MSc. Sustainable Development 2025-2026
In collaboration with Gaia Fracchia

KU LEUVEN

PORT FOLIO

Stien Van Gorp | r0811708

Network Overview

This portfolio unfolds through:

The ‘Cap’

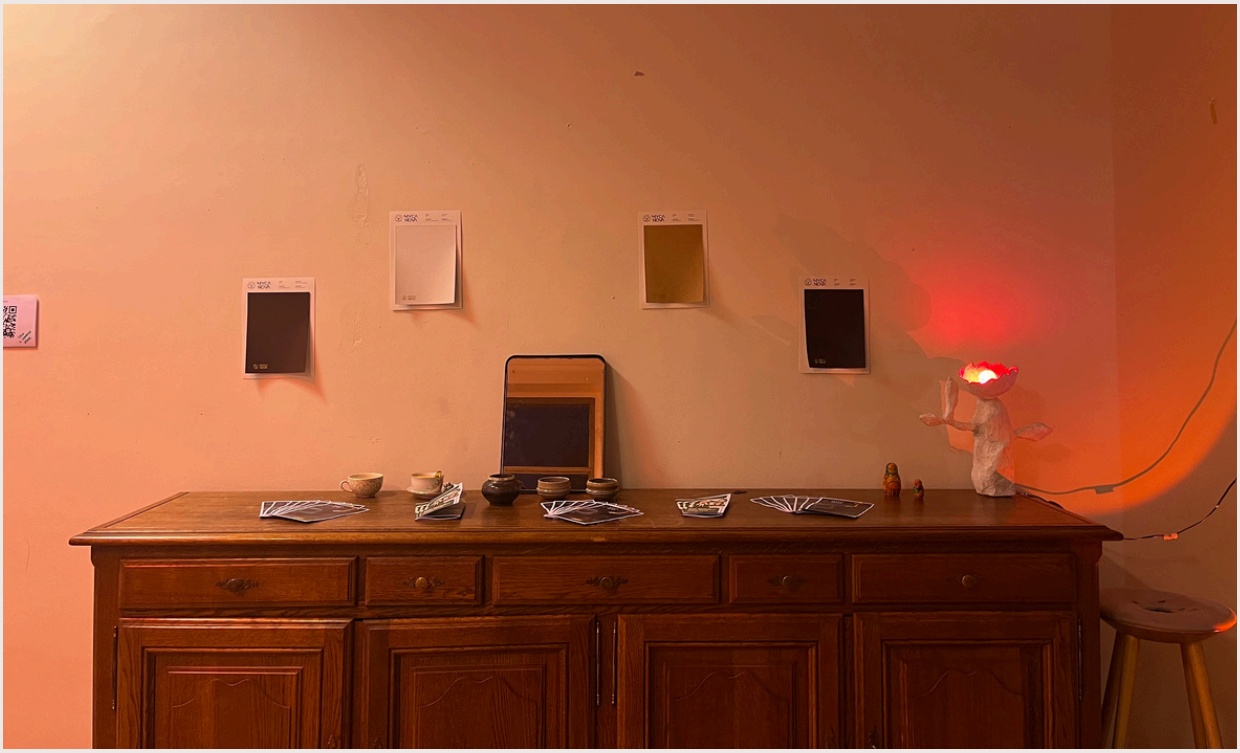
What we see, and what it hides

Fashion is often experienced as surface: colour, texture, silhouette, identity. Less visible are the systems that make clothing possible: water use, land cultivation, chemical processing, and embedded labour. These hidden processes shape fashion’s environmental and social impact long before a garment is worn.

My interest in sustainable fashion grew from this tension between visibility and invisibility. Drawn to fashion for its creative power, yet concerned by its ecological cost, I began to question what our clothes are made of and what is required to produce them. Materials emerged as a critical entry point, shaping impact at the very start of the fashion system.

This portfolio explores sustainability through innovative raw materials, including agricultural residues, bio-based fibres, and mycelium-derived alternatives. Like fungal networks beneath the soil, these systems operate quietly, connecting agriculture, biotechnology, industry, and design. Their potential lies not in perfect solutions, but in measurable reductions of resource use and waste, assessed through tools such as Life Cycle Assessment (LCA).

