

Submission to the Belém Mission to 1.5 Call for Inputs

Genesis Algae-Based Biological Climate Solutions for Climate Action, Food Security, Land Restoration and Carbon Utilisation

Submitted by:

Genesis Co. Pty Ltd
Australia

Submission to:

COP31, COP30 and COP29 Presidencies
Belém Mission to 1.5

1. Executive Summary

Genesis Co. Pty Ltd welcomes the opportunity to provide input to the Belém Mission to 1.5.

Genesis is an Australian biotechnology and climate solutions company focused on the commercial deployment of algae-based biological technologies across agriculture, livestock productivity, carbon utilisation, land restoration and sustainable materials.

This submission is based on a simple proposition: Genesis algae-based biological climate solutions can support the implementation of Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) by delivering practical, scalable and economically viable climate outcomes.

The world urgently requires climate solutions that can be deployed at scale, integrated into existing industries and adopted by farmers, landholders, producers and industrial operators without imposing unrealistic economic burdens. Microalgae offers one such platform. It can capture carbon, improve agricultural productivity, reduce emissions intensity, rebuild soil health, support long-term carbon sequestration and convert captured carbon into commercially valuable products.

Genesis recommends that the Belém Mission to 1.5 recognise algae-based biological climate solutions as a priority implementation pathway for NDCs and NAPs.

In particular, Genesis recommends increased focus on:

1. Regenerative agriculture and biological inputs that reduce fertiliser dependency while improving productivity.
2. Livestock productivity solutions that reduce emissions intensity while improving farm profitability.
3. Degraded land restoration systems capable of transforming marginal and non-arable land into productive carbon-sequestering landscapes.
4. Carbon utilisation pathways that convert captured carbon into renewable fuels, construction materials and long-term carbon storage products.
5. International cooperation mechanisms that accelerate technology deployment, investment, capacity building and implementation.

These opportunities support not only climate mitigation, but also adaptation, food security, biodiversity enhancement, regional development and economic resilience.

2. About Genesis

Genesis Co. Pty Ltd is an Australian microalgae technology company focused on unlocking the agricultural, environmental and commercial value of microalgae.

Since its establishment in 2017, Genesis has developed algae-based technologies across agriculture, livestock production, carbon utilisation and environmental restoration. The company operates commercial production capability and has undertaken field validation programs across Australia and internationally.

Genesis has developed:

AlgaeFeed™ – a microalgae-based livestock supplement designed to improve productivity and reduce emissions intensity.

AlgaeFert™ / AlgaeBoost – microalgae-based crop and soil bio stimulant designed to improve soil health, crop productivity and reduce chemical fertiliser dependency.

Algae Coal – a renewable biomass fuel providing a pathway toward near carbon-neutral industrial energy.

Algae Concrete – a carbon-storing construction material integrating algae-derived biochar into concrete and construction products.

Desert to Forest Initiative – a land restoration platform designed to transform degraded and non-arable land into productive agricultural landscapes with increased soil carbon.

Collectively, these technologies demonstrate how Genesis algae-based biological climate solutions can deliver environmental, economic and social outcomes at the same time.

3. The Need for Practical Climate Implementation

The Belém Mission to 1.5 comes at a critical point in the global climate response.

Many countries have now established emissions reduction targets, net-zero commitments and adaptation strategies. The challenge is increasingly one of implementation rather than ambition.

Achieving the objectives of the Paris Agreement will require solutions that can simultaneously:

- reduce greenhouse gas emissions;
- increase carbon sequestration;
- improve food security;
- enhance resilience to climate impacts;
- restore degraded ecosystems;
- support economic development;
- attract private investment; and
- deliver practical outcomes for communities.

Genesis algae-based biological climate solutions are relevant because they address multiple objectives simultaneously. Unlike many climate technologies that focus on a single outcome, algae-based systems can reduce emissions, capture carbon, improve productivity and restore ecosystems at the same time.

This makes them particularly relevant for both developed and developing economies seeking practical pathways to implement NDCs and NAPs.

