

# Amoéba

Focused on high-value opportunities

Company outlook

Amoéba has achieved promising results for the use of its amoeba-based active ingredient in skincare cosmetics in a series of lab and human volunteer trials. In addition, the company secured regulatory approval in the United States and a recommendation for approval in the European Union in 2022 for the active ingredient used in its innovative biological fungicides. Since then, it has tested this active ingredient in standalone and blended use and hopes to achieve product approvals by H125. Amoéba will focus on high-value, high-margin markets in both potential biological fungicide and emerging cosmetic applications.

Year end	Revenue (€m)	EBITDA* (€m)	PBT* (€m)	EPS* (€)	DPS (€)	P/E (x)
12/21	0.0	(4.0)	(7.4)	(0.42)	0.00	N/A
12/22	0.0	(4.7)	(7.7)	(0.23)	0.00	N/A
12/23	0.0	(5.6)	(6.9)	(0.14)	0.00	N/A
12/24e	0.0	(5.5)	(6.6)	(0.13)	0.00	N/A

Note: \*EBITDA, PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

## Biological crop protection an emerging market

Crop pests, bacterial blight and other diseases result in crop losses of up to 40% of agricultural output globally each year and cost the global economy around \$990bn. While this makes crop protection vital, many chemical crop protection products have been banned by regulators due to their harmful impact on humans and/or the environment.

## Skincare cosmetics opportunity

Amoéba's active ingredient has proved to be effective in anti-ageing cosmetics in two lab trials, as well as a recently completed trial with 30 human volunteers. The active ingredient has been registered on the International Nomenclature for Cosmetic Ingredients (INCI) list and can move directly to product development without the need for further regulatory approval. This cosmetics application could offer a highly attractive growth opportunity with a very high price per unit and high margins.

## Test results are encouraging

Extensive field tests show that Amoéba's patented active substance is effective against many fungal crop diseases in both temperate and tropical climates. Management intends to focus initially on high-value biofungicides for greenhouse crops as well as emerging opportunities in the cosmetics industry.

## Valuation: Addressing a high-growth market

As Amoéba is pre-revenue and 2025 funding not yet secure, we are not attempting to calculate a valuation at this point. The company has indicated that it could expect to generate €3m in revenue in 2026, rising to €12m in 2027 with very high gross margins (more than 70% in cosmetics).

Industrial engineering

21 June 2024

**Price** €0.48

**Market cap** €24m

Net debt (€m) at end December 2023 4.4

Shares in issue 49.4m

Free float 70%

Code ALMIB

Primary exchange Euronext Growth

Secondary exchange N/A

### Share price performance



% 1m 3m 12m

Abs (11.3) 5.4 (25.6)

Rel (local) (5.1) 11.7 (28.8)

52-week high/low €0.68 €0.37

### Business description

Amoéba is developing biological fungicides for treating diseases such as mildews and rusts, which have a major economic impact on the production globally of a wide range of crops as well as an emerging opportunity in cosmetics. These novel fungicides are based on the characteristics of the *Willaertia magna* C2c Maky amoeba.

### Next events

H224 results October 2024

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## Investment summary

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### Company description: Biofungicides and more

Amoéba is developing biological fungicides based on the characteristics of the *Willaertia magna* C2c Maky (*W. magna*) amoeba for treating diseases such as mildews and rusts. These diseases have a major economic impact on the production globally of a wide range of crops, including salad vegetables, vines, potatoes, cereals and bananas. Field trials to date show that formulations containing dead *W. magna* amoebae are effective in both temperate and tropical climates. In April 2022 Austria recommended the approval of the biocontrol active substance for use in plant protection on behalf of the EU. A few months later, the US Environmental Protection Agency (EPA) approved the active substance for the control of fungal plant diseases in agriculture. Amoéba now needs to secure regulatory approval for products containing the active substance from the EPA and from individual EU geographic zones. Management expects to obtain these approvals by H125, with sales of its AXPERA biocontrol solution expected to begin shortly after.

Amoéba has trialled its active ingredient in cosmetics applications with particular emphasis on anti-ageing skincare. The initial two lab tests provided very strong results in several key cellular functions concerning skin cell protection and recovery. On 10 June, the company [announced](#) successful results from its third test using 30 human volunteers. This test confirmed that the use of the Amoéba active ingredient in skincare cosmetics returned 'statistically significant' benefits in the following areas:

- improved dermis thickness;
- a restoring effect on the superficial dermis;
- improvement in skin density; and
- improved dermal texture.

Amoéba has also obtained the inclusion of this active ingredient on the INCI list, paving the way for marketing and the search for commercial partnerships without any further regulatory authorisation being required.

### Financials: Near-term revenue potential

Amoéba expects to generate its first sales in 2025 pending the approval of its biocontrol and cosmetics products, with expectations that sales could reach €12m by 2027. At the end of December 2023, Amoéba had €0.5m in gross cash on its balance sheet. The company has arranged a €9m debt facility with its largest shareholder, Nice & Green, and had drawn down approximately €4m as of December 2023. During 2023 the operating cash outflow was €6.5m and the investment cash outflow was €2.8m, primarily linked to the now postponed industrial plant. The company generated €4.3m from financing activities from a combination of fresh debt from Nice & Green and a repayable advance granted by Bpifrance. The company announced that it has secured funding for 2024 operations through its existing bond facility with Nice & Green. We believe management will seek to raise additional funding to finance capacity expansion and fund ongoing operations in 2025 and beyond (see the Updated strategic plan section below).

### Valuation: Dependent on rate of product roll-out and funding

As Amoéba is pre-revenue and the expected financing is not yet in place, we are not attempting to calculate a valuation at this point. Management expects to generate €3m in revenues in 2026, rising to €12m in 2027 with very high (more than 70%) gross margins generated in the cosmetics segment. The company can meet this medium-term supply from existing capacity at its Chassieu headquarters. Management is also considering expanding in-house production capacity at the

Chassieu site, as well as exploring options with a contract development and manufacturing organisation (CDMO), which could allow the company to meet further demand without needing capital investment.

### **Sensitivities: Marketing authorisation key**

The key sensitivities as we see them are: 1) the timing and success of regulatory authorisations for specific products before Amoéba can begin to sell them; 2) scaling up the production process; 3) rising energy costs; 4) product acceptance by the market; 5) potential IP theft; and 6) uncertainty regarding securing the finance required for expanding production capacity and funding ongoing operations.

### **Updated strategic plan**

The company has halted its previous plan to invest €25–30m in an industrial-scale production plant in Cavaillon, France, and instead will seek a more moderate expansion of its production capacity at its headquarters in Chassieu, France. This decision delivers four key advantages:

1. It allows the company to better align the timing of investment costs with expected sales revenues.
2. It improves focus on high-margin, low-volume products rather than the larger-volume, lower-margin products envisaged at the industrial-scale plant.
3. It reduces risk by lowering capex demands and the associated financing.
4. It increases flexibility to outsource production via a CDMO.

### **New focus on high-margin products**

Management has indicated that it will initially focus the biocontrol application on high-margin, lower-volume products. Typically, this will represent greenhouse-produced fruit, vegetables and herbs where field trials have shown high efficacy of the Amoéba active ingredient. The company is enthusiastic about the test results from blending its product with existing copper-sulphate-based biocontrol products with the goal of maintaining efficacy and reducing build-up of copper-sulphate in soils.

