COTTON

THE FABRIC OF OUR LIVES?

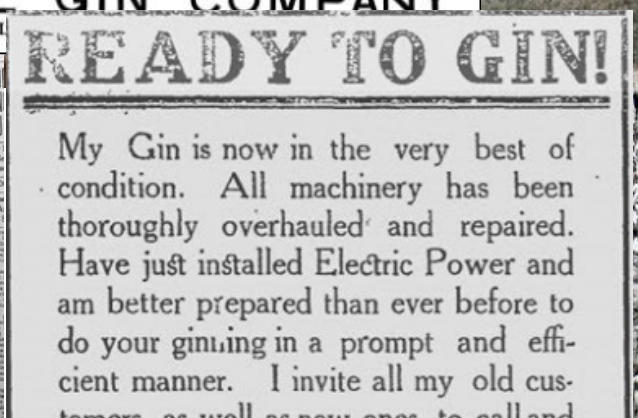


TABLE OF CONTENTS

EXECUTIVE SUMMARY

Cotton is an important commodity in the world economy. Grown in more than 100 countries, cotton is a heavily traded agricultural crop, with over 150 countries involved in exports or imports of cotton. Despite its popularity, it has huge environmental disadvantages that are overlooked due to cotton's importance in world trade and the economies of many developing countries.

Hemp, an alternative crop that has been around for thousands of years, has extreme similarities and better qualities than cotton. Additionally, it's much more enviornmentally friendly. This paper does a deep dive into the political history, production process, environmental impact, and economic power of cotton to compare it to its equally researched alternative, hemp. Finally, it concludes with resources to shop and support brands that create hemp clothing.

COTTON IS KING: THE HISTORY

Began in 1556

It was cultivated by American settlers in Cotton Field Florida. Because cotton needed a warm climate, the southern states of America is the ideal place to plant and harvest it. Most of the cotton grown in the very early days of America was kept at home for use around the home for making those homespun cotton clothes.

The Cotton Gin Invention

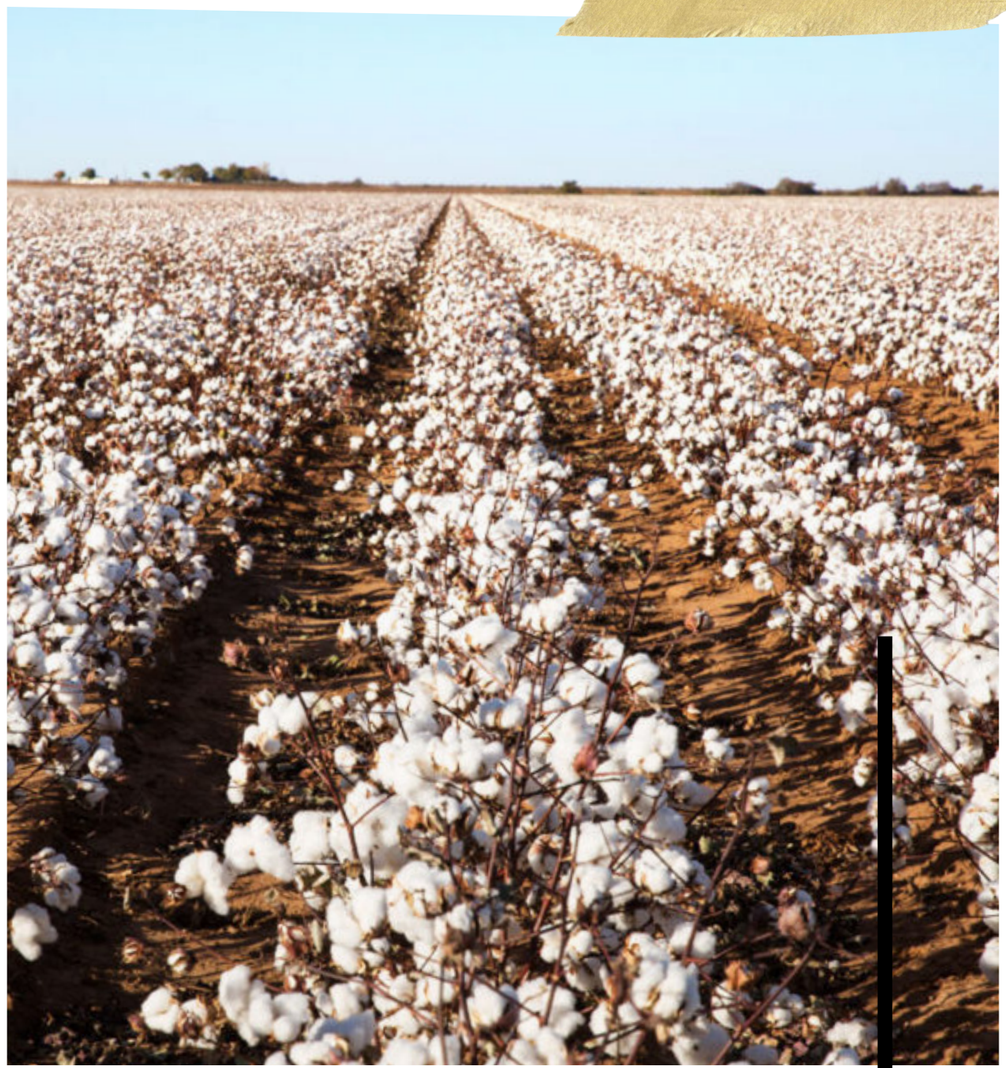
In the 1730's England began to spin cotton and developed a textile industry. This industry grew rapidly but was dependant on manual labor for picking cotton and removing the seeds. This all changed when Eli Whitney invented the cotton Gin in 1793. This machine increases the speed of which cotton was separated from the seed by a factor of 10. It made it possible for the cotton industry in America to grow from an annual revenue of $150,000 to $8 million in the early 1800's.