The Genesis experience also highlights the importance of investment models that support deployment rather than research alone. Many climate technologies have already demonstrated technical viability but require investment in commercial-scale implementation. The Belém Mission should encourage investment

frameworks that prioritise scalable deployment, measurable outcomes and long-term economic sustainability.

4. Priority Action Area 1: Genesis Algae-Based Biological Agriculture as Climate Infrastructure

Agriculture should not be viewed solely as a source of emissions.

Agriculture should also be recognised as one of the world's most important climate solution platforms.

Farmers manage vast areas of land, soil, water and biological systems. With the right technologies and incentives, agricultural systems can simultaneously improve productivity, reduce emissions, store carbon and strengthen resilience.

Genesis has developed microalgae-based agricultural technologies designed to improve soil health, stimulate microbial activity, increase nutrient availability and reduce dependence on synthetic fertilisers.

Reducing fertiliser dependency is both a climate and food security priority. Synthetic fertiliser production is energy intensive, while excessive fertiliser use can contribute to soil degradation, water pollution and reduced long-term soil productivity.

Genesis has demonstrated the ability to significantly reduce fertiliser requirements while maintaining or improving crop performance. This supports a transition toward lower-input, higher-resilience agricultural systems.

The benefits of Genesis algae-based biological agriculture include:

- improved soil health;
- increased drought resilience;
- improved nutrient efficiency;
- reduced nutrient runoff;
- enhanced food security;
- reduced dependence on chemical fertilisers;
- increased farm profitability; and
- increased soil carbon.

For many countries, algae-based biological agriculture represents a practical and scalable pathway to achieving climate and food security objectives simultaneously.

Genesis recommends that the Belém Mission to 1.5 recognise algae-based biological agriculture as a priority implementation pathway within future NDC and NAP frameworks.

5. Priority Action Area 2: Livestock Productivity and Emissions Intensity Reduction

Livestock emissions remain a major challenge for many countries.

However, climate solutions must be practical, economically attractive and compatible with existing farming systems if they are to achieve meaningful adoption.

Genesis has developed AlgaeFeed™, a microalgae-based livestock supplement designed to improve livestock productivity while reducing emissions intensity.

Commercial field trials have demonstrated significant improvements in animal performance during challenging seasonal conditions. Improved productivity reduces the time required for animals to reach market weight, lowering emissions intensity while simultaneously improving producer economics. The microalgae also contributes directly to reduced enteric methane emissions through its interaction within the rumen

Importantly, AlgaeFeed™ can be delivered through existing farm water and feed infrastructure, making adoption simple and practical for grazing operations.

This highlights an important principle for climate implementation: climate technologies are most rapidly adopted when they improve productivity and profitability while delivering environmental outcomes.

Livestock solutions that align environmental performance with producer economics should be recognised as an important component of future climate implementation strategies.

Genesis recommends that the Belém Mission to 1.5 support technologies that:

- improve livestock productivity;
- reduce emissions intensity;
- improve feed utilisation;
- increase producer profitability;
- enhance resilience during drought and seasonal stress; and
- integrate easily into existing farming systems.

Such solutions offer practical pathways for reducing agricultural emissions while maintaining food production and rural livelihoods.

6. Priority Action Area 3: Desert to Forest and Degraded Land Transformation

Genesis believes that degraded land restoration represents one of the most significant opportunities available to simultaneously address climate change, food security and economic development.

Through its Desert to Forest Initiative, Genesis has successfully transformed desert-type soils into high-yielding agricultural soils through the application of algae-enhanced biological systems.

This transformation has demonstrated significant improvements in:

- soil productivity;
- soil organic carbon;
- water retention capacity;
- nutrient availability;
- beneficial microbial activity; and
- drought resilience.

These improvements enable previously marginal or unproductive land to support productive agriculture, forestry projects and ecosystem restoration activities.

The global opportunity is enormous.

Hundreds of millions of hectares of degraded, semi-arid and underutilised land exist throughout Australia, Africa, Asia, the Middle East, North America and South America.

