ReThink Food Challenge

Innovating for Earth by learning from research on space farming

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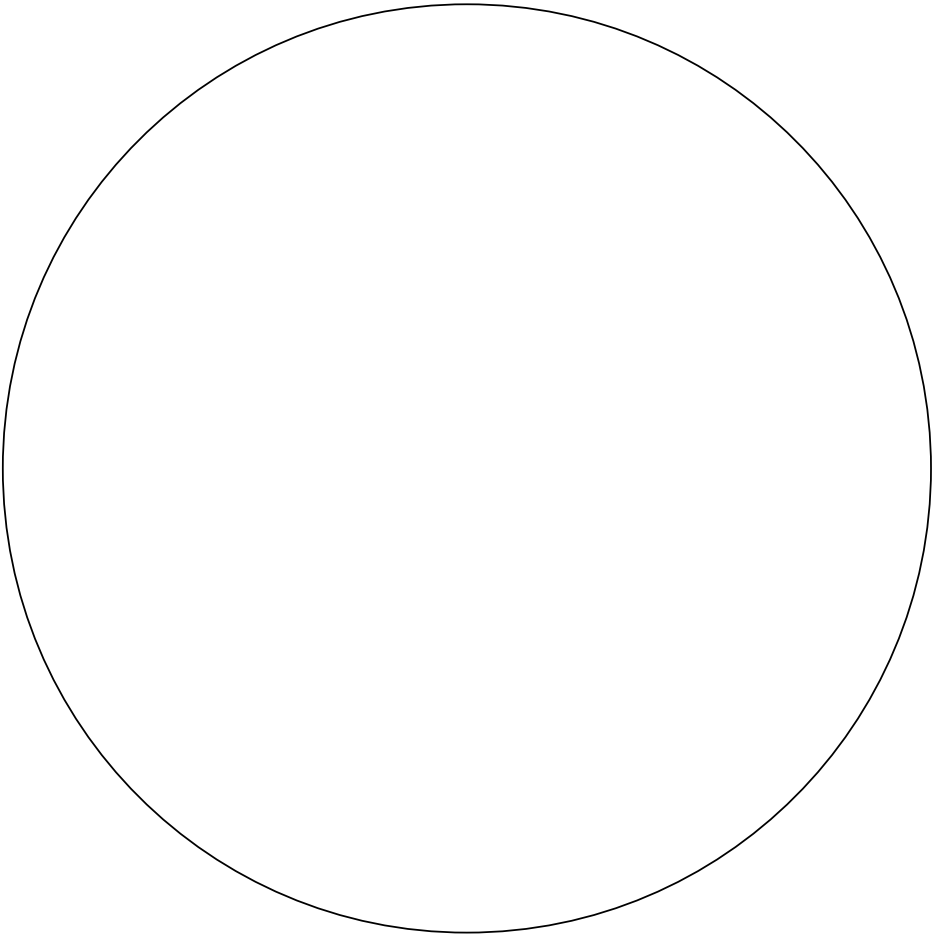

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We thank our partners and sponsors for their generous contributions. Their support has been invaluable in making the ReThink Food Challenge an unforgettable and inspirational event, educating the game changers of the future and contributing to innovations for a sustainable future.

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Word from the Rector

The future of food

At Wageningen University & Research, we believe that education is not just about transferring knowledge - it's about empowering people to make a difference. The ReThink Food Challenge is a wonderful example of how our students step into that role: thinking creatively, working together, and daring to develop real-world solutions for the future of food.

This challenge is not just about technical innovation, though ideas around indoor farming and alternative proteins are exciting and much needed. It's also about entrepreneurship. It's about turning bold ideas into business plans that can actually shift the way we produce and consume food. And it's about learning: what it takes to work across disciplines, to be open to feedback, and to grow an idea into something tangible.

Empowering responsible changemakers

Challenges like these reflect what we stand for at WUR. They connect education, research, and impact. They help our students become the changemakers we need - people who can navigate global trends like climate change, urbanisation, and shifting consumer demands, and who are ready to act.

I'm always inspired by the energy, courage, and creativity that students bring to initiatives like the ReThink Food Challenge. I really admire the time, effort, and teamwork that all of you have put into this journey. Thank you for your energy, your ideas, and your commitment to rethinking the future of food.

Creating change together

Tackling global challenges like these is something we can't do alone. That's why I'm so glad to see the strong collaboration behind this Challenge - from my colleagues at Wageningen University & Research to our partners around the world. I'm truly grateful for everyone's dedication and support.

I hope this magazine inspires you, whether you're already working in this field or just starting to explore how you can help build a more sustainable future.

Prof. Dr. Carolien Kroeze
Rector Magnificus
Wageningen University & Research

The Future of Space Farming with Ecologist Wieger Wamelink

Picture a future where astronauts harvest fresh lettuce on the Moon and bake bread on Mars. It might sound like sci-fi, but space farming is quickly becoming a reality.

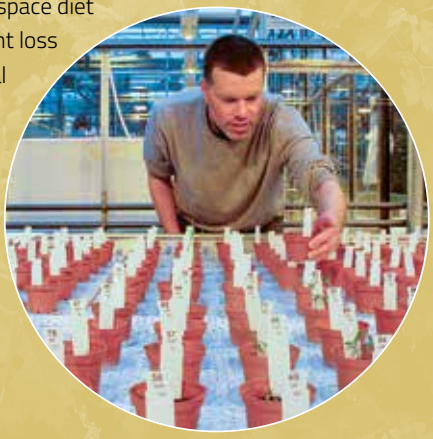
This innovative approach to agriculture involves cultivating crops in extraterrestrial environments, such as the International Space Station (ISS), the Moon, and Mars. The main goal is to create self-sustaining food sources for long-duration space missions, reducing the need for costly and risky shipments from Earth.

Experts like Wieger Wamelink (Wageningen University & Research) play a vital role in this field, shedding light on the potential and challenges of growing food beyond Earth. However, the insights gained from space farming are not just for space exploration; they also offer promising solutions for sustainable agriculture on Earth, especially as we confront the effects of climate change and the decreasing availability of arable land.

Why Space Farming Matters

Wamelink emphasises that space farming is not just about survival; it's about establishing a sustainable and efficient system to support life in space. He explains, "It's much easier and safer to grow your own crops there than to constantly ship them from Earth." Growing food on-site provides fresh produce, boosts astronaut well-being, and decreases reliance on Earth.

Wamelink also highlights another concern: "Astronauts always lose weight and one reason is that they don't like the food." The typical space diet consists of freeze-dried meals, which can lead to weight loss and diminished nutrition over time, posing an additional risk to astronauts' health.



"It might sound disgusting, but on Mars, human waste products like poop and pee will be the primary sources of fertiliser."

Challenges of Growing Food in Space

Growing food in space isn't exactly a walk in the park. Space environments present extreme temperatures, lack of atmosphere, and harmful cosmic radiation. Additionally, resources like water and soil are limited, necessitating the use of hydroponic systems. Extraterrestrial regolith, such as lunar and Martian soil, contain toxic levels of heavy metals that pose risks to plants and humans. Ensuring a stable environment for plants, including proper light, temperature, and humidity, is also critical for successful space farming.

Breakthroughs and Promising Technologies

Recent breakthroughs in space farming technology are paving the way for successful extraterrestrial agriculture. Innovations such as radiation-shielding domes and advanced hydroponics systems are being developed to protect plants and optimise growth.

Wamelink's research includes experimenting with crops like potatoes and tomatoes in simulated Martian and lunar soils, demonstrating promising results. These innovations not only support space missions but also offer new techniques for improving Earth-bound agriculture.

The Future of Space Farming

The B.A.S.E. (Bioregenerative Astrofood & Sustenance Engineering) project, led by Wieger Wamelink, is at the forefront of developing sustainable food systems for extreme conditions like those on the Moon and Mars. Creating a stable, closed-loop ecosystem that recycles waste into nutrients is vital for sustainable agriculture in those environments.

