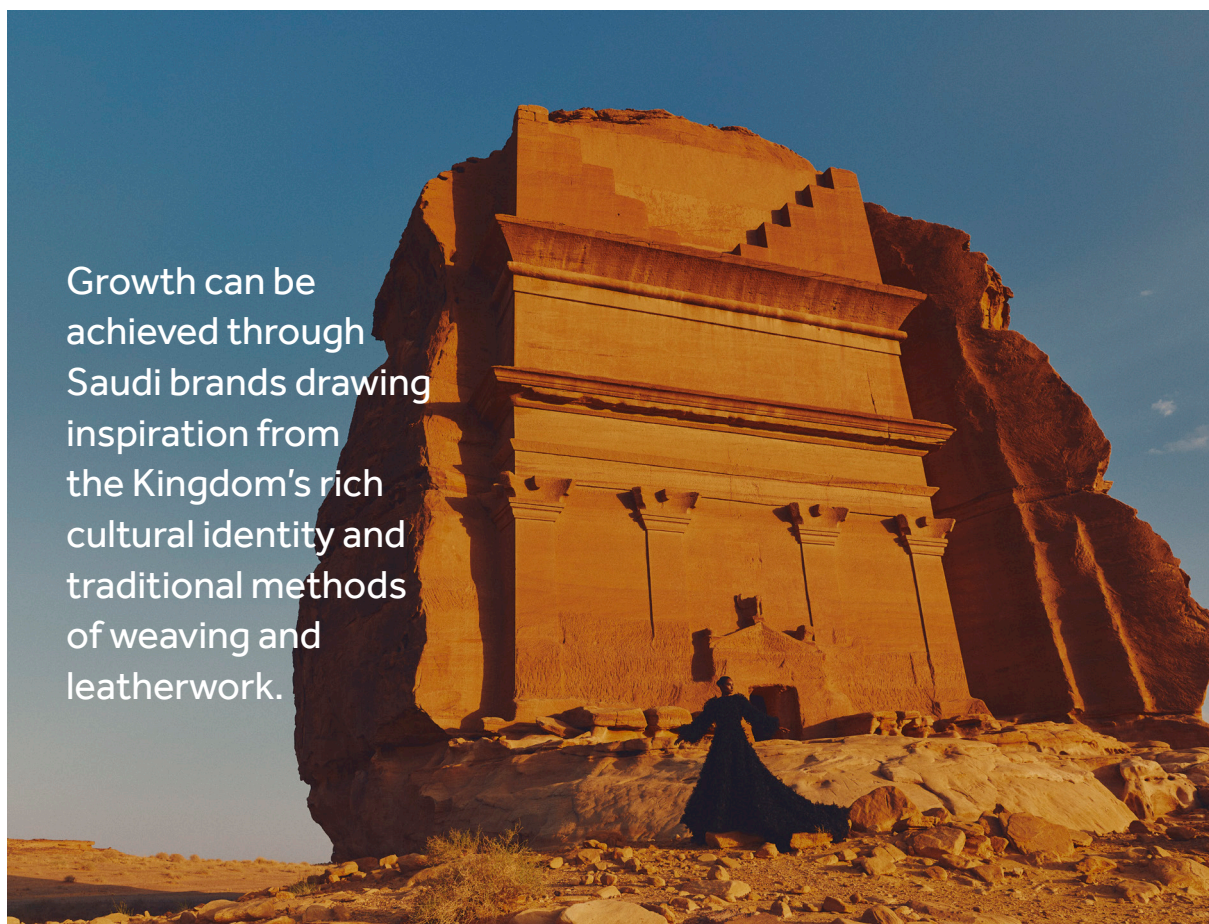
Five key insights emerge, highlighting opportunities and avenues to catalyse the use of camel products in fashion:

First, growth can be achieved through Saudi brands drawing inspiration from the Kingdom's rich cultural identity and traditional methods of weaving

and leatherwork. As Mashail explains "we see many artisans who design based on Saudi heritage succeeding". Mashail sees enormous opportunity for designers and artisans to collaborate to create statement fashion pieces, presenting an opportunity for modern to meet tradition. Tied to this, customers of camel leather products are quickly developing a strong sense of loyalty to brands like

Tamashee. This is due to the durability of the camel leather used to make their products, and the high suitability of camel leather for the fashion industry.

