Climafibre

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Hosted by: Jessica Redgrave

Project Information (EN)

The Problem

What is fashion’s place in a world that is rapidly running out of natural resources? The fashion industry's disastrous environmental impact is no secret. Unsustainable agricultural systems and contamination from synthetic fibres, dyes and finishes continuously pollute ecosystems and decimate biodiversity throughout the value chain whilst simultaneously perpetuating socio-economic injustices. Consumerism has fuelled the desire for fast fashion, which is reliant on overconsumption of finite resources and intensive farming practices. Increasing amounts of fertilisers and pesticides are needed to meet these demands, degrading the soil, which inhibits regeneration, resulting in a loss of arable land. For fashion to have a future, there needs to be an imminent shift to regenerative practices that protect biodiversity and support agricultural food systems.

Sunflowers could provide a solution

Sunflowers are utilised as a part of regenerative agricultural systems and aid climate mitigation through soil remediation and boosting biodiversity above and below ground. Cultivated globally, sunflowers can be grown without fertilisers and can be companioned and rotated with other food crops. Sunflowers have extensive root systems, known as taproots, that penetrate deep into the soil, preventing it from compacting and helping to sequester carbon. This type of root system allows symbiotic relationships with beneficial bacteria, fungi and microbes to be formed, which provide the plant with nutrients and help prevent diseases, promoting healthy soils. Sunflowers can withstand drought and can grow in vastly varying ecosystems. Their natural resilience has made them a model for scientists studying climate change adaptation.

Imagine your next rain jacket is made entirely from sunflowers

Climafibre has developed fibre for textiles, natural dyes and a hydropic coating made entirely from sunflowers. Using enzymes derived from bacteria and fungi, Climafibre has worked closely with scientists to develop a unique process to isolate cellulose fibres from sunflower stems. These fibres are then combed and spun into a yarn, then woven into a fabric. The hydrophobic coating is made from a by-product of the sunflower oil industry and provides water-resistant protection for natural fibres without the use of harmful chemicals. This coating allows the fabric to maintain its breathable qualities with minimal alteration to its aesthetics or hand feel. Climafibre's bold colour palette has been developed from pigments extracted from various parts of the flower. They can be used as a natural alternative for textile dyes and printing, free from fossil fuels. Climafibre envisions a future localised production network within Bioregion PA9*, which integrates food and fibre systems and promotes regenerative agriculture. *Bioregion PA9 encompasses the UK, Ireland and the Faroe Islands.

Image List

Filename	Caption	Credit
1_1660508520.jpg	Sunflower Rain Jacket	Photographer: Jack Johnstone Model: Oladeji Awe
2_1660508574.jpg	Hydrophobic coating made from sunflowers	
4_1660508602.jpg	Bacterial enzymes and raw sunflower fibre	

Filename	Caption	Credit
5_1660508687.jpg	Sunflower pigments	
3_1660508709.jpg	Hydrophobic coating	

The images above are included in the ZIP under `/images`.