

Wool, Reworked: How Data-Driven Design Is Setting a New Benchmark for Sustainability

How **Peftrust**[®] and **Manteco**[®] Are Transforming Fabric Selection with Instant Impact Data.



Peftrust[®]

MANTECO[®]

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Executive Summary

How Peftrust® and Manteco® Enable Data-Driven Design from Day One

Sustainability in fashion has often been relegated to an afterthought, typically considered only after processes of product design, sourcing, and pricing have taken place. Now, imagine having the capability to understand the environmental impact of a fabric before making a selection - this is no longer just a concept; it has become a reality. For the first time, fashion design teams can assess and compare the environmental impact of materials at the outset of the design process before sourcing.

This significant advancement stems from a strategic partnership between Peftrust®, a leading platform for assessing product environmental footprints, and Manteco®, an Italian textile innovator recognised for its leadership in high-quality wool and circular practices.

Together, they are transforming how sustainability is integrated into the fashion industry, shifting from reactive practices to proactive, science-based decision-making.

This collaboration offers a practical, scientific, and accessible approach to simulating and mitigating environmental impact in fashion, enabling fashion teams to make informed decisions about materials before production commences.

In this collaboration, **Manteco® and Peftrust®** conducted a comparative analysis of its flagship materials—M Wool® (recycled wool) and ReviWool® (low-impact virgin wool)—using the Peftrust platform. The results showed that Manteco's materials significantly outperformed conventional Australian virgin wool in **key impact areas, including water consumption, CO₂ emissions, and energy use**. With just a few clicks, users can simulate the impacts of CO₂, water, and energy for any material, with visual outputs tailored for quick comparison.

Key takeaway:

The choices made in materials have profound, far-reaching implications for the environment. With Peftrust®, these effects can be seen, simulated, and acted upon before any samples are created. Designers, product developers, sustainability leads, and sourcing teams can now evaluate the actual environmental footprint of fabrics long before starting production.

Scope of Work



Integrate Environmental Impact Into Design From Day One

Shift sustainability upstream by embedding material-level LCA data directly into the design process, enabling teams to evaluate water, CO₂, and energy impact before sourcing or sampling begins.



Compare Materials Using Validated Science

Use Peftrust®'s simulation engine to compare the environmental footprint of Manteco®'s M Wool® and ReviWool® against conventional alternatives, powered by primary LCA data and certified EPDs for accuracy and transparency.



Enable Fast, Informed Decisions Across Teams

Empower design, sourcing, and sustainability functions to work with the same data. The platform enables quick impact simulations that are easy to interpret and actionable at the speed of product development.



Build Smarter Sourcing Strategies with Circular Innovation

Support fashion teams in reducing environmental impact without compromising aesthetics or performance, by leveraging Manteco's circular materials and zero-waste processes, seamlessly accessed via the Peftrust® platform.

The Challenge: Sustainability Decisions Are Still Reactive

A Structural Shift Is Needed

Despite widespread commitments to sustainability, many fashion brands continue to struggle with effectively integrating environmental considerations into their product development. Why? Sustainability discussions usually start only after design and sourcing decisions have been made, and then a sustainability team steps in to evaluate those choices. Unfortunately, by that time, it is too late to effect meaningful change.

This outdated reactive approach is no longer viable in an era that demands accountability for climate impact. It often leads to greenwashing, regulatory non-compliance, and consumer dissatisfaction. Moreover, this approach wastes valuable time and resources as teams scramble to retrofit sustainability into products never designed with environmental impact in mind.

For a genuine paradigm shift, sustainability should not be an afterthought. It needs to be central to the design conversation from day one. [The European Commission's Green Claims Directive \(GCD\)](#) represents a significant step towards mitigating greenwashing by requiring brands to substantiate their environmental claims with verifiable data. Brands need sustainability tools that are fast, precise, and easy to use.

What This Looks Like in Practice:

Consider a mid-sized European fashion brand launching a new outerwear collection. The design team selects a wool blend, drawn in by its aesthetic appeal and colour variety. However, they remain unaware of the significant environmental implications. As production gains momentum, the sustainability lead conducts a Life Cycle Assessment (LCA). Unfortunately, this assessment arrives too late, as production is already underway. Faced with limited alternatives, the team relies on carbon offsets and ambiguous sustainability claims. This situation is more costly and risks harming the brand's credibility.