Second, there is global demand for camel fashion products. Muneera identified demand for her products as 'strong and growing', with 70% of the demand in sales for their products coming from outside



Growth can be achieved through Saudi brands drawing inspiration from the Kingdom's rich cultural identity and traditional methods of weaving and leatherwork.

of the Kingdom. Mashail, in her role as CEO of the Professional Crafts Association, indicated that according to her members, there is high demand from the global market for the products made by the many skilled artisans around the country, but that demand currently outstrips supply.

Third, there are established tanneries in the Kingdom and there is an opportunity to explore requirements to ramp up capacities and capabilities to grow the local camel leather value chain. The quality concerns of camel leather are noted globally, and a considerable opportunity exists to enhance its suitability for the fashion value chain in the Kingdom through improved animal husbandry methods that reduce imperfections in the

leather, and the incorporation of green tanning processes.

Fourth, traditional weaving skills in the Arabian Peninsula have been in decline for an extended period^{106,107}. The Professional Crafts Association is actively working to support the continuation of these traditional skills¹⁰⁸. Challenges to artisans are both geographic (they are scattered throughout the Kingdom making the coordination of efforts difficult), economic (many struggle to earn a basic wage) and social (many do not have formal qualifications)¹⁰⁹. Therefore, continued support for artisans, and the development of an increasingly skilled talent pipeline is critical to the future realisation of camel product opportunities.

Lastly, handcrafts are typically manufactured in small batches. This presents a challenge for small-scale artisans looking to participate in commercial opportunities which require larger-scale production. This presents both an opportunity and a challenge. The Professional Crafts Association has identified this as a major challenge, advocating for the need to develop suitable infrastructure, such as facilities where artisans can design and manufacture their products at larger scale¹¹⁰. There is also a need to support eCommerce opportunities for artisans^a. This would boost the participation by artisans and create more opportunities for camel leather products to find their way into the rapidly growing fashion value chain.

^a Refer to the Fashion Commission's White Paper on eCommerce here which describes the opportunity for eCommerce in the Kingdom, and support measures underway by government.

Conclusion



The camel leather value chain has huge potential in the Kingdom.

This is underpinned by growing demand for luxury leather internationally and locally, as well as the fact that the Kingdom has an abundance of Arabian camels and is well positioned to add substantial value within the camel leather chain. Established tanneries that have the capability to work with camel hides already exist, while improving animal husbandry techniques would reduce markings and imperfections on available camel hides. Strategic marketing could open opportunities for camel leather in the luxury leather market due to its desirable properties (durability), and exclusivity relative to more mainstream leathers like bovine. As demand grows, tanneries in the Kingdom that deepen their camel leather capabilities and capacities could play an important role in the camel leather value chain, attracting downstream value adding activities locally and in so doing, significantly increasing the value of camel leather products sourced from the Kingdom. This is an opportunity that currently is estimated to be worth US\$98.7 million per annum.

Camel hair, like leather, also has opportunities for increasing localisation across the value chain. Arabian camel hair is presently used to make bisht and bags and there is an opportunity to substantially grow demand across a range of hair products, and both locally and internationally. Presently Saudi camels could generate 2,800 tons of Arabian camel hair annually, valued at US\$2,1 million per annum¹¹¹⁻¹¹⁴. To grow this market further Saudi will need to evaluate opportunities that have

the potential to boost local production capabilities and capacities. Several countries in Europe and Asia are participating in value adding activities, where they import raw Bactrian camel hair and spin it into yarn for local demand and export. These countries capture more value from the value chain than the countries focusing on camel farming alone. An opportunity exists to evaluate the Kingdom's participation in the camel hair value chain, and given the large camel population in the country, to identify value adding activities that could benefit from the rapidly growing market for apparel and luxury apparel in the Kingdom and globally.

Several interventions have been identified that could support the realisation of these opportunities.