The emerging skincare opportunity fits in very well with this high-margin, lower-volume strategy. Prices for the critical active ingredient for cosmetic applications can be 10–20x that of biocontrol applications and offer very attractive gross margins (management targets more than 70%). In addition, the inclusion of the active ingredient on the INCI list allows for accelerated product development.

Amoéba is looking for distribution partners for both of its biocontrol and cosmetics products. As an 'upstream' supplier of the active ingredient, Amoéba would benefit from a strong partner to ensure end product development and access to market.

### **New board of directors well-aligned with updated strategic plan**

Amoéba announced a significant change in the leadership of the company to better align with the new strategic plan. The new board brings significant experience of transitioning from start-up to commercial operations as well as industry expertise in the biocontrol, health and cosmetics industries. The company is seeking to further strengthen its board by adding a member with deep experience in the cosmetics industry. This is likely to happen after the AGM on 27 June. For more detail, see the Management and board section below.

## Regulatory approval expected in H125

Due to adverse weather conditions in 2023, the company was unable to complete 100% of its planned field trials, which led it to delay its expected product timeline approval for its biocontrol products from end FY24 to H125 in both the US and the EU. The skincare cosmetics opportunity does not require further regulatory approvals as it has been included on the INCI list and can move directly to product development.

## Company description: Biofungicides and skincare based on amoeba lysate

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Amoéba is developing biological fungicides for treating diseases such as mildews and rusts, which have a major economic impact on the production globally of a wide range of crops, including salad vegetables, vines, potatoes, fruit trees, cereals and bananas. These novel fungicides are based on the characteristics of the *W. magna* amoeba. As far as we are aware, Amoéba is the only company developing biofungicides derived from this specific amoeba.

Field trials to date show that formulations containing dead *W. magna* amoebae are able to control many fungal crop diseases and are effective in both temperate climates and tropical climates. These formulations demonstrate a higher level of performance than most biofungicides currently available, so Amoéba intends to offer its products both as an alternative to and as a complement to biological and chemical fungicides. The active substance has been demonstrated to be non-toxic so it is safe for farmworkers and there are no issues with limits on the amount of residue that can be left on produce or restrictions on how close to harvest a farmer can apply the biofungicide. The active substance is stable, resulting in potential products having a long shelf-life. Management intends to focus initially on biofungicides for application on high-value greenhouse crops as this should generate the best return.

In April 2022 Austria recommended the approval of the biocontrol active substance for use in plant protection on behalf of the EU. In November 2022 the EPA approved it for use in the US for the control of fungal plant diseases in agriculture. The company now needs to secure regulatory approval for products containing the active substance from the EPA and from individual EU member states. Management expects to obtain these approvals in H125 and to start selling product after that.

Amoéba has successfully tested its active ingredient in skincare cosmetics applications. This represents a very attractive opportunity as the regulatory route is far simpler and the company can immediately move to select a partner in the cosmetics industry to accelerate product development and provide a route to market. As mentioned above, cosmetic skincare is potentially a very high-price and high-margin product. Management has recognized this and has shown great agility in updating its strategic plan and board structure to support this opportunity.

Amoéba listed on Euronext Paris in July 2015 and transferred from Euronext Paris to Euronext Growth in September 2020. Since July 2015 it has raised c €55m from a range of financing activities. The company is located on the outskirts of Lyon, France, and employs around 26 people. It was founded in 2010 with the aim of developing a biocide based on live amoeba, which was approved by the EPA in 2022. The development of a biological control product based on amoeba lysate started much later. The company did not start R&D on the biocontrol active substance until 2017. However, management has recently decided to totally focus resources on the biocontrol opportunity because it is a much larger market.

## Rationale for investing in biological crop protection products

### Crop protection products are critical for improving yield

According to the [UN's Food and Agriculture Organisation](#) (FAO), crop pests, bacterial blight and other diseases result in crop losses of up to 40% of agricultural output globally each year. Plant diseases cost the global economy around \$220bn annually and invasive insects at least \$70bn. Moreover, crop losses are expected to get worse. A [scientific review](#) published by the FAO on behalf of the Intergovernmental Panel on Climate Change (IPCC) secretariat found that climate change will increase the risk of pests spreading in agricultural and forestry ecosystems, especially in cooler Arctic, boreal, temperate and subtropical regions. Even a single unusually warm winter may be enough to assist the establishment of invasive pests. The report notes that some pests, such as fall armyworm, which feeds on maize, sorghum and millet, have already spread because of the warming climate and predicts that other pests will change their migratory routes and geographical distribution too. In addition, plant diseases are spread by global travel and trade.

Crop protection products are essential for preventing losses. For example, the cultivated grapevine has no natural genetic resistance to powdery or downy mildew because the plant first evolved in Europe, while the pathogen originated in North America. Powdery mildew causes reduced yield and a drop in berry and wine quality. In wet conditions, uncontrolled downy mildew infection can cause defoliation and complete crop loss. A high proportion of the fungicide used in agriculture is therefore applied to grapevines. According to data from Italy's Istituto Nazionale di Statistica (ISTAT) published in 2016, 26% of the total amount of fungicides distributed every year in Italian agriculture is used in viticulture. Viticulture remains an attractive market for Amoéba, although it will not be an initial target market as the volumes required to make an impact are well beyond those envisaged in the updated strategic plan.

**Exhibit 1: Trial in 2022 showing untreated downy mildew on vines**



Source: Amoéba

**Exhibit 2: Trial in 2022 showing downy mildew on vines treated with Amoéba product**



Source: Amoéba

### Yield improvements essential for meeting predicted demand for agricultural outputs

Demand for crop protection products is also linked to a rising global population and increasing affluence in China, India and South-East Asia. Based on projections of population and economic growth, the [Agricultural Outlook 2022–2031](#) report, jointly published by the Organisation for Economic Co-operation and Development (OECD) and the FAO, predicts that global food consumption, which is the main use of agricultural commodities, will increase by 1.4% per annum over the next decade. The report also predicts that global agricultural production will increase by

1.1% annually over the next decade. Improvements in crop yield are projected to account for 80% of production growth, cropland expansion for 15% and increasing cropping intensity for 5%.

Yield improvements also have a material impact on combatting climate change and its effects. This is because agriculture is currently responsible for around 12% of global greenhouse gas, or 21% if the indirect impact of land use changes is included.

## Legislation and consumer demand driving switch away from conventional products

Since the second world war, arable farmers have increased yields by using a range of toxic substances to kill insects, worms, moulds and other living organisms that attack plants and to kill weeds that would otherwise choke the crop. However, over the last three decades interest in organic food and farming across the globe has driven a shift from conventional pesticides to chemical-free, biological-based products. This transition is being accelerated by greater consumer interest in the provenance of food and in food safety and quality as well as concerns about soil quality and the environment. These are resulting in the enactment of legislation to reduce the use of certain pesticides. For example, Germany is completely banning farmers from using glyphosate, which is the active ingredient in Monsanto's Roundup herbicide, from 2024. In 2018 the EU extended the ban on using three neonicotinoids (clothianidin, imidacloprid and thiamethoxam) on all field crops because of the serious danger they pose to bees and other pollinators.