By tracing these hidden systems from waste to wearable form, this project aims to make sustainability in fashion more tangible, transparent, and open to dialogue.



Root Intention

Where this project begins

My interest in sustainable fashion developed gradually, through a growing sense of contradiction. Fashion has always been a space of expression, creativity, and identity for me, yet the more I learned about how the industry operates, the harder it became to ignore its environmental and social costs. What once felt like an individual, aesthetic practice increasingly revealed itself as part of a much larger system of extraction, production, and inequality. This tension - between the pleasure of fashion and the reality of what it requires to exist - became the starting point of this project.

For a long time, my response took the form of avoidance.

I turned toward second-hand shopping and distanced myself from fast fashion, assuming that more conscious consumption was enough. This project disrupted that assumption. I realised that while my intentions were aligned with sustainability, my understanding of what clothes are actually made of, how materials are processed, and where their impacts accumulate remained incomplete. That realisation shifted my focus toward materials, which form the foundation of every garment long before design, branding, or consumption enter the picture. Materials quietly determine water use, land pressure, emissions, chemical exposure, and waste, yet they are often reduced to simplified labels such as “natural,” “innovative,” or “eco-friendly,” while the complexities behind them remain largely unseen.

Thinking through the metaphor of fungal networks helped clarify this perspective. Like roots beneath the surface, material systems connect agriculture, industry, science, and design while remaining mostly invisible. They grow through adaptation rather than optimisation, shaped by context and constraint rather than ideal conditions. Approaching sustainable fashion in this way shifted my aim away from searching for perfect solutions toward developing a critical, evidence-based understanding of material innovation, its possibilities, and its limits.

This perspective directly informed the learning goal that guided the project:

Learning Goal

“To develop a critical understanding of sustainable fashion, focusing on innovative raw materials and examining their potential and limitations within the broader context of material innovation.”

Nutrients

What feeds the system

This project developed through engagement with different types of knowledge sources, ranging from personal narratives and visual media to scientific and academic research. Each input offered value, but also revealed limitations. Together, they shaped a more critical understanding of sustainable fashion, highlighting both the potential and the constraints of material innovation.

Fashion's hidden costs

Documentary: The True Cost

This documentary powerfully exposed the environmental and social consequences of fast fashion, making the human cost of low-priced clothing visible. While its emotional impact helped ground the project ethically, its broad critique of the industry sometimes simplified complex supply-chain dynamics. This highlighted the need to balance awareness-driven storytelling with analytical tools that allow more nuanced evaluation.

Measuring impact

Webinar: Sustainable supply chains and preferred fibres

This webinar introduced Life Cycle Assessment as a method for comparing materials across environmental indicators such as water use, carbon emissions, toxicity, and land pressure. It provided a useful analytical framework, but also demonstrated how data availability and system boundaries can influence results. The source reinforced the importance of transparency and critical interpretation when using quantitative sustainability metrics.

Scientific and theoretical grounding
Academic book and article

The academic literature offered a structured overview of emerging raw materials and circular strategies, emphasising that alternative fibres are not inherently sustainable. Processing methods, performance requirements, and end-of-life outcomes remain decisive factors. While these sources provided depth and credibility, their technical focus required translation to become accessible to a non-expert audience, shaping how information was later communicated during the event.

Material innovation in practice
Podcast: Piñatex and pineapple fibres

This podcast presented an inspiring example of transforming agricultural waste into a leather alternative, illustrating how innovation can reduce pressure on land and resources while supporting farming communities. At the same time, it raised important questions about scalability, durability, and dependency on coatings or binders that may limit biodegradability. The source was valuable for understanding how sustainability claims must be assessed within real production contexts rather than ideal scenarios.

Taken together, these sources revealed sustainability as a negotiation between innovation, limitation, and context. They informed both the content and the format of the knowledge-sharing activity, encouraging an approach that combines material experimentation with critical evaluation. Rather than presenting sustainable fashion as a set of solutions, the project frames it as an ongoing process of questioning and comparison.