Continued support for artisans is key, ensuring that the deeply traditional methods of working with camel by-products can be passed on to future generations. Strategic marketing can elevate perceptions and grow demand by focusing on the desirable properties and the rich history of Arabian camels. The increasing availability of camel by-products as the world shifts to farming more camels in the future¹¹⁵ indicates that supply can be increased in the face of growing demand. Importantly, demand can also be supported through the continued ethical sourcing of raw materials and the use of green materials, such as chromium free tanning. Saudi Arabia is in an excellent position to take full advantage of these opportunities, especially if sustainability remains at the forefront of its growth and advancement.

References

- ¹ Khan, A (1971). The tanning cottage industry in pre-Islamic Arabia. *Journal of the Pakistan historical society*, 19(2), 85.

- ² Grant, L (2009). Jaeger celebrates 125 years in the business. *The Telegraph*. Available: <http://fashion.telegraph.co.uk/news-features/TMG4326105/Jaeger-celebrates-125-years-in-the-business.html> Accessed: February 2024

- ³ Statista Market Insights (2024). Luxury Fashion revenue Worldwide. <https://www.statista.com/outlook/cmo/luxury-goods/luxury-fashion/worldwide>. Accessed: February 2024

- ⁴ Goulding, B., Riedel, E., Bevan, A., & Warfield, B. (2007). *Export Markets for Skins and Leather Report*. Australian Government. Available: <https://agrifutures.com.au/wp-content/uploads/publications/07-089.pdf>

- ⁵ Nasr, A.I (2015). Evaluation of Egyptian camel hides for leathers manufacturing. *World Applied Sciences Journal*, 33(8), 1329-1333.

- ⁶ Faye, B (2016). The camel, new challenges for a sustainable development. *Tropical Animal Health and Production*, 48(4), pp.689-692.

- ⁷ Faye, B (2016). The camel, new challenges for a sustainable development. *Tropical Animal Health and Production*, 48(4), pp.689-692.

- ⁸ Hilden, J.M (1998). *Fiber and Leather Products of the Juhena Tribe of Saudi Arabia and How They Are Made*. Available: <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1175&context=tsaconf>

- ⁹ Salaghor, L (2007). *The re-invention of traditional weaving in Saudi Arabia*. Coventry University.

- ¹⁰ Onyango, C., Musyoka, P., Shibia, A. G., & Laibuni, N (2019). *Towards Revitalizing Kenya's Skins, Hides and Leather Products Industry*. Kenya Institute for Public Policy Research and Analysis. Available: <https://repository.kippra.or.ke/bitstream/handle/123456789/2159/DP221.pdf?sequence=1&isAllowed=y>

- ¹¹ Mwinyihija, M. & Mekonnen, H (2016). Pre-review of Camel (*Camelus dromedarius*) hides marketing and challenges in Eastern Africa. *Journal of African Leather and Leather Products Advances*. 3. 18. 10.15677/jallpa.2016.v3i1.12.

- ¹² Statista (2024) Revenue of the luxury leather goods industry Worldwide 2018-2028 (in million U.S. dollars). Available: <https://www.statista.com/statistics/1294626/global-personal-luxury-leather-goods-market-value/>. Accessed: 20 February 2024.

- ¹³ Food and agriculture organisation of the United Nations Statistics (2024). Crops and livestock products <https://www.fao.org/faostat/en/#home>. Accessed on: 5 February 2024

- ¹⁴ Saudi Tourism Authority. Visit Saudi: The history of Saudi's national animal. Available at: <https://www.visitsaudi.com/en/do/culture/camels-in-saudi> (Accessed: February 2024)

- ¹⁵ Khan, A (1971). The tanning cottage industry in pre-Islamic Arabia. *Journal of the Pakistan historical society*, 19(2), 85.

- ¹⁶ Burger, P. A., Ciani, E., & Faye, B (2019). Old World camels in a modern world—a balancing act between conservation and genetic improvement. *Animal Genetics*, 50(6), 598-612.

