

sofw journal

Home & Personal Care Ingredients & Formulations

powered by **SOFW**



Risk Analysis: Procurement of the All-rounder Castor Oil at Risk?

S. Steinmetz

Risk Analysis: Procurement of the All-rounder Castor Oil at Risk?

S. Steinmetz

abstract

Castor oil is a true all-rounder. Due to its chemical properties, castor oil, obtained from castor seeds, and its fatty acids are suitable for the production of cosmetics, cosmetic raw materials, and industrial products. However, the consequences of anthropogenic climate change and socio-economic challenges make it difficult to grow castor and, thus, to source castor oil from India, the main castor oil exporting country. How can the procurement of castor oil be secured? How is it possible to meet current market trends in this process? Because one aspect is for sure: supply chain transparency, compliance with social standards, and organic farming have long been among the key factors of a company's economic success in times of a growing cohort of critical consumers. This article provides an insight into the farming conditions of castor, points out sourcing risks, outlines current market trends, and presents approaches to solutions in response to any sourcing risks of the premium resource castor oil.

Risks: Droughts, water shortages and socio-economic challenges

The castor plant, also known as miracle tree, originally comes from India, Brazil, and the African continent. In these regions it grows up to 13 m high [8, 11, 18]. India is considered the main producer of castor oil on the world market [2, 8, 18]. Annual castor seed production worldwide is estimated at 1.25 to 1.5 million tonnes and castor oil production at 0.55 million tonnes [18, 19].¹

The main import markets for castor oil are considered to be the USA, Russia and Japan [11]. The economic significance of the castor oil industry for the main producer, India, is already clear from the global economic volume of castor oil marketing. The district of Kutch in the state of Gujarat is particularly dependent on castor oil cultivation [cf. 14]. There, due to an arid climate, castor is one of the only crops that can be cultivated profitably.

However, the cultivation of this resilient crop is also subject to climatic challenges and extreme weather events [1, 14]. For example, prolonged droughts in the 2019 crop year resulted in significant crop losses, causing castor oil prices to skyrocket and making it difficult to procure the cosmetic and industrial oil.

In addition to climatic risks, socio-economic grievances (including poverty) pose the risk of not being able to secure the procurement of the resource castor oil from India. This connection can be traced back to two reasons, among others: Firstly, more and more farmers leave rural areas in India and seek more lucrative jobs in urban areas such as Delhi or Mumbai.²

As a consequence, there is a threat of a shortage of farmers in rural areas to cultivate crops such as castor, which can limit the production of castor oil. Secondly, the availability of water is becoming a limiting factor for the cultivation and yield of castor oil, especially in Kutch. If farmers lack the financial means for appropriate water and soil management, the harvest yield and, thus, the procurement of castor oil are not secured. How can the risks outlined above be countered?

Approach 1: certified organic castor oil as a driver for the global natural cosmetics' market

According to the latest statistics from the Research Institute for Organic Agriculture (FiBL) and the International Federation of Organic Agriculture Movements (IFOAM), 71.5 million hectares of land worldwide were recently farmed organically (16). This corresponds to about 1.5 percent of the world's agricultural land, and the trend is upwards (16). In addition, the organic market has grown from the lowest sales in the 1990s to 105.5 billion US dollars in 2018 (15). In addition to this growing interest in organic food, consumer interest in natural cosmetic products is also growing. Most recently, global sales of natural cosmetics products were US\$36 billion, a new peak in sales.³ "Green beauty" and "clean beauty" products are particularly demanded in the field of body and hair care. Castor oil as a suitable raw material for natural lip balms, lipsticks, nail oils,

¹ See: <https://www.thehindubusinessline.com/economy/agri-business/India-major-producer-of-castor-oil/article20116366.ece> (accessed on 10 April 2021).

² See: <https://www.oxfam.de/unsere-arbeit/themen/klima-ressourcen-schuetzen/menschen-im-klimawandel/ganze-dorfer-losen> (accessed on 06 April 2021).

