



# Eden Research plc 2020 Interim Results



# Background and Context

# About Us

Eden is the only UK quoted (AIM: EDEN) company focused on biopesticides for sustainable agriculture

- Intellectual property and expertise in plant-derived sustainable chemistry and delivery technologies
- Proven products
- Multiple regulatory clearances
- Strategic partnerships
- Two products commercially available

Fundraise of £10.4m (gross) in March 2020 to:

- Register and commercialise insecticide products
- Develop use of our microencapsulation technology, known as 'Sustaine®', with conventional agrochemicals
- Expand product portfolio
- Pursue opportunities with Corteva and other collaborations

## Our Partners

**EASTMAN**

**SIPCAM OXON**  
supporting agriculture



**K&NE**  
EARTH MATTERS

**Elanco**

**CORTEVA**  
agriscience

## Key Statistics

16

Countries have granted product authorisation

19

New local distributorships since 2018 including USA, Brazil, China and Japan

£14m

Invested in IP & registrations

110

Granted and pending patents



CROP PROTECTION



ANIMAL HEALTH



CONSUMER PRODUCTS

# What is Sustainable Agriculture?

- Farming practices which maintain yields while minimising impacts on the environment
- A reflection of society's increasing concern about the world's approach to food production and healthy eating
- Embracing farming practices that mimic natural ecological processes
- A win-win for farmers and the environment



By 2050, global food systems will be responsible for feeding more than nine billion people



"Eden has been making good progress with the commercialisation of its products and technologies. As momentum continues to build, we remain focused upon providing sustainable solutions for global agriculture."

**Sean Smith, CEO, Eden Research plc**

# Microencapsulation Technology

Sustaine® is a novel microencapsulation solution patented by Eden, suitable for applications in a wide range of agricultural, animal health and consumer products

1

Cost effective, **useful for a wide range of active ingredients**, plastic-free, high capacity, robust, **sustainable**

2

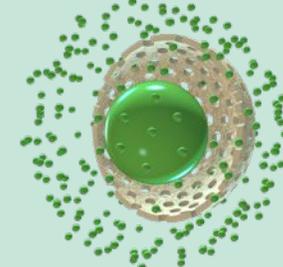
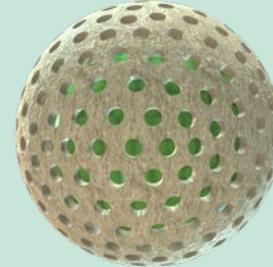
Sustaine encapsulates active ingredients and provides for the **sustained release** of these ingredients enabling their **safe, more efficient use**

3

Particles are derived from **natural yeast cells** originally developed for human health applications

Sustaine microencapsulation technology is derived from yeast extract. Multiple active ingredients can be loaded into the core.

Active ingredients are released while the pores remain open in the presence of water.

