

Report summary  
for policy-makers



# the planet

Leather's  
impact on —

# Introduction

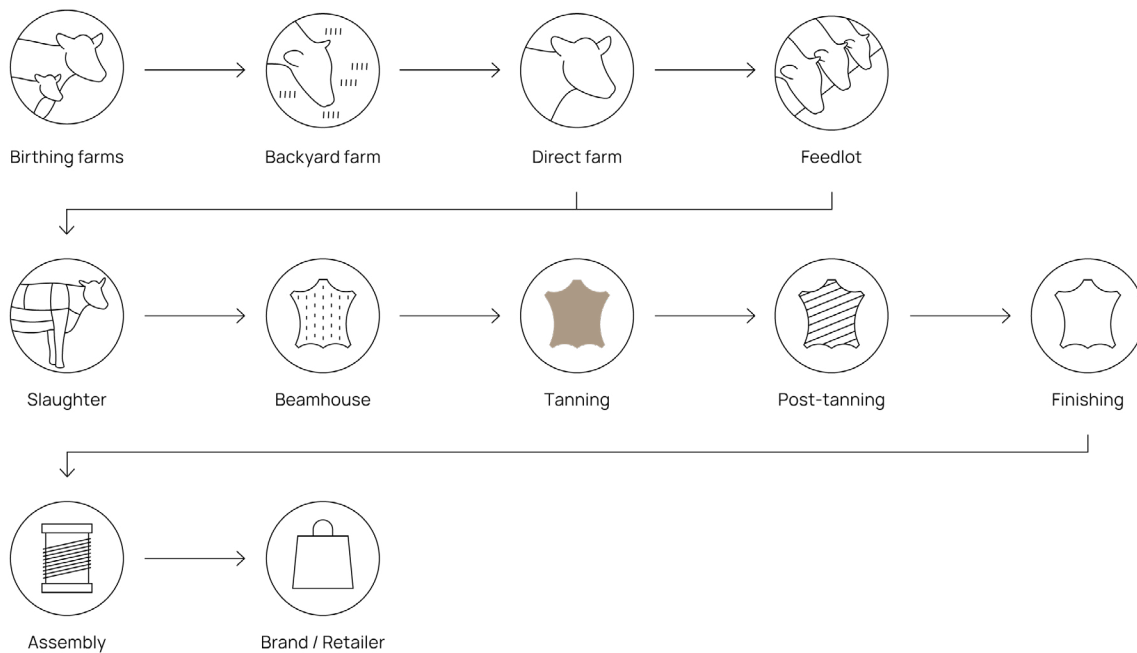
A clear dichotomy has been presented to the fashion industry: you can have fossil-fuel derived synthetic leather, or animal-derived, skin-based leather, referred to as 'real' leather. The lobbyist messaging pushing this argument is forceful and persistent: animal leather is the natural, superior choice. In reality, this is a false dichotomy. Not only do plastic-free alternatives to leather exist today, more are being developed. In fact, while fossil fuel-derived synthetic leather must be evolved, in many impact categories it has a far lesser environmental impact than conventional leather.

The production of leather, a financially valuable co-product, is tied to intensive and inefficient land use, in many cases deforestation, and almost always biodiversity destruction, eutrophication, significant and often dangerous chemical use, pollution, water scarcity and

massive emissions. For the fashion industry to meet climate targets set by the United Nations and IPCC and to prevent the currently unfolding biodiversity crisis from escalating, leather must be scrutinised and challenged unlike ever before.



# Supply chain overview



## Leather is not a by-product

Despite common misconception, leather is not simply a worthless by-product, but a co-product. While the leather industry likes to claim skins are tanned as a kind of waste reduction initiative, thus supposedly making leather neither cruel nor unsustainable, this is not the case. Leather is a valuable co-product, with even meat and dairy industries labelling it as such. The leather industry itself states the massive income losses involved in losing skin sales. This means, the purchasing of leather helps to fund harms across the entire supply chain.