"One of the major things we are working on now is to get a circular closed agricultural ecosystem," Wieger says, highlighting the importance of recycling plant and human waste to sustain crop growth. This initiative has achieved significant milestones, such as growing crops in lunar and Martian soil simulants and exploring the potential of mealworms as a protein source.

"The potential for establishing controlled farming environments, or domes, in extreme Earth locations could significantly boost food security."

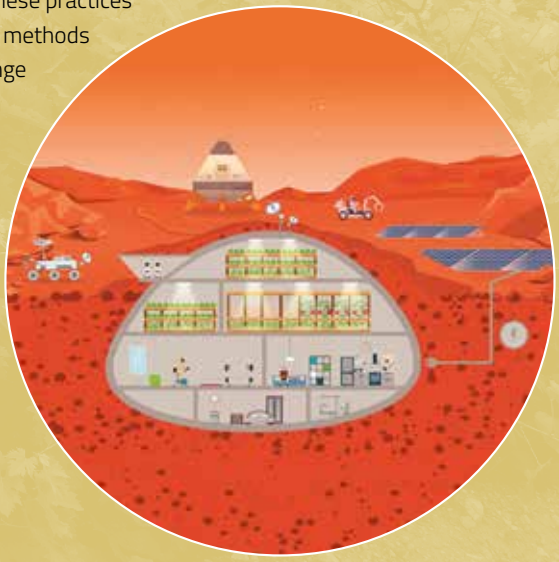
Revolutionizing Agriculture

Space farming research has significant implications for agriculture on Earth. The technologies and methods developed for space can help address challenges like soil degradation and water scarcity.

Wamelink believes that the lessons learned from space farming can revolutionize agricultural practices, particularly in arid and saline environments. "The potential for establishing controlled farming environments, or domes, in extreme Earth locations, could significantly boost food security," he suggests.

Sustainability Lessons for Earth

Space farming offers valuable lessons in sustainability that can benefit Earth. The closed-loop systems designed for space agriculture highlight the critical importance of recycling and efficient resource use. These practices can inspire more sustainable agricultural methods on Earth, helping to combat climate change and secure food supplies for future generations.



From Earth to the Stars: A Global Challenge Begins

A student challenge that ignites global innovation to transform food systems for a sustainable future.

A Challenge for Tomorrow

The ReThink Food Challenge is not just a competition - it's a mission. With Earth's population climbing toward 10 billion and resources dwindling, the need for transformative food systems is urgent. Add to this the dream of extending human life to other planets, and the challenge becomes an extraordinary test of ingenuity.

This year, over 350 participants from 50 countries - ranging from biotech engineers to aspiring astronauts - came together to tackle this colossal task. Hosted by Wageningen University & Research, the challenge dared participants to dream beyond convention, devising systems that can thrive not only on Earth but in the extreme conditions of space.

Innovation Rooted in Urgency

This year's themes - indoor farming and alternative proteins - address both current global issues and future planetary needs. These topics are especially relevant to feeding growing urban populations and planning for life in extreme environments, like Mars.

"Joining this challenge was a step closer to fulfilling my childhood dream of becoming an astronaut and developing innovative sustainable food systems that we can also use here on Earth."

Ilse van der Scheer, Team Cyanotreats

Participants proposed bold ideas that push boundaries - like autonomous greenhouses that recycle resources or protein-rich foods cultivated from microalgae. Their work reflects a deep commitment to sustainability, circularity, and resilience in food systems.

A Vision for the Next 50 Years

At the challenge launch, Rector Magnificus Carolien Kroeze offered a symbolic and inspiring gesture: the unveiling of a time capsule. Students contributed their visions for life on Earth, the Moon, and Mars - messages of hope and innovation to be sealed for 50 years.

"I envision an Earth free from hunger, where we live in harmony with climate change, ensuring clean water for all and thriving biodiversity. The same vision applies to the Moon and Mars, where sustainability, self-sufficiency, and circularity will be at the heart of everything we do."

Carolien Kroeze, Rector Magnificus
Wageningen University & Research

Why It Matters

The ReThink Food Challenge is more than a competition - it's a platform where the next generation of changemakers takes the lead. Their ideas show that the future of food isn't just a matter of technology - it's a matter of vision, courage, and collaboration.

More Than a Competition: Stories from the ReThink Food Challenge

The challenge asked student innovators from around the world to rethink how we might grow, manage, and consume food in resource-scarce environments, like space. But along the way, the teams discovered just as much about themselves as they did about sustainable food systems.

Big Ideas, Tough Lessons

At the start, many teams had visions that looked flawless on paper. Team GrowBot from Vancouver, Canada, set out to build an Automated Hydroponic Nutrient Manager, blending AI and plant electrophysiology to optimize nutrient delivery for crops. Yet translating a 3D model into the real world quickly exposed unexpected challenges.

> "Something might look great in a 3D model, but the real world is far messier."
>
> Connor Horii, GrowBot

Prototypes leaked, structures buckled under the weight of water, and managing the nutrient needs of growing plants turned out to be far more complex than anticipated. But instead of giving up, GrowBot iterated, adapted, and ultimately developed a working system that could support real crops, an achievement that felt even more satisfying because of the obstacles they overcame.

Team The COOKS from Uganda experienced a different kind of evolution. Initially focused on sustainable packaging to tackle waste problems, coaching feedback pushed them to see a deeper opportunity. They pivoted toward creating Chef Cora, a system that transforms agricultural waste into alternative proteins, tailored to users' nutritional needs.

"We realized the bigger opportunity was in turning waste into food itself," Bridget explained. Chef Cora now holds the promise not just for Ugandan communities, but also for refugee camps, and even for astronauts, who could customize their nutrition needs in space.

Growing Through Challenge

As the months unfolded, setbacks became catalysts for growth. GrowBot's experience revealed the gap between theoretical engineering and hands-on problem-solving. "Prototyping isn't just a step; it's where you really learn," Connor noted, reflecting on the value of building, failing, and building again.

For COOKS, the key lesson came from staying close to the people they were designing for. Uganda's strong culture of reusing packaging showed them that biodegradable solutions weren't enough. People needed practical, visible benefits, and the idea of turning food waste directly into new food was much more powerful.

> "Innovation isn't just about sustainability. It's about usability and relevance."
>
> Bridget Mercy Amony, COOKS team

What Set the Finalists Apart

As the ideas evolved, so did the expectations of the selection committee. They were not just looking for visionary concepts but for teams that could demonstrate a credible path to real-world impact.

Arthur D'haeyere from Infinite Acres emphasized the importance of practicality. "The most compelling projects moved from a romanticized vision toward a grounded, feasible 'how'," he said, highlighting how teams that bridged the gap between ambition and reality stood out.

Olivia Connor, also from Infinite Acres, appreciated teams that embraced interdisciplinary thinking and circular design. She noted that the strongest reports were not just theoretical, but showed evidence of experimentation and stakeholder engagement.

Ultimately, it was clear that the teams who made it to the finals weren't just dreamers, they were builders. They learned to adapt their ideas to the complexity of the real world, strengthening their solutions along the way.

Seeds That Will Keep Growing

For many participants, the ReThink Food Challenge became a real-world testbed - an opportunity to stress-test their ideas, develop

new skills, and rethink their place in future food systems.

Bridget, studying architecture, reflected on how the challenge reshaped her understanding of design: "I started to see food as a system - how it's produced, delivered, and consumed - not just something you eat." Mark, also from The COOKS, emphasized how his research skills grew, pushing him to dive deeper into topics like nutrition needs for space environments.

Connor from GrowBot similarly highlighted the importance of hands-on testing, discovering problems and possibilities they could never have predicted from behind a computer screen.

