

UN SDGs

Clean water and sanitation, responsible consumption and production, life below water, & life on land.

NATURE INSPIRATION

nutriBarrier was inspired by the germination of acorns, the frog mating process, and the myxini's defence processes.

NEEDS

Assistance with biotechnology research and development, including funding, mentoring, and lab space/equipment.

FOUNDING TEAM

- Luke Heffernan
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CONTACT INFO

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Blue-green algae blooms attack millions of square kilometres of waterway globally every year, killing marine life and damaging agriculture. A major source of these blooms is the copious nutrients used in agricultural processes. nutriBarrier keeps water and nutrients on farms and out of natural waterways, boosting yields and conserving the environment.

PROBLEM & OPPORTUNITY

We designed this business to tackle the global crisis of blue-green algae blooms, which disturb drinkable water sources, marine life and agriculture. We identified the need for farmers to prevent water with excess fertilisers from being lost into nearby natural water sources and retain it for better use on their lands. Water costs locally and internationally are skyrocketing with increasing scarcity - South Australia alone has shown a 67% rise in overall water costs to \$333b in 3 years, despite overall water use falling.

SOLUTION

A water-absorbing gel and mulch, both layered in organic semi-permeable coating, form the nutriBarrier with the following benefits:

1. Stops runoff: excess nutrients barred from entering the waterways.
2. Retains water: nutriBarrier retains excess water at each plant. Mulch surrounds plants and expands with our special nature-inspired gel.
3. Smart fertilising: fertiliser is released passively from within the nutriBarrier, so there is no need to plan when or how much to fertilise.
4. Sustainable manufacturing: Scalable design using external waste products, sustainable and affordable materials.

BIOMIMICRY IN PRACTICE

We leveraged biomimicry in our design, drawing inspiration from unique characteristics of organisms in nature, like hagfish, frogs, squirrels, and DNA. Our solution exemplifies the sustainability ethos of biomimicry by ensuring a clean environment for life above and below the water, while using waste materials to help close the loop on the waste cycle.

REVENUE MODEL

Our revenue is sourced from product sales and grants, with prototype funding from Biomimicry Institute and Adept Adelaide. We also aim to contribute to a circular economy by use waste products from some manufacturers. nutriBarrier will be initially sold to farming and agricultural businesses in need within South Australia, with a vision to expand globally to conservationists and governments.

TRACTION

Initial prototype studies done with alternative materials to showcase water retention properties, which will be expanded to identifying valuable properties of proteins in the gel. The nutriBarrier was designed to ensure a harmonious market-environment fit with support from South Australian State Government, advisors from EPA, consultation from Water Research Centre at the Environment Institute and investment interest from suppliers and farmers interviewed.

TEAM

We are a team of motivated young professional from multidisciplinary backgrounds with skills across business, marketing, engineering, and science. We have a common drive to promote sustainability and have been mentored by Jacques Chirazi during the Biomimicry Launchpad program.

NEXT STEPS

The next step for nutriBarrier is to further develop our prototype, measuring our fertilisation and water retention benchmarks.