



It may soon be possible to replace milk from cows with an exact molecular replica made using yeast | Photo source [Andy Kelly on Unsplash](#)

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PRECISION FERMENTATION CREATES DAIRY PRODUCTS IN THE LAB

 AGRICULTURE & ENERGY

Better Dairy is using precision fermentation to create dairy products that do not involve cows

Spotted: The UK startup Better Dairy is using precision fermentation to remove animals from the food chain, creating dairy products that are molecularly identical to traditional dairy products but without involving the cow.

But this is not vegan cheese made from plants — the precision fermentation process uses yeast to create the individual molecular constituents of milk in different vats, and then blend them together to achieve the exact composition of milk. A very similar process has already been used to produce rennet and insulin.

The company’s founders, Jevan Nagarajah and Dr Christopher Reynolds, are both alumni of Imperial College London. They paired up as part of incubator Entrepreneur First’s company builder programme. While their initial plan is to create better quality animal-free dairy products, their final goal is nothing short of disrupting the entire dairy supply chain and “create a world where humans are vegan without even realising it”, as [Nagarajah put it to Tech Crunch](#).

To start, they are focusing first on dairy proteins – which are used on their own as ingredients in thousands of commercial products. This could allow the company to start earning revenue even before they have a complete finished dairy product to market to consumers. Nagarajah says that “The main dairy proteins whey and casein have many structural and nutritional benefits and are used as ingredients across thousands of food products...They even find their way into products like beef burgers and chicken nuggets to bolster protein content and add texture.”

The startup picked up £1.6 million in seed funding late last year for its animal-free dairy business. The company is currently in the research and development stage and will be using the money to accelerate these efforts, with an eye to having commercially available products by 2022.

Better Dairy is not alone in this market. A number of other companies, including [Change Foods](#), [Imagindairy](#), Remilk and Perfect Foods are also working to recreate dairy products using fermentation. With the dairy industry worth around \$700 billion a year, and the public's appetite for animal-free products growing, it is easy to see why so many companies are joining this sector.

Written By: Lisa Magloff

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Takeaway:

There is no doubt that dairy farming is hugely unsustainable. It is estimated to emit more than 1.7 billion tonnes of CO2 into the atmosphere each year. On top of this, it takes 650 litres of water to produce just 1 litre of milk – and that is before issues of animal welfare, waste management and deforestation are considered. At the same time, dairy is relatively low-cost, which means that fermentation companies will need to achieve a very high level of efficiency in order to make a profit. This is why Better Dairy has opted to focus first on producing commercial products such as proteins.