Converting even a small proportion of this land into productive biological systems would generate significant benefits through:

- increased food production;
- increased agricultural productivity;
- enhanced land values;
- carbon sequestration;
- carbon credit generation;
- biodiversity restoration;
- regional economic development; and
- climate adaptation.

Unlike many climate solutions, degraded land restoration delivers benefits across mitigation, adaptation and economic development simultaneously.

Genesis recommends that the Belém Mission to 1.5 recognise degraded land restoration as a high-impact implementation opportunity and support increased investment, pilot programs, carbon methodologies and international cooperation in this area.

7. Priority Action Area 4: Carbon Utilisation Through Renewable Fuels and Construction Materials

Capturing carbon is only part of the solution.

Long-term success will also require pathways that convert captured carbon into economically valuable products.

Genesis has developed technologies that demonstrate how captured carbon can be transformed into renewable fuels and carbon-storing infrastructure materials.

7.1 Algae Coal

Genesis has developed Algae Coal, a renewable biomass fuel derived from microalgae that provides industry with a practical pathway toward near carbon-neutral energy production.

Unlike fossil coal, the carbon contained within Algae Coal originates from recently captured atmospheric or industrial CO₂, creating a near carbon-neutral energy solution while retaining many of the characteristics required by existing industrial energy systems.

Potential applications include:

- industrial boilers;
- power generation facilities;
- cement manufacturing;
- mining operations;
- heavy industry; and
- green steel production.

Algae Coal provides industrial users with a commercially attractive pathway to reduce emissions while supporting energy security and industrial decarbonisation.

7.2 Algae Concrete

Genesis has developed Algae Concrete through the integration of algae-derived biochar into concrete and construction products.

The technology permanently stores carbon within finished infrastructure while also enhancing concrete performance.

Benefits include:

- permanent carbon sequestration within infrastructure assets;
- reduced embodied carbon;
- improved compressive strength;
- improved durability;
- enhanced long-term structural performance;
- support for green building certification programs; and
- creation of carbon-negative construction materials.

Algae Concrete transforms buildings, roads, bridges and infrastructure into long-term carbon storage systems.

The technology creates opportunities to generate value through both construction materials and carbon markets while supporting the transition toward more sustainable infrastructure.

8. Policy Opportunities

Governments can accelerate implementation by recognising Genesis algae-based biological climate solutions within national climate frameworks, agricultural policies, carbon methodologies and green procurement programs.

Policy settings that reward soil carbon enhancement, land restoration, regenerative agriculture and carbon utilisation will help accelerate adoption while supporting private sector investment.

Priority policy opportunities include:

- recognising biological agriculture within NDC and NAP implementation plans;
- supporting carbon methodologies for soil carbon, biochar and land restoration;
- encouraging green procurement of carbon-storing construction materials;
- supporting low-emissions agricultural inputs;
- creating incentives for degraded land restoration;
- enabling carbon credit recognition for long-term biological carbon storage; and
- supporting demonstration projects that validate commercial deployment pathways.

Policy frameworks should prioritise climate solutions that deliver both measurable emissions outcomes and economic benefits for the communities and industries expected to adopt them.

9. Implementation Lessons from Commercial Deployment

One of the most important lessons from Genesis' commercial deployment experience is that climate technologies are most rapidly adopted when they improve productivity and profitability alongside environmental outcomes.

Farmers, landholders and industrial operators are significantly more likely to adopt climate solutions when those solutions strengthen economic performance while delivering measurable sustainability outcomes.

This alignment between environmental benefit and commercial value is critical for large-scale implementation.

Future climate policy, climate finance mechanisms and deployment programs should prioritise solutions capable of delivering both environmental and economic outcomes.

This is particularly important in agriculture, where adoption is strongly influenced by risk, cost, ease of use and peer validation. Climate technologies must be practical, economically attractive and capable of integration into existing systems.

10. Barriers to Scaling Genesis Algae-Based Biological Climate Solutions

While algae-based biological climate technologies offer significant potential, several barriers continue to limit deployment.