"We want Chef Cora to be a companion for communities, to turn what they have into what they need."

Bridget Mercy Amony, COOKS team

As Arthur D'haeyere from Infinite Acres reflected, "Many of these teams are now at a point where they don't need to win the challenge to succeed. Their ideas are grounded in real-world demand, and that gives them momentum far beyond the competition itself."

Because in the end, the real success of the ReThink Food Challenge lies not in winning, but in the seeds of change these students have planted. Ideas that will keep growing, long after the challenge ends.

Meet the Jury

Gulsah Uysal
EIT Food

Gulsah Uysal is the Regional Director for Western Europe at EIT Food, Europe's leading food innovation initiative supported by the European Institute of Innovation & Technology (EIT). In this role, she leads efforts to accelerate the transformation of food systems by fostering innovation, sustainability, and collaboration across the agrifood ecosystem.

With a strong background in strategic partnerships, growth, and impact-driven innovation, Gulsah is committed to building bridges between startups, corporates, and research institutions to drive systemic change. Her leadership is guided by a belief in cross-industry learning and open collaboration as essential tools for solving complex global challenges.

"We urgently need bold, fresh ideas to build more resilient food and agriculture systems. The ReThink Food Challenge is a unique platform that empowers the next generation to think differently and act courageously on one of the most pressing challenges of our time. It's not just about innovation - it's about reimagining the future of food with purpose and creativity."

Ismaël Bawah
GFI Europe

Ismaël is the Science & Technology community coordinator at the Good Food Institute Europe, a nonprofit accelerating alternative protein innovation. Based in Belgium, he leads scientific community-building in the Nordic region, working with students, researchers, and educators to strengthen research and training ecosystems. With a background in bioscience engineering, he focuses on reshaping food systems to be more sustainable, resource-efficient, and future-proof.

"The ReThink Food Challenge gives students a rare opportunity to build practical, interdisciplinary skills while tackling global issues. Designing food systems for space sparks the kind of creative thinking we urgently need on Earth - especially in fields like alternative proteins, where innovation must connect science with real-world impact. These experiences don't just teach - they inspire, laying the foundation for careers that can transform how we eat and live."

Sophie van Weede
ShiftInvest

Sophie has a background in Neurobiology and Econometrics and began her career in strategy consulting before moving into venture capital. She now works at SHIFT Invest, a Dutch early-stage impact investor focused on Food & Agriculture and the Energy Transition. With nearly four years at SHIFT, she supports start-ups driving innovation and sustainability, aiming to restore the balance between nature and society through impactful entrepreneurship.

"The ReThink Food Challenge is a fantastic platform to engage bright students with entrepreneurship. Technological innovation is crucial - but so is understanding the market, communicating value, and ensuring real-world fit. This challenge encourages teams to think holistically, blending science with strategy. At SHIFT, we're always inspired by the innovative spirit coming out of WUR, and this year's proposals again show the high level of creativity and relevance students bring to the table."

Charlotte Pouwels
ICEE.Space

Charlotte is a physicist, space engineer, and CTO of ICEE.Space, where she leads analog space missions like CHILL-ICE in Iceland to test life-support systems in extreme environments. She advocates for Women in STEAM and has contributed to the Galileo satellite program as a systems engineer. Charlotte holds a master's in space studies and specializes in AR for astronaut suits, combining science, engineering, and exploration in her work.

"The ReThink Food Challenge resonates deeply with my work in analog missions, where food systems must be efficient, sustainable, and resilient under pressure. These missions reflect Earth's own challenges - scarce resources, isolation, and the urgent need for innovation. Seeing students from around the world tackle these issues with creativity and ambition is incredibly inspiring. This challenge highlights the crucial role of science and collaboration in shaping our food future, both on Earth and beyond."

Bart van Meurs
Division Q

Bart van Meurs is CEO at Division Q, the innovation branch of Koppert Cress. Division Q is focused on achieving fully emission-free greenhouse cultivation and drives innovation by collaborating with promising startups. In the past he worked as product developer with a degree in industrial design for a wide range of companies and has been able to turn curiosity into his profession. As a jury member of the ReThink Food Challenge, Bart brings his expertise in sustainable greenhouse horticulture and circular design to inspire the next generation of food innovators.

"The students impressed me with their enthusiasm and rapid progress!
Their energy made giving feedback not just rewarding, but genuinely inspiring."

AstraAlagae

Our vision

We believe the future of protein is clean, circular, and accessible. That's why we're developing microalgae-based proteins that are hypoallergenic, nutrient-dense, and environmentally responsible. Our goal is to serve the supplement and semi-pharma industries with a sustainable alternative to resource-heavy proteins, while also reducing the environmental burden of livestock farming.

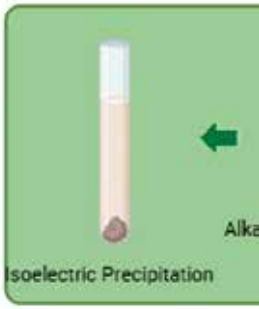
Our Solution

We use livestock manure to grow microalgae in a closed-loop system. This turns agricultural waste into high-protein biomass, rich in essential amino acids and perfect for functional foods. Our approach reduces nitrogen pollution, avoids deforestation, and grows year-round in bioreactors. It's modular, efficient, and scalable - bringing better protein to people and less pressure to the planet.

About the Team

Our team is a mix of bachelor's and master's students from Spain, Indonesia, Greece, and Taiwan, studying biotechnology and food technology. With expertise in environmental engineering, biorefinery, and entrepreneurship, we bring both technical know-how and global perspectives. What connects us is a shared drive to create sustainable food systems through science, collaboration, and bold ideas.

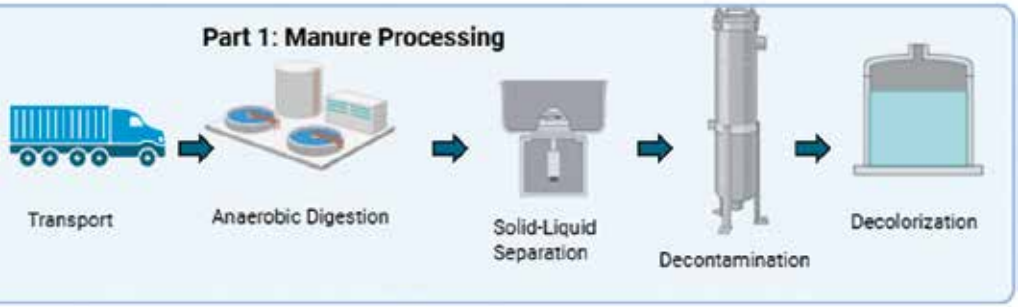
"Participating in the ReThink Food Challenge pushed us to rethink not only how we produce protein, but also how circular systems can reshape the future of food. It was a deep dive into innovation with real-world impact."



AstraAlgae
"Microalgae-Based Protein"

Team members:
Windy Yeh
Nadia Putri Az Zahra Julianto
Maria Gayà Rosselló
Rafailia Groudou
Nurwahdah Nurwahdah

"We learned that resilient solutions emerge through collaboration, iteration, and staying grounded in practical challenges. It was as empowering as it was demanding."



Bugcycle

Our Vision

BugCycle envisions a world where food waste is no longer a burden but a valuable resource. By using nature-based systems to return nutrients to the ecosystem, we aim to reduce greenhouse gas emissions, cut landfill reliance, and promote a circular economy. Our focus starts with educational institutions - not just because they generate consistent food waste, but because they're ideal spaces to grow awareness, spark engagement, and foster a culture of sustainability from the ground up.