Another reason for the increased interest in biological products is that pests are evolving to be resistant to commonly used conventional pesticides. Biological crop protection products therefore represent a way for farmers to overcome this resistance, at least until pests develop resistance to biological products over time.

## EU Green Deal mandates reduction in conventional pesticide use

As part of the Green Deal, in June 2022 the European Commission adopted a proposal to restore damaged ecosystems by 2050, reversing the decline of pollinator populations by 2030, increasing biodiversity in agricultural and forest ecosystems and restoring and rewetting drained peatlands. The proposal is also intended to help ensure the resilience and security of the EU's food supply chain. Measures within the proposal include: 1) legally binding targets reducing the use and risk of chemical pesticides by 50% by the year 2030; 2) ensuring that all farmers practice Integrated Pest Management in which chemical pesticides are used only as a last resort; 3) accelerating the approval of biological alternatives for farmers and other pesticide users; and 4) supporting the adoption of sustainable agriculture in countries exporting food to the EU while introducing a new, more environmental approach on the maximum level of pesticide residues in imported produce.

## Key conventional fungicides banned outright in the EU

Of particular relevance to Amoéba are bans affecting conventional fungicides. Chlorothalonil is a fungicide used to prevent mildew and mould on crops including barley, wheat, beans, potatoes and peas. It has been banned in the EU since May 2020 following a review by the European Food Safety Authority (EFSA), which was unable to exclude the possibility that breakdown products of the chemical cause damage to DNA. EFSA also identified a high risk to amphibians and fish for all representative uses. Mancozeb is used to control fungal diseases in a wide range of field crops, fruits, nuts, vegetables and ornamental plants. Apples and potatoes are the largest markets for mancozeb in terms of total pounds of active ingredients. A study published in the *Journal of Food Science and Engineering* in 2017 calculated that banning mancozeb would lead to a total reduction in gross margin for potato producers in France, Germany, Ireland, the Netherlands, Greece, Italy, Spain and the UK of €87–507m depending on the level of late blight infestation. The fungicide is also extensively used in countries such as Colombia, Ecuador and Costa Rica to protect banana

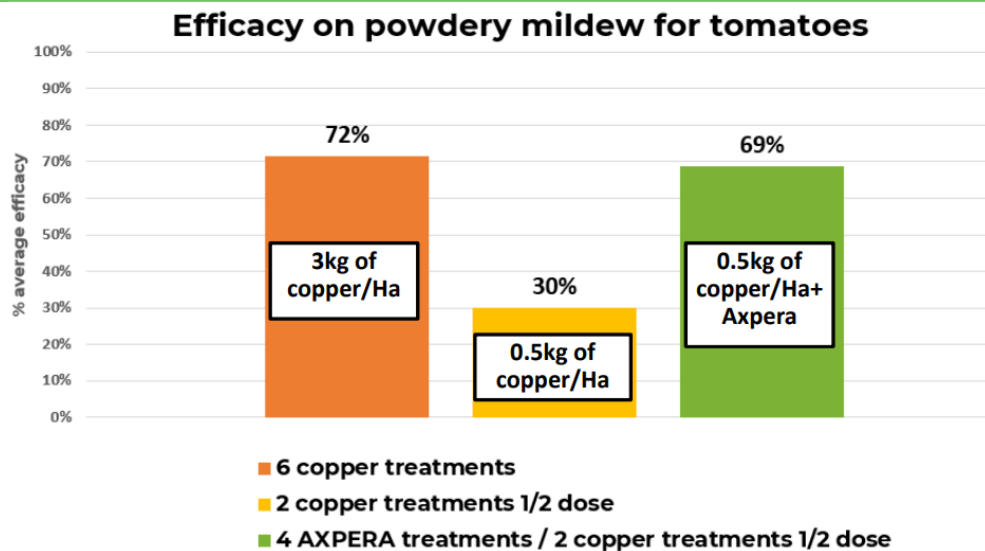
crops against black sigatoka. The EFSA has classified mancozeb as a category 1B reproductive toxicant and an endocrine disruptor. The EU completely banned the use of mancozeb within the EU from January 2022 and is reviewing whether to extend the restrictions to include the level of residual mancozeb on imported fruit and vegetables, with a significant effect on the availability of bananas.

### Restrictions on the use of organic fungicides containing copper

Bordeaux mixture, which is a mix of copper sulphate and slaked/hydrated lime (calcium hydroxide), is an organic fungicide used to control diseases of fruit and nut trees, vine fruits and ornamental plants. However, the copper in the mixture can accumulate in the soil if the product is applied for many years in succession, which is harmful for worms and may prevent farmers from grazing cattle on affected land. In 2018, following the EFSA's publication of an in-depth peer review on copper compounds, the European Commission imposed a limit of 4kg on the amount of copper that can be applied per hectare per year. The limits will be reviewed again in 2026. The restrictions are particularly significant for viticulturists as copper and sulphur collectively account for up to 70% of the fungicides used in Italian viticulture (source: ISAT). Copper is used to treat downy mildew and sulphur powdery mildew.

Amoéba has recently published [data](#) highlighting Axpera's efficacy when blended with copper in combatting powdery mildew on tomatoes. With a campaign of six treatments, four doses of Axpera combined with two half-doses of copper, it is possible to reduce the copper level by 83%, while maintaining the same efficacy as a normal dose of copper on its own. This would allow copper to continue to be used as a proven organic fungicide while significantly reducing the copper build-up in the soil.

**Exhibit 3: Ideal solution for reducing copper use**



Source: Company presentation

## Crop protection and cosmetic market statistics

### Crop protection market is vast

According to a report from Grand View Research, the global crop protection chemicals market was valued at \$43.24bn in 2022 and is expected to expand at a CAGR of 5.6% from 2023 to 2030. Within this market, the biological segment is growing very rapidly. A report published by P&S Intelligence in July 2022 noted that the global biocontrol agents market was worth c \$4,850m in

2021, and predicted that it would increase to \$13,600m by 2030 (ie a CAGR of 12.2% from 2021 to 2030). Management estimates that Amoéba’s addressable market size within the biological agents market is €1.6bn, expanding to €8bn if conventional fungicides are replaced by biological ones.

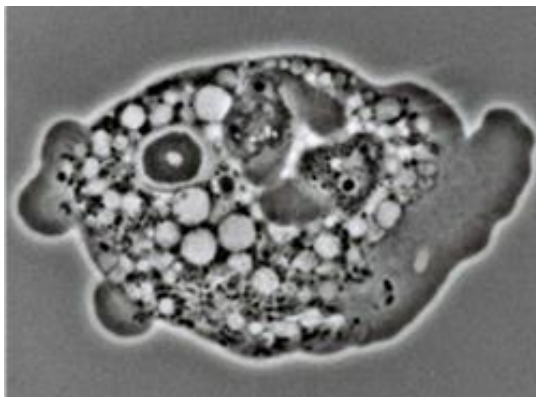
## Cosmetics application an exciting new opportunity

According to McKinsey’s *The Beauty Market in 2023: A special State of Fashion* report, the global skincare market was \$200bn in 2022 and is expected to expand at a CAGR of 6% from 2022 to 2027. Skincare represents just over 40% of the global beauty market. There are clear trends towards natural ingredients and premium products, with McKinsey forecasting that the premium end of the market should grow at an 8% CAGR compared with 5% for the mass market and 6% for the global market. This trend should represent a significant tailwind to any Amoéba product given the active ingredient is sourced from natural springs in the south of France.