- ¹⁷ Faye, B (2020) How many large camelids in the world? A synthetic analysis of the world camel demographic changes. *Pastoralism* 10, 25. <https://doi.org/10.1186/s13570-020-00176-z> Available: <https://pastoralismjournal.springeropen.com/articles/10.1186/s13570-020-00176-z>

- ¹⁸ Food and agriculture organisation of the United Nations Statistics (FAOSTAT) (2024). Crops and livestock products <https://www.fao.org/faostat/en/#home>. Accessed on: 5 February 2024

- ¹⁹ Faye, B (2020) How many large camelids in the world? A synthetic analysis of the world camel demographic changes. *Pastoralism* 10, 25. <https://doi.org/10.1186/s13570-020-00176-z> Available: <https://pastoralismjournal.springeropen.com/articles/10.1186/s13570-020-00176-z>

- ²⁰ Bright, LY, H Jing, S Heller, and J Ri Mutu J (2017). Progress in molecular genetics of Bactrian camel origin and evolution. *Acta Ecologiae Animalis Domastici* 38(3): 5–9. As referenced in Faye, B. How many large camelids in the world? A synthetic analysis of the world camel demographic changes. *Pastoralism* 10, 25 (2020). <https://doi.org/10.1186/s13570-020-00176-z>

- ²¹ Faye, B (2020) How many large camelids in the world? A synthetic analysis of the world camel demographic changes. *Pastoralism* 10, 25. <https://doi.org/10.1186/s13570-020-00176-z> Available: <https://pastoralismjournal.springeropen.com/articles/10.1186/s13570-020-00176-z>

- ²² Faye, B (2020) How many large camelids in the world? A synthetic analysis of the world camel demographic changes. *Pastoralism* 10, 25. <https://doi.org/10.1186/s13570-020-00176-z> Available: <https://pastoralismjournal.springeropen.com/articles/10.1186/s13570-020-00176-z>
- ²³ Food and agriculture organisation of the United Nations Statistics (2024). Crops and livestock products <https://www.fao.org/faostat/en/#home>. Accessed on: 5 February 2024
- ²⁴ Food and agriculture organisation of the United Nations Statistics (2024). Crops and livestock products <https://www.fao.org/faostat/en/#home>. Accessed on: 5 February 2024
- ²⁵ UN Comtrade (2024). Global exports of leather. Available at: <https://comtradeplus.un.org/>
- ²⁶ Narayanan, N (2023). Saudi wealth fund driving change in Kingdom. Arab News. Available: <https://www.arabnews.com/node/2431666/business-economy> (Accessed: March 2024)
- ²⁷ The Saudi Gazette (2023). Sawani launches first Noug's stores in Riyadh for camel dairy products. Available at: <https://saudigazette.com.sa/article/635661> (Accessed: February 2024)
- ²⁸ Sawani. Personal Communication. 19 March 2024
- ²⁹ Nasr, A.A (2015). Evaluation of Egyptian Camel Hides for Leathers Manufacturing. *World Applied Sciences Journal* 33 (8): 1329-1333. DOI: 10.5829/idosi.wasj.2015.33.08.15604
- ³⁰ Hilden, J.M 1998. Fiber and Leather Products of the Juhena Tribe of Saudi Arabia and How They Are Made. Available: <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1175&context=tsaconf>
