The Hurd Co.
waste to wear

Developing fabric from cannabis waste to conserve resources for future generations

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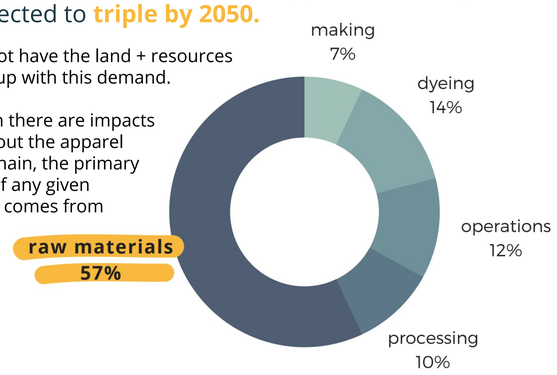
Environmental Problem

Resource consumption in the **apparel industry** is projected to **triple by 2050.**

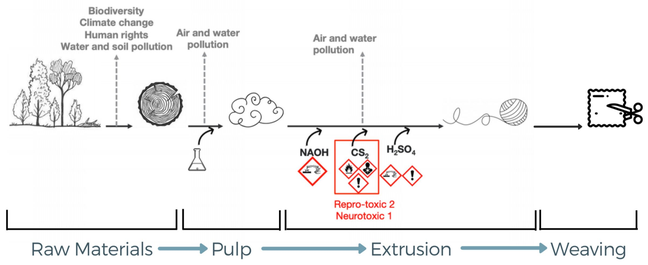
We do not have the land + resources to keep up with this demand.

Although there are impacts throughout the apparel supply chain, the primary impact of any given garment comes from



Apparel brands are looking for alternative feedstocks that reduce their dependence on virgin raw materials.

Environmental Solution



By replacing raw feedstock with a waste stream, The Hurd Co reduces the carbon footprint of one average t-shirt by 1.25 kg CO_2 equivalent at the sourcing phase when compared to traditional viscose. **That's a 16% reduction from traditional viscose, and a 3% reduction from "sustainable" MMCs.**

16% reduction in impact compared to traditional viscose

The Hurd Co's Biscose™ pulp will reduce threats to biodiversity, climate change, human rights, and water and soil pollution.

Value Proposition

STORY

value from "waste to wear" narrative

SUSTAINABILITY

16% reduction in impact compared to traditional viscose

PRICE

lower price and higher margin than market alternatives

Clothes Tell a Story

People use clothes to express themselves. **A person's *style* is an expression of their values, their community, and their story**. Consumers want to wear their sustainable values on their sleeve. Apparel brands want to capture the growing market of "sustainable" consumers. **The Hurd Co provides an environmentally- and socially-motivated narrative to brands with material made from agricultural waste.**

Fabric Overview

There are 3 primary textile pathways:

- Natural Fiber *cotton, hemp, linen*
- Polyester *plastic*
- Manmade Cellulosics (MMCS) *wood, bamboo, eucalyptus*
  - viscose/rayon *(generic wood)*
  - modal *(beech)*
  - tencel/lyocell *(eucalyptus)*

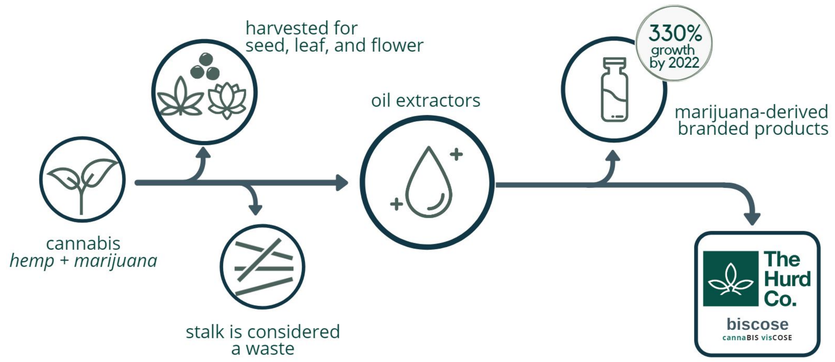
Natural fabrics are made from plant fibers like cotton, hemp, or linen that have been processed to make them soft and then woven into a fabric. **Polyesters** are made from plastic. **Manmade cellulosics (MMCs)** are extruded from wood pulp. There are 3 options on the market today: viscose/rayon, modal, and lyocell, sometimes referred to as the brand name Tencel.

