

SILK

Silk represents only a small fraction (0.2%)¹ of the USD19 billion global textile market but has the potential for significant animal welfare and environmental impacts. This fabric is used to produce underwear, blouses, scarves, and other fashion items.

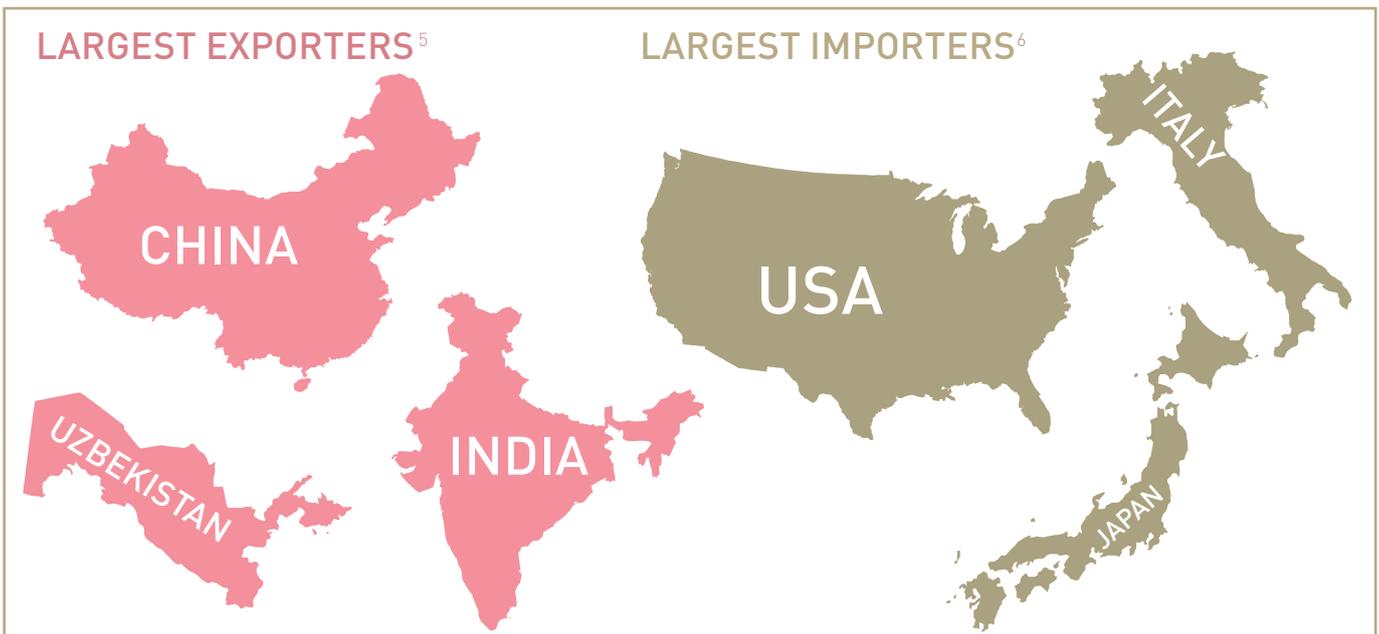
Mulberry silk, made by the domestic silk moth (*Bombyx mori*), represents around 90% of global silk production². With 3,000 to 15,000 silkworms being killed to produce just one meter of fabric³, the number of animals killed in this industry every year is likely to be 420 billion to 1 trillion⁴.

While public awareness of the animal welfare and environmental issues of silk production is currently lower than for other materials, this is beginning to change, and in response to changing public opinion, and with a rapidly growing range of alternatives available, major online fashion retailer ASOS has banned the sale of silk.

INDUSTRY ACTION

"ASOS is continuously seeking more sustainable alternatives to animal derived materials and conventional textile fibres and is supporting the development of innovative new materials to use in our products."

ASOS Animal Derived Materials Policy



- ✓ **Refine**
 FOUR PAWS recommends replacing silk with animal-free alternatives unless the welfare of the pupa used can be ensured through a robust certification initiative, one which rules out the practice of boiling them inside their cocoons.
- ✓ **Reduce**
 FOUR PAWS calls on all brands to set goals to reduce their use of animal derived materials. Whilst certification can help to ensure better animal welfare, any use of animals for commercial means brings inherent risks to their welfare and often high environmental costs.
- ✓ **Replace**
 The best way to entirely avoid the suffering of silkworms is to opt for one of a growing number of animal-free alternatives. Products such as Microsilk™ use synthesis to produce material with a chemical composition similar to the silk proteins produced by spiders when spinning their webs⁷. Another great option is plant-based silk made from vegetable materials, such as sabra silk, made from agave fibers, or orange fiber™, a patented material made from the by-products of citrus juice production⁸.
- ✓ **Be transparent**
 With consumers increasingly demanding transparency⁹, communicating the steps you take to improve your supply chain has never been more important. It demonstrates your animal welfare and environmental credentials and helps consumers make an informed choice.