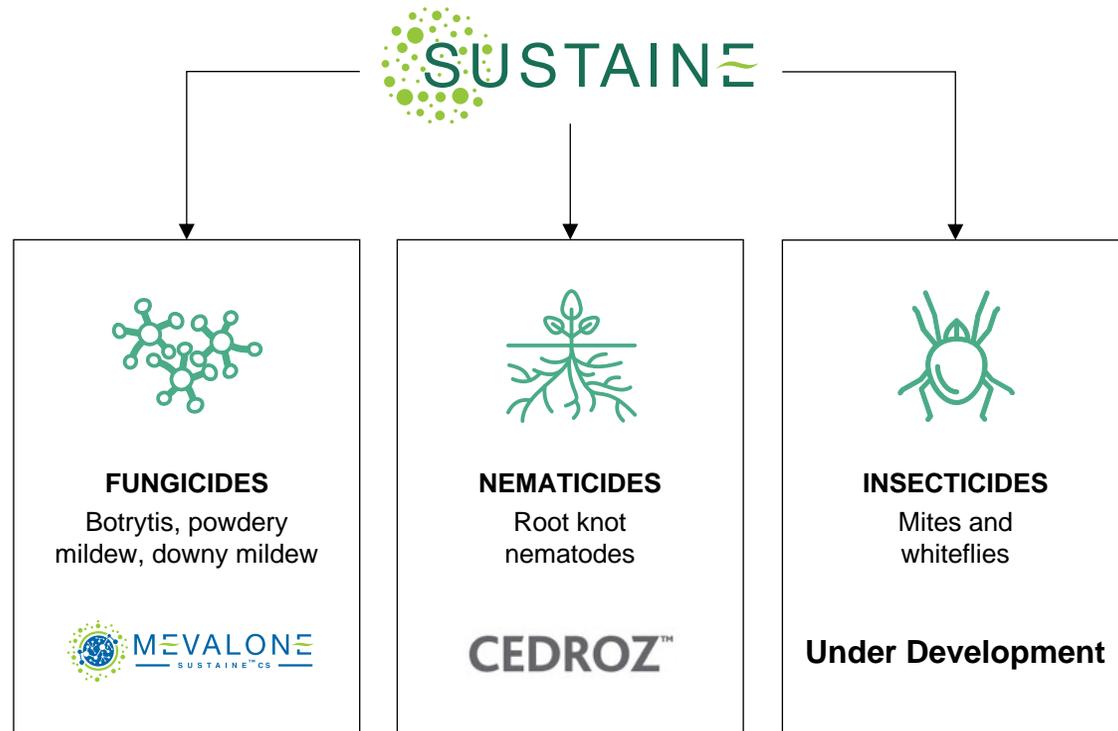


When diluted in water, pores in the walls of the capsule open.

If the capsules dry, the pores will close again, locking in the active ingredient until the next re-wetting event, when further release occurs.

# Our Product Focus

Our focus is on developing products based on sustainable chemistries to protect high-value crops from pests and disease, with equal or better performance when compared with conventional pesticides

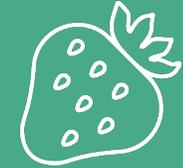


## OUR PRODUCTS

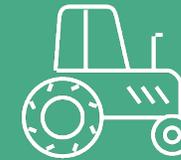
Our products give growers reduced risk, increased flexibility and security.