- ³¹ Hamdan, H. Arabian Mshalh. Personal Communication, 13th February 2024.
- ³² Hamdan, H. Arabian Mshalh. Personal Communication, 13th February 2024.
- ³³ Sharma, A. and Pant, S (2013). Studies on camel hair-merino wool blended knitted fabrics. [https://nopr.niscpr.res.in/bitstream/123456789/21431/1/IJFTR%2038\(3\)%20317-319.pdf](https://nopr.niscpr.res.in/bitstream/123456789/21431/1/IJFTR%2038(3)%20317-319.pdf)
- ³⁴ About Saudi Arabia: Culture and Art. Available: <https://www.saudiembassy.net/culture-art>
- ³⁵ Swami, K., & Babel, S (2023). Current utilisation pattern of camel hair and development of value-added articles from camel hair. *The Pharma Journal*. Available: Current utilisation pattern of camel hair and development of value-added articles from camel hair (thepharmajournal.com)
- ³⁶ Khomeiri, M. and Yam, B.A.Z (2015). Introduction to Camel origin, history, raising, characteristics, and wool, hair, and skin: a review. *Research Journal of Agricultural and Environmental Management*, 4, pp.496-508. Available: https://www.ijries.org/administrator/components/com_jresearch/files/publications/IJRIES_1721-01_Final.pdf
- ³⁷ Hasi, S., Amu, G. and Zhang, W (2020). Camel hair structure, properties, and commercial products. In *Handbook of research on health and environmental benefits of camel products* (pp. 328-347). IGI Global. Available: Camel Hair Structure, Properties, and Commercial Products: Medicine & Healthcare Book Chapter | IGI Global (igi-global.com)
- ³⁸ Grant, L (2009). Jaeger celebrates 125 years in the business. *The Telegraph*. Available: <http://fashion.telegraph.co.uk/news-features/TMG4326105/Jaeger-celebrates-125-years-in-the-business.html>
- ³⁹ Cashmere and Camel Hair Manufacturers Institute. Available at: <http://www.cashmere.org/cm/facts.php> Accessed: February 2024
- ⁴⁰ Sansthan, L.P.P.S (2010) Camel value chain addition tool for a sustainable rural development in Rajasthan. Available: <http://www.lpps.org/wp-content/uploads/2014/03/Camel-Value-Addition-Report.pdf>
- ⁴¹ Johnson, N. & Parsons, J (2018). Endangered – Fauna and Fashion: shell, bone, horn, teeth, organ, extracts. University of Missouri. Available: <https://mhctc.missouri.edu/exhibitions/origins-dress-and-textiles-series-2018-2019/endangered-fauna-and-fashion/shell-bone-horn-teeth-organ-extracts/>
- ⁴² Camel Bone Necklace on Etsy Marketplace. Available: https://www.etsy.com/market/camel_bone_necklace Accessed: February 2024
- ⁴³ Prasad, R (2018). Camel bone carving from Uttar Pradesh. *Global InCH International Journal for Living Heritage*. Available: <https://globalinch.org/article/camel-bone-carving-from-uttar-pradesh/>
- ⁴⁴ Ligi, G (2019). Camel Bone Carving. *Global InCH International Journal of Living Heritage*. Available: <https://globalinch.org/article/camel-bone-carving/>
- ⁴⁵ Nasr, A.I (2015). Evaluation of Egyptian camel hides for leathers manufacturing. *World Applied Sciences Journal* 33 (8): 1329-1333. DOI: 10.5829/idosi.wasj.2015.33.08.15604