The Industry Begins to Boom

As the availability of ready to spin cotton grew, so did the textile industry in England which America was happy to supply. By the 1800's cotton farms across the southern states grew and dominated the cotton industry in the world. As the importance of cotton and the industry that it developed grew, so did the need for workers in the fields.

Post Civil War

The southern states after the Civil War were still a one crop industry. The difference is the people in the fields were being paid now. The production of US cotton was reduced. India was then deemed a natural place to grow this crop and today is the second largest exporter of cotton to the world.



COTTON'S PRODUCTION PROCESS

Part1.

Planting begins in February in south Texas and as late as June in northern areas of the Cotton Belt. Land preparation actually starts in the fall, shortly after harvest. Stalks Land Preparation from the old crop are shredded to reduce food supplies for over-wintering pests. Usually, this residue is left on the surface to protect the soil from erosion. The use of heavy mechanical harvesters compacts the soil, sometimes requiring tillage to loosen the soil for the next crop's roots.

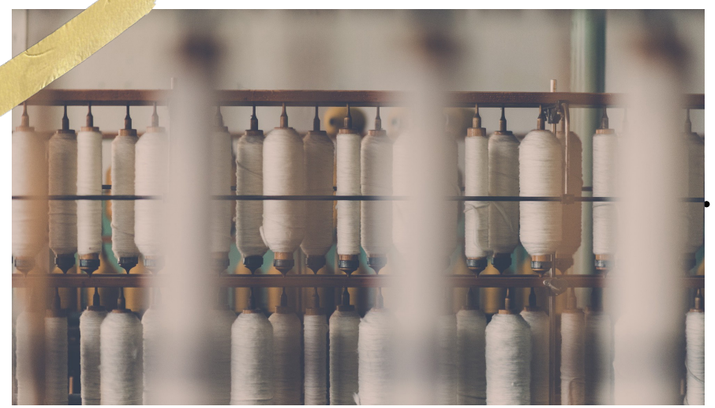
Part2.

Planting is accomplished with 6, 8, 10 or 12-row precision planters that place the seed at a uniform depth and interval. Young cotton seedlings emerge from the soil within a week or two after planting, depending on temperature and moisture conditions. Squares, or flower buds, form a month to six weeks later and creamy to dark yellow blossoms appear in another three weeks.

Pollen from the flower's stamen is carried to the stigma, thus pollinating the ovary. Over the next three days, the blossoms gradually turn pink and then dark red before falling off, leaving the tiny fertile ovary attached to the plant. It ripens and enlarges into a pod called a cotton boll.

Part3.

Individual cells on the surface of seeds start to elongate the day the red flower falls off (abscission), reaching a final length of over one inch during the first month after abscission. The fibers thicken for the next month, forming a hollow cotton fiber inside the watery boll. Bolls open 50 to 70 days after bloom, letting air in to dry the white, clean fiber and fluff it for harvest.



