



# ENTREPRENEURSHIP IMPACT REPORT

An overview of EIT Food's investment  
in agrifoodtech startups



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# EXECUTIVE SUMMARY

EIT Food supports impactful agrifoodtech startups at every stage of their journey - from business propositions, market validation, business acceleration, and tech validation to commercial upscaling.

In 2024, EIT Food commissioned an independent impact assessment of its three key entrepreneurship programmes: the Seedbed Incubator Programme (SEED), the EIT Food Accelerator Network (FAN) and RisingFoodStars (RFS). These programmes have supported 549 promising startups and scaleups in the agrifood sector since 2018.

EIT Food undertakes a rigorous, open and competitive selection for the companies and entrepreneurs it supports, aligned to its three Missions for food system change: Healthier Lives Through Food, A Net Zero Food System, and Reducing Risk for a Fair and Resilient Food System.

**This focus on quality, potential and systemic impact produces a forecast 10-year Return on Investment (ROI) of 6€ for every 1€ invested by EIT Food per programme, growing to 13€ over 15 years.**

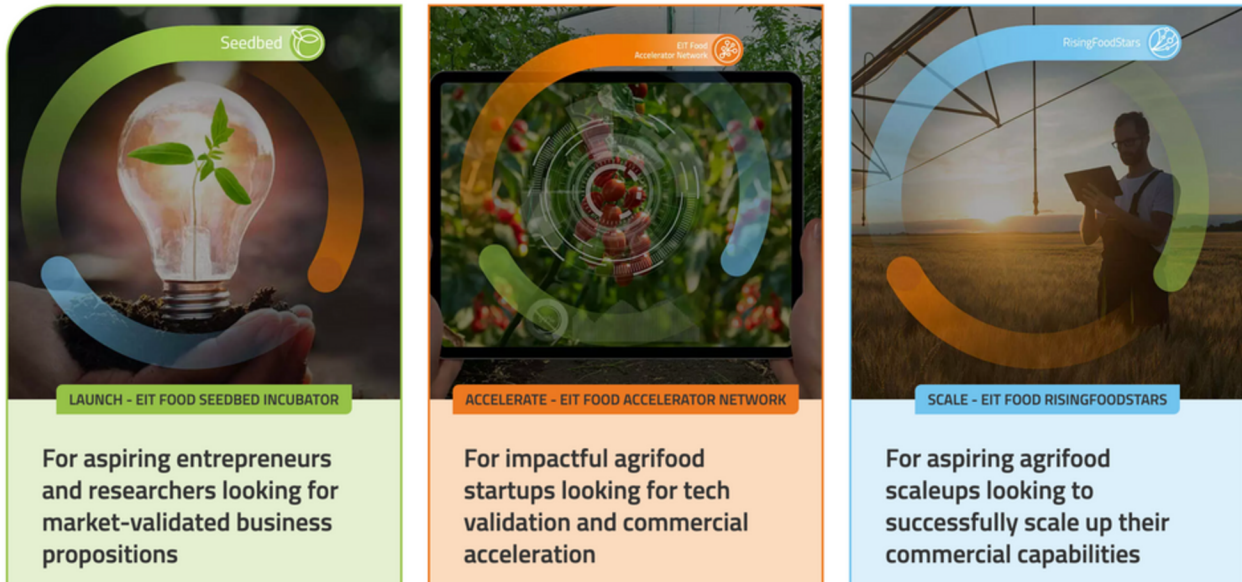
This ROI is based on the survey results versus the total programme costs. An assessment of attribution to EIT Food is included such that the impact can be considered a net contribution.

Total impacts (EUR)	NPV* - 10 yrs	NPV - 10 yrs	NPV - 15 yrs
SEED	14,493,443	29,022,050	32,317,521
FAN	86,657,539	186,155,657	208,829,625
RFS	44,177,350	88,686,683	98,767,163
Total	145,328,331	303,864,390	339,914,310
Programme costs (EUR)	NPV - 10 yrs	NPV - 12 yrs	NPV - 15 yrs
Direct costs	25,187,295	25,187,295	25,187,295
Return on Investment	NPV - 10 yrs	NPV - 12 yrs	NPV - 15 yrs
Total	6	12	13

\*Net Present Value.