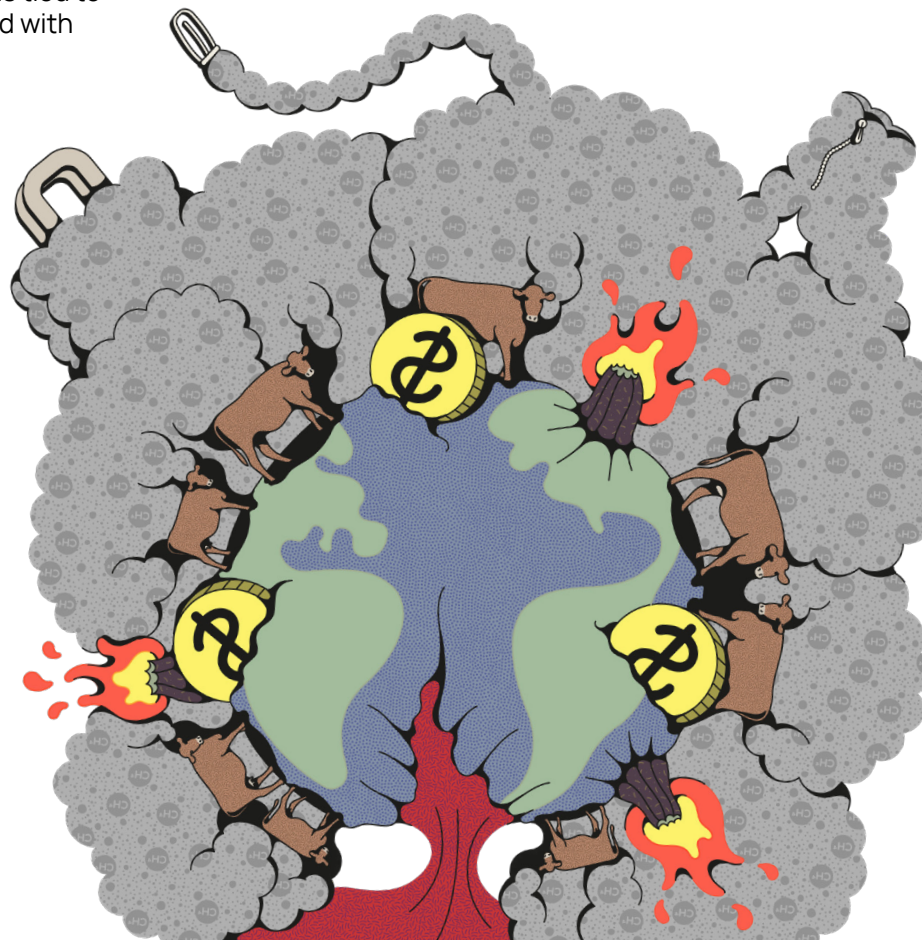
## Major environmental impacts across the leather supply chain

Leather's impact on the climate through methane emissions, destruction of critical habitat and biodiversity (due to its inherent land use inefficiency), and the supply chain's intensive use of water (and pollution of it with toxic chemicals) are all important to understand. Those writing, reviewing and helping to create and pass policy have a duty to use legislation as a tool to shift fashion beyond these harms.

# Climate

The United Nations Food and Agricultural Organization has long stated that farmed animal production is “one of the most significant contributors to today’s most serious environmental problems”, and that the sector is responsible for more emissions than all global transport exhaust; planes, trains and cars included. 62% of these direct emissions are associated with cattle rearing. For fashion to meet IPCC climate targets, it must address its use of animal-derived leather.

