

Shea potential

PHOTO: JURGAJURGA/DREAMSTIME.COM



Rare, naturally grown, traditionally harvested, and with reportedly remarkable moisturising and healing properties, demand for shea butter is growing steadily. Rose Hales looks at what makes shea so special

It's probable that most people, if asked, would recognise shea butter as an ingredient that is used extensively in high-quality body butters and moisturisers. Although shea's qualities make it a value commodity for such applications, its uses extend far beyond this, into the food and pharmaceutical industry.

Millennia old

Shea butter has been known, produced and used in West Africa for millennia, but is a relatively new export, the demand of which is growing exponentially – with an even greater potential. Shea butter is produced from the fruit of the *Vitellaria paradoxa*, or the African shea tree, which grows exclusively in the arid Sahel of sub-Saharan Africa. Nigeria is the world's biggest shea producer, followed by Mali and Ghana. Other countries in western and central Africa that make a substantial living from shea include Burkina Faso, Niger, and South Sudan. Figure 2 (page 24) shows the location of the 'shea belt'.

Shea grows naturally in the region and the

trees are generally uncultivated, although they are protected and managed extensively. Traditionally, work in the shea industry is undertaken by women; the Global Shea Alliance (GSA) estimates that 16M rural African women work in the industry in order to support their families. The trees thrive exclusively in the warm and dry climate of sub-Saharan Africa; this special climate is what makes shea butter such a prized commodity, as it is not cultivated elsewhere, or even planted in man-made groves within the region.

International demand

The GSA estimates that demand for shea has increased globally by 1,200% in the last 10 years, which has resulted in the appearance of various alliances and cooperatives which seek to protect the producers and yield the highest possible quality product. The GSA itself was founded in 2011 and its main aims are to empower women working in the industry, encourage fair trade, learn and teach better methods of production and encourage producers. It currently has 380 members from 25 countries including large global companies such as The Body Shop, Nestlé and The Hershey Company.

The main importers of shea are the EU, Japan and the USA, and it is used in food production, as well as pharmaceuticals and as a skin treatment.

Major confectionery companies Hershey's and Nestlé are both members of the GSA and both buy shea for use in their products. An article in *Confectionery News* in May reported that Hershey's annual consumption of shea butter is around 2,200 tonnes, cocoa butter equivalents (CBE) – of which shea is one – represent 2% of its annual ingredient spend. The same report also says that Nestlé buys approximately 8,000 tonnes/year of shea, which is used in a number of products including confectionery.

Major cosmetic companies purchasing shea include The Body Shop and L'Occitane Inc. When asked, The Body Shop would not comment on the amount of shea it buys in comparison to other butters. However, according to a sponsored feature on the *Guardian* website, L'Occitane's use of shea generates over US\$360M in total sales revenue across six countries (including the USA).

CBE or healing moisturiser?

Although shea is traditionally used for cooking and continues to be used in West Africa for this purpose, the majority of exports function as CBEs. Shea butter has the same fatty acid and triacylglyceride profile as cocoa butter, giving it exceptionally similar physical properties. Furthermore, it has a slightly higher melting point, making it a useful addition to chocolate for a smooth texture. As shea has a lower value than cocoa butter, it is used to replace the more expensive fat. The maximum amount of CBE permitted in chocolate is 5% in Europe; in the USA no CBEs are allowed. Shea butter as a CBE makes up between 90-95% of all shea exports.

The remaining 5-10% is used in personal care products in the luxury cosmetics industry. The butter is sold unrefined for moisturising and for adding to soaps, lotions and skin treatments. Research into the subject has brought up various articles that cite scientific evidence for the moisturising and healing properties of shea – although verification or authoritative backing has been far more difficult

to find. The American Shea Butter Institute (an organisation which promotes shea) talks about the bioactive fraction and the moisturising fraction; according to the institute, the bioactive fraction accounts for 10% or less of butter and includes nutrients such as vitamins A, E and F, cinnamates, phytosterol and other phytonutrients. A product with a high 'bioactive fraction' is considered to be best; around 6% is considered to be high and signifies a quality shea butter. According to Dr Samuel Hunter of the American Shea Butter Institute, interviewed in an article in the *New America Media*, a bioactive fraction of 6% distinguishes it as an oil that is absorbed easily into the skin, rather than merely coating. Furthermore the butter naturally melts at body temperature, increasing its absorption properties.

The United Nations Development Program published a shea butter scoping paper in 2006 that said the apparent 'healing properties' are due to the presence of several fatty acids and plant sterols, in particular oleic, stearic, palmitic and linolenic acids. These fatty acids are nonsaponifiable (do not convert to soap when introduced to an alkali); the 'nonsaponifiable fraction' of shea is said to be high in comparison to other butters and is the reason shea is thought to aid healing. Although many articles and papers purport this information, sources and research backing the claims are mostly missing or incomplete.