The Fix: Build Impact Into the Design Stage

With tools like Peftrust and circular materials like M Wool® and ReviWool®, brands can now:

- Simulate environmental impact during design
- Compare materials before sourcing
- Avoid costly pivots and greenwashing
- Launch products that perform better – environmentally and commercially

The Solution: Simulating Smarter Choices with Peftrust

Quantifying Environmental Trade-Offs at the Fiber Level

To make this shift possible, brands require sustainability tools that are quick, accurate, and user-friendly empowering designers and developers to factor in environmental impact just as seamlessly as they would aesthetics or cost.

In this context, Manteco®'s commitment to responsible innovation through advanced, circular fabrics like M Wool® and Revi Wool®, in conjunction with the Peftrust Eco-design platform, gains even greater significance.

To demonstrate the power of simulation and the platform's capabilities, two of Manteco®'s signature fabrics were tested against generic Australian virgin wool, a common and conventional choice in the industry:

- **BI BYE RV – Revi Wool®**
- **BI BYE MW – M Wool®**

M Wool® and Revi Wool® represent a significant advancement in the textile industry by establishing new sustainability benchmarks. These materials have been selected for this comparison due to their fully circular and zero-waste characteristics. They effectively eliminate the need to use new wool by making the most of what's already been produced through a low-impact, mechanical recycling process.

Both materials were processed using the same machinery, under the same techniques, and at the same location, the only variable was the fibre content, one circular and one generic – ensuring that any observed differences in environmental impact could be attributed solely to the type of material used.

The results clearly showed that the material choice alone can significantly affect a product's overall environmental impact. By isolating material type as a variable, Peftrust offered valuable insights often unavailable in the early design stages, empowering fashion teams to make more informed and sustainable choices ahead of production.

What The Analysis Showed Us

Smarter Material Choices, Backed by Real Numbers

This isn't just a theory, the benefits of better materials can be measured. Using the Peftrust platform, we compared Manteco's M Wool® fabric (recycled wool) with conventional virgin sheep wool fabric (GLO) based on EF 3.1 data. The difference is striking:

- -99.9% water use
- -99.34% CO₂ emissions
- -96.52% fossil resource use

Why this matters:

The differences in impact are not just statistically significant, they're transformative. M Wool® and ReviWool® deliver step-change reductions in factors such as water use, emissions, and energy. These results reflect primary production data, validated through life cycle assessments (LCAs) and environmental product declarations (EPDs).

M Wool® fibers (Manteco)



What The Analysis Showed Us

Rethinking Virgin Wool Fabrics

When recycled wool isn't an option, ReviWool® demonstrates that even virgin fibres can do better. In the example below, ReviWool® fabric is modelled against standard virgin sheep wool fabric (GLO) from the EF 3.1 database.

- -80.68 % water use
- -74.04% CO₂ eq emissions
- -65.6% fossil resource use

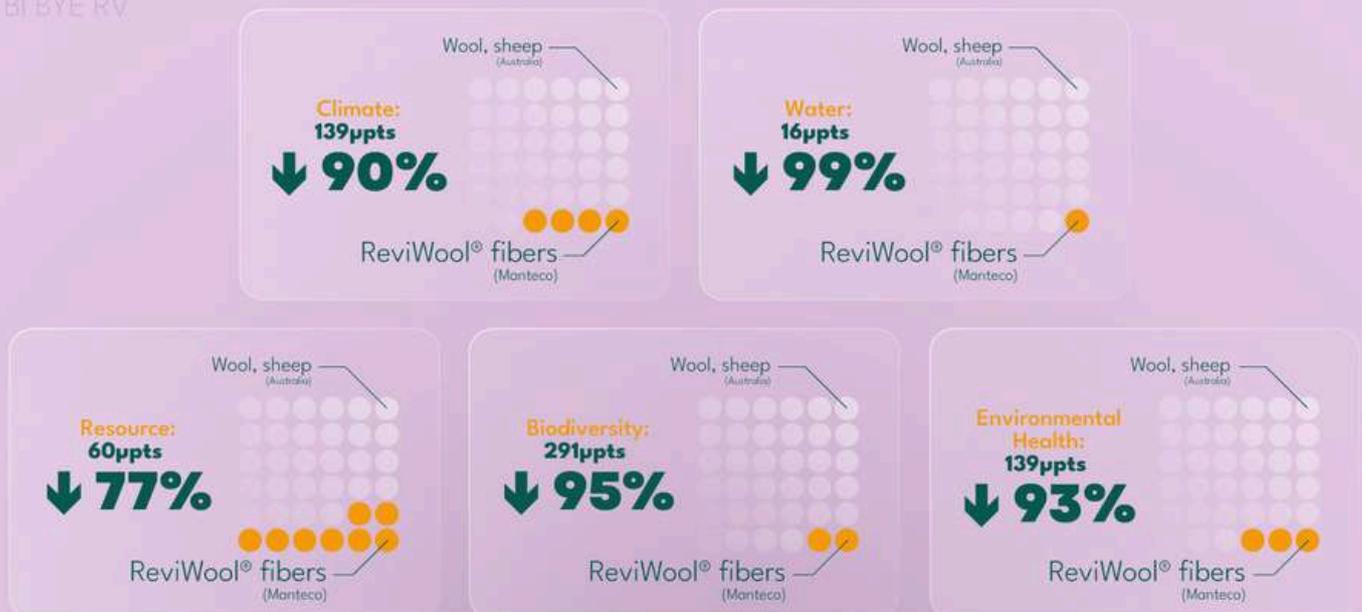
Why it matters:

ReviWool® proves that you can redesign the virgin wool supply chain for real impact reduction. This is low-impact virgin wool, backed by science, not marketing spin. Validated through LCAs and EPDs, ReviWool® offers brands a high-performance material with a significantly reduced footprint.

Bottom line:

While there is ongoing discussion regarding the accuracy of wool emission factors in the EF 3.1 database, it is essential to acknowledge and account for these methodological considerations. Still, even accounting for this, the impact reductions achieved by Manteco's M Wool® and ReviWool® are substantial. These are not marginal improvements but shifts by orders of magnitude, backed by primary data and verified through LCAs and EPDs. **The takeaway? This isn't about perfection, it's about actionable progress, and proof that better material choices can meaningfully move the needle.**

- RW03 BI BYE RV



Why Manteco Is Leading the Way

Manteco is no stranger to innovation.

Founded in 1943 by Enzo Anacleto Mantellassi, Manteco® began by recycling military garments into premium wool textiles. Today, the company is redefining circular wool for the luxury fashion industry, proving that sustainability doesn't mean compromising on quality or performance.

Manteco®'s high-end recycled and low-impact wool fabrics are trusted by some of the world's most prestigious fashion houses. Designed to meet luxury standards, they deliver tangible environmental benefits while supporting circularity at scale. Their key innovations, M Wool® and ReviWool®, set a new standard in responsible textile design:

M Wool® – The First Ever Recycled Wool

Made from 100% pre- and post-consumer wool garments and scraps, M Wool® is validated by third-party LCAs and certified Environmental Product Declarations (EPDs). Compared to conventional virgin wool, M Wool® achieves substantial reductions in water use, carbon emissions, and energy consumption, with results available via the Peftrust platform.

ReviWool® – Low-Impact Virgin Wool

When virgin input is necessary, ReviWool® offers a smarter alternative. Developed through a zero-waste supply chain rooted in Tuscany, it transforms production waste into valuable co-products. The result: high-quality virgin wool with a significantly lower environmental impact.

Why It Matters

Both M Wool® and ReviWool® are fully circular, zero-waste, and performance-driven, enabling fashion brands to make smarter, data-backed material decisions without sacrificing design or quality. They're not just sustainable – they're strategic.

How Peftrust Is Transforming Material Decisions

Behind every great decision is a great idea – and that’s where Peftrust® shines.

Peftrust® is changing how brands perceive sustainability - not as a static report card but as a dynamic design tool. It is reshaping how brands design, measure, and optimise environmental performance. Built using the latest in environmental science and fully aligned with the European Union’s Product Environmental Footprint (PEF) standards and the French Environmental Cost, Peftrust® empowers brands to:

- Instantly simulate the environmental impact of every material choice, without specialist knowledge
- Track Scope 3 emissions with material-specific precision
- Prepare for EU and French regulations, as well as upcoming supply chain transparency mandates, to ensure brands stay ahead of compliance requirements.
- Collaborate efficiently across design, sourcing, and sustainability teams, fostering a more integrated approach to sustainability.

Whether you choose between certified fibres, evaluate recycled content, or map out your new capsule collection, Peftrust® simplifies the complexities, eliminating guesswork and greenwashing. It is a working tool that helps future-fit brands lead with greater transparency, precision, and speed.



Why This Changes Everything

Built for Scale and Clarity: A Practical Framework for Eco-Design and Disclosure

Traditional tools for sustainability assessment have often been cumbersome, and data has been scattered and unreliable. This has resulted in a slow and complex impact assessment process that only sustainability specialists could interpret. However, the partnership between Manteco and Peftrust is changing the game. It introduces a user-friendly approach that allows designers and product teams to incorporate sustainability from the beginning, streamlining the design process without needing special knowledge. With this new approach, designers, product developers, and sourcing teams can:

- Simulate the carbon footprint of fabric as easily as simulating the price or colour.
- Compare options side by side, directly within their existing design or sourcing process.
- Make confident decisions before sampling or sourcing, saving time, money, and emissions.