Cultivation

How the event took shape

From Waste to Wear: Innovation Fashioned by Nature unfolded as a public knowledge-sharing event designed to translate research on sustainable fashion materials into a tangible and accessible experience. The event brought together film, material exhibition, and informal discussion to explore why alternative fibres are increasingly proposed as responses to the environmental impact of the fashion industry

EVENT

From Waste to Wear: Innovation Fashioned by Nature

Villa Canapé, Brussels
6 January 2026

Promo Poster (Annex B)

The project was initially conceived as a small fashion show, where garments made from innovative materials would demonstrate how sustainability and aesthetics might coexist in practice. However, as preparations progressed, it became clear that access to material samples would significantly shape what could be realised responsibly. Limited responses from material producers and the conditions attached to sample use prompted a reconsideration of the original format. Rather than forcing a performative outcome, the project adapted toward an exhibition model that allowed materials to be presented honestly and without overstating their readiness for large-scale production.

The final event opened with a short documentary on fashion pollution, screened to establish a shared understanding of the environmental pressures driving material innovation. Issues such as overproduction, resource depletion, chemical processing, and textile waste provided the context in which alternative materials could be meaningfully discussed. Following the screening, and after a short speech by the hosts, visitors were invited into an exhibition space presenting mycelium-based material samples developed by MycaNova (Citribel). These samples were displayed as materials rather than finished products, encouraging close observation of texture, flexibility, and surface qualities.

A printed leaflet accompanied the exhibition and played a central role in the knowledge-sharing process (see Annex A). Distributed after the screening, it translated key research insights into accessible visual comparisons, introducing lifecycle assessment concepts and highlighting trade-offs between environmental indicators such as water use, carbon impact, and circularity. Rather than offering definitive conclusions, the leaflet was designed as a tool for navigation, supporting independent exploration and discussion during the exhibition.

The event concluded with informal conversations and exchanges between organisers and visitors. This open format allowed questions to emerge organically and created space for critical reflection beyond the immediate topic of fashion, extending to related systems such as food production and transport. In this way, the academic output functioned not only as dissemination, but as a cultivated environment for dialogue, comparison, and shared inquiry. The shift from fashion show to exhibition did not dilute the project's intent; instead, it reinforced a commitment to transparency, adaptability, and responsible communication within sustainability-focused design practice.

Learning in the Network

How research evolved through dialogue and encounter

Learning throughout this project did not follow a straight line from research to result. Instead, it developed through a network of interactions between sources, materials, collaborators, constraints, and audiences. What began as an investigation into sustainable fashion materials gradually became a broader reflection on how knowledge is built, translated, and reshaped once it enters a public space. To better understand how this knowledge was received and interpreted, participants were invited to share their reflections through a short anonymous survey at the end of the event (see Annex C). The insights and quotes included in this section draw directly from these responses and form an essential part of the learning process.

From knowing about materials to judging them critically

During the knowledge-building phase, my engagement with sustainable fashion materials was largely analytical. Academic literature and expert-led sources introduced me to lifecycle assessment, preferred fibres, and the environmental trade-offs embedded in both conventional and alternative textiles. This phase deepened my understanding of how materials contribute to fashion's ecological footprint through water use, carbon emissions, toxicity, biodiversity harm, land pressure, and end-of-life scenarios.

At the same time, this research challenged my initial inclination to search for "better" materials as replacements for problematic ones. The more comparisons I encountered, the clearer it became that sustainability is rarely a matter of simple substitution. Materials that performed well in one area often performed poorly in another. Some reduced reliance on fossil resources while introducing new challenges related to durability, coatings, or recyclability. This tension forced me to adopt a more critical position, where sustainability is understood as a negotiation between impacts rather than a fixed outcome.

Academically, this phase strengthened my ability to read beyond conclusions and focus on assumptions, boundaries, and omissions. Claims of "bio-based" or "natural" materials began to feel insufficient without transparency about processing, scalability, and end-of-life. This critical lens became essential once the project moved beyond research and into public engagement.

Translating research into a shared experience

The transition from analysis to knowledge-sharing required a methodological shift. Instead of focusing on what I needed to understand, I had to consider how others might access and interpret the same information. This raised questions about accessibility, responsibility, and oversimplification. How can complex sustainability issues be communicated without flattening them into reassuring narratives?