In West Africa, shea has been used for many years in the absence of more modern medicines to treat sunburn, reduce stretch marks and on new-born babies.

Oils & Fats International spoke to the GSA to find out if the association backs the health benefit claims. The GSA said "shea butter is recognised as having important therapeutic properties, particularly for the skin (UV protection, moisturising, regenerative and anti-wrinkle properties)."

The industry's potential

Many studies focus on the gap between the amount of shea butter produced and the potential of the industry. The GSA estimates that there is the potential to produce 2.5M tonnes of kernels per year – an estimate of average kernel production from existing shea trees in Africa. Although butter production varies based on extraction methods and the quality of the kernel, on average a single tonne of kernels will produce half a tonne of shea butter. According to figures provided by the GSA, currently around 650,000 tonnes of kernels are collected each year; 400,000 tonnes are consumed domestically and 250,000 tonnes are exported. Which means that there is potentially almost 2M tonnes of kernels currently not being utilised. A study titled, *Land Suitability Modelling of Shea Distribution Across Sub-Saharan Africa*, uses Geographic Information Systems (GIS) to explore the details of shea potential. The study estimates an area of 3.41M km² as being suitable for shea trees, which spans across 23 countries and includes 18.4M women collectors; this allows for a conservative estimate of 1.84bn trees and a potential collected crop of 2.44M tonnes of kernels, further allowing for more than 800,000 tonnes of shea butter.

If approximately 2.5M tonnes of kernels are potentially available every year, why is it that the actual collection quantity is significantly lower?

Shea trees are not very reliable and are a long-term investment in terms of planting new specimens. Trees take from between 10 and 15 years to bear fruit. According to a report by Jean-Marc Boffa submitted to the GSA, *Opportunities and Challenges in the Improvement of Shea Resource and its Management*: "Shea trees are slow-growing and long-lived. Nut production increases with tree age. It becomes significant between 20 and 30 years of age, increases until age 100 to 200 and would slowly decline afterwards." The report also notes that social customs (belief that it might cause bad luck) as well the fact that shea is "self-sown and abundant", means that people "do not spontaneously invest time or resources planting the tree." Lack of new trees being planted and the tree population gradually aging means that the potential for shea

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THE STONES OF
THE SHEA FRUIT ARE
CRACKED OPEN TO ACCESS
THE FAT INSIDE

PHOTO: JURGAJURGA/DREAMSTIME.COM

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will begin to shrink. The GSA is in agreement with this statement, saying one of the main challenges is “the declining and ageing of tree populations”.

There is also research to suggest that cultivating what is seen as a wild plant does not seem worthwhile in the eyes of farmers in Africa. Boffa reports that many more would consider actively cultivating shea “if improved varieties were available”, an improved tree with greater economic benefits would be worth cultivating. Thus “improvement programmes would need to succeed in radically transforming the tree and people’s perceptions from what is currently considered a ‘wild’ tree into the equivalent of an improved, highly productive ‘exotic’ tree.”

In order for the shea industry to reach its full potential, the women on the front line in Africa need to be supported. This is where the GSA comes in; one of its chief aims is to empower women. The alliance undertakes training in villages as well as broadcasting informative radio advertisements on best practice. According to the GSA, “these trainings benefit women collectors through improving the value of their shea nuts for sale and increasing their access to international markets.” Improving butter quality and making access to international buyers easier are steps that will benefit the entire market.

Additionally, the production of shea kernels into shea butter is not efficient. Shea butter is produced predominantly using a traditional process described in Figure 1 (*below*). The process is estimated to have an efficiency of around 20-28%. The GSA says the other main challenge within the industry is

“a lack of facilities and capacity among women’s groups at the base of the shea supply chain”. In response to this challenge, the association launched a sustainability programme in 2014. The programme seeks to, among other things, improve the quality of processors and ensure healthy tree populations.

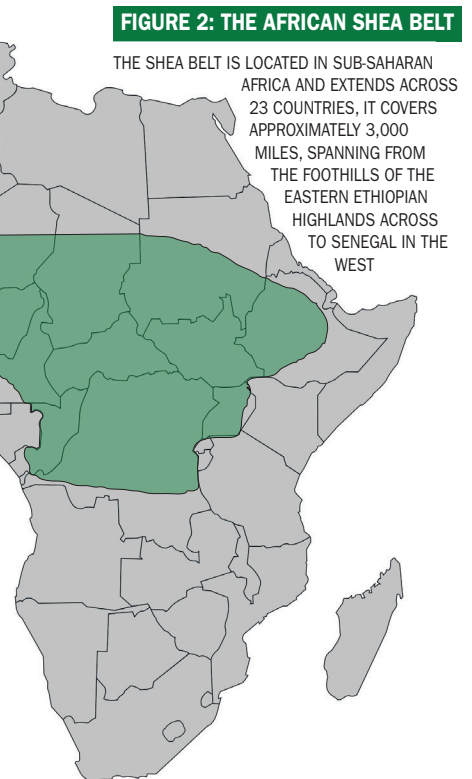
How is the industry changing?