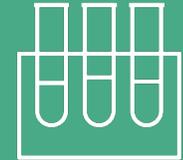
Exempt from pesticide residue limits



Allowed in EU organic agriculture



Can be used up to the point of harvest

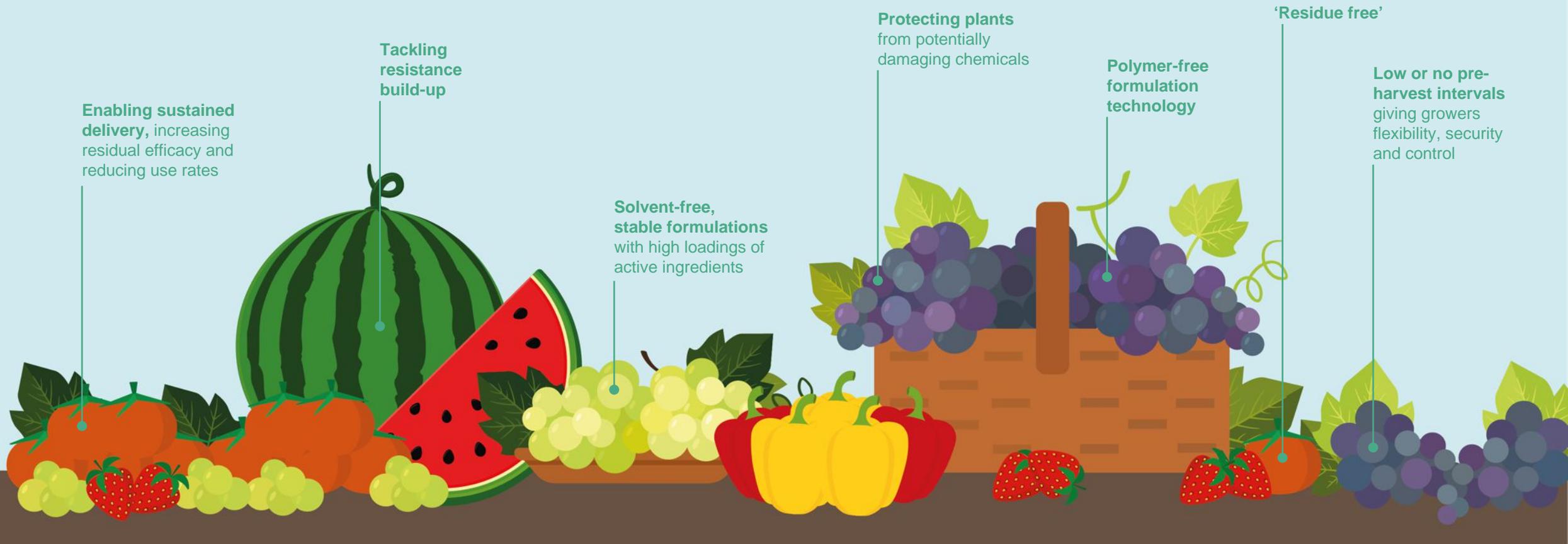


Equally effective vs conventional chemistry

# Product Characteristics



**CEDROZ™**  
post-planting nematicide



**Enabling sustained delivery**, increasing residual efficacy and reducing use rates

**Tackling resistance build-up**

**Solvent-free, stable formulations** with high loadings of active ingredients

**Protecting plants** from potentially damaging chemicals

**Polymer-free formulation technology**

**'Residue free'**

**Low or no pre-harvest intervals** giving growers flexibility, security and control

# Industry Applications

We work globally through multi-national and local partnerships to develop and launch solutions for challenges facing three key industries.



## CROP PROTECTION

Foliar disease & insect control  
Open field & greenhouses  
Soil pests  
Post harvest shelf-life extension  
Seed treatments