## Why Amoéba is a good investment in this sector

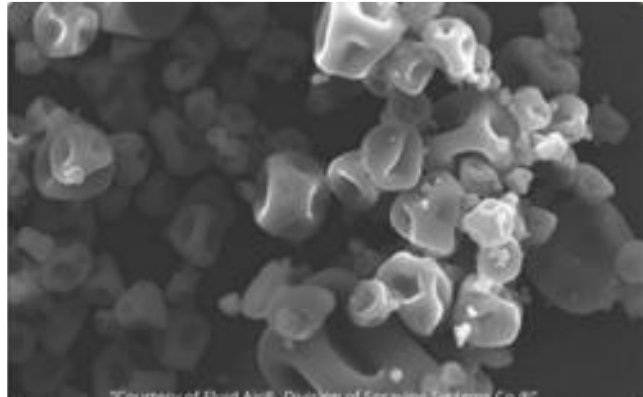
### Platform technology

Exhibit 4: *W. magna* amoeba



Source: Amoéba Nature

Exhibit 5: Lysate from *W. magna* amoebae



Source: Amoéba Nature

Amoéba is developing a range of products that utilise properties of the *W. magna* amoeba. This variety of amoeba was discovered in the thermal waters of Aix-Les-Bains, France, by Professor Pierre Pernin in 1998. The *W. magna* amoeba is a natural predator of water-borne microorganisms including opportunistic pathogenic bacteria such as *Legionella*, *Pseudomonas*, *Listeria* and *Klebsiella*. (An opportunistic pathogen is one that is commonly present in the body without ill effects but can cause disease if the host’s resistance is weakened.) Once a *W. magna* amoeba has engulfed a *Legionella* or other bacterium, it then digests and destroys it. This is different from other amoebae, where *Legionella* bacteria are engulfed but are then able to multiply inside the host amoeba. *W. magna* amoebae can also engulf and digest amoebae that are host to *Legionella* bacteria.

Amoéba has demonstrated that components of dead *W. magna* amoebae also work as fungicides. Amoeba lysate, which is produced by rupturing the amoeba’s cell membrane and causing the creature to disintegrate, prevents the germination of certain spores of microscopic fungi and in particular phytopathogenic fungi. The active substance contained in the lysate is highly unusual in having a dual mode of action, both stimulating natural plant defences, thus making them more resistant to stresses, and inhibiting the germination of pathogen spores. The company is using this characteristic to develop a biocontrol product to combat fungal plant diseases, particularly downy mildew and powdery mildew, which both affect a broad range of crops and cereal rusts.



## Biocontrol trials show proven efficacy

Amoéba has been engaged in more than 540 field trials since 2019, of which over 120 took place during winter 2021/summer 2022 and a further 140 in 2023. The most recent phase of trials have:

1. generated efficacy data for future marketing authorisations in Europe, Brazil, Costa Rica, California and Asia;
2. generated efficacy data for future product approvals;
3. sought to determine a product positioning strategy for the biocontrol product AXPERA; and
4. evaluated the efficacy of the active ingredient on new target crops.

The results in the key greenhouse crops showed very good results combating powdery mildews and that it also works well when blended with existing copper sulphate biocontrol products.

Field trials must follow official protocols that specify, for example, the number of times an experiment must be repeated, the number of treatments to be applied and how the tests are scored. At least two years of experimentation are required in Europe. The results from trials are analysed and included in a dossier presented to the regulatory authorities along with the toxicological and ecotoxicological dossier. Field trials must be performed by approved contract research organisations.

The field trials to date show that formulations containing *W. magna* lysate are able to control many diseases including those on specialised crops such as bananas as well as on field crops. Moreover, the formulations are effective in both temperate climates and tropical climates. Since the formulations demonstrate a higher level of performance than most of the biofungicides currently available, Amoéba's products will be offered as a substitute for chemical fungicides, particularly mancozeb and chlorothalonil, on a range of crops as well as for use together with copper-based fungicides so the amount of copper applied remains within regulatory limits.

Management intends to focus initially on biofungicides for greenhouse products, such as cucumbers and tomatoes, and aromatic herbs, such as basil and parsley, selling to farmers in Italy, France, Spain and the United States. These crops have been chosen because they have the highest value per hectare of crop, making growers keen to prevent yield losses. While the active substance has been shown to be efficacious in treating diseases in wheat and soya beans and the area devoted to growing row crops is substantially greater than that for growing tomatoes, cucumbers or herbs, these crops will not be the first targets because the value per hectare is relatively low. Moreover, farmers growing vines and to a lesser extent those growing salad vegetables tend to be using one or more biological preparations already, while those growing row crops are not.

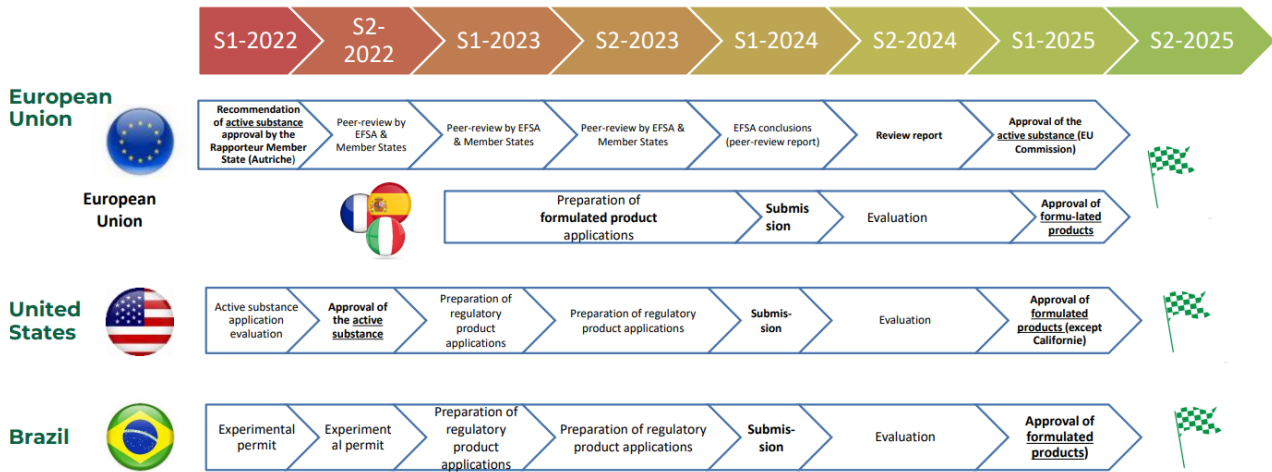
## Regulatory approval of active substance secured in US

In November 2022, the US EPA approved the use of *W. magna* lysate for use in the US for the control of fungal plant diseases in agriculture. At the same time, the agency confirmed that the lysate was exempt from maximum residue limits and any restrictions on how close to harvest the lysate could be applied to crops, provided it was applied in accordance with instructions for use and good agricultural practices. As discussed below in the commercialisation section, the company now needs to secure regulatory approval for individual products containing the active substance.