# INTRODUCTION

Brookdale Consulting was commissioned by EIT Food to undertake an impact assessment of the three flagship entrepreneurial programmes:



This work is a benchmarking pilot, with a view to learning lessons about the process of evaluation and impact assessment and applying these to future impact assessments for other EIT Food programmes. SEED, EIT FAN and RFS are just three of EIT Food’s business support programmes which cover many areas including grant provision, capacity building, networking, commercial pipelines and awards. These other activities may be the subject of future impact assessments.

- Seedbed Incubator Programme (SEED) 2019–2023: This is a 6-month programme for aspiring entrepreneurs and researchers, that have a scalable technology (at lab proof of concept - TRL 4 min) that can help transform the food system. SEED is a hybrid programme of online training, coaching and workshops, and in-person events.
- EIT Food Accelerator Network (FAN) 2018–2023: This is a theme-based programme for AgriFoodTech startups to further validate their technology and advance their investment and commercial readiness to achieve the ultimate goal, a successful market adoption.
- RisingFoodStars (RFS) 2018-2023: This identifies the most promising aspiring Agrifood and FoodTech small businesses and accelerates their scaleup into significant business entities. To be eligible a business must have a technological solution within one of these 3 missions: Healthier lives through food; a Net-Zero food system; and Reducing risk for a fair and resilient supply chain. The business must also have a unique and scalable technology validated in market conditions combined with a healthy business model (TRL>6), be generating revenues from a strategic multi-customer portfolio (min 100K euros), have a team of 10+ full-time employees, be aiming to raise Series A funding within the next 6–12 months and have a compelling vision and mindset to grow the business.



# METHODOLOGY

The work began with Brookdale Consulting reviewing EIT Food's database of 549 unique participants assisted through the three programmes. This allowed the team an understanding of the types of beneficiaries, the scale of the business and potential impacts.

In conjunction with EIT Food, three online surveys were set up, one for each of the Programmes. These surveys aimed to capture the experience of the beneficiaries for their chosen Programme, and in particular, the impact that they would attribute to EIT Food in terms of their current and future (5-year) sales turnover and jobs.

Companies were contacted by EIT Food to encourage their participation in the survey. 66 responses were received in total, a response rate of 12%. This compares well with other online surveys.

The results of the survey were analysed and a bespoke economic impact model developed to calculate the combined return on investment for EIT Food's EUR28m investment in the three Programmes from 2018-2023.

All the figures from the model are presented in today's terms as a Net Present Value (NPV) with appraisal periods of 10, 12 and 15 years from the start of the Programme in 2018 and a discount rate of 3.5%.

The level of attribution of benefits to EIT Food was estimated from the survey returns where respondents were asked to estimate how much of any current or future sales they would attribute to EIT Food. Carbon or health benefits are not included in the quantitative assessment but are addressed qualitatively in Section 5.

Displacement of existing economic activity is included in the economic model at a rate of 30%. This estimates the extent to which the assisted businesses might displace non-assisted businesses across Europe.

Persistence of benefits is also accounted for. The model assumes that the benefits from EIT Food tail off after 5 years in a typical S-curve.

In addition to the economic analysis, six case studies were undertaken to highlight specific companies and their impact as a result of EIT Food assistance. The choice of case studies was based on willingness to respond, availability of data and a review of the survey results. The case studies highlight wider benefits such as carbon saving, reduced waste, etc.

Analysis of qualitative responses which include wider benefits was also undertaken to capture wider non-quantifiable benefits of the Programmes. This analysis is reported in Section 5.

# POLICY CONTEXT

EIT Food is funded through the EU Horizon Europe research & innovation programme as one part of the European Institute of Innovation & Technology. EIT Food’s vision is: a world where everybody can access and enjoy sustainable, safe, and healthy food – with trust and fairness from farm to fork.

The EIT Food startup programmes operate in a context where the global food sector faces unprecedented challenges including:

- Feeding 9–10 billion people by 2050
- 3 billion people classed as overweight or obese
- 2 billion undernourished people
- More than 30% of food wasted

EIT Food aims to put Europe at the forefront of addressing these challenges by stimulating innovation in the sector and has three key Missions, as indicated below.