**\$58 billion**



## ANIMAL HEALTH

Shampoos/Conditioners  
Skin disease control  
Otic flush  
Flea & tick control

**\$33 billion**



## CONSUMER PRODUCTS

Head-lice treatment  
Deodorants  
Odour neutralisers  
Fragrances

**\$50+ billion**

**Estimated addressable market size**



# Products In Action

# Sustainably Extending the Shelf Life of French Apples

## Top 3 EU Apple Producers



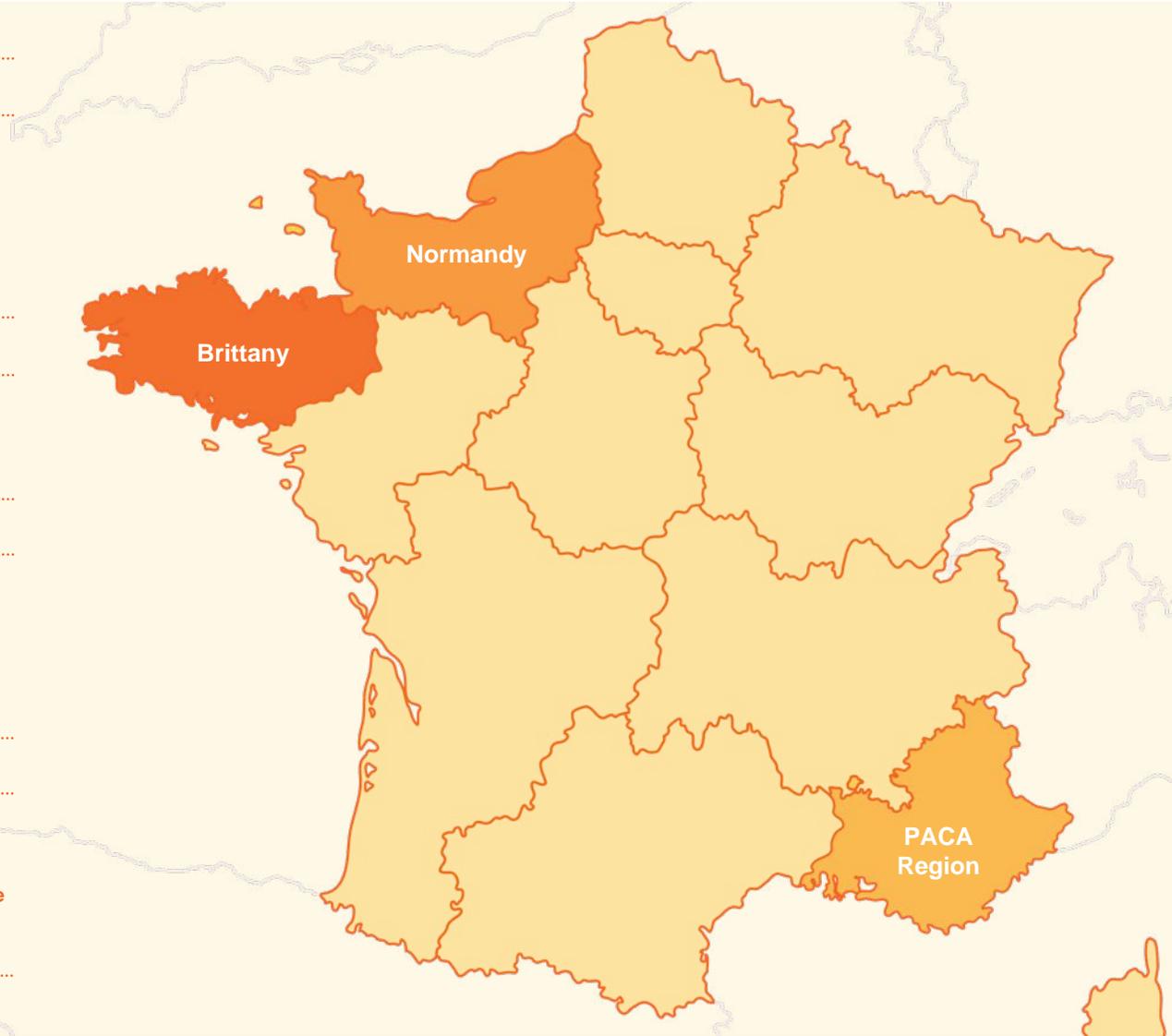
## French Exports

**\$433.6 Million** Of apples each year are exported by France

## Export Regions



## Current Global Food Waste



## Science Spotlight

- Mevalone® is Eden's innovation – a foliar, contact biofungicide which is used as a preventative and curative solution for *Botrytis cinerea* and storage diseases on apples.
- Mevalone provides efficacy against important crop diseases with active ingredients that are exempt from residue limits which can be applied just before harvest.
- Its benefits in this application are to extend the shelf-life of apples, reduce food waste and cost in the supply chain.

“This emergency use is another important opportunity to promote Mevalone to growers and to better serve a modern and evolving agriculture responding fully to the needs of society.”

**Antoine Meyer,**  
President of Sumi Agro

# High Value Food Crops in Open Field and Greenhouse Environments

1

The majority of crops in Europe are grown in open field, however, there is an increasing level of investment in greenhouse and glasshouse farming, especially for salad vegetables.

2

The use of greenhouses will help to reduce emissions from the agriculture sector which is considered a “hard to treat” area of the carbon-cutting agenda. In addition, the use of greenhouses cuts down on agricultural sector’s land use.

3

Being able to control conditions indoors has proven to more than double yields in some cases, reducing the consumption of resources required to grow crops.



2

1



## CEDROZ™ post-planting nematicide

### Science Spotlight

- Cedroz is a water-based formulation which utilizes Eden’s terpene technology to naturally fight nematodes, a pest known to cause severe damage to crops globally in both open fields and greenhouses.
- In line with consumer and regulatory drivers for safer products, Cedroz is an attractive alternative for farmers looking to fight nematodes in an environmentally friendly way.
- Cedroz can be used on a wide range of crops including tomatoes, strawberries, cucumbers, courgettes, peppers, aubergines and melons.