³ See: <https://www.futuremarketinsights.com/reports/natural-cosmetics-market> (accessed on 01 April 2021).



hair care products, and makeup remover is considered an attractive and profitable resource against this background [cf. 3, cf. 12].

This makes certified organic castor oil all the more interesting for natural cosmetics manufacturers and castor farmers, for example from India. With certified organic products, Indian farmers can achieve an average net profit that is up to 22 percent higher than with the marketing of conventional products [13]. This makes the cultivation and marketing of certified organic products more profitable, which benefits from the elimination of costs incurred for fertilisers and pesticides [9, 13].

The economic value of organic farming, not only for Indian farmers but also for the entire Indian economy, can be seen in a 10-year comparison: Between 2008 and 2018, the share of organically farmed land in India increased by 64.3 percent to 1.94 million ha [16]. This means that India is currently one of the top 10 countries worldwide with the largest area of organically farmed land [16]. Oilseeds are grown in an ecologically sustainable manner on 0.5 percent of the 1.94 million ha [16]. With this approximately 130,000 ha of cultivated area, India is one of the top 10 nations for organically certified oilseed cultivation after China [16].

The statistics presented show: The interest in India to produce certified organic products is growing and meets an increasing consumer interest in certified organic and natural products on the world market.

In addition to this economic value, the organic cultivation of castor beans, among others, offers ecological advantages such as enhanced soil fertility, soil stability, and biodiversity [5]. These factors are increasingly becoming key factors in securing crop yields, not only in India. Especially droughts, but also pesticide use, fertiliser application, and soil salinization lead to soil degradation, and crop losses worldwide, and in India [4, 7].

This is where the internationally operating castor oil producer Castor Products Company (CPC) comes in. CPC produces castor oil itself in its own production facility, supports Indian smallholders in switching to certified organic castor oil cultivation and advises CPC-associated farmers on cultivation and marketing issues. CPC and the smallholders, who are associated with CPC, rely on a water and soil management system that is adapted to the respective region. In some regions, this includes the soil-conserving intercropping cultivation method (see [10]), in which castor bean, cotton and sesame are cultivated. In other regions, a classic rotation with peanut plants is implemented or compost is added.

The aim is to build up humus, which supports the water storage capacity of the soil. Since water availability is becoming a limiting factor for crop yields, especially in the castor oil region of Kutch, such an approach is proving to be ground breaking – especially when the farms lack the financial means to irrigate their fields. This clearly shows that socio-economic grievances (including poverty) can also occur on organic farms

in India. The consequences of this have already been outlined (see risk analysis), how can the problem be addressed?

Approach 2: Addressing increasing consumer interest with fairly traded castor oil

The world market for fair-certified products has been steadily growing for years.⁴ In 2017, certified international fair trade recorded a new sales peak of 8.49 bn Euros, and comprised nearly three times the sales strength compared to 2008.⁵ Next to coffee, cocoa and bananas - the three top-selling fair trade goods - the global marketing of fair-certified (natural) cosmetics is on the rise. The market signal set by TransFair's Fair-trade seal for cosmetics in 2014 speaks for itself and shows that there is a growing market for fair natural cosmetics, or cosmetics produced on the basis of fair raw materials. This thesis is supported by market research results of the last decade [cf. 6, cf. 17].

In addition to the "LOHAS" (Lifestyles of Health and Sustainability), a consumer group from the USA that is perceived as attractive, the target group of Millennials is perceived as a critical and, at the same time, emerging consumer cohort in Europe. Both target groups have in common that their own consumption is mostly critically questioned and adapted. "Organic" alone no longer seems to be enough for many: The up-coming generation calls for fair-trade and ecologically sustainable products with a favourable ecological and social footprint (15). In addition, initial assessments suggest that increased health awareness through Corona could change future consumer behaviour. Particularly attractive are products that are not only good for one's own health, but also for all those involved in the value creation process.⁶

Fairly traded organic raw materials such as castor oil from organic cultivation and certified fair trade, as from Castor Products Company, may be put forward at this point as a blueprint for how procurement security can meet consumer interest. CPC not only supports Indian farmers with cultivation issues and a switch to certified organic castor cultivation. Instead, with the support of the German natural cosmetics producer WALA Heilmittel GmbH - the mother company of naturamus GmbH - the family-run company CPC has been helping Indian smallholders from the province of Kutch to convert from certified organic to Fair for Life (FFL) certified castor cultivation since 2017.