> "Manmade cellulosics drape beautifully and have an excellent hand-feel."
>
> Anonymous
> *Patagonia*

Viscose/rayon make up the majority of the MMC market -- 91% -- and unfortunately, most viscose on the market today is sourced from unmanaged or virgin forests. Furthermore, the traditional viscose production process is extremely caustic. **Modal** and **lyocell** are the existing sustainable options. Both fabrics use "better" feedstocks -- beechwood for Modal, and eucalyptus for lyocell -- and cleaner production processes. In fact, lyocell is entirely closed-loop.

The Hurd Co **collects waste** from oil extractors, uses a **low-impact pulping process** to convert it into an **apparel-grade MMC pulp**, and sells it into the apparel supply chain as

biscose™
cannaBIS visCOSE



In the United States, **cannabis -- both marijuana and hemp --** is harvested for seed, flower, and leaf. The stalk comprises 90% of the total biomass and is considered a waste. Farmers either burn this waste or send it to the landfill at a rate of **approximately 1,000,000 pounds per week** here in California. Some farmers are beginning to sell this byproduct to oil-extractors. Extractors use CO_2 extraction to remove valuable oils from the waste.

Cannabis concentrate (CBD/THC oil) is the fastest growing segment of the cannabis industry. The resulting waste of this process is a dry, de-gummed pulp. A typical oil extraction facility produces over a ton of waste per week, and producers are legally required to have a waste management plan. They are paying for waste collection services. **The Hurd Co will generate revenue from waste pickup.**

Industry Overview

> Over the past decade, **the market share of MMCs has nearly doubled,** and demand for these fibers is forecasted to increase further in the next few years.
>
> Anonymous
> *Stella McCartney*

Apparel brands are leaning in to sustainable materials. The Hurd Co has heard repeatedly that **"natural fibers are not the most sustainable option."**

Cotton is highly dependent on arable land and water availability. An increasing global population means an increasing demand for food. **MMCs are an appropriate substitute for cotton, causing this increase in demand.**

Market Demand

The Hurd Co interviewed **over 100 experts**, including more than 50 brands. All of the brands have committed to more sustainable MMC textiles, and are interested in the development of new feedstocks.

What **feedstocks** would you like to see more **commercially available** within the **next 5 years**?

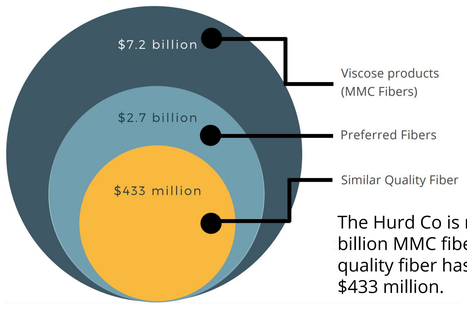
63% crop or ag waste

In a Textile Exchange survey of 138 brands, retailers, and suppliers, 63% of respondents were most excited about a **new fabric developed from agricultural waste**.

Mid- to high-end brands with strong sustainability messaging consider sustainable materials a competitive advantage. Furthermore, brands with a strong sustainability story can generate increased customer loyalty.

> "Apparel companies are hungry for sustainable & closed-loop materials."
>
> Amanda Cattermole
> *Textile Chemical Consultant*

Market Size



The Hurd Co is resegmenting the $7.2 billion MMC fiber market. Similar quality fiber has a market size of $433 million.

Cost Competitive

The Hurd Co will have a 65% contribution margin. The company has a competitive advantage by collecting revenue from waste pickup instead of paying for raw materials. At scale, The Hurd Co will match production costs of existing market options. Biscose™ will be sold at a 10% premium; industry standard for sustainable products.

ACKNOWLEDGEMENTS

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