In April 2022, Austria recommended the approval of the biocontrol active substance for use in plant protection on behalf of the EU. As discussed below in the commercialisation section, Amoéba now needs to have the recommendation approved at EU level and then secure regulatory approval for products containing the active substance for use in individual geographic zones within the EU.

Please note that these approval timelines apply only to the biocontrol products. The inclusion of the active ingredient on the INCI list allows the company to move directly to product development, with a partner in the cosmetics industry to be determined.

### Exhibit 6: Regulatory approval timeline

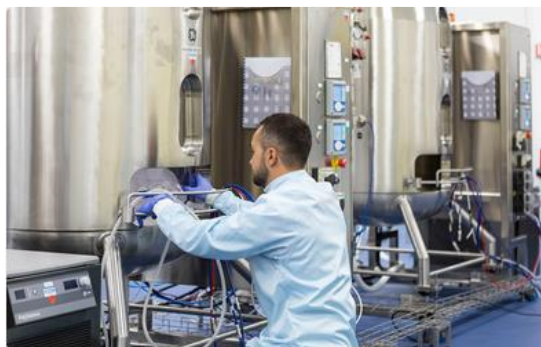


Source: Amoéba

## Proprietary technique for growing amoeba in high volumes

The conventional technique for growing amoeba in the laboratory is on an agar plate or the surface of a liquid. This technique does not generate enough amoeba in a short time for commercial applications. Amoéba has developed a technique for growing amoeba in bioreactors. The productivity gains mean that the same amount of amoeba can be grown on a footprint of 2m<sup>2</sup>, which would have previously required a footprint of 21,500m<sup>2</sup>. Amoéba has scaled up the lab process and converted it to a continuous process in which the culture medium is continuously infused into the bioreactors. Amoéba currently uses reactors holding 500 litres of medium and is scaling up further to reactors holding 5,000 litres of medium. Amoéba has developed its own culture medium with unique physico-chemical parameters for optimising amoeba growth.

### Exhibit 7: Growing amoeba in existing facility



Source: Amoéba

## Competitive position

There are dozens of companies developing biological crop protection products that exploit a very wide range of naturally occurring processes, so our review is not exhaustive. The companies mentioned may offer other products as well as biofungicides. Competitors include:

- **Antofénol** uses electromagnetic waves combined with ultrasound, agitation and the application of a vacuum to extract active substances found in agricultural waste such as grapevine

trimmings. It is in the process of securing regulatory approval for the first of the four active substances under development.

- **Agrauxine** markets its biofungicide, Romeo, which has been registered and approved by the California Department of Pesticide Regulation for use on grapes, almonds, leafy greens and cucurbit crops in California for control of key foliar fungal diseases, including powdery mildew and downy mildew. Romeo works like a vaccine by introducing plants to a simulated pathogenic fungus, which stimulates their natural defence mechanisms and strengthens the plant by increasing the concentration of disease-fighting antimicrobial compounds so it can withstand future fungal attacks.
- **Biotalys (BLTS:EN Brussels)** uses yeast fermentation to produce protein-based biocontrols. Its pilot product is being registered currently and the company is moving on to its next-generation product targeting botrytis and powdery mildews, opening the path to market test followed by potential commercial sales of the product in both the US and EU in 2026.
- **Eden Research (EDEN:LON)** is developing a number of products to target diseases such as powdery mildew and downy mildew. It has already gained regulatory approval for Mevalone, a biofungicide targeting botrytis on grape vines and other fruit and vegetables, which is currently registered for use throughout the southern EU zone, Kenya and Australia. Mevalone is based on terpenes, which are produced naturally by plants to protect themselves against herbivores, insects and pathogenic fungi. The terpenes are contained in biodegradable, slow-release microspheres.
- **GreenLight Biosciences (GRNA:NASDAQ)** is using its dsRNA design, development and manufacturing platform to develop a broad range of pesticides and fungicides. The company has a pipeline of seven agricultural solutions ranging from insecticides to fungicides. It has received approval for its Colorado potato beetle and varroa mite solutions from the EPA and anticipates initiating commercial sales in 2024. It has early data on systemic delivery of RNA into plants, unlocking the ability to work on RNA-based herbicides, plant health products and nutrient use efficiency products in the future.
- Lavie Bio, a subsidiary of **Evogene (EVGN:NASDAQ, TASE)**, has submitted a registration package to the EPA for its biofungicide, which is based on a bacterium that is naturally present in nature that was selected by Evogene's MicroBoost AI system. Approval is expected in 2024.
- **Novozymes' (NZYMB:DC Copenhagen)** Taegro biofungicide, which is approved in the US, California, the EU and the UK, with registrations pending in Latin America, is based on the naturally occurring *Bacillus amyloliquefaciens* bacterium. Novozymes' Actinovate biofungicide for foliar and soil applied product, which is approved in the US and California with registrations pending in the EU and the UK, is based on the naturally occurring *Streptomyces lydicus* bacterium.
- In 2021, **Plant Health Care (PHC:LON)** launched a peptide-based biostimulant, Saori, in Brazil. The EPA has approved the same peptide fungicide for commercial use. Wilbur-Ellis Agribusiness, one of the largest US retailers of agricultural products, sells this peptide under the brand Obrona.

**Exhibit 8: Summary of selected competitors**

Crop/disease	Bananas	Fruit trees	Market garden produce	Potatoes	Rice	Soya	Vines (downy and powdery mildew)	Wheat
Global market size (€m)	500	100	600	250	1,000	2,100	800	2,400
Amoéba	✓	✓	✓	✓	✓	✓	✓	✓
Antofénol		✓						
Agrauxine		✓	✓			✓	✓	
Biotalys			✓	✓			✓	✓
Eden Research		✓	✓				✓	
GreenLight Biosciences	✓				✓	✓	✓	
Lavie Bio			✓				✓	
Novozymes' Actinovate	✓	✓	✓		✓	✓	✓	✓
Novozymes' Taegro	✓	✓	✓			✓	✓	✓
Plant Health Care		✓	✓			✓	✓	✓

Source: Amoéba, DunhamTrimmer, Edison Investment Research

## Other application areas

### Biocide

Amoéba holds an exclusive licence granted by the University Claude Bernard Lyon relating to the biological control of *Legionella pneumophila* in industrial cooling water and hot sanitary water. It has built on this IP, which exploits the natural predatory behaviour of the *W. magna* amoeba, to create a natural biocide, Biomeba, for preventing the proliferation of *Legionella pneumophila* bacteria in cooling towers, within both the water and biofilms on surfaces. This is an alternative to chemical biocides such as bromine, chlorine and isothiazolone, which are not completely efficient, can promote bacterial resistance to antibiotics through selection of specific bacterial populations, are dangerous for humans and the environment and can cause corrosion of cooling tower apparatus. Although *W. magna* is a close relation to *Naegleria fowleri*, a type of amoeba found in fresh water and cooling tower water, which causes primary amoebic meningoencephalitis in humans, in vivo and in silico experiments have demonstrated that *W. magna* is not pathogenic. *W. magna* is not toxic to human and animal health or toxic to the environment either. The Biomeba biocide is biodegradable and non-persistent in the environment, it is compatible with the most commonly used anti-scale, anti-corrosion and anti-algae products for water treatment and it can reduce costs by cutting water consumption and the amount of anti-corrosion product required. Management estimates that the addressable market for Biomeba is around €200m.