These highlight EIT Food’s priorities for improving the impact of diet on obesity and non-communicable disease; reducing food system-related environmental harms; and dealing with the threats posed by food integrity and complex supply chains. The overarching goal is to deliver impact through the EIT Knowledge Triangle of Education, Innovation and Business.

Improving the efficiency and sustainability of Europe’s food system will contribute to other EU policy goals, for example:

- EU Green Deal (by making food production and consumption more environmentally friendly)
- EU Circular Economy strategy (by reducing Food Waste & Food Loss and improving waste management and recycling).
- Competitiveness & innovation objectives through access to finance, developing new skills and creating jobs in both urban and rural areas.

EIT Food also contributes to UN development goals including for Healthier Diets:

- UN SDG 3.4: Addressing the food contribution to Non-Communicable Disease (NCD)
- UN SDG 2.2: Tackling childhood Obesity

And for Circular, Sustainable Food Systems:

- UN SDG 12.3 Reducing Food System Climate Change Footprint
- UN SDG 2.4 Ensuring Food Security & Safety
- UN SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

These wider UN development goals highlight that EIT Food's contribution can also be beyond Europe with innovations potentially adopted globally.

# IMPACT OF EIT FOOD PROGRAMMES – ROI

As explained earlier, the ROI is based on the 66 responses received to the online survey of beneficiaries of the three programmes. An overview of the responses by programme is set out below.

- For SEED, 17 survey responses were received. 59% had started a business following SEED participation (10 businesses). The current turnover of those businesses was estimated by survey participants at EUR1.28m and 74 jobs, with EUR0.9m and 52 jobs being attributable to SEED. In 5 years, the turnover of these 10 businesses is expected to grow to EUR34.7m with EUR23.4m being attributable to SEED. 50% of respondents anticipated carbon emissions reductions and 30% water use reductions. 30% of businesses had majority female founders.
- For FAN, 32 survey responses were received. 72% had started a business following FAN participation (23 businesses). The current turnover of those businesses was estimated by survey participants at EUR12.2m and 364 jobs, with EUR03.865m and 148 jobs being attributable to FAN. In 5 years, the turnover of these businesses is expected to grow to EUR306m with EUR170m being attributable to FAN. 70% of respondents anticipated carbon emissions reductions and water use reductions. 61% anticipated improved human health and social benefits to citizens. 26% of businesses had majority female founders.
- For RFS, 17 survey responses were received. 59% had transformational or substantial sales impact as a result of RFS. The current turnover of those businesses was estimated by survey participants at EUR33.8m and 692 jobs with EUR3m and 77 jobs being attributable to RFS. In 5 years, the turnover of these businesses is expected to grow to EUR632m with EUR71.6m being attributable to RFS. 76% anticipated water use reductions, 70% carbon reductions and 40% health improvements. 18% of businesses had majority female founders.

This ROI is based on the survey results versus the total programme costs. Total programme costs were EUR28m. This equates to a net present value (NPV) of EUR25m as shown in the Table below.

Programme costs (EUR)	NPV - 10 yrs	NPV - 12 yrs	NPV - 15 yrs
Direct costs	25,187,295	25,187,295	25,187,295

The model shows impacts of EUR145m at the European level over 10 years rising to EUR340m over 15 years. The bulk of the impacts come from FAN which had the largest number of responses. SEED had the smallest impact. The model includes a displacement factor of 30% recognising that existing businesses may be displaced by new more innovative ones.

An assessment of attribution to EIT Food is included such that the impact can be considered a net contribution. The results are influenced by a very small number of companies anticipating very large growth in the next five years. In our experience, this is normal in these types of assessment but it could be that some of these growth projections are overly optimistic. On the other hand, we have not grossed up the results to the wider population of companies. On this basis, the assessment can be considered to be balanced and conservative despite the large growth forecasts from some respondents.



Total impacts (EUR)	NPV - 10 yrs	NPV - 12 yrs	NPV - 15 yrs
SEED	14,493,443	29,022,050	32,317,521
FAN	86,657,539	186,155,657	208,829,625
RFS	44,177,350	88,686,683	98,767,163
Total	145,328,331	303,864,390	339,914,310

The results show a return on investment (ROI) of EUR6–13 per EUR1 invested. It is clear from the results that EIT Food’s interventions are highly valued and are providing a return to the European economy in terms of employment and turnover above the resources put in.