Our Solution

BugCycle is a compact, on-site waste management system that uses Black Soldier Fly Larvae (BSFL) to convert food waste into organic fertilizer and protein-rich larvae for animal feed. The system is low-energy, modular, and built for the kind of mixed food waste that traditional methods struggle to handle. Schools serve as the perfect launchpad, offering both predictable waste streams and hands-on learning environments. By making waste processing visible, educational, and local, BugCycle turns disposal into opportunity - and food waste into community value.

About the Team

We're a team of undergraduate students from NTU united by a drive to make sustainability tangible. Taha and Marcus bring environmental engineering skills, with a focus on waste systems and circular design. Nayla, a chemical engineering student, adds her expertise in treatment processes. Together, we're rethinking how we manage food waste - starting small, but aiming for wide-reaching, real-world impact.

"This challenge pushed us to think beyond individual solutions and start designing systems that work with nature. BugCycle is our way of proving that sustainability can be local, practical, and scalable."

"What we enjoyed most was seeing our concept come to life - from an idea on paper to a model that could genuinely transform how we manage food waste. It's been a journey of purpose and creativity."

Team members:
Marcus Low Dong Xu
Nayla Zhafira
Taha Basrai

BSFL Bioconversion

for Circular Food Waste Management

Chashne

Our Vision

We believe the future of nutrition should be both sustainable and satisfying. Today's diets often fall short on key nutrients like protein and B12, especially in plant-based eating. At the same time, traditional protein sources like meat and soy place a heavy strain on the planet. Our vision is to create high-protein, eco-friendly food that blends seamlessly into everyday meals, without compromising on taste, convenience, or affordability. We want nutritious food to be an easy, enjoyable part of daily life, for everyone.

Our Solution

We use duckweed, a fast-growing, water-efficient plant rich in complete protein and bioavailable B12, to develop products like sauces and protein-rich seasonings. Duckweed grows without the need for arable land and thrives on minimal resources, even using nutrient-rich wastewater. Our approach doesn't demand major diet changes. Instead, we offer an effortless way to upgrade daily nutrition while reducing environmental impact. By integrating into familiar foods, our duckweed-based products make healthy, sustainable eating simple, scalable, and accessible.

About the Team

We're a group of students with backgrounds in food engineering, biology, and product development, united by a passion for sustainable food innovation. What drives us is a shared goal: to tackle nutrition and environmental challenges with solutions that are practical, inclusive, and ready for the real world. Together, we're building products that help people eat better and live more sustainably, without overcomplicating it.

"We learned how to conduct research on businesses in the competition, as well as how to grow and strengthen our idea."

chashne
MAKE YOUR FOOD REAL

Team members:
Tuana Karafakıoglu
Öykü Çil
Semina Akkaya
Nilüfer Yağmur Özdemir
Mustafa Akin
Taha Berkay İşler

Cyanotreats

Our Vision

As the global population grows, so does the demand for nutritious food, with less impact on the planet. Cyanotreats envisions a circular food system that turns overlooked resources into high-value nutrition. Inspired by space technologies and nature's zero-waste principles, the team is developing a sustainable, protein-rich food product using a highly untapped source: human urine. By closing resource loops and maximizing value from waste, they aim to build a production model that serves local communities, and eventually, businesses and space missions alike.

Our Solution

Every day, each person produces over a liter of urine, rich in nutrients but almost always discarded. Cyanotreats uses this human by-product as a growth medium for cyanobacteria, producing an alternative protein source that's nutritious, scalable, and environmentally efficient. The process minimizes waste, repurposes by-products as fertilizer, and creates a system that can be integrated into existing food production or adapted to extreme environments. With applications on Earth and in space, the team's approach proves that even the most unconventional materials can drive future-ready, sustainable nutrition.

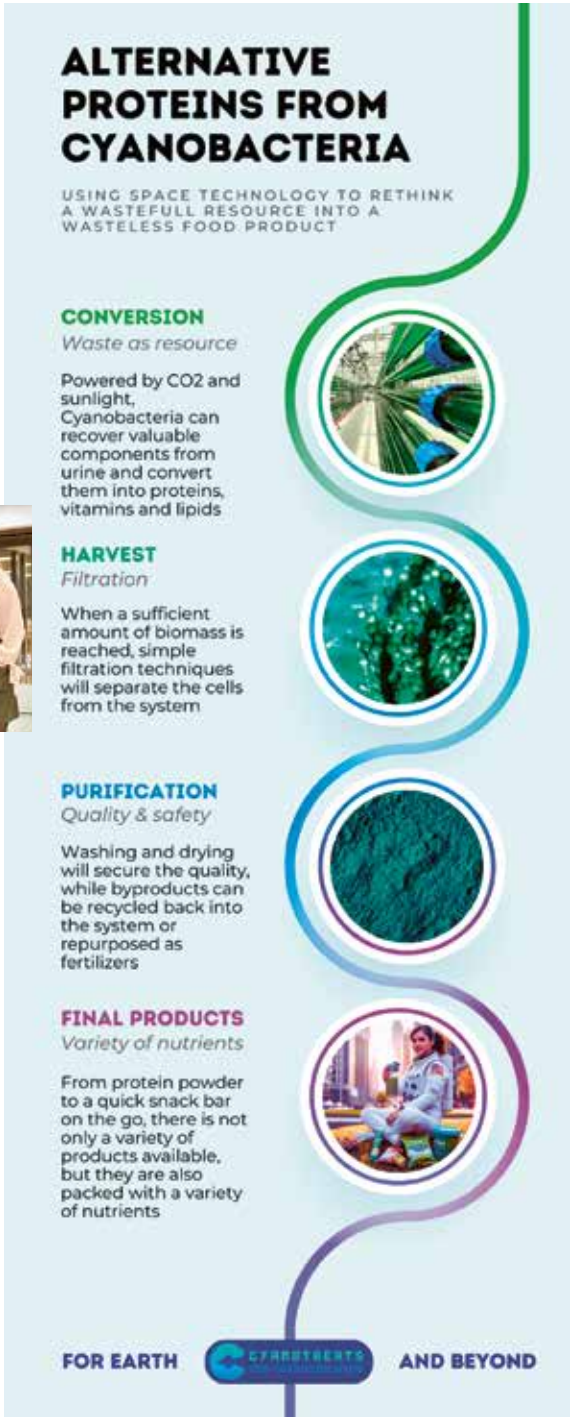
About the Team

We're a group of master's students in Biotechnology and Food Technology, brought together by a shared curiosity and drive to build a more sustainable future. Our team blends expertise in microbiology, product development, bioinformatics, and bioprocess design, plus a love for thinking creatively. What connects us is a hands-on mindset: we want to turn big, bold ideas into practical solutions that can make a real difference for people and the planet.

"My passion for space research and technology launched to another level! I've learned how I can apply my knowledge beyond theory to solve real life challenges, while thinking out-of-the-box. This experience was invaluable to me and gave me clarity for my future career."

Team members:
Marin Masha
Cedric-Jens Kehling
Rashmi Bhat
Ourania Kisti
Konstantinos Schoinas
Ilse van der Scheer

"I really enjoyed working with people from all kind of backgrounds, from microbiology to food product development. It showed me how combining different perspectives is key to turning ideas into something real. On top of gaining experience for my future career, I also made some great friends along the way."



GreenOrbit

Our Vision

GreenOrbit's goal is to make indoor farming truly sustainable by solving one of its biggest challenges: energy costs. The team envisions a future where farms can power their hydroponic systems using renewable electricity made from organic waste. By developing scalable fungal Microbial Fuel Cells (MFCs), GreenOrbit aims to lower operational costs, cut carbon footprints, and help small and off-grid farms access clean, affordable energy, making sustainable agriculture more achievable for everyone.