Between 2013 and 2018, the company carried out more than 20 field trials with partners in France, Germany, the Netherlands, Canada, Italy and the US on installations from 1m<sup>3</sup> to 800m<sup>3</sup>. The test results demonstrated the effectiveness of Biomeba in preventing the growth of *Legionella* and controlling biofilm in cooling towers. In December 2022, the EPA approved both live *W. magna* as an active substance and the Biomeba products containing it for use in closed cooling systems for the control of microbial slime, microbially induced corrosion and general microbial flora.

Management states that Biomeba is the first biological biocide globally to be validated for the treatment of bacterial risk in water. Management intends to work with third parties to commercialise Biomeba in the United States, potentially licensing the product for manufacture and sales. Under this business model, Amoéba would carry out the manufacture of the culture for growing amoebae in house and sell the growing medium to the third party. Management has withdrawn the biocidal active substance applications in Canada and Europe to conserve cash for commercialisation of biological control and cosmetic products.

## Route to commercialisation

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### Regulatory approvals (biocontrol)

#### US

Now that the company has secured EPA approval for the active substance and a representative (demonstration) product, which was granted in November 2022, Amoéba needs to obtain marketing authorisation from the EPA for individual formulations or products containing the active substance. It applied to the EPA for market authorisation for products containing *W. magna* lysate in 2023 and expects that the approval will be awarded in 2025.

#### EU

Following the recommendation to approve the active substance at EU level by Austria in April 2022, the following steps are: 1) peer review (Q222–Q124) in which representatives from several other member states review the information in the dossier assembled by Austria; 2) publication of the review by the European Commission and implementation of regulation approving the active substance (mid 2024); and 3) decisions on authorisation of products containing the active substance in the three individual geographical zones that the EU is split into (now expected in 2025). Austria classified the active substance as low risk, which should mean that products containing active substance can be evaluated more quickly and that it will not be necessary to establish a maximum residue level. For a comparison of timescales, we note that Eden Research received approval for the active substances used in its 3AEY product in May 2013 and received the first authorisation of the 3AEY product in May 2015.

### Scaling up production

The existing facility near Lyon has two 500-litre bioreactors, collectively capable of producing 500kg of active substance annually. Management has postponed plans to build a 3,000m<sup>2</sup> production plant dedicated to biocontrol products capable of manufacturing 200 tonnes of finished product annually. Instead, the company will seek a more modest expansion of production capacity at its existing facility to better align with its new focus on high-value, lower-volume products.

### Field trials to determine optimal application of biocontrol

During FY23, Amoéba carried out 140 field trials with potential early adopters of its products to determine the optimal product formulation and application regime for different types of crops. However, poor weather in Europe had a negative impact on the efficacy of some trials, which has led to a delay in expected regulatory approval.

### Cosmetics partner to be determined

With the inclusion on the INCI list, management has moved to prioritise the selection of a commercial partnership with a major consumer brand. There are 60 cosmetics firms with more than €1bn in sales with one or more brands, which should allow Amoéba a wide range of potential partners.

**Exhibit 9: Trial in 2022 showing untreated powdery mildew on tomato plants**



Source: Amoéba

**Exhibit 10: Trial in 2022 showing powdery mildew on tomato plants treated with Amoéba product**



Source: Amoéba

## Management and board

**CEO Jean-François Doucet** has over 25 years' experience in corporate finance and administration. After 10 years as an audit and transactional consultant at PwC, Jean-François was appointed CFO of a number of companies in the chemicals and healthcare sectors (such as BASF, Gibaud and Ossür). He has extensive experience of operational, strategic and international issues in commercial and industrial environments. He has also been involved in corporate divestment and transformation projects. Jean-François is a graduate of EM Lyon, where he specialised in finance.

**Scientific director Dr Sandrine Troussieux** has more than 20 years of experience in research and development in the field of environmental microbiology. Before joining Amoéba in 2018, she was responsible for a sequencing platform and the execution of research projects in microbial ecology in the engineering school École Centrale de Lyon.

**Industrial director Hervé Testeil** has more than 24 years of experience in the pharmaceutical and medical device industry. He has held a range of operational positions in industrial development, production, supply chain management, quality control and regulatory affairs. He has also managed the strategic transformation of numerous laboratories including Famar, Boiron, Merial, Alcyone, Gibaud, Johnson & Johnson Medtech, Delpharm, Kisco International, Dômes Pharma and Phytéo Laboratoire. Hervé holds a master's degree in mechanical design from the University of Lille.

**Regulatory affairs director Jean-Baptiste Eberst** has more than 10 years of experience in regulatory affairs in various regulated fields, including health and pest control products. Before joining Amoéba in 2015, he worked in the pharmaceutical (Sanofi Pasteur, Merck Serono) and medical device (Integra LifeSciences) industries, where he was in charge of the regulatory

management of product portfolios in various regions (US, Europe, Canada, Middle East). Jean-Baptiste is a pharmacist, and graduated from the University of Strasbourg.

**Chairman of the board Benoit Villers:** Benoit Villers is an executive board member of Nice & Green, and was appointed as a director of Amoéba and chairman of its board of directors in December 2023. Benoit brings vast experience in commercial strategies and market development, drawing on expertise built up with major groups, such as Barry Callebaut and ADM, as well as younger companies like Nice & Green and the various startups that he supports.

**Independent director Jean-Luc Souche** has over 30 years of experience in life sciences, specialising in crop protection. Before joining Amoéba in 2018, he was general manager of biological crop protection start-up Agrauxine, becoming business development manager when the company was acquired by the Lesaffre group. Prior to that he managed the construction of a biotech plant in Malaysia for Metabolic Explorer and held various technical and marketing positions, in France and abroad, at Rhône-Poulenc Agrochimie where, among other activities, he was responsible for the launch of new maize herbicides and the development of new seed treatment technologies. Jean-Luc is a graduate agricultural engineer with an executive MBA.

**Independent director Valérie Lorentz-Poinsot** joined Laboratoires Boiron in 2000, after starting her career with Publicis and then working in the pharmaceutical industry for Fournier and Urgo. Initially director of medical development, then deputy managing director, she became the company's managing director in 2019. In this role, she will reorganise the company following the delisting of homeopathy in France, while developing new business segments. Under her leadership, Laboratoires Boiron has demonstrated its resilience and innovation, with an offering that remains focused on homeopathy, food supplements, tests sold in pharmacies and cosmetics. She founded the International Women's Forum's Rhône Alpes chapter and was its president for five years. She is currently co-chair of the ETI AURA club (Entreprises de Taille Intermédiaire d'Auvergne Rhône-Alpes), a director of Jean-Moulin Lyon 3 University, a director of OL Fondation and a director of Mare Nostrum. She is the author of *Wonder Women, dites oui à vos pouvoirs*, published by Editions du Cherche Midi and *Homéopathie, Liberté, Egalité, Santé*, published by Editions Flammarion. Valérie Lorentz-Poinsot holds a master's degree in economics and marketing.