With the Fair for Life certification, the Swiss Organic Foundation and the internationally operating Institute for Marketecology (IMO) aim at a far-reaching promotion of social standards and economic-sustainable prosperity along the value chains they certify.⁷ In addition to the traditional approaches of fair trade such as compliance with ILO (International Labour Organization) standards, the payment of a fair price for raw



materials is demanded and controlled. A premium to support the local FFL fund is to be paid, and partnership-based trade relations are to be established.⁸

With the FFL programme, the certification institutions intend to promote organic agriculture and social sustainability worldwide in order to reduce global injustices. In this respect, the FFL seal stands for controlled product, process and partnership quality on an equal footing. Especially in the French natural cosmetics market, FFL has established itself as a seal of credibility and trust.

Against this background, the fair trade of ecologically-sustainably produced castor oil proves to be a win-win situation: On the one hand, those farmers who are associated with CPC receive a fair wage, respectively a fair price for the castor oil seeds supplied and experience support through the programmes financed with the FFL fund. On the other hand, the customers of the FFL-certified organic castor oil know that the procurement is secured, and enjoy a certain price stability. This makes the ecologically sustainable FFL castor oil producer an addressable and future-oriented premium resource on the cosmetics market.

⁴ See: <https://www.forum-fairer-handel.de/fairer-handel/zahlen-fakten/> (accessed on 06 April 2021).

⁵ See: <https://www.handelsdaten.de/handelsthemen/fairer-handel> (accessed on 06 April 2021).

⁶ See: <https://www.bayer.com/en/investors/consumer-health-megatrends> (accessed on 06 April 2021).

⁷ See: https://www.fairforlife.org/client/fairforlife/file/FFL_Flyer_2014_de.pdf (accessed on 06 April 2021).

⁸ Ibid.

⁹ See also: <https://www.basf.com/global/en/media/news-releases/2020/12/p-20-387.html> (accessed on 06 April 2021); <https://www.statista.com/statistics/1130209/total-fair-trade-revenue-france/> (accessed on 06 April 2021); https://www.fairforlife.org/pmws/indexDOM.php?client_id=fairforlife&page_id=certified&name=&programme=0&iso3166=FR&products= (accessed on 06 April 2021).

Conclusion: Ecologically and socially sustainable castor oil as an all-rounder for producers and consumers

Castor oil, mostly from India, is considered an ecologically and economically attractive resource for industrial production and the cosmetics industry. However, factors such as the consequences of anthropogenic climate change and socio-economic challenges make the cultivation of castor and, thus, the procurement of castor oil more difficult. At the same time, an ever-growing cohort of critical consumers is demanding ecologically and socially sustainable products. Sourcing ecologically sustainable castor oil producers from certified cultivation, and fair trade can both address sourcing risks and a growing global interest in organic and fair trade products. This is a real win-win situation for all parties.

