RENEWABLE CARBON INITIATIVE
INTERVIEW

Modern Meadow

Modern Meadow is focused on creating innovative new materials such as INNOVERA™ which is a transformative material crafted using plant-based proteins, biopolymers and recycled rubber, resulting in more than 80% renewable carbon content.

Completely animal-free, INNOVERA™ is masterfully engineered to replicate the look and feel of the collagen found in leather. Developed by the bio-design company Modern Meadow (Nutley, New Jersey, USA), INNOVERA™ redefines what's possible across the automotive, footwear, furniture and fashion accessories spaces, creating high-performance products with a lower environmental impact.

Versatile, functional, immediately scalable and adaptable to any process, INNOVERA™ flows seamlessly with creativity: a material that works in perfect harmony with the legacy of tanneries and brands, without compromising on quality or performance.

innovera™
HARMONY IN YOUR HANDS

Interview

with **David Williamson**
CEO of Modern Meadow
USA

David Williamson, PhD, is a transformative executive with a proven track record of advancing innovation, sustainability, and operational excellence in biotechnology and materials science. Since joining Modern Meadow in 2015, Dave has held pivotal leadership roles, including Chief Science and Technology Officer, President, and Chief Operating Officer. In October 2024, he was named Chief Executive Officer, driving the company's vision to revolutionize the future of sustainable materials. As CSTO, Dave spearheaded the development and scale-up of breakthrough technologies, notably INNOVERA™, which has set a new standard for high-performance, sustainable materials.

Modern Meadow is a bio-design company that creates innovative, sustainable bio-based materials such as renewable carbon-based leather alternatives. But, what is Bio-Alloy® and which materials can be produced with it?

Bio-Alloy® is our proprietary system for combining vegetable proteins with bio-based polymers to produce materials that consistently outperform their conventional counterparts. Due to its unique protein-biopolymer combination, Bio-Alloy® allows us to tailor material properties for specific applications.

Our flagship product is INNOVERA™, formerly known as BIO-VERA®. INNOVERA™ is a combination of Bio-Alloy® and ISCC PLUS certified recycled nylon. Providing a luxurious look and feel, as well as excellent flexibility, strength, durability, and 80% renewable content, INNOVERA™ is suitable for a wide range of applications, including automotive, fashion, footwear, and interiors.

Fully compatible with traditional leather finishing techniques, it allows leather partners to deploy their craftsmanship to create beautiful, bespoke products with a range of finishing options – such as suede, and full grain patterns and effects.

INNOVERA™ is made with over 80% renewable carbon content. Is this renewable carbon derived exclusively from biomass or do you also use other sources (e.g. CO_2, recycling) for your polymers?

What exactly is the biomass feedstock for your bio-based materials? Do you also aim at replacing the residual 20% with renewable feedstock?

INNOVERA™ has a total renewable carbon content of ≈80%: 60% ISCC PLUS certified recycled nylon and 20% bio-based content derived from soy protein and bio-based polyurethane. The remaining 20% is fossil-based, mainly driven by finishing chemicals that are not available in renewable versions yet.

Our ongoing research aims to replace the remaining 20% of non-renewable content with renewable or circular alternatives, moving us closer to a fully renewable, fossil-free product portfolio in the future.

Which performance criteria are advantages for different industries (e.g. automotive, footwear, furniture, fashion) by using your bio-based INNOVERA™? Which role does your "plug and play" technologies play in this respect?

INNOVERA™ offers distinct performance advantages across multiple industries. In automotive applications, it provides high durability, a lightweight structure, and excellent resistance to wear, making it ideal for interiors and upholstery.

For footwear, INNOVERA™ delivers superior flexibility, outstanding abrasion resistance, and lasting color fastness. In the furniture sector, it is valued for its compatibility with existing manufacturing processes and its excellent tactile properties. For fashion, INNOVERA™ stands out with its luxurious feel, versatile design potential, and animal-free composition.

Our "plug and play" technology is a key enabler, allowing leather manufacturers to adopt INNOVERA™ within their existing production lines without significant retooling. This seamless integration accelerates the transition to sustainable materials across various sectors.

How do you guarantee that your leather alternative is truly sustainable? Do you apply life cycle assessment and/or do you consider certification and ecolabelling for all of your products?

Can you track your feedstocks through the whole value chain? Do you also ensure that your Scope 3 emissions are reduced? If so, how?

To ensure the sustainability of INNOVERA™, we conduct comprehensive third-party life cycle assessments (LCAs), quantifying environmental impacts

such as greenhouse gas emissions, water use, and resource efficiency. Modern Meadow has been working hard to prioritize and accelerate initiatives that will enable us to provide a solid foundation for environmental claims. This will help us to be an even more collaborative partner to our customers, contributing to their sustainability communications with precise and wellevidenced information.

Feedstock traceability is a priority; we work closely with suppliers to track raw materials from source to finished product. Additionally, we are actively engaged in reducing Scope 3 emissions by collaborating with our supply chain partners to adopt renewable energy and circular practices. An example of this is the use of ISCC PLUS certified nylon from chemically recycled post-consumer car tires.

You apply traditional tannery methods for your INNOVERA™ leather. Do you also use renewable chemicals (e.g. renewable formic acid) for this process?

Our INNOVERA™ leather alternative is crafted using the final stage of the traditional tannery process, known as re-tanning, which allows us to eliminate the use of chromium and other conventional tanning agents typically employed earlier in leather production. By focusing on this stage, we avoid many of the resource-intensive steps associated with traditional tanning. We are committed to continuously evaluating and updating our processes to maximize the use of renewable chemicals, ensuring that INNOVERA™ delivers high performance with a lower environmental footprint.

Why did you decide to become part of the RCI and how can the RCI profit from your membership?

Joining the Renewable Carbon Initiative aligns seamlessly with our mission to transition from fossil-based to renewable carbon sources. Our commitment to sustainability drives our innovation in materials like INNOVERA™, supporting a circular economy. We are excited to collaborate with RCI and its members to accelerate the shift towards sustainable practices in our industry and the markets that we serve.