Our Solution

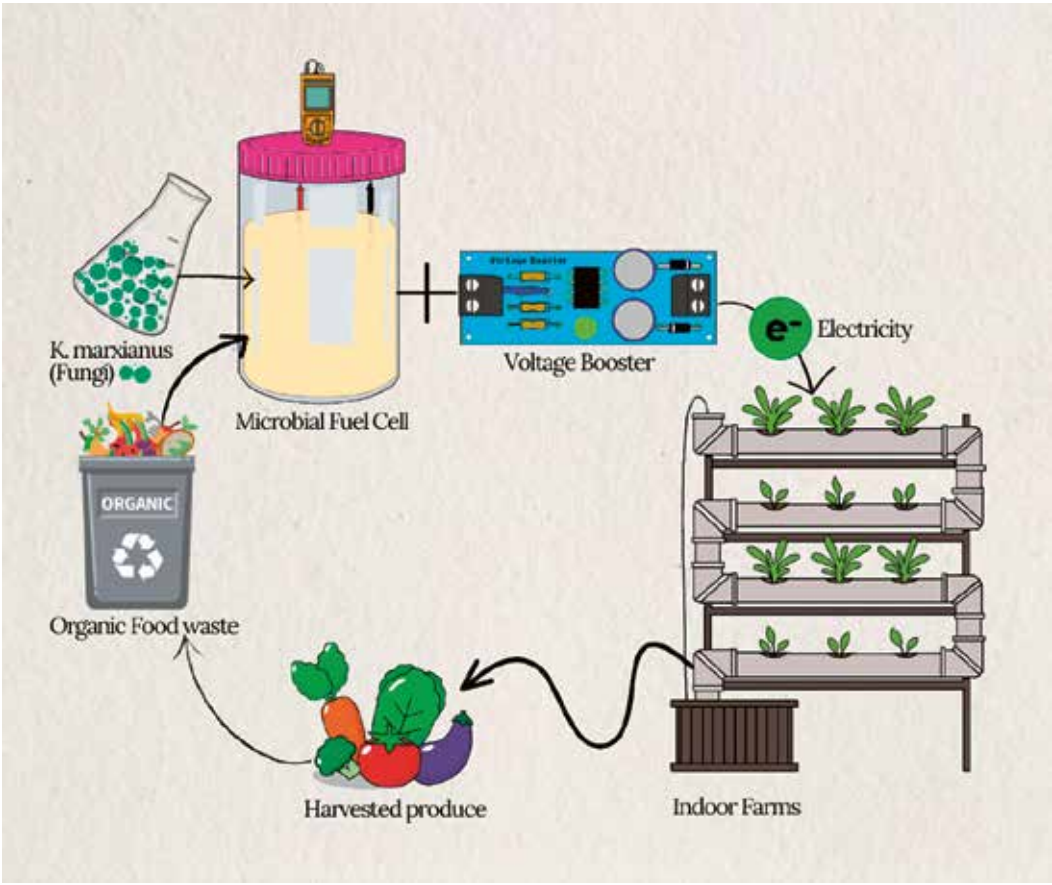
GreenOrbit's system uses fungi to break down organic waste and generate renewable electricity through Microbial Fuel Cells. A two-step booster then powers hydroponic essentials like LED lights and water pumps. The setup captures CO_2 for algae production too, creating a closed-loop system. With a modular design, it's easy to scale and adapt for different farms. By turning waste into energy, GreenOrbit offers a practical, low-cost solution that helps farms reduce costs while taking a real step toward greener agriculture.

About the Team

We're an interdisciplinary team with backgrounds in Mechanical Engineering and Environmental Science, passionate about making sustainable farming more accessible. Instead of focusing on biological manipulation, we tackle overlooked challenges like energy use with fresh, practical solutions. Our combined technical skills and drive for innovation help us turn complex problems into smart, cost-effective systems that support farmers and the environment alike.

"Contributing to the ReThink Food Challenge, where innovation meets purpose, was a powerful reminder of what's possible when great minds come together. It was an honor to collaborate with brilliant students and forward-thinking industry leaders, all united by a shared mission to build the world of tomorrow."

Team members:
Praveesh Ramroop
Srishtie Chotelal



"Degenerative systems built the world we inherited. Circular systems will build the future we deserve. We're not just redesigning technology - we're redefining the rules. Because building a better world isn't just a solution; it's a responsibility."

GrowBot

Our Vision

Hydroponics is a promising solution for future farming - saving water, increasing yields, and making food production possible in limited space. But it still relies heavily on manual monitoring and adjustment, especially for nutrient management. GrowBot aims to change that by developing key components for automation, making hydroponic systems more efficient, hands-off, and scalable for a growing global population facing land and resource constraints.

Our Solution

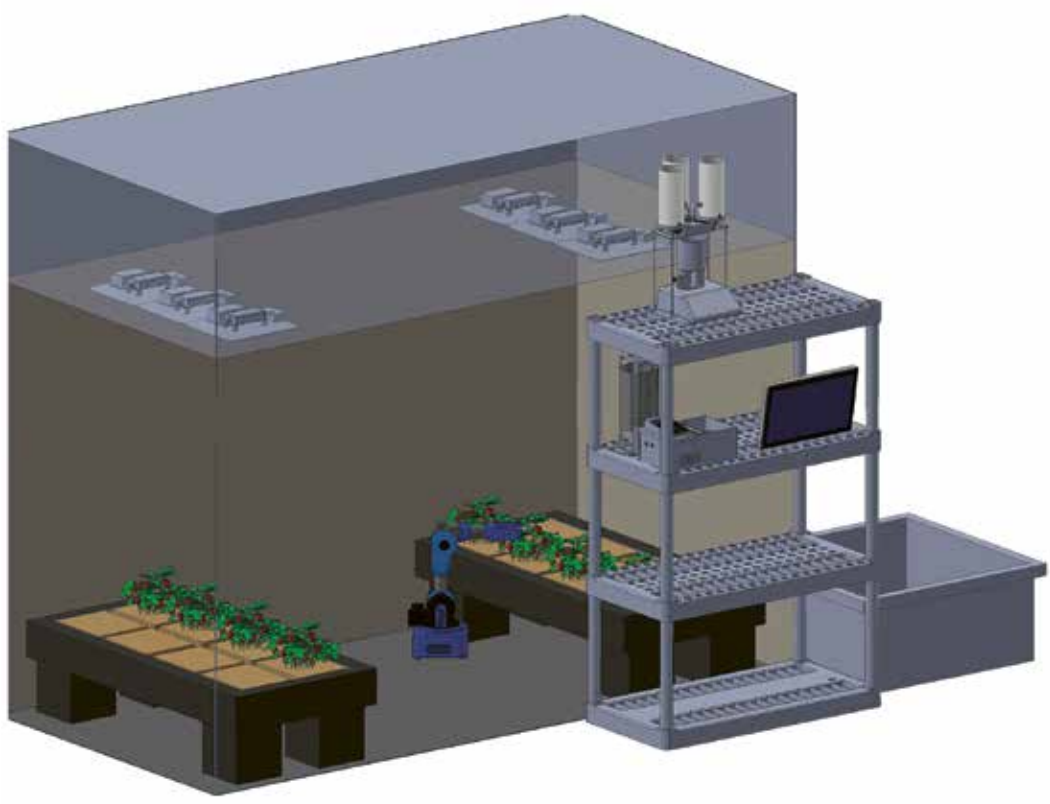
GrowBot is building a smart hydroponic system to grow Albion strawberries using automated nutrient management. The system uses NPK sensors and a machine learning model to monitor how plants absorb nutrients and adjust feeding in real-time, based on growth stage and environmental factors like water pH. By applying control systems and supervised learning, GrowBot ensures strawberries receive the exact nutrients they need - improving yield, reducing waste, and minimizing the need for manual intervention in indoor farming setups.

About the Team

We're a group of fourth-year Mechatronic Systems Engineering students from Simon Fraser University in Vancouver. With experience in mechanical design, simulation, additive manufacturing, and real-world engineering co-ops, we've spent hundreds of hours building complex systems in student teams - from rocketry to F1. Now, we're turning that same energy toward smart, sustainable agriculture through automation and innovation.

