

Sustainable Wool

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For at least 10,000 years, sheep, humans, dogs, and rangelands have lived in a symbiotic, transhumance system that sustainably produces milk, meat and wool on a world-wide basis when managed correctly. According to a 2017 USDA report, the US has a total of 2.26 billion acres of land with about 35% of that being pasture, rangeland or forest used for grazing. The Public Lands Council states ranchers own 120 million acres of rangeland and lease an additional 250 million acres from the federal government mostly in the western US. It is remarkably hard to conceive how as a society we have completely forgotten in a generation how important grazing rangeland is to our nation's production of food and fiber and pasture and forest health.

Sheep convert grass into wool—— what is your superpower? Wool absorbs forty percent of its weight in water, is self-extinguishing, possesses natural



moisture wicking properties, is insulating, has natural resistance to compression and is naturally odor resistant. It keeps you warm or cool, dry and odor free with no chemical additives. These are just a few of the reasons why our military and other country's astronauts wear wool undergarments. From an environmental standpoint, sheep can be used to graze noxious weeds and wildfire prone landscapes to produce wool in a sustainable manner. Pure organic carbon makes up fifty percent of the weight of wool and this carbon is sequestered from the atmosphere by plants consumed by the sheep

<https://www.americanwool.org/resource-2/>.

So, sheep convert grass to wool in a sustainable fashion. That does not sound like much of a superpower until you take a hard look at how we use wool compared to synthetic textile production. Wool, while being durable, is also naturally biodegradable. Recent research has shown some synthetic clothing takes hundreds of years to degrade in landfills, while wool which is the most recycled fabric, takes only about a year. More important to the U.S. with our emphasis on pristine waterways, research has shown the massive environmental contamination from washing synthetic clothing. Some synthetic fabrics release up to 4,500 microfibers per gram of clothing

washed and up to forty percent of those fibers pass through our water treatment facilities and contaminate our river and oceans (<https://www.woolmark.com/industry/support/resources/#fact-sheets: Sustainability Toolkit>). According to USDA Economic Research Service, the US imported eleven and half billion pounds of synthetic fabric in 2023 compared to under two billion pounds in 1990. We do not yet comprehend the enormous impact micro-plastic contamination is having on our world, so become a proponent of slow fashion, read those clothing labels, and look for American made wool products.

Well that all sounded just dreamy, but let us get into some documented research. US EPA from 2022 estimated US greenhouse gas emissions by economic sector to be: 1) Transportation-28%, Electricity-25%, Industry-23%, Commercial & Residential-13% and Agriculture-10% (<https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>) (It only adds to 99% on their chart also). According to a presentation by Dr. Richard Ehrhardt of Michigan State University at the 2022 American Sheep Industry Convention, animal agriculture accounts for 3.9% of US greenhouse gas emissions with ruminants contributing 2.3% and the US sheep industry only contributing 0.023%. How much “new” methane has been produced in the US by ruminants since European settlement? The best estimate is found in research by Hristov 2012, Journal of Animal Science 90:1371, before European settlement, wild ruminants like deer, elk and bison already produced about 86% of the current greenhouse gas emissions that domestic livestock and wild ruminants produce today. That 14% increase occurred over the past 530 years. Another presentation by Dr. Frank Mitloehner of UC Davis stated that globally one in three calories produced for food is wasted and in the US forty percent of food is thrown out, so food waste is the real issue, not diet (<https://www.sheepusa.org/events-pastconventionpresentations>). Domestic ruminants do produce GHG but are not responsible for the increase we have seen recently.

Two of the biggest challenges the world faces environmentally and related to sheep are the microplastic contamination of water we briefly discussed and the rapid paving over of our planet's grasslands with cement, asphalt, bricks, and/or stone. Based on the statistics of the United Nations in 2018, 55% of the world's total population lives in cities, and this proportion is expected to reach



68% in 2050. Global satellite research indicates that the area paved over has doubled in the past 35 years from 1985 to 2020 and Asia underwent the greatest increase compared to other continents. Meanwhile, the research also found that the expansion on six continents after 2000 was significantly faster than before 2000, (<https://essd.copernicus.org/articles/14/1831/2022/>). We have paved over 142.15 million acres in 35 years. At that rate, we are paving over an area the size of Idaho every thirteen years.

Finally, Mike Rowe of “Dirty Jobs” recently said that over 70% of the clothing worn by Americans was made in the US in the 1980's. That figure currently sits around 3%. There have been many changes to US manufacturing and consumer shopping choices since the 1990's and no doubt even more changes are coming. Let us do our part and support the growing US made wool industry and

support our farmers and ranchers through a multitude of locally focused food and fiber enterprises.
Future generations will thank you.