COTTON, A MASS CONSUMER COMMODITY

The production of cotton in America continues to grow. In 2011 the total amount of cotton harvested was 15.7 million bales. Of this there were 14.8 million bales of Upland and 845,700 bales of Pima cotton made available to the global market place. The total global production for 2011 was 122.8 million bales. In 2012 the amount in America was 17.3 million bales. A bale of cotton weighs just short of 500 pounds at 480 approximately.

The use of US cotton for the American market has been on the rise. While most of the statistics are old the US production of cotton products for the domestic market was at 5.5 billion pounds in the year 1989. This was the largest year since 1942.

The exporting of not only cotton but textiles is still an important industry in America. In 2011 America was the third largest exporter of fabrics and threads to the world with a value of $17 billion to over 50 different nations around the globe.

US cotton is still a major industry in America with over $100 billion dollars in revenue, but we are no longer the largest in the world. Despite that, the US cotton clothing industry is still strong and can supply the domestic and foreign markets with high quality cotton for years to come.

Requires 2,700 liters of water to make one t-shirt and almost 11,000 to make one pair of jeans.

ENVIRONMENTAL IMPACT

Representation of the millions of cotton T-Shirts produced a year, not drawn to scale.

The life of a t-shirt begins out in the cotton fields where it's most commonly found in the US or India. Typically, you will find shirts made out of 100% cotton but can be found in polyester or a polyester cotton blend. According to the US Again, the environmental impact of a t-shirt mentioned how "700 gallons of water (enough to fill 22 bathtubs) are used to manufacture a single cotton T-shirt" (Claudio, 2007). Also, the US Again mentions that 17-20% of industrial water pollution is due to textile dyeing and treatment in the water (Claudio, 2007).

The production of cotton-textiles uses up large amounts of resources, such as water and energy, as well as releasing byproducts of starch, paraffin, dyes, pesticides and other harmful pollutants into the air and soil — under regular conditions.

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In 2013 the US textile industry consumed 3.5 million bales of cotton for the global market. The main reason the American textile market for finished cotton goods is not strong is due to the wages these workers earn compared to their foreign counterparts. On average in 2011 the US textile worker earned $575 a week and their foreign counter parts were at $229. This average includes those workers in Bangladesh and China that earn much less than $100 a month.

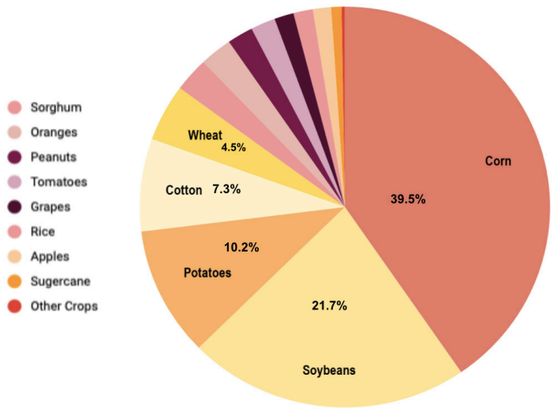
29 million

tons of cotton are produced a year.

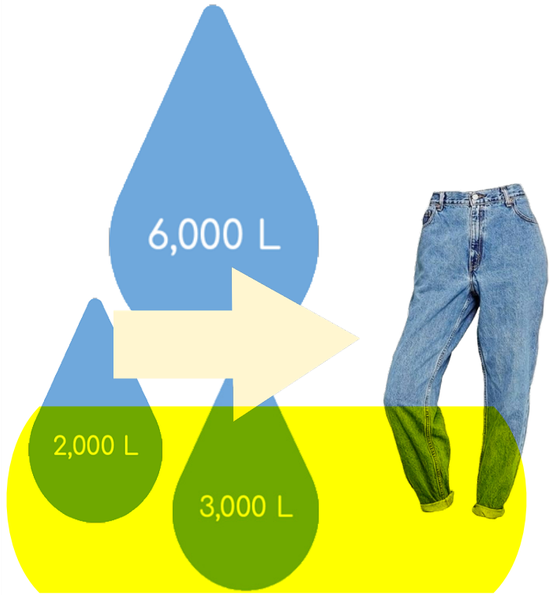
PESTICIDE AND HERBICIDE USE

Pesticide Use Of 21 Selected Crops, 2008

(Percent total pounds of active ingredient applied)



For industrial-scale production, cotton crops need to be treated with extraordinary quantities of pesticides and herbicides.Despite efforts to reduce this via genetic engineering and other methods, a 2017 report shows cotton production is still the fourth largest consumer of agricultural chemicals.