The final event format emerged as a response to this challenge. Combining a documentary screening, a material exhibition, and a printed leaflet allowed different forms of engagement to coexist. The documentary provided context and urgency, situating material innovation within broader environmental issues. The exhibition enabled tactile and visual engagement with materials. The leaflet offered a structured way to compare fibres and impacts.

> ***"The combination of the four forms made the whole thing clearer. The brochure and leaflet were explained by the students, who had a lot of background knowledge." (Participant #3)***

This feedback confirmed that understanding did not emerge from a single element, but from the interaction between formats and explanation. It also highlighted the active role we played as mediators, rather than simply presenting information and stepping back.

Learning through dialogue and material encounter

The most meaningful learning occurred during conversations with visitors. Many participants initially approached the exhibition looking for clarity and answers, often asking which material was the most sustainable. These moments revealed how strongly sustainability discourse is shaped by the desire for clear hierarchies and solutions.

Instead of resolving these questions, the conversations opened up space for reflection on trade-offs. The leaflet and material samples became tools for discussion rather than sources of conclusions. Visitors pointed to indicators, compared materials, and debated priorities.

> ***"The fact that you could touch the fabric shows how well they can match similar products." (Participant #3)***

The tactile experience proved particularly powerful. Handling materials allowed visitors to question assumptions about quality, durability, and aesthetics, especially in relation to alternative fibres often perceived as inferior to conventional ones. Other discussions moved beyond fashion altogether. One participant reflected on the broader system in which fashion operates:

> ***"The documentary also gave a good initial insight into the issue, prompting me to reflect once again on how distressing our consumer society has become and how quickly this has evolved." (Participant #2)***

These moments reinforced the idea that material sustainability in fashion cannot be isolated from wider patterns of consumption, production, and responsibility.

Reflecting on limits, responsibility, and shared learning

This project also made me more aware of limits, both in material innovation and in my own role. Practical constraints, such as limited access to samples or ethical conditions attached to their use, became part of the learning process rather than obstacles to overcome. They underscored how sustainability work is shaped by availability, ownership, and responsibility.

Audience feedback further emphasised the value of transparency over certainty. Several participants expressed appreciation for the open-ended nature of the event, while also pointing to areas for improvement, such as the desire for more detailed explanations or guided moments within the exhibition.

> ***"I would find it fascinating if the well-designed brochure were explained in even more detail, as I find that more memorable than a written text. A brochure is interesting to read again at home afterwards." (Participant #5)***

Rather than interpreting this as a shortcoming, I see it as evidence that learning was ongoing and unfinished. Sustainability, as the project repeatedly revealed, resists closure. Some reflections pointed directly to shifts in perspective:

> ***"It has made it clear that change is truly possible, and that consumers have a responsibility, meaning we can contribute to improvement ourselves." (Participant #2)***

Looking forward

Reflecting on this experience, I recognise a clear evolution in how I understand both sustainability and learning. Analytically, I have developed a more nuanced grasp of material impacts and lifecycle thinking. Academically, I have gained confidence in navigating complex and sometimes contradictory sources. Methodologically, I have learned that knowledge-sharing is not a final step, but a space where understanding is tested, questioned, and reshaped. Most importantly, this project has influenced how I envision my future professional trajectory. It reinforced my interest in working at the intersection of sustainability, design, and communication, where the goal is not to offer definitive answers, but to create informed, critical, and open conversations

.

Learning in the network, I now understand, is not about mastering systems from a distance. It is about staying attentive to how knowledge circulates, changes, and grows through interaction: much like mycelium itself, spreading quietly beneath the surface, connecting what might otherwise remain separate.

Spreading the Spores

What travels on after the dissemination

Knowledge-sharing does not end when an event closes its doors. Its effects are often subtle, unfolding later through conversations, reflections, and small shifts in perspective. For me, this project confirmed that dissemination is not only about reach or visibility, but about creating moments that stay with people and continue to resonate beyond their original context. The event functioned as an initial point of contact, bringing together people with different backgrounds, levels of expertise, and relationships to fashion. Through film, materials, and conversation, ideas about sustainability and innovation began to circulate in ways that were not entirely predictable. Some discussions stayed close to fashion and material choices, while others expanded toward broader systems of consumption, responsibility, and everyday decision-making. These moments reminded me that once knowledge enters a shared space, it no longer belongs solely to its creators.