Return on Investment	NPV - 10 yrs	NPV - 12 yrs	NPV - 15 yrs
Total	6	12	13

A conservative estimate for these three entrepreneurship programmes (2018–23) would be that they have created **1,130 jobs that can be linked to EIT Food support and that EIT Food can claim 100% value for at least 227.**

Programme	Jobs Created	Jobs fully attributable to EIT Food
FAN	364	148
RFS	693	77
SEED	74	52
Total	1,130	277

# IMPACT OF EIT FOOD PROGRAMMES – WIDER IMPACTS

This section sets out the qualitative impacts captured as part of the survey. All respondents with a current business were asked whether the company generated any wider societal benefits, in addition to their commercial activities. 47 of the 50 businesses eligible to answer this question (94%) said they did generate wider benefits. A breakdown of their responses and the types of wider impacts reported is shown below.

Wider Impacts Reported by EIT Food Businesses			
	No. of Business Responses	Total Business Respondents	%
Carbon emissions reductions	35	50	70%
Reduced use of water or other natural resources	31	50	62%
Health e.g. improved human diet, or reduction in diseases;	21	50	42%
Social e.g. benefits to citizens such as food security, affordability;	23	50	46%
Others mentioned:	3	50	6%
<ul style="list-style-type: none"> <li>Advanced innovation in life science, nutrition, material value chains</li> </ul>			
<ul style="list-style-type: none"> <li>Reduction in harmful chemicals used in agriculture</li> </ul>			
<ul style="list-style-type: none"> <li>Reduction in over-fishing</li> </ul>			
No Wider Impacts	3		6%

## Female Founders

Respondents were also asked about the founders of the business and in particular, the proportion of businesses assisted by EIT Food which were established and/or led by women. Overall, 24% of respondents with a current business (12 in total) were female-led. This was defined as a startup with the majority of founders being female (i.e. 2 out of 3, ...) OR where female founders hold >50% of equity (i.e. 51% regardless of the number of founders) OR the current CEO is a women.

## Respondent Comments Relevant to the SEED Programme

SEED is a programme for aspiring entrepreneurs and researchers, who are generally at pre-startup stage. It would not necessarily be expected that all participants would establish a business following completion of the programme. The survey findings show that 59% of participants established a business subsequently which is a good take-up. However, every participant who had not established a business to date, said they benefited from participating in SEED in other ways. The number of respondents eligible to answer this question is very small and the findings can only be used as a general overview, but the wider individual benefits reported are as follows:

- Accelerated personal career progression (86%)
- New academic / industry collaborations (43%)
- More interaction with industry generally (86%)
- A greater interest in entrepreneurial activity in the future (57%)
- An ambition to establish a business in the future (57%)

The latent interest in entrepreneurship among those that have not yet established a business is noteworthy.

Participants who did establish a business were also asked about wider personal benefits from attending the programme. Again, the numbers are small but provide a high-level overview:

- Accelerated personal career progression (70%)
- New academic / industry collaborations (50%)
- More interaction with industry generally (90%)
- A greater interest in entrepreneurial activity in the future (40%)
- An ambition to establish a business in the future (30%)

The following quotation from one respondent paints a picture of their involvement in SEED:

“We received priceless mentoring & coaching to steer our business model, as well as training through clinics to improve our skills or acquire new ones. In parallel, we enjoyed networking opportunities, and we are receiving invitations to conventions / fairs, to showcase our technology & solutions and increase our exposure to potential clients and funders. Last, but certainly not least, we received a grant to support our market discovery efforts”

## Respondent Comments Relevant to the FAN Programme

FAN is a programme for new startup companies to further validate their technology and advance their commercial readiness to achieve the ultimate goal, a successful market adoption. The survey findings show that the majority of participants (72%) brought the technology/product idea supported through the FAN Programme to market (23 businesses).

Those who have not yet brought their technology/product idea to market may still do so in the future. Analysis of the reasons why participants had not done this reveals that some are still pursuing regulatory approval, which is a big issue in the food industry and some are redefining their market focus for a future launch. Thus, the benefits from the FAN Programme reported in the previous section, may be an underestimate of the position in the longer term.