The practices that manufacturers use to make cotton may be harmful to the environment. Cotton cultivation requires a huge amount of water, and producing this textile may also involve land repurposing.

In an attempt to undercut production costs, cotton farmers practice cheap cultivation methods. As a result, cotton cultivation frequently depletes the soil in the areas where it is grown.

AN EXPLOITIVE INDUSTRY

Around 260 million children are in employment around the world, according to the International Labour Organisation. Of them, the ILO estimates that 170 million are engaged in child labour, defined by the UN as “work for which the child is either too young – work done below the required minimum age – or work which, because of its detrimental nature or conditions, is altogether considered unacceptable for children and is prohibited”.

In the vast majority of instances, cotton cultivation is an exploitative practice in which international corporations take advantage of poor, uneducated people in third-world countries to produce these fibers. This practice is harmful to communities, and it supports a cycle of poverty that results in reduced life expectancy and multiple succeeding generations of servitude. It’s true, of course, that for poor Bangladeshis, Cambodians and others who make today’s clothes, these jobs offer an escape from poverty and subsistence farming. But the callous disregard that factory owners, large Western clothing companies and government officials have shown for worker safety in pursuit of profits bears more than a passing resemblance to the historic injustices committed in the name of King Cotton.

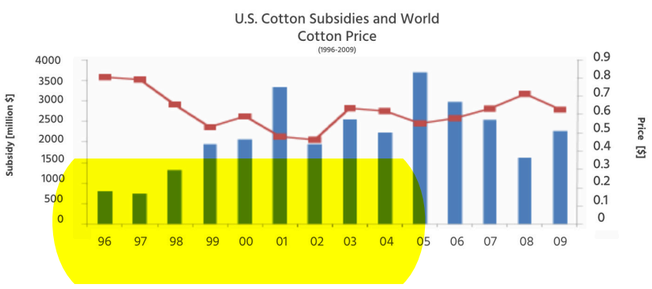
Children are employed to transfer pollen from one plant to another. They are subjected to long working hours, exposure to pesticides and they are often paid below the minimum wage. In developing countries where cotton is one of the main crops, children are enlisted to help harvest the delicate crop and reports suggest (pdf) they work long hours sowing cotton in the spring, followed by weeding through the summer months.

COTTON AND THE ECONOMY

U.S. COTTON SUBSIDIES The government support for the cotton industry has been a source of controversy. Since 1995, producers have benefited from a host of subsidies averaging $2.1 billion annually. On average, these subsidies amount for 50 percent of the actual value of the crop.

Countercyclical payments for cotton were established under the Direct and Counter-Cyclical Payment Program (DCP) approved with the passing of the 2002 Farm Bill. These payments are made to producers when the marketing year average price is less than the set target price for cotton.

The payments are made on a per acre basis, and are determined by multiplying the difference between the annual target price and that marketing year's average price. Because this form of government support is dependent on global market prices, payouts to producers vary annually. Before the DCP and during a period of high cotton prices in the mid-1990s, just $1 billion total were paid out to producers. After a price drop in the mid-2000s and heavy producer participation in the DCP, the total subsidy payment tripled to



"Between 2009 and 2018, the average per acre cotton subsidy doubled."

In addition to countercyclical payments, US cotton producers benefit from the federal crop insurance program. Between 2009 and 2018, the average per acre cotton subsidy doubled. Between 1995 and 2016, cotton indemnity subsidies, or those paid out to protect crop loss, averaged $365 million annually. In fact, both the average per acre cotton subsidy value and subsidy percentage of the cost of production have been larger than most competing row crops including peanuts, corn, and sorghum.

THE 2014 FARM BILL

Due to international pressure and rising subsidy payouts, the 2014 Farm Bill eliminated the direct and countercyclical payments for upland cotton. These protections were replaced by the creation of the Stacked Income Protection Plan, otherwise known as the STAX program. This program provides coverage for a percentage of the expected area revenue for upland cotton.

THE FUTURE IS HEMP

AN ALTERNATIVE MATERIAL

HEMP Also called industrial hemp, refers to the non-intoxicating (less than 0.3% THC) varieties of Cannabis sativa L. Both hemp and marijuana come from the same cannabis species, but are genetically distinct and are further distinguished by use, chemical makeup, and cultivation methods.