What felt especially meaningful was how the project moved away from offering solutions and instead opened space for positioning. Rather than telling participants how to think or what to choose, the event invited them to compare, question, and reflect. In that sense, dissemination became less about transmission and more about exchange. The project did not aim to settle debates around sustainable fashion, but to make them tangible enough to engage with.

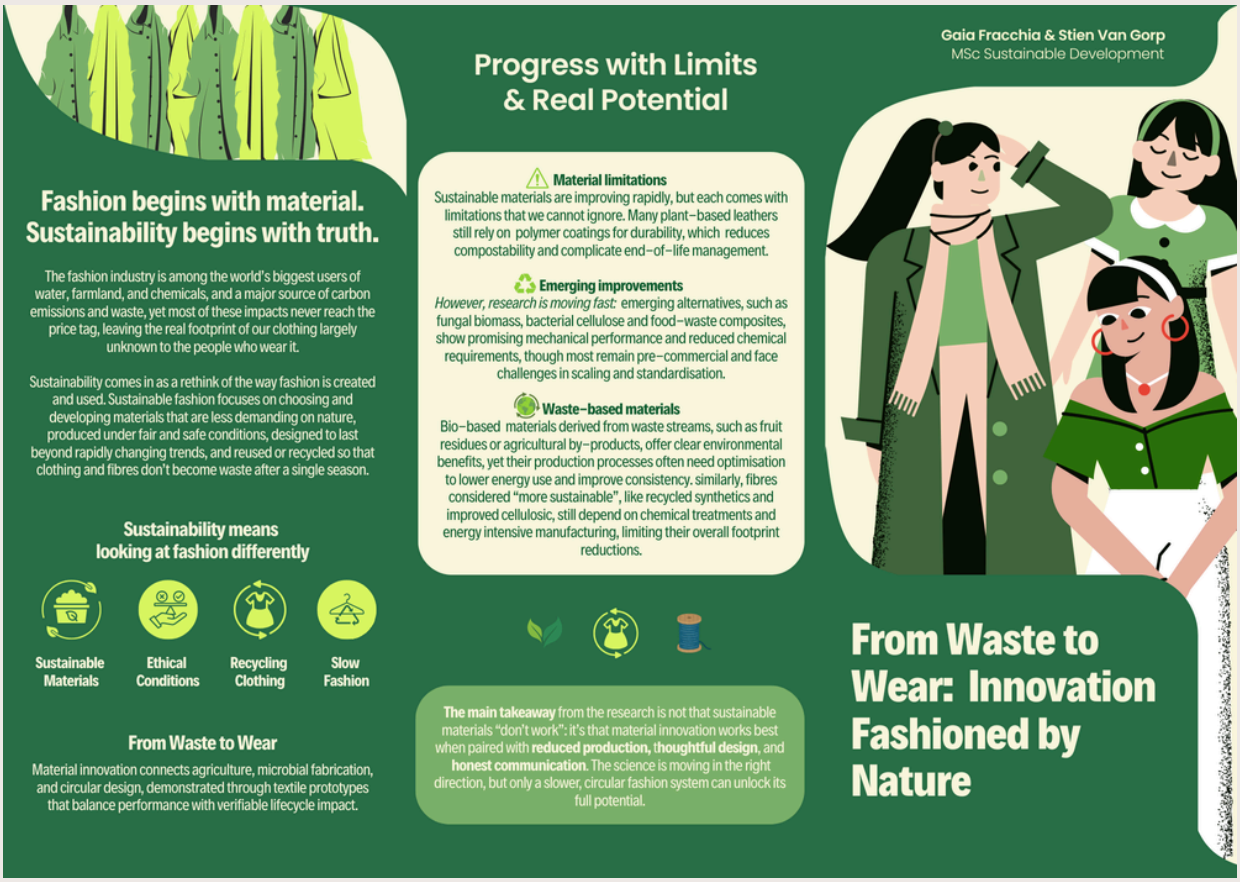
This process was inherently collaborative. Working closely with Gaia Fracchia shaped not only the practical organisation of the event, but also its tone and openness. Our shared discussions, decisions, and adjustments throughout the project reinforced the value of collaboration when dealing with complex and contested topics like sustainability. The event itself mirrored this approach, functioning as a collective space rather than a one-directional presentation.