- ⁴⁶ Statista (2024) Revenue of the luxury leather goods industry Worldwide 2018-2028 (in million U.S. dollars). Available: <https://www.statista.com/statistics/1294626/global-personal-luxury-leather-goods-market-value/>. Accessed: 20 February 2024.
- ⁴⁷ Statista (2024) Revenue of the luxury leather goods industry Worldwide 2018-2028 (in million U.S. dollars). Available: <https://www.statista.com/statistics/1294626/global-personal-luxury-leather-goods-market-value/>. Accessed: 20 February 2024.
- ⁴⁸ UNIDO (2010). Future Trends in the World Leather and Leather Products Industry and Trade. Vienna: UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION. Available: https://leatherpanel.org/sites/default/files/publications-attachments/future_trends_in_the_world_leather_and_leather_products_industry_and_trade.pdf Accessed: February 2024
- ⁴⁹ Al-Ahli Leather Factory Company. Available at: https://www.al-ahleather.com/docs_en/about_us.htm Accessed: February 2024
- ⁵⁰ About Al-Dagal factories LTD for leather tanning and leather products. Available: https://al-dagal.com/en/?page_id=2936 Accessed: February 2024
- ⁵¹ Statista Market Insights (2024). Luxury Fashion revenue Saudi Arabia. <https://www.statista.com/outlook/cmo/luxury-goods/luxury-fashion/saudi-arabia#revenue>. Accessed: February 2024
- ⁵² Statista Market Insights (2024). Leather footwear revenue Saudi Arabia. <https://www.statista.com/outlook/cmo/footwear/leather-footwear/saudi-arabia#revenue>. Accessed: February 2024
- ⁵³ Statista Market Insights (2024). Leather footwear revenue worldwide. <https://www.statista.com/outlook/cmo/footwear/leather-footwear/worldwide#revenue>. Accessed: February 2024
- ⁵⁴ Statista Market Insights (2024). Luxury Fashion revenue Saudi Arabia. <https://www.statista.com/outlook/cmo/luxury-goods/luxury-fashion/saudi-arabia#revenue>. Accessed: February 2024
- ⁵⁵ UNIDO (2010). Future Trends in the World Leather and Leather Products Industry and Trade. Vienna: UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION. Available: https://leatherpanel.org/sites/default/files/publications-attachments/future_trends_in_the_world_leather_and_leather_products_industry_and_trade.pdf
- ⁵⁶ Food and agriculture organisation of the United Nations Statistics (2024). Crops and livestock products <https://www.fao.org/faostat/en/#home>. Accessed on: 5 February 2024
- ⁵⁷ BMA (2024) Fieldwork via stakeholder interviews and review of online camel leather prices
- ⁵⁸ BMA (2024) Fieldwork via stakeholder interviews and review of online camel leather prices
- ⁵⁹ Al-Tamimi, M. Tamashee. Personal communication. 5th February 2024.
- ⁶⁰ Tamashee (2024). Tamashee Collection. Available: <https://tamashee.com/product-category/1444h-collection/>
- ⁶¹ Al-Tamimi, M. Tamashee. Personal communication. 5th February 2024.
- ⁶² Onyango, C., Musyoka, P., Shibia, A. G., & Laibuni, N (2019). Towards Revitalizing Kenya's Skins, Hides and Leather Products Industry. Kenya Institute for Public Policy Research and Analysis. Available: <https://repository.kippra.or.ke/bitstream/handle/123456789/2159/DP221.pdf?sequence=1&isAllowed=y> Accessed : February 2024
- ⁶³ Biondi A (2023). What are the true costs of making your handbag? Financial Times. Available: <https://www.ft.com/content/0ac15868-69ac-4e37-bbef-e3c5d40e8f55>
- ⁶⁴ UN Comtrade (2024). Global exports of wool from fine animal hair. <https://comtradeplus.un.org/>.
- ⁶⁵ Cashmere and Camel Hair Manufacturer's Institute. Personal Communication, 9th February 2024.
- ⁶⁶ Fibre2Fashion (2024). Camel Fibre: Greige, 38-42 mm, 18-20 Micron, for yarn spinning Supplier. Available: <https://www.fibre2fashion.com/fibres/camel-fibre-suppliers-16108083>
- ⁶⁷ Wollknoll (2024). Camel hair with wool, fleece – natural. Available: <https://www.wollknoll.eu/shop/animal-hair-silk-vegetable-fibers-892/precious-animal-hair-907/camel-hair-968/?language=en>
- ⁶⁸ Made in China (2024). 100% Natural Brown Camel Hair Soft Worsted Spun Yarn. Made in China Eco-Textile Company Limited. <https://eco-textile.en.made-in-china.com/product/HJXYfMAEmihx/China-100-Natural-Brown-Camel-Hair-Soft-Worsted-Spun-Yarn.html>
- ⁶⁹ BMA (2024). Fieldwork via stakeholder interviews, literature, and review of online Dromedary hair prices