**Independent director Patrice Sellès** has more than 25 years' experience in concluding strategic agreements and successful commercial developments with numerous innovators in the global agricultural and food technology industry. From 2019 to 2023, he was CEO of Biotalys, a Belgian company listed on Euronext that develops protein-based biocontrol solutions. There he led strategic development initiatives and global commercial partnerships that are still bearing fruit today. Prior to this, he held several management positions at Syngenta, including developing the scientific strategy and acquisition of new technologies as Global Head of Digital R&D for the group. He also worked as an investment manager at Life Science Partners Bioventures in Cambridge (MA). Patrice Sellès is a chemical engineer and obtained his doctorate in organic chemistry from the Université Pierre et Marie Curie in Paris.

**Independent director Jean-Marc Petat** has over 30 years' experience in BASF's Agricultural Solutions division in technical, European marketing, sustainable agriculture and public relations functions. As a member of the executive committee in France and Western Europe until 2024, he launched and coordinated BASF's agroecology strategy in France, in particular by structuring the contribution of new growth drivers such as biocontrol. He developed a 2030 roadmap for biocontrol by developing an open innovation strategy with public and private research, alliances with the agricultural world and communication with public authorities and environmental associations. Jean-Marc Petat is a graduate of the Ecole Nationale Supérieure d'Agronomie et des Industries Alimentaires based in Nancy.

**Independent director Valérie Filiatre** has more than 30 years of experience in administrative and financial management of European and American listed companies. Prior to joining Amoéba in

2014, she was CFO, Europe at ABnote Corporation (now called American Banknote Corporation),. Valérie is a graduate of EM Lyon, where she specialised in finance and accounting.

**Independent director Quentin Hua** (proposed for appointment at the general meeting on 27 June 2024) is chief of staff at Laboratoires Boiron, reporting to the Executive Committee and responsible for the ESG approach. Previously, he was a consultant at DGM Conseil, a consultancy specialising in assisting the directors of listed companies and the founders of start-ups with their communication strategies. In this capacity, he advised the management teams of companies and investment funds in various corporate transformation processes and M&A operations.

## Sensitivities

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**Timescales for regulatory approval:** Amoéba has already received approval for its biocontrol active substance for use in plant protection in both the EU and the US. However, it needs to receive marketing authorisation for specific products before it can begin to sell these in either region. The company has no control over how long the next stage of the regulatory process will take. There is no further regulatory approval required for the cosmetics application.

**Energy costs:** growing amoebae in a culture medium is relatively energy intensive so theoretically higher energy costs will make a material difference to production costs. On the other hand, rising energy costs affect the price of fertiliser, tractor fuel and, for crops grown in greenhouses, heating fuel and lighting. Growers are therefore keen to improve yield in rising energy cost scenarios, potentially heightening interest in novel but effective fungicides. Scarcity of water in the south of France could potentially be an issue, as the production process uses a lot of water, but management is addressing this by installing a recirculation system.

**Establishing sales channels:** since Amoéba is still pre-revenue, it is not possible to assess whether its products will be accepted by the market and whether it will be able to establish suitable sales channels in a timely fashion. Amoéba is looking for distribution partners for both its biocontrol and cosmetics products. As an 'upstream' supplier of the active ingredient, Amoéba would benefit from a strong partner to ensure end product development and access to market.

**IP protected by patents:** like all companies developing innovative technologies, Amoéba is at risk of would-be competitors stealing its IP. The company has a global patent regarding the use of *W. magna* amoeba lysate as a biofungicide until 2037. However, management decided not to patent the technique for growing amoeba in high volumes and the formulation of the culture medium because the filing would give too much information to potential competitors. Amoéba holds four families of global patents:

1. prevention of the proliferation of *Listeria* bacteria in water used to clean equipment and materials in contact with foodstuffs;
2. prevention of the proliferation of *Pseudomonas*, a bacteria responsible for infections acquired within healthcare institutions in sanitary hot water;
3. control of *Naegleria fowleri* amoeba; and
4. therapeutic and non-therapeutic use of *W. magna* for killing and/or inhibiting the growth of pathogenic fungi in plants and humans.

The patent relating to using live amoeba to treat *Legionella* is owned by the University Claude Bernard Lyon. It is valid in Europe and the United States but not Canada. Amoéba has an exclusive licence to use this patent.

**Cash required for expansion:** Amoéba had €0.5m cash (gross) on its balance sheet at end December 2023 and has approximately €5m in its debt facility with Nice & Green. Given the current cash burn, this should provide funding into late 2024, although we note that Nice & Green has



leaned in heavily to Amoéba and could prove to be a supportive shareholder. Management is seeking to raise a further €5–10m to finance ongoing operations and capacity expansion at the existing headquarters, although there is no certainty that management will secure this funding.

## Financials

### FY23 EBIT losses rose due to now postponed industrial plant

Cash costs rose €0.8m y-o-y to €6.6m in FY23, primarily due to activities connected to the now postponed industrial plant. The non-cash loss of €7.4m is linked to the write down of fixed assets and other development costs linked to the industrial plant. This depreciation allows the company to begin 2024 with an unencumbered balance sheet and allow it to focus on its new strategic plan, focused on high-margin, low-volume biocontrol and cosmetic products.

**Exhibit 11: Summary P&L (€m)**

	FY21	FY22	FY23
Revenue	0.000	0.000	0.000
Grants	0.571	0.461	0.664
Industrial deployment costs	(0.767)	(1.110)	(1.708)
R&D costs	(2.178)	(2.525)	(2.324)
General and admin costs	(2.980)	(2.280)	(2.915)
Sales and marketing costs	(0.225)	(0.389)	(0.354)
Pre-exceptional EBIT	(5.579)	(5.843)	(6.638)
Other charges	0.000	0.000	(7.400)
Reported EBIT	(5.579)	(5.843)	(14.038)

Source: Amoéba data

## Estimates

Our FY24 estimates make the following assumptions:

- No revenues from product sales.
- Grant revenue as well as all costs are calculated as the average of the three previous years' results.
- Nice & Green will fund operations through YE24.
- No expansionary capex until financing is secured. Management's longer-term forecasts are included below for reference.

**Exhibit 12: Amoéba's longer-term forecasts**

<b>2024</b>		
OPEX <b>6.6 M€</b>	Revenues -	Capacity investments <b>0.5 M€</b>
<b>2025</b>		
OPEX <b>7.5 M€</b>	Revenues -	Capacity investments <b>6.5 M€</b>
<b>2026</b>		
OPEX <b>8 M€</b>	Revenues <b>3 M€</b>	Capacity investments -
<b>2027</b>		
OPEX <b>12 M€</b>	Revenues <b>12 M€</b>	Capacity investments -

Source: Company presentation

## Valuation

As Amoéba is pre-revenue and the expected financing is not yet in place, we are not attempting to calculate a valuation at this point. Management expects to generate €3m in revenue in 2026, rising to €12m in 2027 with very high (more than 70%) gross margins generated in the cosmetics segment. The company can meet this medium-term supply from existing capacity at its Chassieu headquarters. Management is also considering expanding in-house production capacity at the Chassieu site, as well as exploring options with a CDMO, which could allow the company to meet further demand without the need for capital investment.