Perhaps best of all, you can easily explore Manteco's materials on the Peftrust platform, compare them against industry standards, and make informed choices right from the beginning. This collaboration allows sustainability practices to be practical and fast-tracked, empowering brands to transform aspirations into actionable steps while meeting regulatory requirements with scientific confidence.

To put it together: This is exactly how we should be working.

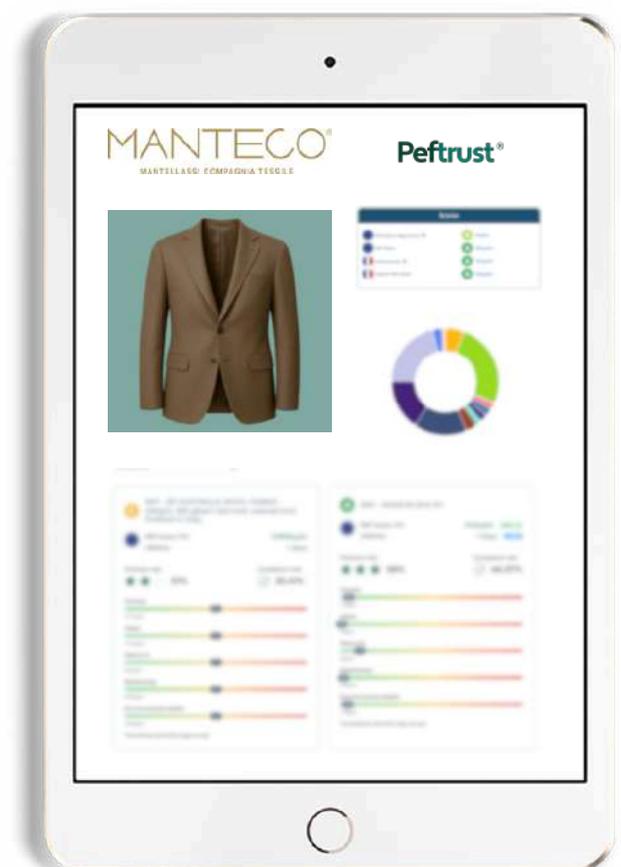


Ready to Try It?

Integrate Impact Simulation into Early-Stage Design Workflows

Whether you design a luxury overcoat, develop suiting fabric for next season, or build a scalable materials library, you don't need a deep dive into LCAs or lengthy onboarding. All you need is curiosity and a few minutes. This is your chance to start designing smarter with data that makes a real impact. With Manteco® and Peftrust®, brands and designers can:

- Explore Manteco®'s certified fabrics directly within the Peftrust® Eco-Design Platform, compare them to their current options, and run their simulations before they make sourcing decisions.
- Run simulations side by side against MWool®, ReviWool®, generics, and other materials, empowering them to make informed choices.
- Use real data to guide their sourcing strategy even before they begin sampling
- Experience sustainability as an opportunity rather than a challenge. No more “we'll figure it out later.”



Conclusion: A Smarter Way to Design is Here

Using Validated Data to Shift Sustainability from Reactive to Predictive

A [report published in 2023](#) by the Boston Consulting Group (BCG) in collaboration with the Textile Exchange, indicates that the demand for low carbon-impact (“preferred”) raw materials may outstrip supply by as much as 133 million tons by the year 2030. One of the primary recommendations presented in the report is for brands to diversify their material sourcing strategies. Therefore, in today’s fashion landscape, merely discussing sustainability is not enough. Brands must design for it, measure it, and deliver it from the very beginning. The collaboration between Manteco and Peftrust makes that not only possible but also practical and efficient. With access to validated data, premium circular materials, and user-friendly digital tools, fashion teams can now make well-informed decisions before a single metre of fabric is ordered.

It represents a significant change: moving from reactive justification to proactive innovation, simplifying processes instead of complicating them, and shifting from uncertainty to predictable and impactful outcomes. So, whether you are a designer, sourcing manager, or sustainability lead, this is your opportunity to transition from guesswork to definitive knowledge. And for those leading the way, it is not just good for the planet; it is good for business.

The future of fashion does not begin in a factory; it begins from the first design decision, and now you have the tools to design better by design.

Data-Driven Sourcing Starts Here: Simulate. Compare. Act.



For more information:

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