- ⁷⁰ Food and agriculture organisation of the United Nations Statistics (2024). Crops and livestock products <https://www.fao.org/faostat/en/#home>. Accessed on: 5 February 2024
- ⁷¹ Hussain, A., Aujla, K. M., & Hassan, S (2013). Production and marketing of camel products in semi-desert and desert areas of Pakistan. *Pakistan Journal of Agricultural Research*, 26(2).
- ⁷² Representative Exchange Rates for Selected Currencies for April 2011
- ⁷³ Sewport (2024). What is Camel Wool Fabric: Properties, How its Made and Where. Available: <https://sewport.com/fabrics-directory/camel-wool-fabric#:~:text=While%20most%20types%20of%20wool,sustainable%20and%20cruelty%2Dfree%20enterprise>. Accessed: February 2024
- ⁷⁴ Kozłowski, R. M., & Mackiewicz-Talarczyk, M. (Eds.) (2020). *Handbook of natural fibres: volume 1: types, properties and factors affecting breeding and cultivation*. Woodhead Publishing.. Available: <https://www.sciencedirect.com/book/9780128183984/handbook-of-natural-fibres#book-description> Accessed: February 2024
- ⁷⁵ UN Comtrade (2024). Global exports of wool from fine animal hair. <https://comtradeplus.un.org/>.
- ⁷⁶ UN Comtrade (2024). Global exports of wool from fine animal hair. <https://comtradeplus.un.org/>.
- ⁷⁷ CEIC (2023). China imports of Camel Hair. <https://www.ceicdata.com/en/china/textile-trade-wool-fine-or-coarse-animal-hair-and-horsehair-yarn--woven-fabric/cn-import-fine-animal-hair-not-carded-or-combed-of-camel>
- ⁷⁸ Cashmere and Camel Hair Manufacturer's Institute. Personal Communication, 9th February 2024.
- ⁷⁹ Fibre2Fashion (2024). Camel Fibre: Greige, 38-42 mm, 18-20 Micron, for yarn spinning Supplier. Available: <https://www.fibre2fashion.com/fibres/camel-fibre-suppliers-16108083>
- ⁸⁰ Wollknoll (2024). Camel hair with wool, fleece – natural. Available: <https://www.wollknoll.eu/shop/animal-hair-silk-vegetable-fibers-892/precious-animal-hair-907/camel-hair-968/?language=en>
- ⁸¹ Made in China (2024). 100% Natural Brown Camel Hair Soft Worsted Spun Yarn. Made in China Eco-Textile Company Limited. <https://eco-textile.en.made-in-china.com/product/HJXYfMAEmihx/China-100-Natural-Brown-Camel-Hair-Soft-Worsted-Spun-Yarn.html>
- ⁸² UN Comtrade (2024). Global exports of wool from fine animal hair. <https://comtradeplus.un.org/>.
- ⁸³ Hamdan, H. Arabian Mshalh. Personal Communication, 13th February 2024.
- ⁸⁴ Hamdan, H. Arabian Mshalh. Personal Communication, 13th February 2024.
- ⁸⁵ Hamdan, H. Arabian Mshalh. Personal Communication, 13th February 2024.
- ⁸⁶ Hamdan, H. Arabian Mshalh. Personal Communication, 13th February 2024.
- ⁸⁷ Saudi Arabesque (2016) Traditional urban men's dress of Saudi Arabia – continued. Available: <https://saudiarabesque.com/traditional-urban-men-s-dress-of-saudi-arabia-continued/> Accessed: February 2024
- ⁸⁸ Saudi Arabesque (2016) Traditional urban men's dress of Saudi Arabia – continued. Available: <https://saudiarabesque.com/traditional-urban-men-s-dress-of-saudi-arabia-continued/> Accessed: February 2024
- ⁸⁹ Hamdan, Arabian Mshalh. Personal Communication, 13th February 2024.
- ⁹⁰ Statista Market Insights (2024). Carpets and rugs revenue Saudi. *Arabia*. <https://www.statista.com/outlook/cmo/furniture/home-decor/carpets-rugs/worldwide#revenue>. Accessed on: 5 February 2024
- ⁹¹ BMA (2024) Fieldwork via stakeholder interviews, literature, and review of online Dromedary hair prices
- ⁹² Food and agriculture organisation of the United Nations Statistics (FAOSTAT) (2024). Crops and livestock products <https://www.fao.org/faostat/en/#home>. Accessed on: 5 February 2024
- ⁹³ Hussain, A., Aujla, K. M., & Hassan, S (2013). Production and marketing of camel products in semi-desert and desert areas of Pakistan. *Pakistan Journal of Agricultural Research*, 26(2).
- ⁹⁴ Representative Exchange Rates for Selected Currencies for April 2011
- ⁹⁵ Salagor, L (2007). *The re-invention of traditional weaving in Saudi Arabia*. Coventry University.
- ⁹⁶ The Royal Institute of Traditional Arts. Bishout fashioning Apprenticeship Program– First Level. Available: <https://trita.edu.sa/en/programs/apprenticeship-programs/bishout> Accessed: February 2024
- ⁹⁷ The Royal Institute of Traditional Arts. Bishout fashioning Apprenticeship Program– First Level. Available: <https://trita.edu.sa/en/programs/apprenticeship-programs/bishout> Accessed: February 2024