- Most emissions tied to leather production are a result of enteric fermentation, where cattle belch and pass potent gas which is released into the atmosphere.
- The carbon equivalent impact of cow skin leather goods is about 7 times more significant than equivalent synthetic leather products, with more sustainable bio-based leather alternatives having an even smaller climate footprint.
- The emissions caused by processing skins into conventional, non-biodegradable leather are greater than emissions tied to sending skins to landfill, combined with the emissions linked to producing leather alternatives in their place. As an additional result, less funds would be funnelled into the destructive cattle rearing and slaughtering industry.
- Leather alternatives must shift beyond fossil fuels, and materials which either reduce or eliminate these inputs have far smaller climate footprints. MIRUM has a CO<sub>2</sub>e impact nearly 14 times smaller than conventional leather and 7.5 times smaller than conventional synthetics, for example.



## Habitat destruction, land use and soil

Leather's significant land footprint often links its production to deforestation, habitat and biodiversity destruction, species endangerment, land degradation and soil health disruption. Land use and related environmental impacts are often excluded from material impact tools, to the detriment of environmental protection progress.

- Half of all land habitable to humans is used for agriculture, of which 77% is used to raise farmed animals for slaughter. A massive portion of this land is used to rear cattle. If ruminant animals like cattle and sheep were no longer raised for use and slaughter, more land than the combined area of China, the United States and Brazil could be saved and rewilded.
- While 1 hectare of land is required to graze enough cattle for 10 leather tote bags using under 1m of hides from Brazil, Piñatex made from pineapple plant leaves requires just 1 square metre of land for each square metre of material. Bolt Threads' mycelium leather alternative requires less than one square metre of land to produce the same amount of material.
- 80% of deforestation in the Amazon is tied to cattle ranching, but this problem persists outside of Brazil, Peru and Bolivia. Cattle ranching hotspots around the world align with global deforestation hotspots, including in Australia. A significant number of brands certified to use more 'responsible' leather have been tied to deforestation.
- Great gliders, koalas, swift parrots, jaguars, giant otters, toucans, tapirs and many other animal species are threatened and endangered by deforestation linked to cattle ranching. Global meta-analysis of over 100 studies has shown that removing farmed animals like cattle from land increased the abundance and biodiversity of wildlife.
- 73% of soil on lands grazed by farmed animals like cattle are degraded, and the loss of fertility in soil is documented across major hide production countries such as China, Brazil, Australia, the United States and many others.



## The 'regenerative leather' myth

Advertisements for 'regenerative leather' have increased in response to growing concern about the environmental impact of leather. Regenerative cattle ranching is not a climate solution, and major proponents of the practice are linked to questionable funders and poor quality science.

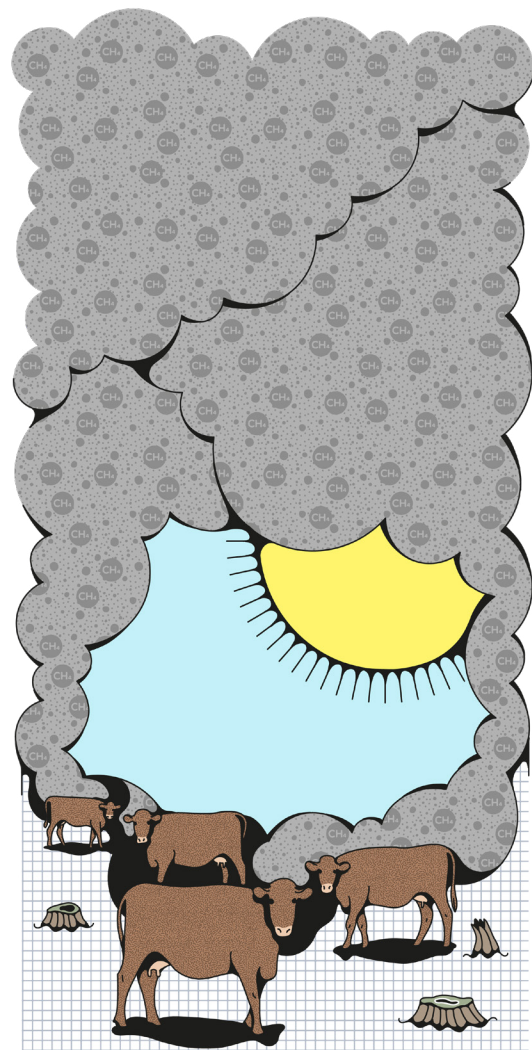
- Proponents of 'regenerative leather' claim the material can sequester more carbon back into soil than is emitted in the farming process, but major academic reviews found that this is inaccurate and misleading, especially in the long-term.
- While more 'holistic' management practices can reduce negative land impacts, the best way to regenerate natural environments is through transitioning beyond rearing animals for food and fashion. Such a transition would free up 75% of agricultural land and sequester carbon equal to the past 9-16 years of fossil fuels emissions through rewilding.
- If more leather production followed the 'regenerative' method, more land would be required for agriculture, in turn resulting in more emissions and harmful land use transformation.