Once it is processed into fabric, hemp is has a similar texture to cotton, but it also feels somewhat like canvas. Hemp fabric is not susceptible to shrinkage, and it is highly resistant to pilling. Since fibers from this plant are long and sturdy, hemp fabric is very soft, but it is also highly durable; while a typical cotton T-shirt lasts 10 years at the most, a hemp T-shirt may last double or triple that time. Some estimates suggest that hemp fabric is three times stronger than cotton fabric.

HISTORY OF HEMP

UNFORTUNATELY, HEMP WAS MADE ILLEGAL IN THE 20TH CENTURY

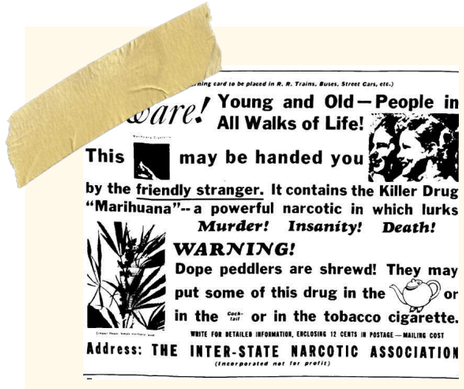
DuPont Chemical developed a pesticide that facilitated the growth of cotton, which made hemp its competition.

In order to kill the hemp industry, DuPont used its influence over the government. Throughout the 1920s, Andrew Mellon was US Treasury Secretary, the owner of DuPont's primary financial backer, Mellon Bank, and a relative of Harry Anslinger, a high ranking official in the federal alcohol prohibition office. This trifecta of influence allowed DuPont chemical to push for the criminalization of cannabis after Harry Anslinger became the head of the Federal Bureau of Narcotics in 1930.

From 1930 to 1937, Anslinger pushed a hard line anti-cannabis policy that eventually resulted in the criminalization of both hemp and cannabis for smoking.

In order to facilitate the criminalization of cannabis, the Federal Bureau of Narcotics utilized a combination of racism and disinformation. Cannabis was tarred as a dangerous and powerful narcotic that would turn people into psychotic killers.

Cannabis was proclaimed to be an invasive drug, brought in by Mexicans and offered to white Americans in a way that would translate the perceived "laziness and criminality" of Mexicans to the American population. It was also declared to be a major factor in Black American's committing crimes and harming white people.



"The attacks on minorities were based in pure racism, while the attacks on cannabis were based in the economic interests funding the anti-cannabis movement."

ENVIRONMENTAL IMPACT

HEMP IS MORE EFFICIENT THAN COTTON

1,500 Pounds

500 Pounds

HEMP CAN CAN GROW IN ALL 50 STATES

Cotton grows only in moderate climates and requires more water than hemp; but hemp is frost tolerant, requires only moderate amounts of water, and grows in all 50 states.

REQUIRES NO PESTICIDES OR HERBICIDES

Hemp is naturally resistant to pests, disease, and fungus, so it requires little to no chemicals to grow to maturity.

PRODUCES MORE FIBER PER ACRE OF LAND

Cotton takes 3% of the world's lands and cotton production provides two crops with the seasonal harvest. Hemp needs around 90 to 120 days to grow, it can produce 2-3X more fiber using the same amount of land.

HEMP ABSORBS TOXIC METALS

Hemp can eliminate harmful toxins by absorbing them. The plant was used following the nuclear disaster at Chernobyl to remove radioactive strontium and cesium from the ground.

USES MUCH LESS WATER THAN COTON

In order to grow and produce 1 kilogram of textile material, hemp uses 2,300 liters of water while cotton uses an estimated 10,000 liters.

HEMP HAS OVER 20,000 USES

Food and Nutrition

Hempseeds are an excellent source of protein, minerals, and dietary fibre. It is the only plant that contains all of the essential fatty acids and amino acids required by the human body. These essential nutrients affect the metabolism, the skin, mood, behaviour, the brain, and the heart.

Body Care

Due to its high content of beneficial oils and natural emollient properties, hemp is becoming a common ingredient in lotions and many other skin, hair, and cosmetic products.