The most significant barriers include:

10.1 Recognition within Climate Frameworks

Biological climate platforms are often underrepresented in climate policy compared with energy, electrification and engineered carbon capture technologies.

Greater recognition is needed for biological systems capable of delivering emissions reduction, adaptation, soil restoration and food security outcomes simultaneously.

10.2 Measurement and Verification

Credible measurement frameworks are essential for scaling biological climate solutions.

This includes methodologies for:

- soil carbon measurement;
- biochar carbon storage;
- emissions intensity reduction;
- fertiliser reduction;
- land restoration outcomes; and
- long-term carbon sequestration.

10.3 Access to Climate Finance

Many biological climate technologies require demonstration and deployment capital to move from field validation to large-scale implementation.

Climate finance, concessional capital and blended finance mechanisms should be made available for commercially promising biological climate solutions.

10.4 Adoption Barriers

Farmers, landholders and industrial operators require confidence that climate technologies are practical, cost-effective and compatible with existing operations.

Demonstration projects, case studies, technical support and farmer education are essential to adoption.

10.5 Market Recognition

Carbon markets and green procurement systems need to better recognise biological carbon solutions, including soil carbon, biochar, carbon-storing infrastructure materials and degraded land transformation.

11. Capacity Building and Institutional Opportunities

Capacity building will be critical to achieving large-scale implementation of algae-based biological climate solutions.

Priority capacity-building opportunities include:

- farmer education programs;
- land restoration training;
- soil carbon measurement capability;
- biological agriculture deployment support;
- technical training for regional implementation partners;
- demonstration farms and pilot sites;
- knowledge sharing between developed and developing economies; and
- support for local implementation partners.

International institutions, governments, research organisations and private industry all have important roles to play in supporting validation, deployment and scaling.

Institutional support should focus on practical implementation rather than theory alone. This includes helping countries and regions identify suitable land, develop pilot programs, measure outcomes, attract investment and build local technical capability.

12. International Cooperation Required

No single country will achieve the objectives of the Paris Agreement alone.

International cooperation must move beyond policy dialogue toward practical implementation partnerships that connect governments, investors, researchers, technology providers, farmers, landholders and industrial partners.

The most successful climate solutions will be those that can be rapidly adapted and deployed across multiple countries and regions while delivering measurable environmental and economic outcomes.

Genesis recommends increased international cooperation focused on:

1. Demonstration projects for algae-based biological agriculture and land restoration.
2. Shared methodologies for soil carbon measurement and verification.
3. Climate finance mechanisms supporting biological climate technologies.
4. Technology transfer partnerships between developed and developing nations.
5. International pilot programs targeting degraded land restoration.
6. Green procurement frameworks supporting low-carbon and carbon-storing construction materials.
7. Carbon market development supporting biological carbon solutions.
8. Capacity building programs for farmers, landholders and local implementation partners.

9. Institutional partnerships between governments, research organisations, technology providers and investors.

Australia is particularly well positioned to contribute in these areas through its expertise in agriculture, land management, climate innovation and regional engagement.

As Australia plays a leading role in the COP31 process, it has an opportunity to support practical climate solutions that can be deployed domestically and internationally.

13. Recommendations

Genesis respectfully recommends that the Belém Mission to 1.5:

1. Recognise algae-based biological climate platforms as a priority implementation pathway for NDCs and NAPs.
2. Support regenerative agriculture and biological fertiliser alternatives that reduce reliance on synthetic fertilisers while improving productivity.
3. Promote livestock productivity technologies that reduce emissions intensity while improving producer economics.
4. Prioritise degraded land restoration and Desert to Forest-style initiatives as high-impact mitigation, adaptation and food security solutions.
5. Support carbon utilisation pathways including renewable fuels and carbon-storing infrastructure.
6. Expand climate finance mechanisms supporting commercially deployable biological climate technologies.
7. Facilitate international technology transfer and implementation partnerships.
8. Encourage demonstration projects capable of delivering both environmental and economic outcomes.
9. Support carbon methodologies for soil carbon, biochar, degraded land restoration and carbon-storing materials.
10. Build institutional capacity for farmer education, land restoration, soil carbon measurement and biological agriculture deployment.