“In Cedroz, we have developed a biopesticide that meets the demands of modern-day farming, whether that is in an open field or greenhouse environment.”

Sean Smith,  
CEO of Eden

# The Global Economic Impact of Botrytis



Botrytis cinerea is one of the most extensively studied fungal pathogens and causes “gray mold” rot in more than 500 plant species

**\$10-100 Billion** The annual economic losses due to *B. cinerea*

**28%**

Estimated post-harvest apple losses caused by *B. cinerea*

**50%**

Potential *B. cinerea* yield losses in grape vines



## Sustainable Control

- Mevalone® is used as a preventative and curative solution for *Botrytis cinerea*.
- Terpene active ingredients, derived from nature, mean the product has a favourable environmental profile.
- The multi-site mode of action means risk of resistance is minimised.
- Free from residue limits and with short pre-harvest intervals – providing growers with maximum flexibility.

**8%**

The cost of control of Botrytis and related species accounts for about 8 per cent of the fungicide market worldwide.

# Eliminating Microplastics in Soil

1

There is increasing consumer and regulatory pressure to cut out the use of plastic in supply chains. Food production has faced significant scrutiny due to its widespread use of plastics, from farming to packaging.

2

In farming, microplastics are used for encapsulation or seed coatings to boost the performance of agricultural inputs, including crop protection products. The direct application of these products to the environment causes agriculture to be a major contributor to microplastics pollution.

3

Sustaine® is one of the only viable alternatives to microplastics used in these agricultural products.



## Sustainable Control

- Sustaine microcapsules are naturally-derived, biodegradable micro-spheres produced from yeast extract.
- The technology produces stabilised aqueous emulsions which are easy to mix and apply and have phased release patterns.
- Sustaine is used to encapsulate active ingredients in Cedroz™ and Mevalone® and is effective with other natural and synthetic compounds.
- Eden is engaged in a number of projects around the world to test the compatibility of Sustaine with third party active ingredients.

## Changing regulation

Pressure is building to cut out the use of microplastics in agriculture. A landmark proposal from the European Chemicals Agency (ECHA) will restrict the use of microplastics in agricultural products as part of a wider ban on the intentional use of plastics.



# Strategy and Investment Case

# Our Strategy



## BUSINESS LINE DIVERSIFICATION

- Pursuit of opportunities in the seed treatments market
- Development of insecticides
- Ongoing work with Elanco Animal Health to launch four new products
- Expand crops and diseases treated
- Geographic diversification (seasonal and climate variation)

## RESEARCH, DEVELOPMENT AND OPERATIONS

- Supply chain optimisation
- Expansion of in-house screening and field trials capability
- Accelerate commercialization of Sustaine® for conventional actives

## COMMERCIAL GROWTH

- Regulatory clearance in new countries, crops and diseases
- Accelerate Sustaine® business development
- Partnerships for Mevalone® in new territories
- Pursue collaboration with majors

## STRENGTHENING AND GROWING THE TEAM

- Commercial roles
- Product management roles
- Technical roles

# Our Investment Case

1

## Commercialisation

Eden is now resourced to enable commercialisation of new products and accelerate growth

2

## Technology exploitation

Exploitation of Eden's core technologies beyond biopesticides and crop protection

3

## Focus on biological solutions

Eden is the only UK quoted company with a focus on biopesticides for the crop protection market

4

## Regulatory drivers for sustainable solutions

Regulatory changes are creating significant growth opportunities for Eden's products and technology

5

## Increase number of commercial partners

Expansion of existing commercial relationships and the establishment of new partnerships

6

## Growing patent portfolio

110 patents enable strong technological defensibility. Two new patents in the US granted during H1 and one in Australia post-period end

7

## Revenue growth

Ability for Eden to generate significant additional revenue in the medium term

8

## Corteva agreement

Opportunity for up to €40 million of revenue in a limited number of geographies, with significant upside potential

# Significant Market Potential

## A growing global market for sustainable products

**\$10  
billion**

The global biopesticides market is projected to be worth more than **\$10 billion by 2025**