Ensure to transparently communicate your current use of animal derived materials and your timeframe for supply chain improvements. Ideally this information would form part of a robust and comprehensive overarching animal welfare policy, which is clearly communicated to suppliers.



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Welfare issues

Silk production involves boiling cocoons with the moth pupa inside, a process called 'stifling'¹⁰. Whilst there is a lack of conclusive science around how insects experience pain, studies on invertebrates such as bees, flies, spiders, and slugs have shown that these animals may display behavioural and physiological responses suggestive of pain which we must take into account¹¹.

With entirely humane alternatives available, there really is no need to boil these animals alive in the name of fashion.

Environmental concerns

The primary environmental impacts caused by silk production include the disposal of solid waste and wastewater; use of chemicals including pesticides and fertilisers¹²; consumption of fossil fuels; and contribution to global warming¹³.

These factors are considered so significant that silk ranks higher than most other fabrics on the Higg Materials Sustainability Index (MSI), a system that assesses the social and environmental performance

of the value chain and the environmental impact of products¹⁴.

FOUR PAWS calls on fashion companies to either avoid or choose traceable animal-friendly silk; to reduce the number of animal derived materials used overall, in favour of sustainable animal-free alternatives; and to ensure that the animals which continue to be used within domesticated supply chains experience an excellent state of welfare.

For more information, review the **FOUR PAWS policy development guidelines**.

“ Together we can drive an animal-friendly fashion future, and create a world where people treat animals with respect, empathy and understanding. ”

References

- ¹ International Sericultural Commission 2013, 'Statistics,' accessed 12 May 2021, <https://inserco.org/en/statistics>
- ² International Sericultural Commission 2013, 'Types of silk,' accessed 14 April 2021, https://inserco.org/en/types_of_silk
- ³ World Animal Protection 2019, 'All that glitters is not kind,' accessed 14 April 2021, <https://www.worldanimalprotection.org.in/blogs/all-glitters-not-kind>
- ⁴ Rowe, A 2021, 'Silk production: global scale and animal welfare issues,' Effective Altruism, accessed 20 May 2021, <https://forum.effectivealtruism.org/posts/mZEuNcwTZxLnXrZR6/silk-production-global-scale-and-animal-welfare-issues>
- ⁵ International Sericultural Commission 2013, 'Statistics,' accessed 12 May 2021, <https://inserco.org/en/statistics>
- ⁶ International Sericultural Commission 2013, 'Statistics,' retrieved 12 May 2021, <https://inserco.org/en/statistics>
- ⁷ Bolt Threads n.d., 'Bolt technology – meet Microsilk,' accessed 14 April 2021, <https://boltthreads.com/technology/microsilk/>
- ⁸ Orange Fiber n.d., 'Sustainable fabrics from citrus fruits,' accessed 14 April 2021, <http://orangefiber.it>
- ⁹ McKinsey & Company 2019, 'The state of fashion 2019,' accessed 20 May 2021, <https://www.mckinsey.com/-/media/mckinsey/industries/retail/our%20insights/what%20radical%20transparency%20could%20mean%20for%20the%20fashion%20industry/the-state-of-fashion-2019-vf.pdf>
- ¹⁰ Aznar-Cervantes, S, Pagan, A, Monteagudo Santesteban, B, & Cenis, J 2019, 'Effect of different cocoon stifling methods on the properties of silk fibroin biomaterials,' Scientific Reports, vol. 9.
- ¹¹ Sherwin C 2001, 'Can invertebrates suffer? Or, how robust is argument-by-analogy?,' Animal Welfare, no. 10, pp. 103–118.
- ¹² Wani, K & Jaiswal, Y 2011, 'Health hazards of rearing silkworms and environmental impact assessment of rearing households of Kashmir, India,' Indian Journal of Public Health Research & Development, vol. 10, no. 1.
- ¹³ Common Objective n.d., 'Fibre briefing: silk,' accessed 12 June 2021, <https://www.commonobjective.co/article/fibre-briefing-silk>
- ¹⁴ Sustainable Apparel Coalition n.d., 'The Higg Index,' accessed 12 June 2021, <https://apparelcoalition.org/the-higg-index/>