14. Conclusion

The challenge facing the global climate community is no longer simply identifying climate solutions. It is implementing solutions at scale.

Genesis algae-based biological climate solutions offer a unique opportunity to address multiple challenges simultaneously by reducing emissions, restoring ecosystems, improving food security, increasing resilience and generating economic value.

Through regenerative agriculture, climate-smart livestock production, degraded land restoration and carbon utilisation, microalgae-based technologies can help countries strengthen climate ambition while improving resilience and sustainable development outcomes.

Genesis welcomes the opportunity to contribute further to the Belém Mission to 1.5 process and supports continued collaboration between governments, industry, investors and civil society to accelerate implementation.

15. Supporting Attachments

Genesis recommends providing the following supporting attachments with this submission.

Appendix A – Climate Investor Forum Article

“Genesis showcases algae breakthrough at Climate Investor Forum” – demonstrating Genesis’ participation in Australia’s climate investment ecosystem and outlining the potential scale of impact from its algae-based technology platform.

Appendix B – Beef Central Livestock Trial Article

“Algae trial flags valuable nutrition supplement to improve beef production” – demonstrating livestock performance outcomes, practical farm integration and producer adoption.

Appendix C – Herald Sun Article

“Algae ‘superfood’ could solve Australia’s reliance on imported fertiliser” – highlighting fertiliser reduction, agricultural resilience and food security benefits.

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Appendix A

[Genesis showcases algae breakthrough at Climate Investor Forum](#)

[Eco Voice](#) | February 19, 2026

<https://www.ecovoice.com.au/genesis-showcases-algae-breakthrough-at-climate-investor-forum/>



Agri-climate innovator [Genesis](#) has taken centre stage at Australia’s largest climate investment conference, presenting its scalable algae-based technology as a proven and commercially viable pathway to lowering agricultural emissions without compromising productivity. By doing so, Genesis positions itself as one of the available climate technologies in the market capable of delivering both environmental and economic returns at scale.

Presenting at the Climate Investor Forum alongside leading climate technology companies, Genesis outlined how its algae-based feed supplements and crop biostimulants are already improving growth rates, boosting yields, and reducing emissions intensity across key livestock and cropping sectors in both Australia and Asia.

[Agriculture contributes approximately 15 percent of Australia’s anthropogenic greenhouse gas emissions](#), with enteric methane from livestock the single largest source. At the same time, Australia remains one of the [world’s top five beef exporters](#), with producers navigating tightening profit margins, rising input costs, and increasing pressure from supply chains to demonstrate emissions reductions.

Genesis’s platform addresses productivity and emissions simultaneously at the production stage. By improving feed efficiency and accelerating growth rates, livestock reach market weight sooner—reducing lifetime methane output while improving overall production efficiency.

Genesis has grown to become Australia's largest micro algae producer, with capacity to supply more than 350,000 cattle daily. Its cultivation systems require comparatively low land, water, and labour inputs, supporting scalable deployment within existing agricultural operations.

Over the long term, Genesis estimates its technology platform could contribute more than 2.6 gigatonnes of CO₂-equivalent in global carbon abatement annually, with 0.2 to 0.6 gigatonnes achievable in the near term through deployment across livestock and cropping systems.

Field performance has been validated through commercial and research partnerships, across livestock and key strategic crops. Of important note is the dramatic improvement in sugar cane growth performance helping address the sugar cane yield plateau being experienced by the sugar industry over recent years

"Agriculture doesn't need to choose between productivity and emissions reduction," said [Colin McGregor](#), Genesis's Founder and Managing Director. "We've demonstrated that it can achieve both at scale. Algae is not a future concept; it's a deployable solution capable of reshaping how food is produced."