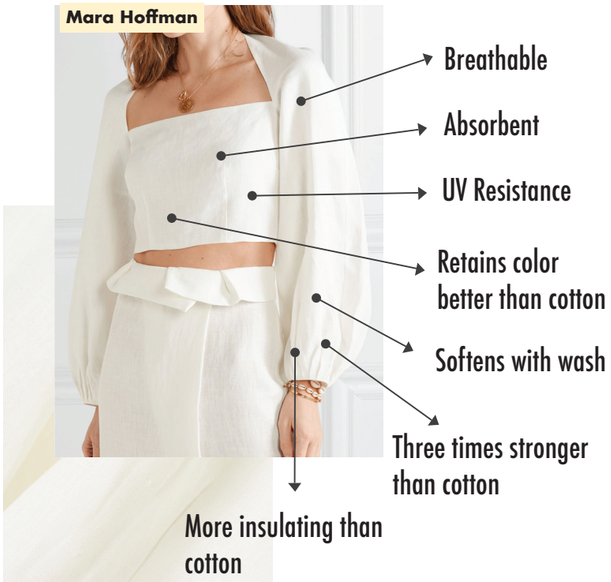
Paper

Hemp is an ideal material for making paper. It regenerates in the field in months, unlike trees which can take 30 years or more to become harvestable after planting.

FABRIC

Hemp was once considered to be one of the most useful fibres known to men, because so much could be made of it. It was used for making garments as well as for making ropes and sails, the filling of cushions, feeding of live stock etc.

In fact this versatility hasn't changed: new applications include the use of hemp in biodegradable composites, interior and cosmetics. Hemp is generally seen as one of the most sustainable materials for fashion.



MAKING THE SWITCH

IT IS STILL ILLEGAL TO GROW HEMP IN THE U.S., BUT 10 STATES PASSED LEGISLATION TO ALLOW IT FOR RESEARCH PURPOSES ONLY.

MOST HEMP FIBERS ARE GROWN AND PROCESSED IN CHINA AND FRANCE.

HEMP'S ASSOCIATION WITH CANNIBAS IS ONE OF THE FACTORS THAT MAKES THE LEGILIZATION OF GROWING IT IN THE U.S. CONTROVERSIAL.

THE U.S. EXPORTS ABOUT $7 BILLION WORTH OF COTTON A YEAR.

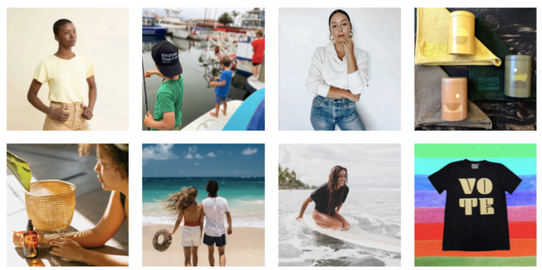
HIGH GOVERNMENT SUBSIDIES ALLOW FARMERS TO PRODUCE MORE AND TO CONTROL THE GLOBAL MARKET PRICE OF COTTON.

ALSO, COTTON'S HUGE ECONOMIC VALUE TO THE U.S. MEANS IT IS IMPERITIVE TO KEEP IT A MAIN PART OF OUR AGRICULTURE INDUSTRY.

WHERE TO SHOP HEMP

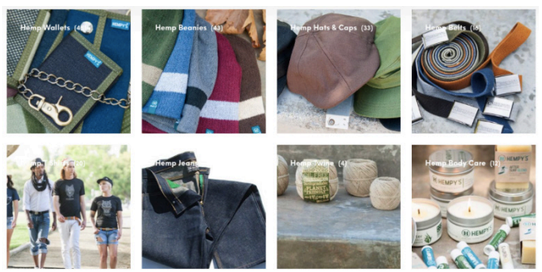
FORTUNATELY, THERE ARE MANY RESOURCES THAT SELL HEMP CLOTHING

JUNGMAVEN



Ultra-simple casual fashion

HEMPY'S

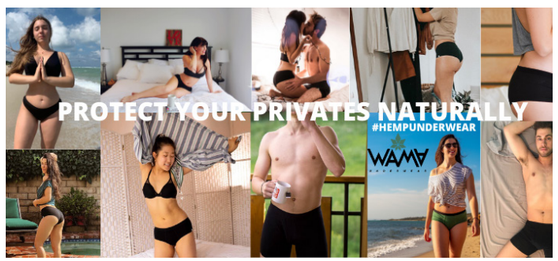


San Diego based casual, club, and festival wear

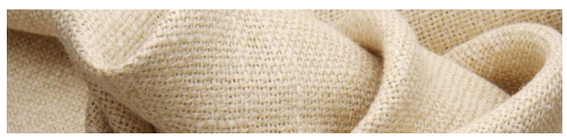
PATAGONIA HEMP CLOTHING COLLECTION

Workwear, athletic wear, casual fashion

WAMA UNDERWEAR



Bras, panties, and boxer briefs



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HEMP

THE FABRIC OF OUR LIVES

TRUE