Bibliography

- [1] *Ahmed, S., Fajber, E.* Engendering adaption to climate variability in Gujarat, India. *Gender & Development* 2009; 17 (1): 33–50.
- [2] *Akpan, U. G. et al.* Extraction, Characterization and Modification of Castor Seed Oil. *Leonardo Journal of Sciences* 2006; 8: 43–52.
- [3] *Bährle-Rapp, M.* Springer Lexikon Kosmetik und Körperpflege. Heidelberg: Springer Medizin 2007.
- [4] *Eyhorn, F.* Indiens Regierung setzt auf Bio-Landbau. *Ökologie & Landbau* 2003; 128 (4): 32–34.
- [5] IMOSwiss AG (ed.). IMO Organic Standard – IMO Organic Equivalence Standard for Operators in Non-EU Countries – Version 1.9 2015.
- [6] *Jonas, M. et al.* Kaufen für eine nachhaltige Welt? Das Beispiel Fairtrade. *ÖZP* 2014; 43 (1): 91–109.
- [7] *Klinger, J.* Agrarökologie im indischen Bundesstaat Sikkim – Vorbild für eine nachhaltige Bioökonomie? Working Paper Nr. 12, *Bioeconomy & Inequalities* 2020.
- [8] *Krist, S.* Lexikon der pflanzlichen Fette und Öle. Wien: Springer 2013.
- [9] *Meinshausen, F. et al.* Internal Control Systems in Organic Agriculture: Significance, Opportunities and Challenges. Willer, H. et al. (ed.). *The World of Organic Agriculture Statistics and Emerging Trends 2020*. Research Institute of Organic Agriculture (FiBL), IFOAM–Organic International (ed.). Rheinbreitbach: Medienhaus Plump 2020.
- [10] *Mohler, C. L., Johnson, S. E.* Crop Rotation on Organic Farms. A Planning Manual. Sustainable Agriculture Research and Education (SARE) (ed.). New York: Plant and Life Sciences Publishing (PALS) 2009/2020.
- [11] *Mutlu, H., Meier, M. A. R.* Castor oil as renewable resource for the chemical industry. *Eur. J. Lipid Sci. Technol.* 2009; 2: 10–30.
- [12] *Pakkang, N. et al.* Preparation of Water-in-Oil Microemulsion from the Mixtures of Castor Oil and Sunflower Oil as Makeup Remover. *Journal of Surfactants and Detergents* 2018; 21 (6): 1–8.
- [13] *Ramesh, R. et al.* Status of organic farming in India. *Current Science* 2010; 98 (9): 1190–1194.
- [14] *Ray, K. et al.* Climate Variability Over Gujarat, India. ISPRS Archives VVVIII-8/W3 2009; Workshop Proceedings (Impact of Climate Change on Agriculture): 38–43.
- [15] Sahota, A. Global Market Organic Imports. Willer, H. et al. (ed.). *The World of Organic Agriculture Statistics and Emerging Trends 2020*. Research Institute of Organic Agriculture (FiBL), IFOAM–Organic International. Rheinbreitbach (ed.): Medienhaus Plump 2020.
- [16] *Schlatter, B. et al.* Organic Agriculture Worldwide: Current Statistics. Willer, H. et al. (ed.). *The World of Organic Agriculture Statistics and Emerging Trends 2020*. Research Institute of Organic Agriculture (FiBL), IFOAM–Organic International (ed.). Rheinbreitbach: Medienhaus Plump 2020.
- [17] *Sesini, G. et al.* New Trends and Patterns in Sustainable Consumption: A Systematic Review and Research Agenda. *Sustainability* 2020; 12 (15): 5935 1–23.
- [18] *Tewari, D. D.* A Historical Policy Review of Success of Castor Revolution in Gujarat, India. *Journal of Human Ecology* 2012; 38 (3): 213–222.
- [19] *Vashist, D., Ahmad, M.* Statistical Analysis of Diesel Engine Performance for Castor and Jatropa Biodiesel-Blended Fuel. *IJAME* 2014; 10: 2155–2169.
- [20] *Zingel, W.-P., van Dillen, S.* Umweltpolitik und nachhaltige Entwicklung in Indien. *Indien-Politik, Wirtschaft, Gesellschaft* 2002: 287–311.

Photos: WALA Heilmittel GmbH, naturamus GmbH

author

Sophia Steinmetz

Naturamus GmbH

Weilheimer Str. 3

73101 Aichelberg, Germany

www.naturamus.de



Your sourcing partner for
 premium | organic quality
 traceability | transparency
 sustainability
 in the field of
 vegetable oils
 waxes
 hydrolates | rose oil


 naturamus

info@naturamus.de

+49 7164 94 99 10