We note that the gross margins likely to be achievable in this sector are relatively high. In 2023 Eden Research generated a 55% gross margin and Plant Health Care 60%. However, both companies outsource production. Amoéba advises that the gross margin achievable will range from 45% to 89% depending on the product and formulation. Its objective is to achieve an overall gross margin of at least 70% by focusing on higher-margin applications.

**Exhibit 13: Financial summary**

Year end 31 December	€m	2021	2022	2023	2024e
<b>INCOME STATEMENT</b>					
Revenue		0.0	0.0	0.0	0.0
EBITDA		(4.0)	(4.7)	(5.6)	(5.5)
Operating profit (before amort. and excepts.)		(4.9)	(5.8)	(6.7)	(6.0)
Amortisation of acquired intangibles		0.0	0.0	0.0	0.0
Exceptionals		0.0	0.0	(7.4)	0.0
Share-based payments		(0.7)	(0.0)	0.0	0.0
Reported operating profit		(5.6)	(5.8)	(14.0)	(6.0)
Net Interest		(2.5)	(1.9)	(0.3)	(0.5)
Exceptionals		0.2	(0.3)	0.0	0.0
Profit Before Tax (norm)		(7.4)	(7.7)	(6.9)	(6.6)
Profit Before Tax (reported)		(7.8)	(8.0)	(14.3)	(6.6)
Reported tax		0.0	0.0	0.0	0.0
Profit After Tax (norm)		(7.4)	(7.7)	(6.9)	(6.6)
Profit After Tax (reported)		(7.8)	(8.0)	(14.3)	(6.6)
Discontinued operations		0.0	0.0	0.0	0.0
Net income (normalised)		(7.4)	(7.7)	(6.9)	(6.6)
Net income (reported)		(7.8)	(8.0)	(14.3)	(6.6)
Average Number of Shares Outstanding (m)		17.8	33.6	49.1	49.1
EPS - normalised (€)		(0.42)	(0.23)	(0.14)	(0.13)
EPS - normalised fully diluted (€)		(0.42)	(0.23)	(0.14)	(0.13)
EPS - basic reported (€)		(0.44)	(0.24)	(0.29)	(0.13)
Dividend (€)		0.00	0.00	0.00	0.00
Revenue growth (%)		N/A	N/A	N/A	N/A
EBITDA Margin (%)		N/A	N/A	N/A	N/A
Normalised Operating Margin		N/A	N/A	N/A	N/A
<b>BALANCE SHEET</b>					
Fixed Assets		6.1	5.3	3.7	4.7
Intangible Assets		2.5	2.5	0.0	0.0
Tangible Assets		3.5	2.7	3.5	2.2
Investments & other		0.1	0.1	0.1	2.5
Current Assets		8.4	7.1	2.6	2.1
Stocks		0.3	0.3	0.2	0.2
Debtors		0.0	0.0	0.0	0.0
Cash & cash equivalents		7.3	5.5	0.5	0.0
Other		0.9	1.3	1.9	1.9
Current Liabilities		(13.8)	(4.2)	(6.5)	(6.5)
Creditors		(1.0)	(1.3)	(1.4)	(1.4)
Short term borrowings including lease liabilities		(12.2)	(2.3)	(2.1)	(1.6)
Other		(0.5)	(0.6)	(3.0)	(3.5)
Long Term Liabilities		(0.5)	(0.1)	(3.8)	(9.3)
Long term borrowings		(0.3)	(0.1)	(2.8)	(7.8)
Other long term liabilities		(0.3)	(0.0)	(1.0)	(1.4)
Net Assets		0.2	8.2	(3.9)	(8.9)
Minority interests		0.0	0.0	0.0	0.0
Shareholders' equity		0.2	8.2	(3.9)	(8.9)
<b>CASH FLOW</b>					
EBITDA (adjusted)		(4.0)	(4.7)	(13.0)	(5.5)
Working capital		(0.4)	0.3	0.2	0.0
Exceptional & other		0.2	(0.0)	6.3	0.0
Tax		0.0	0.0	0.0	0.0
Operating Cash Flow		(4.3)	(4.4)	(6.5)	(5.5)
Capex (including capitalised R&D)		(0.1)	1.4	(6.1)	0.0
Acquisitions/disposals		0.0	0.0	0.0	0.0
Net interest		(1.6)	(1.0)	(0.0)	(0.5)
Equity financing		0.0	(0.2)	0.0	0.0
Debt financing		0.0	0.0	7.9	5.5
Dividends		0.0	0.0	0.0	0.0
Other		8.3	2.7	(0.6)	0.0
Net Cash Flow		2.3	(1.4)	(5.3)	(0.47)
Opening Cash		5.0	7.2	5.8	0.5
Closing Cash		7.2	5.8	0.5	0.0
Gross debt included lease liabilities		12.5	2.4	4.9	10.4
Closing (net debt)/cash excluding property lease liabilities		(5.3)	3.5	(4.4)	(10.4)

Source: Amoéba accounts, Edison Investment Research

<b>Contact details</b> 138 Avenue de Frères Montgolfier 269680 Chassieu France +33 4 26 69 16 00 <a href="https://amoeba-nature.com">https://amoeba-nature.com</a>	<b>Revenue by geography</b> N/A
<b>Management team</b>	
<b>CEO: Jean-François Doucet</b> Jean-François Doucet has over 25 years' experience in corporate finance and administration. After 10 years as an audit and transactional consultant at PwC, Jean-François was appointed CFO of a number of companies in the chemicals and healthcare sectors (for example BASF, Gibaud and Ossür). Throughout his career, he has acquired extensive experience of operational, strategic and international issues in commercial and industrial environments. He has also been involved in corporate divestment and transformation projects. Jean-François is a graduate of EM Lyon, where he specialised in finance.	<b>Regulatory affairs director: Jean-Baptiste Eberst</b> Jean-Baptiste Eberst has more than 10 years' experience in regulatory affairs in various regulated fields, including health and pest control products. Before joining Amoéba in 2015, he worked in the pharmaceutical (Sanofi Pasteur, Merck Serono) and medical device (Integra LifeSciences) industries, where he was in charge of the regulatory management of product portfolios in various regions (the US, Europe, Canada and the Middle East). Jean-Baptiste is a pharmacist and graduated from the University of Strasbourg.
<b>Scientific director: Dr Sandrine Troussieux</b> Dr Sandrine Troussieux has more than 20 years of experience in research and development in the field of environmental microbiology. Before joining Amoéba in 2018, she was responsible for a sequencing platform and the execution of research projects in microbial ecology in the engineering school École Centrale de Lyon.	<b>Industrial director: Hervé Testeil</b> Hervé Testeil has more than 24 years of experience in the pharmaceutical and medical device industry. He has held a range of operational positions in industrial development, production, supply chain management, quality control and regulatory affairs. He has also managed the strategic transformation of numerous laboratories including Famar, Boiron, Merial, Alcyone, Gibaud, Johnson & Johnson Medtech, Delpharm, Kisco International, Dômes Pharma and Phytéo Laboratoire. Hervé holds a master's degree in mechanical design from the University of Lille.
<b>Principal shareholders</b>	
Nice & Green	(%) 29.4%

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