Team members:
Hazel Westingham
Connor Horii
Ethan Brown
Cam Foster
Atiqa Mohsin Ali Khan

"In an educational environment, you often end up working on projects in digital settings because they're cheaper, more accessible, and faster to grade. However, in doing so, you miss the opportunity to learn about the challenges involved in bringing a product to life. Working on the ReThink Food Challenge was a great reminder that real-world projects don't always fit together as neatly as their digital twins, and that manufacturing and assembly often take longer than initially estimated."



MAI Farm

Our Vision

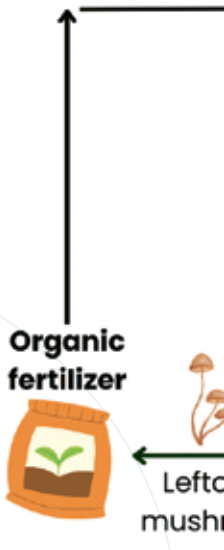
At MAI, we believe food can be more than just fuel - it can be a regenerative force. Our vision is to build a vertically integrated, climate-positive food system inspired by closed-loop ecosystems, where every step adds value and nothing goes to waste. We're rethinking agriculture, consumption, and supply chains to be circular, not extractive. In regions like Asia, where millions of tons of rice straw are burned annually, we see both a challenge and an opportunity to regenerate ecosystems while feeding communities in a smarter, cleaner way.

Our Solution

We transform agricultural waste into sustainable nutrition. MAI uses rice straw, a major source of carbon emissions when burned, to grow high-protein mushrooms in an indoor regenerative system. Once harvested, the spent substrate becomes organic fertilizer, completing the cycle. The mushrooms are crafted into clean-label patties and served at MAI House, our climate-conscious restaurant, and through retail partners. This model minimizes waste at every step while offering a delicious, scalable alternative to conventional food production. It's local, low-impact, and designed to redefine what the food system of tomorrow can look like.

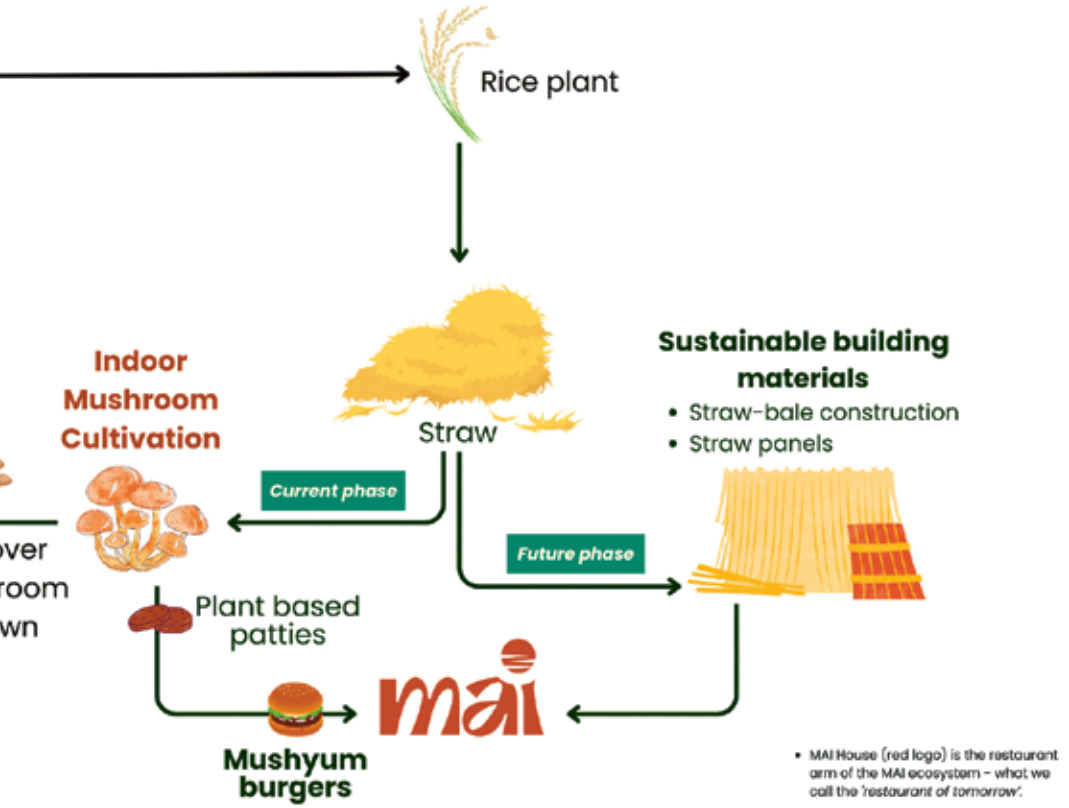
About the Team

We're two co-leaders united by a passion for food, sustainability, and climate action. Chi Nguyen leads sales and marketing and is the founder of MAI House, where handcrafted meals meet zero-waste practices. She's studying Business and Entrepreneurship at VinUniversity. An Nguyen brings deep technical and venture experience from roles at Rize, ENGIE Factory, and Wavemaker Impact. Together, we combine creativity and climate innovation to build a food system that restores, rather than depletes, our planet.



Team members:
Chi Nguyen
An Nguyen

"Although we have a strong passion for food and sustainability and had already built our business, this was our first time participating in a competition. We didn't expect to learn as much as we did. The coaches challenged us with insightful questions that truly made us rethink our business model and future plans."



MariMars

Our Vision

As space missions grow longer and more ambitious, so do the demands on food systems. Our vision is to design sustainable, closed-loop protein solutions that can feed astronauts on missions to Mars and beyond. Current space food is often shelf-stable but lacks freshness, sustainability, and sufficient protein. We want to change that - by creating systems that not only nourish space travelers but reduce reliance on Earth-based resupply, making deep space exploration more independent, efficient, and future-ready.

Our Solution

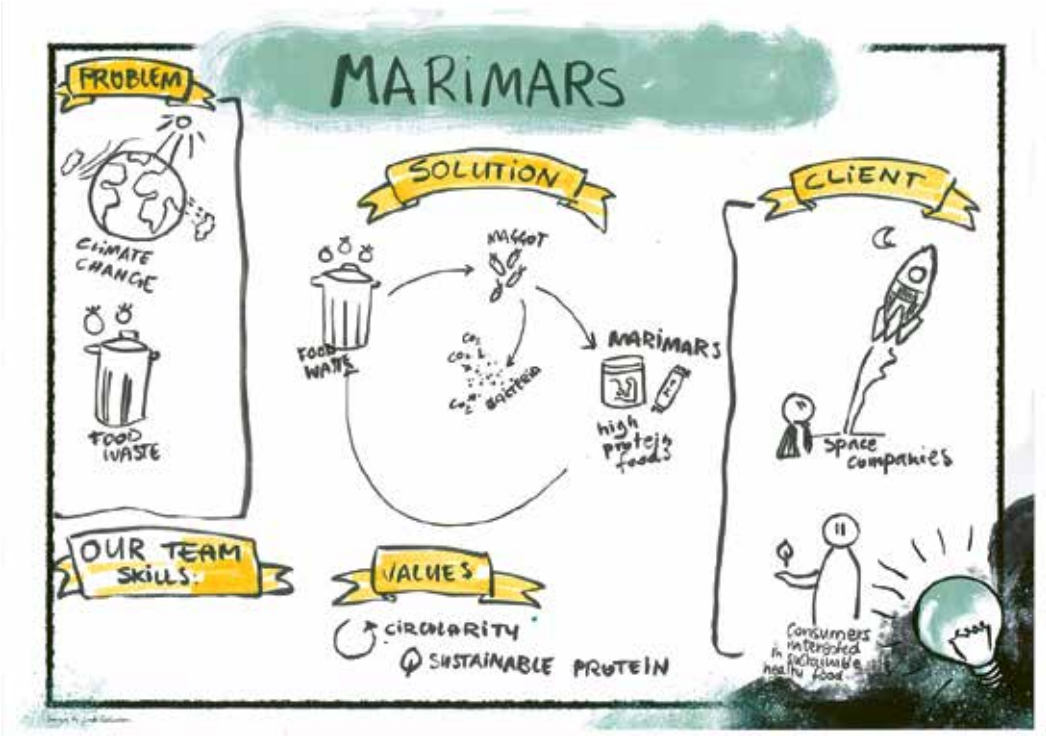
We're developing a closed-loop food system that combines hydrogen-oxidizing bacteria and maggots to create high-protein, nutrient-dense food for space. This system uses minimal inputs, recycles waste, and provides a sustainable protein source without needing soil or traditional agriculture. It's scalable, resilient, and designed to meet the strict space constraints of long-term missions. By producing fresh protein directly in space, we aim to support astronaut health while reducing cargo needs and advancing food autonomy beyond Earth.