**15%  
per annum**

The biopesticides market is growing at a CAGR of approximately **15% per annum**

**\$300  
million**

Increasing time and cost of bringing new agrochemical products to market: **10 to 12 years and around \$300 million**

Crop protection products formulated with **Sustaine®** and **Eden's active ingredients** can help address many of these issues:



Consumer concerns over food safety



Increasingly challenging regulatory requirements



Farmers seeking effective alternatives

# Leadership Team



**Sean Smith**  
**Chief Executive Officer**

Over 25 years of experience in the speciality chemicals and industrial biotechnology industries



**Lykele Van der Broek**  
**Non-Executive Chairman**

Formerly Board member of Bayer Crop Science and President of Bayer Animal Health, both divisions of Bayer AG



**Alex Abrey**  
**Chief Financial Officer**

Experienced Financial Director to a diverse range of businesses including financial and management consultancy



**Rob Cridland**  
**Non-Executive Director**

Until recently, Rob served as Chief Financial Officer of Itaconix plc, having joined from Renovo Group plc where he was Executive Director of Finance and Business Development





# Interim Results

# Financial Highlights

## H1 Unaudited Financial Results

Revenue

**£0.75m**

(H1 2019: £0.58m)

Upfront and milestone payments

**£0.02m**

(H1 2019: £0.13m)

GPM on product sales

**42%**

(2019: 44%)

Product Sales

**£0.73m**

(H1 2019: £0.45m)

Operating loss

**£1.01m**

(H1 2019: £0.63m)

Cash and cash equivalents

**£8.66m**

(H1 2019: £1.36m)

# Business and Operational Highlights

## H1 2020 Highlights



**Organic approval received for Mevalone® in Italy and Spain**  
Post-period end approval in France



**One-year exclusive Evaluation Agreement signed with Corteva**



**Successful fundraise of £10.4m with new institutional investors**



**New regulatory approvals in Greece, Serbia, Netherlands, France, Spain and Australia**





# H1 2020 Overview

# Use of Proceeds from March 2020 Fundraise

Use	£	Detail	Update
Register and commercialise insecticide and seed treatment products	Up to <b>£6.0m</b>	<ul style="list-style-type: none"> <li>• Multiple formulation options</li> <li>• Global trials and registrations</li> <li>• Wide range of target pests</li> </ul>	<ul style="list-style-type: none"> <li>• Seed treatment collaboration with Corteva progressing as planned; updates to follow</li> <li>• Some C-19 related impact on insecticide trials</li> <li>• Insecticide trial results are encouraging</li> </ul>
Develop use of Sustaine® with traditional agrochemicals	Up to <b>£2.0m</b>	<ul style="list-style-type: none"> <li>• Lab screening</li> <li>• Pot and field trials</li> <li>• Formulation development</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple new third party evaluations ongoing</li> <li>• Evaluation partners include several of the leading agrochemical producers</li> <li>• Sustaine has been demonstrated to clearly improve formulation efficacy in early trials</li> </ul>
Expand product portfolio	Up to <b>£2.0m</b>	<ul style="list-style-type: none"> <li>• Lab screening</li> <li>• Pot and field trials</li> <li>• Formulation development</li> </ul>	<ul style="list-style-type: none"> <li>• Actively pursuing new home and garden applications with a new collaborator</li> <li>• New collaborations focused upon new disease targets pending</li> </ul>

# Commercial Footprint

Our presence in Europe has continued to grow in H1 through new authorisations for both Cedroz™ and Mevalone®, and we anticipate further approvals in Europe and further abroad post-period end.