Certification is becoming increasingly important to shea butter’s wealthy consumers; organic and fair trade are the two most popular trends and are affecting the way shea is being traded and labelled, as well as how it is made and who produces and sells it. The EU has required since January 2005 that all agricultural products are traceable from source. In addition Fairtrade International (FLO) is developing specific new guidelines for the shea butter industry.

Could demand match supply?

Finally, when considering the possibilities of producing a greater supply, one must determine if demand is sure to grow respectively. Primarily it is extremely unlikely that the demand for shea butter will decline – ‘natural’ skincare products are on the rise and popularity will only grow as consumers become increasingly health conscious and aware. Realistically, the lack of scientific evidence behind claims of healing and moisturising properties is not likely to affect the market.

Use of shea as a CBE is also unlikely to decline. The USA currently does not allow any CBE in products labelled ‘chocolate’ but this could change. The GSA is working with partners in the USA to submit a petition pushing for CBE to be allowed in chocolate. US confectionery giant Hershey’s already uses CBE by labelling its products as ‘chocolate candy’ instead of ‘chocolate’, a strategy that more companies may choose to adopt. Joseph Funt, managing director of the GSA told *Confectionery News* in May: “We expect continued strong interest in shea-based CBEs” due to the technical advantages and competitive price points of the butter. Demand has remained stable over the last two years, the GSA told *Confectionery News*,



with some new growth being seen in South America. The GSA’s newest member is Swiss confectioner Barry Callebaut, which manufactures cocoa and chocolate products. The confectioner’s support for the shea industry represents a clear shift in attitude towards the African butter – and reveals where future demand is most likely to stem from.

In the minutes from the GSA’s March 2015 general meeting, it was said that the alliance is currently supporting national organisations in India to revise the country’s policy to allow shea as a CBE in chocolate. Some manufacturers in Asia are turning to palm butter as a CBE but, due to the subsequent loss of both texture and taste, they may switch to shea if the product becomes more available.

As the price of cocoa continues to rise due to difficult conditions including high winds damaging crops, with various sources including the *Guardian* predicting that “cocoa prices are expected to double by 2020” – shea will be under increased demand. EU chocolate manufacturers who do not currently use shea as a CBE may choose to in order to reduce the price of their products. This, in turn, is likely to cause the cost of shea to rise, or at the very least produce higher demand. ●

Rose Hales is OFI’s editorial assistant

FIGURE 1: PRODUCTION OF SHEA BUTTER

Separating/cracking

The fruit’s pulp is removed. The nut is then dried and separated from its outer shell. Elderly women and young girls traditionally take responsibility for this, breaking the shells using small rocks.

Crushing

The nuts are crushed using a pestle and mortar.

Roasting

Roasting of the crushed nuts takes place in huge pots over open wood fires. This gives the butter its slightly smoky smell. The contents of the pots are stirred constantly.

Grinding

Once roasted, the mixture is ground until it is a smooth paste.

Separating the oils

The paste is kneaded and water is gradually added. The butter oils float to the top and are removed. These are then heated again, melted slowly in big pots to remove any remaining water.

Shaping

Once all the water has evaporated, the butter is placed in a cool place to harden before it is shaped into balls.

Source: Wikipedia

TREE AID: Harnessing the shea tree

In Samoa village, Ghana, most things are in short supply but local women have drive and ambition by the bucketful. This year, TREE AID will start to harness the locally-grown shea tree to help villagers improve their own lives.

Shea trees already provide vital resources. Community leader Salah Sakoaru told TREE AID: “Our welfare is tied to our trees. We make and sell shea butter for money to send children to school and buy medicines and foods when we have no crops.”

But hand-processing leaves little time for anything else. The women would like machinery, which can speed up production ten-fold. Then, they would have time to invest in other ventures

like honey production and tamarind processing, diversifying their income. TREE AID offers training to improve shea butter yields – showing villagers how to make saleable products, run small businesses and invest for the future.

It’s an approach that TREE AID has replicated across the drylands of Africa, tailoring projects to fit local needs. As chief executive John Moffett explains, “Projects like this are cost-effective, environmentally sustainable and can be a culturally appropriate way to improve the wellbeing of the world’s poorest people, giving them back both their dignity and the power to shape their own futures.”

www.treeaid.org.uk/GiftsThatGrow

OFI would like to thank TREE AID for supplying this issue’s cover image