About the Team

We're a multidisciplinary team of students from Wageningen University, combining expertise in food technology, biotechnology, plant sciences, and sustainable business. From product design to consumer behavior, each of us brings a unique angle to the challenge of space nutrition. What unites us is a shared drive to rethink how food can be grown, consumed, and sustained - not just here on Earth, but out among the stars.

"Through participating in the ReThink Food Challenge, we gained many lessons and insights we had never considered before. Also, the Challenge significantly contributed to our personal development - from thinking outside the box to finding new ways to solve problems we had never encountered."

Team members:
Suhartini Lestari Putri
Cindekia Purba Wisesa
Naurah Nadzifah
Eko Anugroh



MartianRoots

Our Vision

We envision a future where every farmer, no matter how remote, can make smart, data-driven decisions. Traditional farming methods often rely on guesswork, leading to poor yields, soil damage, and wasted resources. Our goal is to change that with precision agriculture powered by AI. In regions like Ethiopia, where millions of smallholder farmers lack access to reliable soil data or climate-resilient tools, this kind of innovation is essential. We aim to build a farming ecosystem that boosts productivity, protects the environment, and strengthens rural economies.

Our Solution

Our system uses AI and IoT sensors to analyze soil and weather data in real time, offering tailored advice on crop choice, fertilization, and pest control. The recommendations are delivered through a mobile app - and, crucially, via SMS or voice call for farmers without smartphones. From soil pH and nutrient levels to rainfall and pest activity, the platform translates complex data into simple actions. This technology bridges high-tech innovation with local needs, empowering small-scale farmers while supporting sustainable, climate-smart agriculture.

About the Team

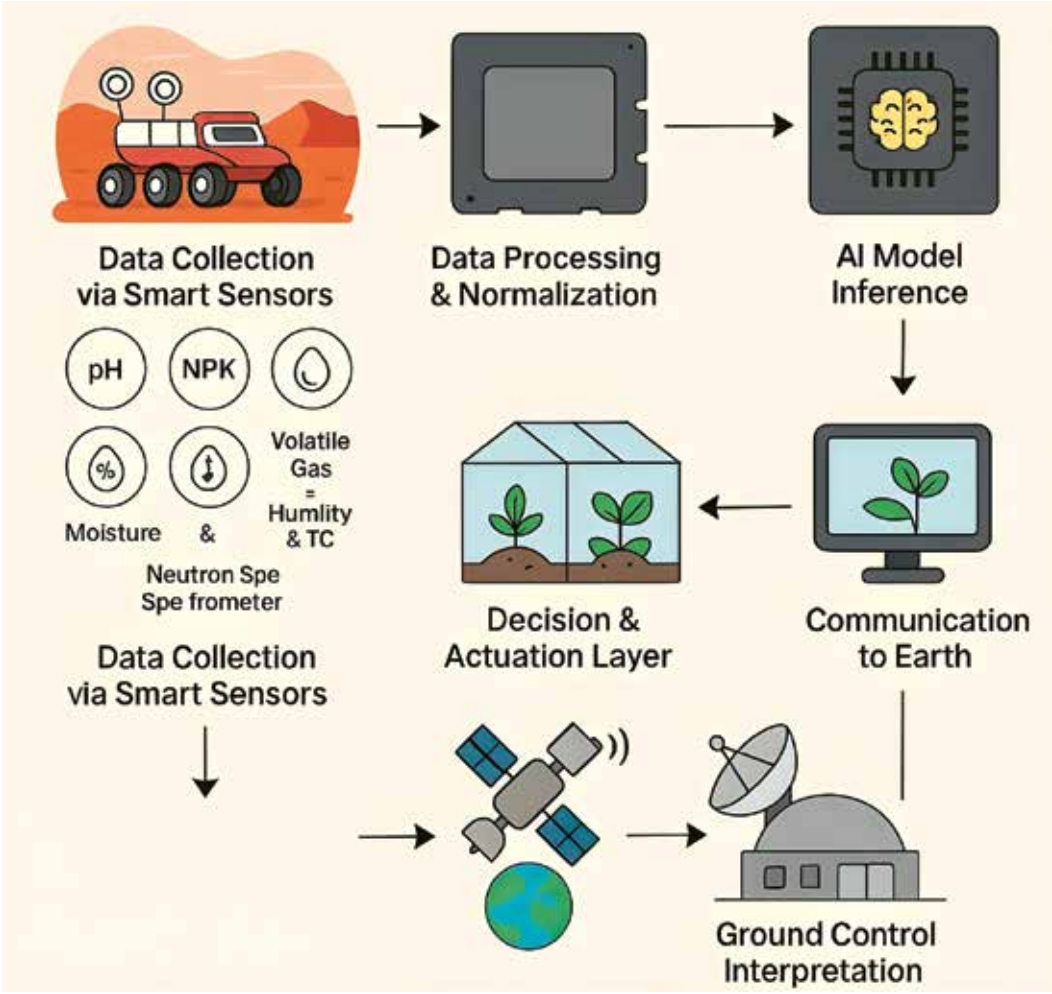
We're a group of professionals with backgrounds in AI, electronics, mechatronics, and industrial automation. Currently part of a green-tech incubation program, we're passionate about bringing precision farming to life, both for Earth and for future Mars missions. Whether we're building scalable sensor systems or training AI models on agricultural data, our focus is clear: use technology to solve real problems and support more sustainable farming worldwide.

"The ReThink Food Challenge empowered us to blend science and creativity, demonstrating that bold solutions for agriculture on both Earth and Mars are within reach when technology aligns with purpose."

MARTIAN ROOTS

Team members:
Adisalem Hagos
Tensay Gebretsadik Alemayohu
Fisseha Birhane

"We learned that food innovation isn't just about feeding the planet - it's about reimagining our future with sustainability, resilience, and inclusivity at its core."



SynerGrown

Our Vision

We believe pet food should align with sustainability goals, not work against them. The current pet food industry relies heavily on animal-based proteins, contributing to environmental degradation. Our vision is to offer a nutritious, ethical, and circular alternative for pets, using cultivated meat and closed-loop production. Inspired by zero-waste space farming systems, we're creating a future where sustainable pet nutrition is the norm, not the exception, designed for eco-conscious owners who want the best for their pets and the planet.

Our Solution

Our system combines vertical farming with cultivated meat production in a closed-loop setup. A multi-stage bioreactor grows fish cells for protein, while a vertical farm supplies essential nutrients. This integrated approach reduces waste, cuts out harmful feed residues like microplastics, and lowers production costs, especially for media inputs. The result: a safe, sustainable, and scalable protein source that delivers high nutritional value without compromising on taste or environmental impact. It's future-ready pet food for a new generation of conscious consumers.