Survey respondents stated:

- We are still optimising and need to pass regulatory approval
- The technology was already on the market
- Our product was already in the market
- Our technology is currently undergoing refinement to ensure scalability and effectiveness. We are also conducting market validation and establishing strategic partnerships. These crucial steps are necessary before commercialisation
- We faced challenges in gaining adoption in our chosen market segment. However, the market feedback we received highlighted an alternative market need. We've pivoted our focus accordingly and are currently testing under real market conditions to validate its efficacy.
- We still need the Novel Food Permit approval to bring our technology to market
- Didn't find a production partner / corporate so far
- We are waiting for the regulatory approval in EUROPE

These participants may not yet have brought their idea to market, but all report other personal benefits from participating in the FAN programme, such as:

- Some connections to corporates
- We onboarded a potential co-executive through the programme
- Networking, product ideas and development ideas
- Participating in FAN provided invaluable networking opportunities, knowledge exchange, access to resources, and enhanced validation for our scale up and technology. These benefits have accelerated our growth and positioned us for success in the cultivated protein sector
- Participating in EIT FAN was key to connecting us with a valuable group of entrepreneurs and mentors and refining our business model
- FAN offered us several benefits. Among those, we can mention that we developed a new relationship with a collaborator, which culminated in us being part of their Hackathon and developing a business case together with their team. Additionally, it strengthened our bonds with another company, resulting in us running a pilot with them. We also started submitting projects together with the other fellow startups. All these efforts are taking us closer to our mission to get operational
- Networking, maturing of the business model, growth of personal skills
- Good access to a nice network

Those participants that had progressed their idea to market were also asked about wider personal benefits from attending the FAN programme:

- Visibility and credibility with investors
- Great networking
- Sustainable manufacturing
- Networking
- The network we established to build longer term relationships
- New business contacts
- We managed through the programme to create our product to industrial standards
- Finding investors and hopefully going abroad (interpreted as exporting)



- Network of entrepreneurs, projects with existing clients
- FAN programme helped us to structure our go-to-market strategy with retailers and fine-tune our value proposition. Shake-up Factory team (EIT FAN Paris hub) are great mentors and coaches!

All survey respondents were asked if there was anything else they would like to mention about their participation in the FAN Programme or how it could be improved. A wide assortment of responses was received as shown below:

- 1on1 on-demand coaching; targeted investor intros; all timed and tailored to the needs of the startups; I made the experience that most incubators impose their rigid curriculum on the participating startups. As a result, we get advice on problems we do not have, while we lose time to work on the problems that we do have
- I think it is too focused on sustainability innovations, which causes you to be biased towards some concepts that are not viable business models.
- We liked the support and the well-driven connections so far
- Great start into EIT for every Agri/Food tech entrepreneur
- EIT FAN was a great platform to get to know some of the main stakeholders in the agricultural industry. Moreover, the courses and talks held by different persons with different/complementary backgrounds were very productive, enlightening and insightful! The network created was truly a family-like community!
- Very happy with the programme, improvement could be to have a programme in the Netherlands
- The link between EIT Food Accelerator Network and RisingFoodStars was not very clean. It would be interesting to create more links/networking occasions between startups from different cohorts and different hubs (ex: contact list, or group slack channels?), as many of us have the same hot topics/issues at the same moment
- More financial support and access to retailers
- We are very grateful to be part of the EIT-FAN journey. We met a lot of people from EIT and from fellow startups that changed our perspective on our business and made us grow
- Tailored support and small grants to hire services of specific mentors/companies (i.e. regulatory support, lawyers)
- We would still need support to complete our fundraising for our first large-scale commercial unit

## Respondent Comments Relevant to the RFS Programme

RFS is a programme for scaleup companies. The business must already be generating revenues from a strategic multi-customer portfolio (Min 100K euros, have a team of 10+ full-time employees and be aiming to raise Series A funding within the next 6–12 months.