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# 75%

Of agricultural land could be freed up if we transition beyond rearing animals for food and fashion.

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## Hide tanning and pollution

The impact of leather tanning is better understood than other, even more harmful aspects of the supply chain. Conventional leather tanning is resource intensive and wasteful, resulting in soil and liquid waste, as well as gaseous emissions which harm surrounding environments.

- Leather tanning makes skins no longer effectively biodegradable and often involves coating hides in a thin layer of plastic. A wide range of toxic and carcinogenic substances are used in leather tanning, with 90% of all leather tanned with chromium.
- Producing 1 cow skin leather jacket can result in over 17kg of tannery sludge, produced during wastewater processing. In Bangladesh, tanneries produce 98 million metric tonnes of solid waste each day.
- As little as 150kg out of 1,000kg of raw cow hides are actually generated into finished leather in some supply chains, while the remaining 850kg are left as waste.
- Up to 170 chemicals used in tanning pose major risks to clean air, soil, agricultural land and plant and animal wildlife. Hindered plant and crop growth, as well as negatively impacted organ health in a number of wildlife species, has been recorded around tanneries in some major leather production countries.



# Water

It's estimated that fashion is responsible for 7% of global freshwater extraction each year, and while we hear a lot about cotton irrigation and pollution through textile dyeing, leather's water footprint can fly under the radar. While both slaughterhouses and tanneries pollute waterways, as much as 99.7% of leather's water footprint is linked to the farm level.

- Producing a pair of leather boots can require as much water as a person would drink in 17 years, if following recommended health guidelines.
- Synthetic leather can be made with as little as 24 times less water, and recycled and partly plant-based alternatives have similarly smaller water footprints. For example, Desserto, a cactus-polyurethane blend material, has a water footprint 1,647% smaller than conventional leather.
- Cattle farms can cause water pollution through runoff, where approximately 34kg of manure produced by just 1 animal each day enters waterways through soil erosion. This causes eutrophication and even dead zones where aquatic life cannot survive.
- Nearly 30% of agricultural water use is tied to slaughterhouses, and across top leather producing countries (even in some wealthier nations), legislation protecting surrounding waterways is negligently minimal. Discharge effluent made up of blood, urine, faeces, fats, remnant chemicals and medications harm aquatic life and surrounding communities.
- It's estimated that each year 600 million cubic metres of poorly biodegradable tannery wastewater is produced, with 350 million cubic metres of this discharged back into the environment after treatment.

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## 17 Years

The amount of water a person drinks in this time is equal to the amount of water it takes to produce just 1 pair of leather boots.