With established production capacity, validated field performance and expanding international partnerships, Genesis is delivering a farmer-led, economically grounded pathway to large-scale emissions reduction and more sustainable global food production.

For more information, visit <https://www.genesisalgaeinnovation.com>

Appendix B – Beef Central Livestock Trial Article

“Algae trial flags valuable nutrition supplement to improve beef production” – demonstrating livestock performance outcomes, practical farm integration and producer adoption.

Beef Central 21/04/2026

<https://www.beefcentral.com/production/algae-trial-flags-valuable-nutrition-supplement-to-improve-beef-production/>

Algae trial flags valuable nutrition supplement to improve beef production



Genesis produces commercial quantities of chlorella microalgae in a terrestrial pond system, akin to aquaculture.

A QUEENSLAND based technology developer is recording significant results in cattle fed an algae supplement to help maintain weight through winter protein gap periods.

Bowen-based Genesis, Australia’s largest commercial microalgae provider – has partnered with McDonald’s beef supply chain manager FMG Global, in a pilot study assessing the effectiveness of its microalgae-based supplement in supporting improved growth performance in grazing cattle.

Other project partners include the University of Central Queensland and Mountain View Grazing Co near Springsure in Central Queensland.

The trial looked at whether cattle that had access to the company’s supplement, AlgaeFeed – a natural chlorella-based bio-stimulant – had better weightgain performance and feed utilisation after receiving the supplement.

Beef Central first wrote about MLA-backed research into the potential of farmed algae as a livestock supplementary feed source [in this article, published way back in 2014.](#)

The recent trial was conducted by Central Queensland beef producers Mountain View Grazing near Springsure, across the winter period, with a non-supplemented control group, and a group that was administered AlgaeFeed were monitored. Each mob numbered about 100 cattle.



Using Optiweigh paddock weighing systems, Mountain View Grazing principal **David O'Connor** identified that the non-supplemented control group lost weight on average at -0.7kg per head per day, whereas the AlgaeFeed supplemented cattle gained at $+0.1\text{kg}$ per day – a difference of 0.8kg .

Across the three-month trial, the non-supplemented group lost an average of 12.51kg , whereas the cattle consuming AlgaeFeed, fed via water troughs, maintained bodyweight and improved overall condition.

AlgaeFeed is an Australian produced, nutrient-rich, organic natural growth bio-stimulant that is high in protein (50pc), omega 3,6 and 9, iron, vitamin B12 and magnesium, Genesis says.

It provides an ideal stock feed supplement as it is simple to administer for both feedlot and grazing animals as it is administered through water medication.

While the AlgaeFeed product should not be confused with asparagopsis seaweed-based supplement products designed specifically for methane inhibition, university studies had also demonstrated that the AlgaeFeed additive reduced in-vitro enteric methane emissions by 25pc – based on better weightgain performance and hence earlier turnoff, Genesis said in a statement.

Genesis founder **Colin McGregor** described the comparative weightgain performance of 0.8kg per head per day as an “incredible result.”

He said that the improved growth performance showed the strong enteric methane reduction potential of AlgaeFeed due to the animals’ reduced life span required to achieve a greater net weight.

Genesis is working with CQU and Mountain View Grazing on a full-cycle trial to further validate the long-term impacts of AlgaeFeed on growth performance and methane reduction.

Fulton Market Group, which supplies McDonald’s with its raw material for burger patties across Asia and North America, is also involved in the trials. FMG’s sustainability manager **Sebastian Martin** said the trial

results were encouraging for Australia's beef grazing systems, especially during dry periods when lower forage availability makes it harder for cattle to maintain weight.

"The algae supplement was straightforward to integrate into David and Adele's existing water infrastructure, which is important for grazing systems where simplicity and practicality matter," he said.



Brahman cattle receiving the microalgae supplement

Mountain View Grazing's **Adele O'Connor** said having been in the business for 28 years, she was no stranger to the challenges with getting consistent weightgain during Central Queensland's colder months, which could make a real difference to the economics of the cattle business.