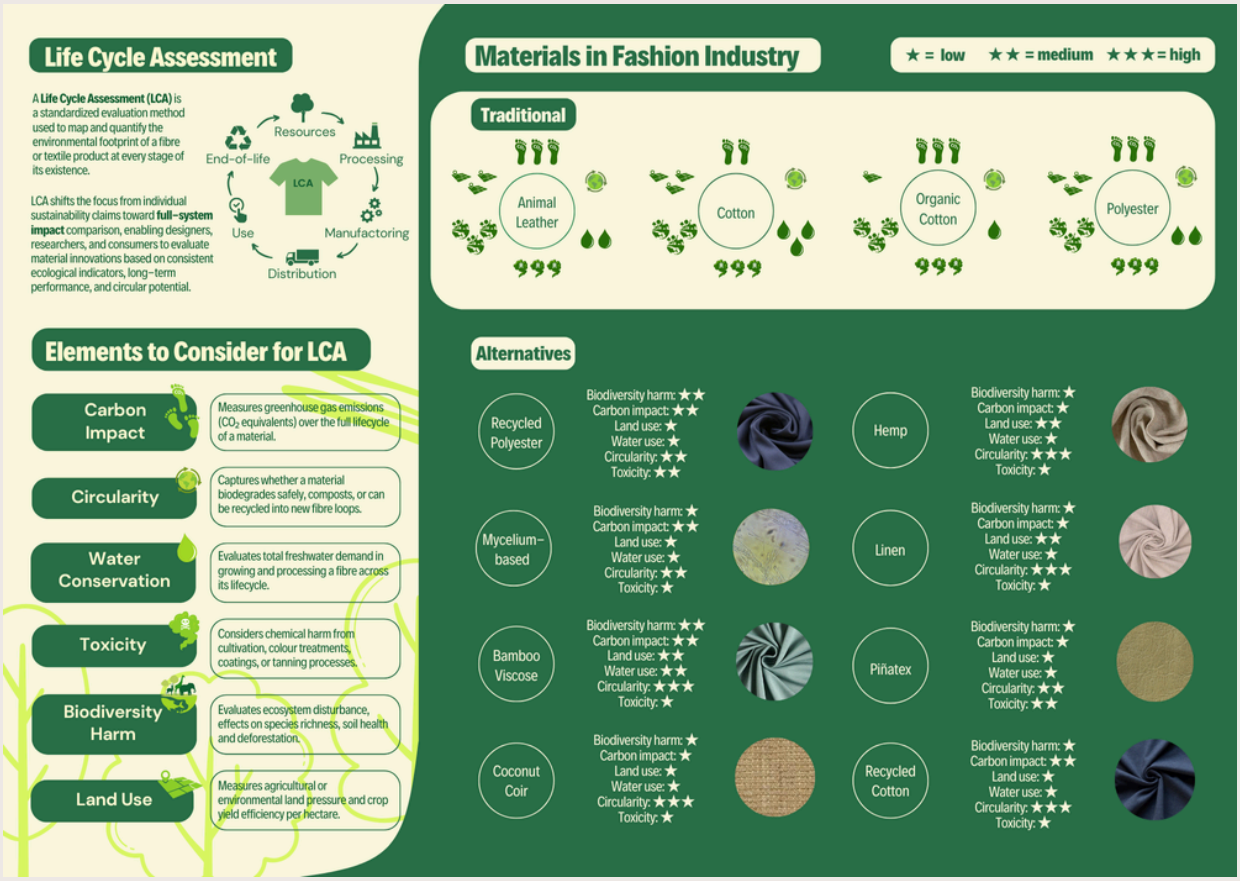
Like spores released into the air, the outcomes of this project cannot be fully traced or measured. They disperse quietly, carried by those who encountered them, reappearing in conversations, choices, and future reflections. One participant expressed this shift with striking simplicity:

> ***“I was never drawn to fast fashion, and this experience only strengthened my belief that slow fashion is the way forward.” (Participant #4)***

Ending the project here feels appropriate. Rather than closing a discussion, it reflects how learning continues beyond the page, carried forward through personal choices, conversations, and evolving awareness.