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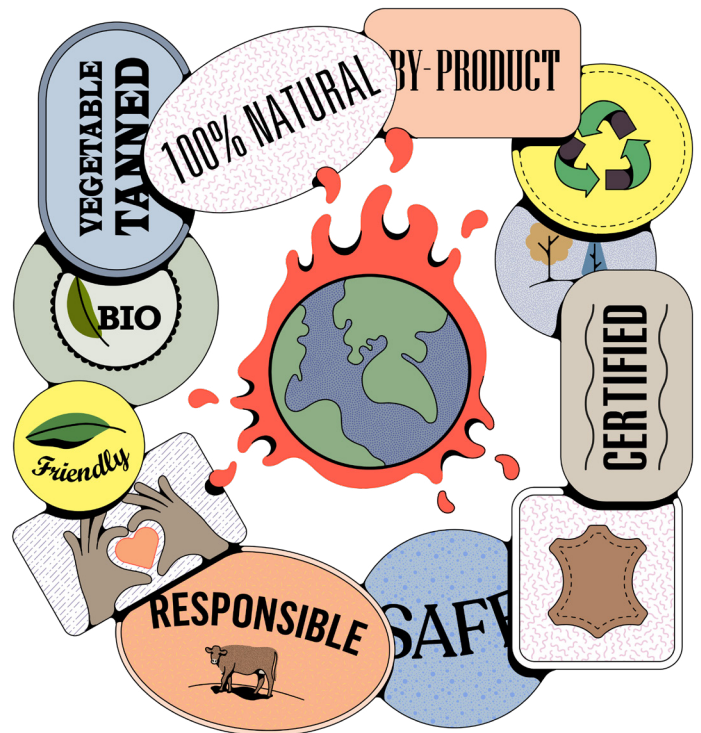
# Industry green-washing

Leather continues to be sold as 'responsible', 'natural', and 'sustainable', but this messaging is misleading, dangerous, and pushed by an industry which lobbies against climate action.

- The leather industry has lobbied both the United Nations and the European Parliament, in efforts to bypass accountability and action regarding both methane and deforestation in leather supply chains they profit from.
- This same industry has produced campaigns targeting consumers and fashion students alike, referring to leather as 'a sustainable resource that sequesters carbon', 'natural', and a 'by-product' that is 'by its very nature sustainable'.
- The industry produced 'Leather Working Group', considered the leading environmental certification for the material, is used by brands to promote leather goods as 'sustainable', despite the certification failing to address deforestation, biodiversity loss, greenhouse gas emissions, water use prior to the tannery stage, and all other impacts before hides are tanned, to any degree.

## Natural Responsible Sustainable

Are all words used to green-wash the leather industry's devastating impact.



# Degrowth

No report on fashion and sustainability should fail to address the need for degrowth in the industry.

- In 2020, as many as 20.5 billion pairs of shoes were produced globally, and this scale of production can never be sustainable, no matter what materials are used.
- Producing less shoes, bags, accessories and clothes can help the fashion industry shift away from leather production. This means brands do not need to wait until innovative leather alternative production has scaled to meet current leather output.
- Conservative estimates suggest the fashion industry must reduce its resource use and waste fourfold, in order to exist within planetary boundaries.

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## 20.5 Billion

Pairs of shoes were produced in 2020.  
This is unsustainable.

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# Recommendations for policy-makers

- **Push for legislation which sets environmental standards and targets for the fashion industry.**  
This means encouraging the prioritisation of climate, biodiversity and water protection before profit, while ensure leather is highlighted as a leading contributor to risks against the environment in such policy.

- **Support a just transition beyond leather production.**  
This could include shifting subsidies from cattle rearing and other harmful industries like fossil fuel mining, to allow for re-training in the agricultural and other relevant sectors, as well as investment into planetary-supportive material innovation development.

- **Encourage the introduction of legislation preventing green-washing and demanding environmental impact transparency in the fashion industry.**  
The focus should be on ending the use of simplistic and misleading 'appeals to nature' by the leather industry and communications which justify over-consumption.

- **Ensure targets and policy relating to emissions address the critical role of methane and cattle rearing in the climate crisis, calling for major reductions in both.**



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Under their skin - Volume 2  
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