"To us, this supplement is 'liquid gold'. Not only did we start seeing positive changes, but so did our neighbours, which sparked adoption across the local farming community," she said.

Neighbouring cattle producer **Rob Stewart**, whose family operates Burnside, joined the trial after observing early results.

"We run 2000 to 3000 head across several properties, with around 700–800 cattle currently on the algae supplement," Mr Stewart said.

"One of the first things we noticed was the general condition of the cattle; they simply looked healthier and were utilising their feed more efficiently. Anything that helps maintain animal health and weight during tougher seasons is something to which producers pay attention."

- The Mountain View Grazing trial is part of a broader effort to test algae-based bio stimulants across different Australian grazing environments. Farmers and producers who are interested in the supplement can [visit the Genesis website here](#)

Appendix C – Herald Sun Article

“Algae ‘superfood’ could solve Australia’s reliance on imported fertiliser” – highlighting fertiliser reduction, agricultural resilience and food security benefits.

April 2026



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Algae ‘superfood’ could solve Australia’s reliance on imported fertiliser

A former Qantas engineer claims his algae fertiliser has helped farmers slash chemical use by 90 per cent while boosting crop yields. SEE HOW

Paul Wallbank



2 min read April 6, 2026 - 2:02PM **The Australian Business Network**



Green algae used as a fitness superfood could solve Australia's fertiliser crisis, a Sydney inventor claims. Photo: Supplied

A former Qantas engineer turned inventor says he has a simple answer to Australia's growing fertiliser problem, using a green algae many people add to their morning smoothies.

With the Middle East conflict shaking markets and exposing how much Australian farmers rely on fertiliser from the region, Sydney entrepreneur Colin McGregor believes he has a homegrown fix.

"Algae is the fastest growing plant on the planet by a country mile," he said. "There are so many things you can do with it. It's one of the best solutions," Mr McGregor said.



Mr McGregor started Genesis Algae Innovation in 2017 to develop fertiliser from an algae commonly used in green super foods. Photo: Supplied

Mr McGregor started Genesis Algae Innovation in 2017 after working in biofuel research for Qantas earlier in the decade.

When the research project wound down, he shifted to applying the technology to agriculture, creating a fertiliser made from chlorella algae.

Chlorella is a tiny green algae packed with nutrients, known as a “superfood” and often sold as a health supplement, marketed as a natural detox option and an alternative to greens like kale and spinach.

Mr McGregor’s product is already being used on farms in North Queensland, including sugarcane regions around Mackay and Bowen.

“We’ve had farmers reduce chemical fertiliser use by 90 per cent,” Mr McGregor said. “They get the same or better yield and a higher quality crop.”

Australia imports more than 80 per cent of its urea, much of it from the Middle East. As supply tightens, farmers face higher costs and shortages,

which can push up food prices.

Mr McGregor said his algae fertiliser works differently to standard products, which degrade soil productivity over time. Instead, it helps rebuild soil health.

“It boosts natural nutrition and restores the soil,” he said. “We’re building up the soil microbiome and helping plants get nitrogen naturally.”

In sugarcane, where yields have dropped over the past 20 years, he said results have been clear.

“We’re restoring more than 20 per cent of the yield and making crops more resilient to pests and drought.”

There are environmental benefits too. Algae absorbs carbon as it grows and can help store it in the soil. Trials in China have also shown higher crop yields and lower emissions in rice farming.



Along with weaning Australian farms off imported fertilisers, Mr Gregor claims the product boosts soil health. Photo: Supplied

There are still challenges. The algae fertiliser is a liquid and does not last as long as traditional products. Farmers also need to change how they use it.

“Farmers are careful with risk,” Mr McGregor said. “They test a small area first, then scale up.”

Interest is growing as fertiliser prices rise and supply chains remain under pressure, Mr McGregor says, claiming his company can expand quickly if demand increases.

For Australia, the issue goes beyond cost. It is about food security in an uncertain world.

“It shows how fragile Australia is to shocks overseas,” he said. “We need to build our own capability.”