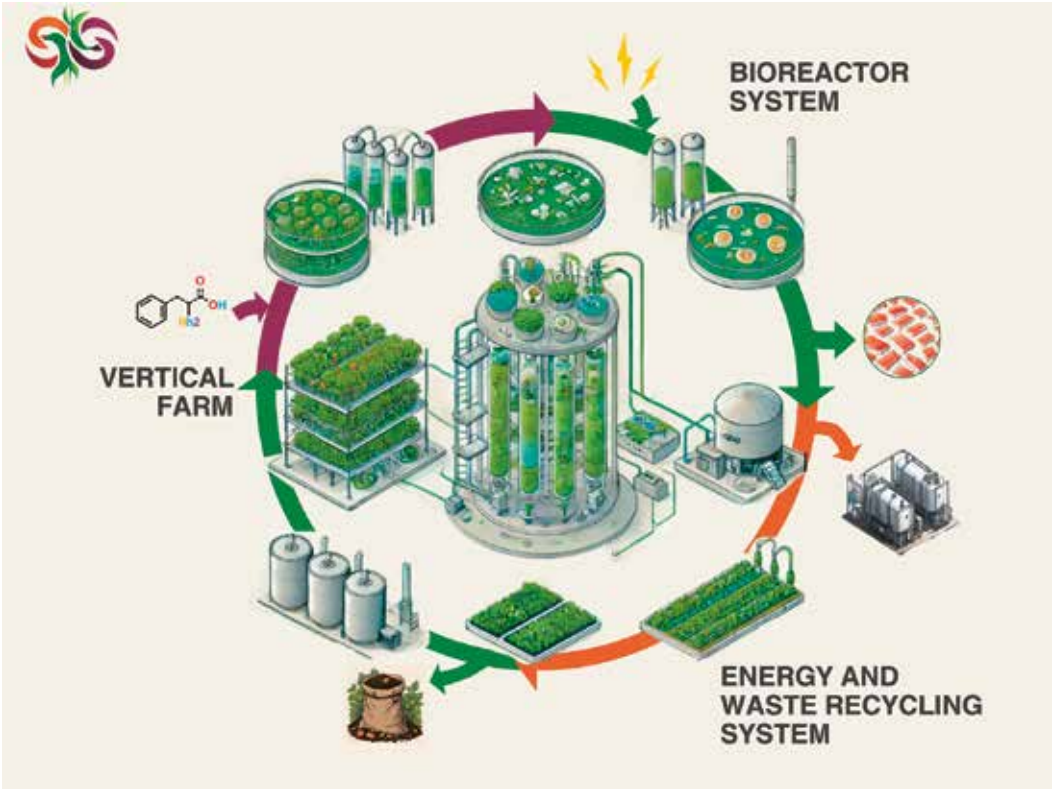
About the Team

We're a passionate team from Wageningen University, blending backgrounds in Biosystems Engineering and Food Technology. Our skills in cell cultivation, sustainable resource management, and system design help us bring circular ideas to life. What unites us is a shared love for animals, science, and sustainability, and a drive to build real solutions that work for pets, people, and the planet.

"My favourite part of the challenge was developing our first idea, where every team member shaped it until it became an interesting business model."

Team members:
Jinsoo Kim
Melania Zanforlin
Joaquin Fogel
Andres Montaña
George Truijens
Sahana Yaragatti

"Engaging with real-world experts gave me a far deeper understanding of the sector than I ever could've gained from an academic setting alone."



The HAB

Our Vision

At The HAB, we see every home and every habitat as part of a larger ecosystem. Our vision is to reconnect people with sustainable food by creating circular systems that support life, whether on Earth or beyond. In cities, access to healthy, affordable food is often limited, supply chains are inefficient, and food origins are invisible. We aim to change that by making food production more personal, accessible, and regenerative, starting with the spaces we live in.

Our Solution

The HAB introduces Astro Gels: fun, compact indoor farming systems that bring sustainable food production into urban homes. Made from food-grade, reusable materials, the gels use less water and energy than traditional hydroponics, and are even safe for kids to touch or taste. Think of them as clean, low-cost "space gardens" for your windowsill. By giving families a hands-on, circular way to grow food, Astro Gels help spark curiosity, reduce food miles, and make farming feel close, practical, and possible.

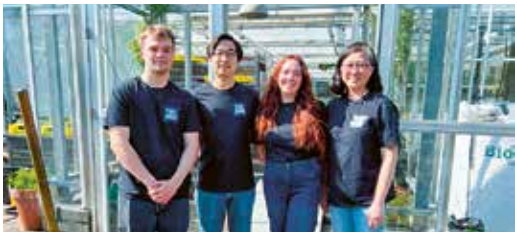
About the Team

We're a team of Master's and Bachelor's students from Wageningen University & Research, with diverse experience in plant sciences, food systems, business, accounting, and social justice. What brings us together is a shared passion for making sustainable living easy and inclusive. We believe the future of food starts at home, and we're building tools to help people grow it there.

"The biggest strength of this challenge is that it takes students out of the classroom and into the real world. What we learn in classrooms and what the world actually needs are often at odds. By deeply reflecting on these seemingly conflicting perspectives, one can discover their true calling and path."

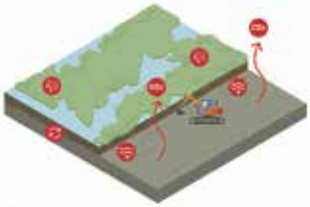
THE HAB

Team members:
Morgan Timme
Fuyuki Wakayama
Feodor Gabsatarov
Marcus Mortensen
Leah Jin



Problem: Peat Substrate

Source	Product	Application
Peat	Peat Substrate	Indoor Farming



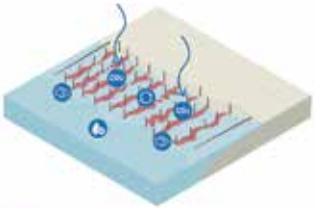
- CO_2 Emission
- Land Subsidence
- Loss of Biodiversity
- Non-renewable

- Expensive
- Bulky for Transportation

- Hard to Maintain
- Non-reusable
- Non-edible

Solution: AstroGel

Source	Product	Application
Red Seaweed	AstroGel	Indoor Farming



- Carbon Sequestration
- Water Quality Improvement
- Contribution to Biodiversity
- Renewable

+ Cheaper
+ Compact for Transportation

+ Easy to Maintain
+ Reusable
+ Edible

Partners about the Challenge

"It was wonderful to read through the applications - it was clear that many teams really put in a lot of effort."

Glindys Virginia Luciano, EIT Food

"Engaging with a diverse group of talented peers not only inspired me but also allowed me to contribute my experience in a uniquely collaborative environment. I am eager to follow future developments and see some of them evolve into valuable products and services."

Theodoros Matakiadis, Bayer Crop Science - Vegetable Seeds

"It was inspiring to see the teams use the Challenge as an incubator for their ideas, integrating user needs and circular design early on. I hope they continue this valuable process in future projects!"

Emma Little, Witteveen + Bos

"It's amazing to see a team grow during the ReThink Food Challenge, all the way to presenting a prototype - especially considering their journey began with a bold idea or vision, followed by several rounds of inspiring discussions with coaches and professors, and steadily mastering their assignments step by step. Congratulations to the teams and to WUR for organizing this event!"

Carlos Guentner, KWS SAAT SE & Co. KGaA

"It was amazing taking part in the Rethink Food Challenge. Seeing the students' creativity in developing their proposals and commitment to preparing their presentations was truly inspiring. I'm excited to follow the next steps and, even more, I hope they succeed in turning their ideas into reality."

Patricia Paiva, ISHS

"I was inspired by the creativeness of the students!"

Esther van Asselt, WUR

Faces of the ReThink Food Challenge

Photos: Guy Ackermans, Floor Wiegerinck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