- ⁹⁸ Tamashee. Camel leather collection. Available: <https://tamashee.com/concepts/camel-leather/> Accessed: February 2024
-
- ⁹⁹ Alhaj, O.A., Faye, B. and Agrawal, R.P. eds, (2019). Handbook of research on health and environmental benefits of camel products. IGI Global.
-
- ¹⁰⁰ UNIDO (2010). Future Trends in the World Leather and Leather Products Industry and Trade. Vienna: UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION. Available: https://leatherpanel.org/sites/default/files/publications-attachments/future_trends_in_the_world_leather_and_leather_products_industry_and_trade.pdf
-
- ¹⁰¹ LVMH (2023) Management Report of the Board of Directors: Environment and Sustainability. Available: <https://r.lvmh-static.com/uploads/2020/02/2021-environment-and-sustainability.pdf>
-
- ¹⁰² Mwinyihija, M. & Mekonnen, H (2016). Pre-review of Camel (*Camelus dromedarius*) hides marketing and challenges in Eastern Africa. *Journal of African Leather and Leather Products Advances*. 3. 18. 10.15677/jallpa.2016.v3i1.12.
-
- ¹⁰³ Goulding, B., Riedel, E., Bevan, A., & Warfield, B (2007). Export Markets for Skins and Leather Report. Australian Government. Available: <https://agrifutures.com.au/wp-content/uploads/publications/07-089.pdf>
-
- ¹⁰⁴ Ahmed, M. H., Musa, A. E., & Hassan, E. A (2022). Manufacture of Shoe Upper Leathers from Sudanese Camel Hides. *Sch J Eng Tech*, 7, 146-152.
-
- ¹⁰⁵ Goulding, B., Riedel, E., Bevan, A., & Warfield, B (2007). Export Markets for Skins and Leather Report. Australian Government. Available: <https://agrifutures.com.au/wp-content/uploads/publications/07-089.pdf>
-
- ¹⁰⁶ Salagor, L (2007). The re-invention of traditional weaving in Saudi Arabia. Coventry University.
-
- ¹⁰⁷ Mwinyihija, M., Mekonnen, H (2016). Pre-review of Camel (*Camelus dromedarius*) hides marketing and challenges in Eastern Africa. *Journal of African Leather and Leather Products Advances*. 3. 18. 10.15677/jallpa.2016.v3i1.12.
-
- ¹⁰⁸ Professional Crafts Association. Personal Communication. 11 February 2024
-
- ¹⁰⁹ Professional Crafts Association. Personal Communication. 11 February 2024
-
- ¹¹⁰ Professional Crafts Association. Personal Communication. 11 February 2024
-
- ¹¹¹ BMA (2024) Fieldwork via stakeholder interviews, literature and review of online Dromedary hair prices
-
- ¹¹² Food and agriculture organisation of the United Nations Statistics (FAOSTAT) (2024). Crops and livestock products. Available: <https://www.fao.org/faostat/en/#home> . Accessed on: 5 February 2024
-
- ¹¹³ Hussain, A., Auja, K. M., & Hassan, S. (2013). Production and marketing of camel products in semi-desert and desert areas of Pakistan. *Pakistan Journal of Agricultural Research*, 26(2).
-
- ¹¹⁴ Representative Exchange Rates for Selected Currencies for April 2011
-
- ¹¹⁵ UNESCO (2007). The Camel: from tradition to modern times; a proposal towards combating desertification via the establishment of camel farms based on fodder production from indigenous plants and halophytes. Doha. Available: <https://unesdoc.unesco.org/ark:/48223/pf0000224033>
-

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