In addition to the gross added value (GVA) and job impacts reported earlier by those who participated in RFS programmes, participants were asked about whether they had experienced wider personal benefits from their involvement in RFS. The numbers are small but provide a high-level overview:

- Accelerated personal career progression (29%)
- New academic / industry collaborations (41%)
- Increased business confidence (47%)
- A greater interest in entrepreneurial activity in the future (24%)
- Visibility, reputation, PR (53%)
- Leadership skills development (35%)
- Learning and growth in general (41%)
- Support system/ mental health support (12%)
- Improved organisation structure or culture (18%)
- Legal/ regulatory guidance/ public affairs support (12%)
- Hiring/ attracting talent (12%)

All RFS respondents were asked if there was anything else they would like to mention about their participation in the RFS Programme or how it could be improved? A smaller proportion of participants commented than for SEED and FAN, probably reflecting the greater maturity of businesses and their owners:

- A great experience and global collaboration
- We love EIT Food thank you for all the help!
- I feel the effect of our first year with RFS is starting to materialise now, that is why we happily joined for the second year. Building relationships takes time. RFS helps to accelerate those and makes the right kind of intros, yet we are in for a marathon of changing our food system for the better, that is why we believe in long-term partnerships and collaborations
- The current decline of our business had nothing to do with our participation in RFS. If we could have run our business as expected we would have benefitted even more from the RFS Programme
- Being part of RisingFoodStars has been a gamechanger!

# CASE STUDIES

## Orbisk: Revolutionising food waste management with technology



Orbisk was founded by Olaf van der Veen and Bart van Arnhem in 2018 with Richard Beks joining in 2019. Orbisk aims to address the global challenge of food waste in the hospitality sector through use of computer vision and AI to equip hospitality organisations with the tools necessary to gain comprehensive insights into their food waste patterns. This solution, characterised by a smart camera and scale setup, meticulously registers food waste in kitchens to the ingredient level, allowing mitigation strategies to be put in place to deliver potential reductions of up to 70%. This reduces costs and delivers environmental benefits.

Orbisk has a diverse team of experts, including Hardware Operations Managers, AI Engineers, and Food Waste Coaches, for an interdisciplinary approach to eliminating food waste. They won €1.2 million of Eurostars funding for their FOOD FIGHT project, in September 2020. Orbisk participated in RFS twice and found the programme to be transformational, though COVID impacted revenues post-RFS. RFS also delivered enhanced visibility, reputation and PR to the business.

To date, Orbisk has delivered savings of 780,000 kg of food waste, worth EUR5.46m translating into 3,500 tonnes of CO<sub>2</sub> emissions based on 4.5 kg of CO<sub>2</sub> saved per kg of food waste avoided. This achievement underlines the substantial economic implications of food waste, with every kilogram wasted representing a loss of €7.

The solution's plug & play design ensures ease of integration without the need for staff training, supported by 100 days of guidance and proactive monitoring of client dashboards post-onboarding. Orbisk has fostered a community for customers to share results, knowledge, and tips on reducing waste, further strengthening collaborative efforts against food waste. A help centre and direct contact with food waste experts provides additional support.

Orbisk's impact extends beyond professional kitchens to hotels, company catering, and healthcare facilities, offering tailored solutions that lead to significant savings— up to 50% less food waste on average, equating to potential annual savings of €55,000 and profit margin increases of 2–8%. Through its dedication to innovation, community, and sustainability, Orbisk not only addresses the immediate challenges of food waste but also contributes to the broader goal of a more sustainable and economically viable food service industry.

## Holloid: In-line process monitoring using AI and digital holographic microscopy



The stage is set for using microbes to sustainably produce much of the goods that humanity needs. This includes food, pharmaceuticals, chemicals, and energy. There is a vast range of naturally occurring microbes and cells. Genetic engineering further increases that pool. Yet, there is a bottleneck that curbs these industries' urgently needed transformation: the lack of powerful bioprocess control. Without knowing which wanted and unwanted microbes and cells are present and what they do in the respective production line, innovation remains impeded and breakthroughs cannot scale.

Holloid's online bioprocess monitoring system provides a missing link for breakthroughs in the production of alternative nutrients such as proteins, lipids and active ingredients. Its holographic microscopy provides automated, online cell counting and size distribution for bacteria, eukaryotic cells, yeast cells, microalgae, microplastics, and other microscopic objects. The early detection of pathogens keeps products safe, people healthy and costs low.

