

The World's First Lab-Made Whole Cow Milk is Here

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BOSTON, Feb. 25, 2025 (GLOBE NEWSWIRE) -- Today, Brown Foods, a Y Combinator-backed startup based in Boston, achieves a major milestone in food technology as the first company in the world to showcase lab-made whole cow milk. Dubbed *UnReal Milk*, this groundbreaking cow-free dairy product is designed to match the taste, texture, and nutrition of conventional cow milk — while also being transformable into butter, cheese, ice cream, and more — all without the need for cows.



Dr. Bhavna Tandon, Chief Scientific Officer at Brown Foods, unveils a test-tube full of *UnReal Milk* — the world's first lab-made whole cow milk, at Brown Foods' lab in Boston, MA.

This scientific breakthrough puts Brown Foods at the forefront of food innovation, using a biotech-driven approach called mammalian cell culture to produce real milk. Unlike plant-based alternatives like oat or soy milk, *UnReal Milk* contains all essential proteins, fats, and carbohydrates that make up 99% of traditional cow milk, delivering the same taste, texture, and functionality as conventional dairy.

“Brown Foods has achieved a significant scientific and technological breakthrough by producing the world's first test tube of lab-grown milk,” said Dr. Richard Braatz, Edwin R. Gilliland Professor of Chemical Engineering at MIT, biopharmaceutical manufacturing expert, and member of Brown Foods' Scientific Advisory Board. “Unlike precision fermentation, the key strength of Brown Foods' technology approach is that it uses mammalian cell culture which enables them to produce all components of milk together

as whole milk and their technology can be scaled up further using bioreactor systems to produce mass volumes of milk for the human consumption. What makes this breakthrough remarkable is its scalability. This technology can be scaled to meet global demand while delivering a solution that is sustainable and resource-efficient.”

For the past 6+ years, startups have been trying to produce fully lab-made whole milk, but no company has been able to showcase lab milk with all key proteins, fats, and carbohydrates — until now. In just three years of experimentation, Brown Foods has achieved what others in the space have yet to accomplish.

Scientific Validation of a Major Dairy Milestone

Brown Foods has successfully validated that *UnReal Milk* contains all the essential dairy proteins, fats, and carbohydrates that make up 99% of conventional cow milk. Further reinforcing these findings, an independent third-party analysis by the Whitehead Institute for Biomedical Research, affiliated with MIT, confirmed the presence of all key dairy proteins, including: Alpha-S1-Casein, Alpha-S2-Casein, Beta Casein, Kappa Casein, Alpha-lactalbumin, Beta-lactoglobulin, Lactotransferrin and Albumin. Brown Foods has also verified that *UnReal Milk* contains the same milk fats (majorly triglycerides) and carbohydrates as traditional dairy. These results underscore the scientific precision behind Brown Foods’ mammalian cell culture technology, further validating the product’s composition as equivalent to conventional cow milk.

This showcase marks version 1.0 of *UnReal Milk*, demonstrating a crucial step toward commercial viability.

Better for the Planet, Animals and the Future

In addition to replicating cow milk’s natural qualities, *UnReal Milk* aims to redefine sustainability in the dairy industry. The product has an estimated 82% lower carbon footprint, uses 90% less water, and 95% less land usage as compared to conventional dairy. Since it is made without any cows, it offers consumers a cruelty-free solution that supports both their dietary needs and the environment.

Brown Foods’ innovation is particularly timely in light of recent climate concerns across the USA and the globe, resource scarcity, and the growing demand for sustainable solutions in the food sector. The implications of lab-made milk also extend beyond our planet into space, offering a reliable source of dairy for space exploration and remote regions where traditional dairy farming isn’t viable.

“With *UnReal Milk*, we’re not just offering a sustainable alternative — we’re proving that by leveraging recent advances in technology we can create nature-identical, tasty and functional food products while solving some of the biggest challenges in food production,” said Sohail Gupta, Co-founder and CEO of Brown Foods. “Our goal is to

make dairy products that consumers absolutely love while protecting the planet for future generations and putting an end to animal-cruelty.”

For a behind-the-scenes look at how *UnReal Milk* is made, watch this exclusive video: <https://www.youtube.com/watch?v=v237p8K7kjo>.

A Vision for Scalability and Consumer Impact

Brown Foods, founded in 2021 by a team of Stanford, Rice, and IIT Delhi alumni with over 30 years of combined expertise in synthetic biology, bioprocess engineering, and food innovation, has made rapid progress in just three years. Backed by investors including Y Combinator, AgFunder and Collaborative Fund, the company has raised \$2.3M to date and operates in both the U.S. and India.

The Brown Foods team is committed to bringing *UnReal Milk* to consumers for tasting by late 2025 with version 2.0, followed by a market pilot in late 2026. As Dr. Richard Braatz, Professor at MIT, has noted, this approach is fully scalable.

Version 2.0 will deliver a more refined product, as the current process produces milk in a liquid solution from which it must be extracted. While some components of this solution remain in the milk, they will be completely removed in the next iteration. To accelerate progress, the company is leveraging AI to optimize bioprocessing, ensuring a faster and more precise path to market readiness.

About Brown Foods

Brown Foods, headquartered in Boston, was founded by Sohail Gupta, Bhavna Tandon, and Avhijeet Kapoor — alumni of Stanford, Rice, and IIT Delhi. As a pioneering cellular agriculture company, Brown Foods is dedicated to creating sustainable, cruelty-free alternatives to conventional dairy. Supported by leading investors like Y Combinator and guided by scientific experts from institutions such as MIT, the company is on a mission to redefine the future of dairy. For more information, visit <https://www.ycombinator.com/companies/brown-foods>.

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