Annex A - Leaflet





Annex B - Promotion Poster

From Waste to Wear: Innovation Fashioned by Nature

A critical exploration of fashion sustainability through scientific innovation, circular thinking, film and dialogue.

Villa Canapé, Bruxelles

6th of January 2026

18:30–20:00

Free & open to anyone

Discover how waste can become wearable

Explore textiles made from fruit waste, mycelium, recycled fibres and more, presented through interactive visuals, and accessible sustainability insights.
Learn how design, biotechnology, and circular economy principles meet to shape the future of fashion.

Created by Gaia Fracchia & Stien Van Gorp
MSc Sustainable Development, KU Leuven

Annex C - Feedback Survey

From Waste to Wear: Innovation Fashioned by Nature

Thank you for attending *From Waste to Wear:Innovation Fashioned by Nature*.

This short survey helps us understand how audiences perceive sustainable material innovation and how effectively our creative format communicated the key ideas. Your feedback will support the reflective and analytical part of our project.
The survey is anonymous and takes about 3 minutes.

Thank you for your support!

How familiar were you with sustainable materials before this event?

	1	2	3	4	5	
Not familiar	○	○	○	○	○	Very familiar

What is your primary background?

- ○ Design / Fashion
- ○ Sustainability / Environmental sciences
- ○ Social sciences
- ○ Humanities
- ○ Other: _____

To what extent did the event deepen your understanding of the environmental impact of conventional textiles?

	1	2	3	4	5	
Not at all	○	○	○	○	○	A great deal

How clearly did the event explain the benefits and limitations of innovative materials (e.g., durability, scalability, biodegradability)?

	1	2	3	4	5	
Very unclear	○	○	○	○	○	Very clear

How effective was the combination of visual, tactile, and narrative elements in helping you understand the science behind the materials?

	1	2	3	4	5	
Not effective	○	○	○	○	○	Extremely effective

Which component of the event helped you understand the topic the most?

- ○ The fashion showcase
- ○ The informational visuals / projections
- ○ The written explanations
- ○ The spoken guidance
- ○ Other: _____

Did the creative format (fashion + exhibition) make scientific information more accessible to you?

	1	2	3	4	5	
Not at all	○	○	○	○	○	Yes, significantly

Please explain what aspect of the creative presentation supported or limited your understanding.

Your answer

Did the event make you reflect on your own fashion consumption or sustainability choices?

- ◯ Yes
- ◯ Somewhat
- ◯ No

Did the event challenge any assumptions you previously held about 'sustainable fashion'?

- ◯ Yes
- ◯ Somewhat
- ◯ No

Overall, how engaging was the event?

	1	2	3	4	5	
Not engaging	◯	◯	◯	◯	◯	Very engaging

What did you find most valuable about the event?

Your answer

What could be improved for future editions?

Your answer

Annex D - References

Al-Den, R. E. G., Abdel Wahab, S. S., Atallah, H. A., Mohamed, Y. D., & Hassabo, A. G. (2022).Environmental sustainability and innovations in the fashion industry. Journal of Textile Science & Fashion Technology. Accessed via KU Leuven Limo.

Green Story. (n.d.). Overview of sustainable supply chains and preferred fibres [Webinar]. https://www.greenstory.io/webinars/overview-of-sustainable-supply-chains-and-preferred-fibres

Hijosa, C. (2016, September 25). Piñatex + pineapples as a leather alternative (Season 1, Episode 28) [Audio podcast episode]. Conscious Chatter. https://consciouschatter.com/podcast/2016/9/25/s01-episode-28-piatex-pineapples-can-make-leather

Morgan, A. (Director). (2015). The True Cost [Documentary film].

Untold Creative. Novel sustainable raw material alternatives for the textiles and fashion industry. (2023). Academic edited volume. Accessed via KU Leuven Limo.

Fashion pollution. (2025). Documentary film screened during the public event. https://youtu.be/60MqS6nPCZo