The systems can reliably identify single objects (e.g. bacteria) in large volumes. Machine learning and AI-enabled analytics and classification can perform analysis 1,000x faster at a 1,000,000x higher throughput than existing methods. Holloid's system can be easily retrofitted into existing production lines or designed into new ones.

Holloid was founded by four co-founders Marcus Lebesmühlbacher, Pinar Frank, Peter van Oostrum and Erik Reimhult in 2022. Participation in EIT Food's FAN programme brought Holloid visibility and credibility with customers and investors to grow the business. Holloid's early version of the product is on the market, installed in first pilot installations and has gained significant interest from the world's largest companies in pharma, beverages, food and beyond.

"Our technology is a key technology for emerging economic sectors such as synthetic biology, alternative protein sources and green chemistry. Both due to social requirements, based on economic aspects as well as sustainability, the importance of microbiological processes in industry is increasing rapidly. Holloid offers the world's most powerful bioprocess control as a key technology for pharmaceuticals, food and bio-based materials of the future." Marcus Lebesmühlbacher and Pinar Frank, Co-Founders at Holloid.



## Redefine Meat: In-line process monitoring using AI and digital holographic microscopy



Redefine Meat was founded in 2018 by Eschar Ben Shitrit and Adam Lahav to provide a plant-based alternative to meat that is acceptable to meat eaters, flexitarians and vegans.

Redefine Meat has developed the technology to 3D print alternative meats, not just mince, but every cut of beef while providing the taste and texture associated with animal-derived steak.

Redefine Meat's expertise includes scientists and meat-loving experts such as butchers and chefs focused on deep analysis of muscle structure, the taste and quality of meat and the technology of printing it. The aim is to recreate the full experience of eating meat. Extensive taste tests have been carried out with consumers.

The company raised \$6m in 2019, achieved a printing speed of 10kg per hour by 2020 and raised a further \$29m in 2021. The funding has gone towards creating a state-of-the-art factory with large-scale printing facilities. The products are now on sale in outlets across Europe and further afield.

Redefine Meat, is an EIT Food Accelerator Network alumnus and participated in EIT Food's RFS programme twice. It was the winner in the first year of the programme. Business growth since then has been transformational. Participation in RFS brought Redefine Meat better connections and exposure in Europe. Its visibility and reputation were enhanced and it was able to gain PR through its RFS involvement. The company anticipates growing its turnover to several hundred million euros in the next few years, though, it does not attribute this future growth to EIT Food.

For someone eating burgers twice a week over their lifetime, Redefine Meat estimates the carbon savings of moving to its meat as 43.5 tonnes of carbon dioxide-equivalent (CO<sub>2</sub>e) and water savings of 14,600 litres.

## farmAlr: Specialising in the early detection of plant stress, using thermal & optical cameras and AI, to see what no one else can - the agronomists' MRI



farmAlr was founded by Stamatis Diavatidis and George Fevgas in 2020 in Delaware USA with offices in Athens Greece, and a Greek entity was also founded in 2023. Their proprietary technology enables early detection of plant stress based on the leaves' stomata transpiration, derived from Thermal Infrared (TIR) and high-resolution visible-spectrum (RGB) images currently acquired by advanced IoT sensors placed on commercial drones. The company's sophisticated AI algorithms process the images and analyse the findings.

Other technologies currently available in the market mostly measure chlorophyll content, and can only assess damage, which is already visible or will soon become visible. farmAlr's technology can detect plant stress, on a leaf level, long before the onset of any symptoms. In trunk diseases, as early as 2-3 years ahead.

The initial focus for the business has been working with vineyards in Greece. There are plans to expand abroad and to extend the use of the technology to other crops in open field & greenhouses in the future. Technological developments such as data collection from satellites are also being explored for the near future.

farmAlr participated in EIT Food's Seedbed Programme in 2023. It is a young company and little time has elapsed since it completed the Programme, but already many positive developments have been achieved. On November 8th, during the EIT Food Seedbed Showcase, the judges voted farmAlr as the best startup from Mission 3: A Fair & Resilient Food System, it was awarded its first grant, and the company is now proceeding.

Networks are being developed with other significant businesses in the sector: the company is in discussions with Intelligent Green Crops to implement its technology in Greenhouses; Also, Bayer Crop Science Monheim; BASF Hellas; Maxar; and Albedo to explore the possibilities of potential cooperation. The company is targeting £6m annual sales in the next 5 years based on one crop area. If current work to extend the technology to other crops such as apples, sugar beets, soybeans is successful, sales will exceed this forecast significantly.

"We received priceless mentoring and coaching to steer our business model, as well as training through Clinics to improve our skills or acquire new ones. In parallel, we enjoyed networking opportunities, and we keep receiving invitations to conventions / fairs, to showcase our technology & solutions and increase our exposure to potential clients and funders. Last, but certainly not least, we received the grant to support our Market Discovery efforts".

Stamatis Diavatidis, farmAlr

## Beta Bugs: Developing a better bug for insect farming



# Beta Bugs Ltd.

Insects have long been touted as a healthy, low-carbon source of protein. Currently, pet food is the largest market for insect protein with a segment of consumers prepared to pay a premium for pet food with a lower carbon footprint. The potential size of the insect protein market was transformed in 2021 when the EU passed new regulations permitting farmers to feed insects to pigs and poultry. The issue is that although the demand is there, production needs to be taken to quite a large scale for big manufacturers to go all-in on insects (from both a price and security of supply perspective). Alongside larger-scale facilities, another way to ramp up is through new breeding programmes to develop more productive versions of the most commonly farmed insects.

Beta Bugs was founded in 2017 by Thomas Farrugia after spotting an opportunity for improved genetics in the rapidly developing insect farming industry. Beta Bugs develop and distribute new breeds of Black Soldier Fly (BSF) to farmers. BSF is a key circular source of protein for poultry, aquaculture and livestock; the larvae can be fed on organic waste thus converting it to protein for animal consumption. Beta Bugs are working towards being the genetics partner to the BSF industry – starting with their flagship breed HiPer-Fly®. Specific traits have been selected, resulting in increased larval size, shorter development time and greater egg production and hatchability.

The initial idea for Beta Bugs came to Thomas Farrugia whilst he was working towards his Chemistry PhD at the University of Bristol. He joined Deep Science Ventures in 2017 where he began to look into the insect protein supply chain and saw that genetics was highly scalable. After launching Beta Bugs with Deep Science Ventures' backing and a stint at Rothamsted Research, his company found its home in Edinburgh and works closely with the Roslin Institute, centre of excellence in animal genetics.

Beta Bugs participated in the 2021 FAN Programme. In 2023 it secured a major investment of £1.7m from investors including Tricapital, SIS Ventures, Beeches Group and Scottish Enterprise to scale the business, create more jobs and reach profitability more quickly. Investors recognised the potential for exponential growth in the sector over the next decade. In 2021 a WWF Report projected that “...the total demand for insect meal from the UK's pig, poultry and salmon sectors could reach in the region of 540,000 tonnes a year by 2050. Of this, around 240,000 tonnes of insect meal per year could be sourced from UK insect farms.”

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The Future of Feed: A WWF Roadmap to Accelerating Insect Protein in UK Feeds.  
[https://www.wwf.org.uk/sites/default/files/2021-06/The\\_future\\_of\\_feed\\_July\\_2021.pdf](https://www.wwf.org.uk/sites/default/files/2021-06/The_future_of_feed_July_2021.pdf).

Of interest to climate, impact and sustainability-minded investors, in particular, is the circularity of BSF business models. BSF can be fed organic waste from various sources, helping to address the global food waste issue whilst providing a local protein source that supports resilient agri-food supply chains. The UN's Food and Agriculture Organization (FAO) estimates around 14% of global food production is wasted from harvest to shelves. Consumers waste another 17% of food after retail purchase, according to UNEP's food waste report. As a result, BSF provides an attractive antidote to the problem and is being actively considered as a solution by sustainability minded corporates in the agrifood value chain since it minimises their food waste footprint.

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United Nations Environment Programme, Food Waste Index Report 2024. Think Eat Save: Tracking Progress to Halve Global Food Waste. <https://wedocs.unep.org/20.500.11822/45230>.