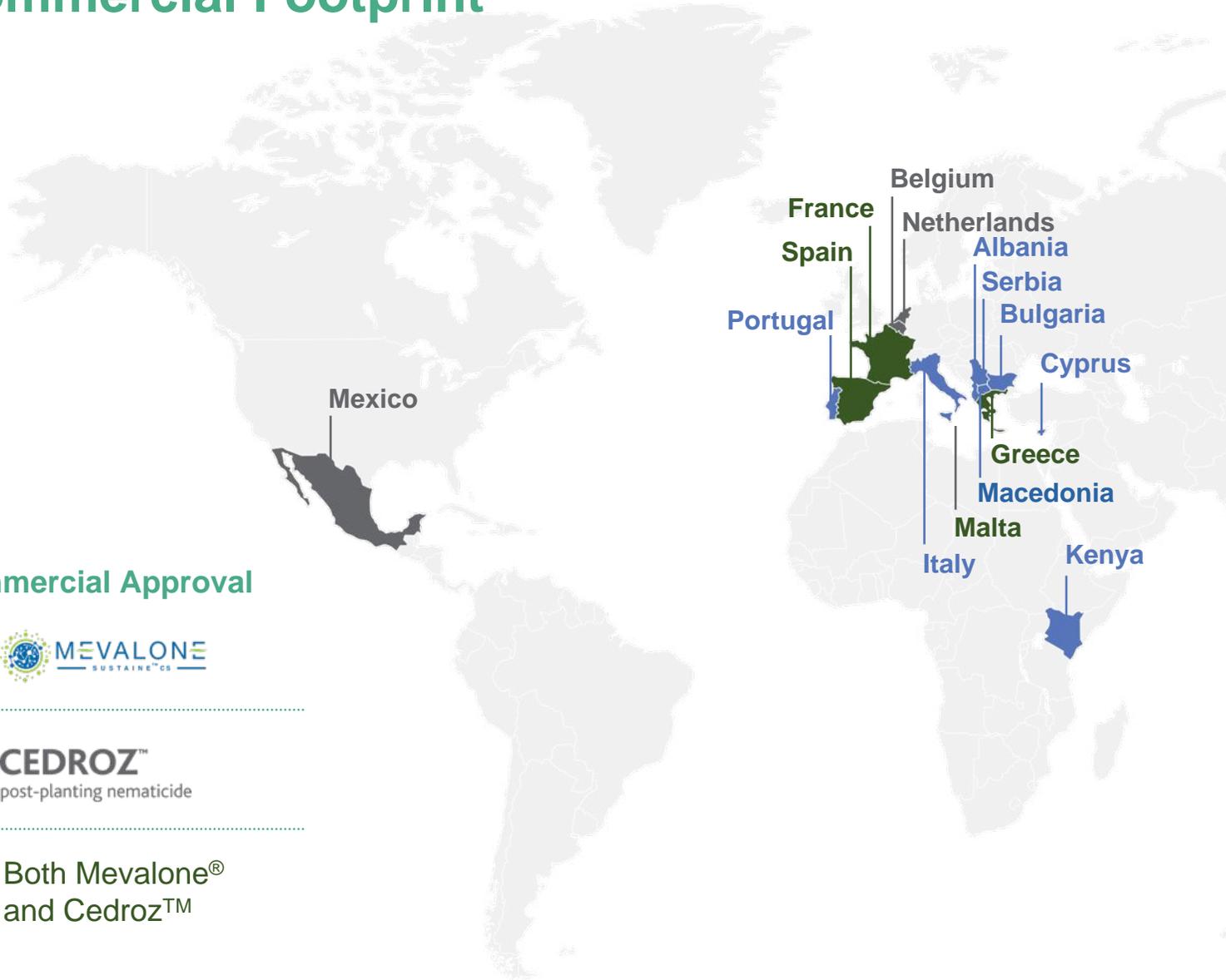
Total of seven approvals in H1 and post-period end.



Our US EPA approval for the sale of Mevalone® and Cedroz™ is anticipated within the next year.



We have commercial partners in place across six continents to support future expansion.



## Commercial Approval



# Corteva Agreement

- Eden signed a one-year exclusive evaluation agreement with Corteva Agriscience
- Corteva is evaluating Eden's Sustaine® encapsulation technology and several formulations in specific biological seed treatment applications in certain major territories (EU, Russia, Ukraine and Turkey)
- Corteva has until the end of 2020 for the exclusive evaluation of products which were developed using Sustaine® in select seed treatment applications
- Results to date are in-line with expectations
- Updates to follow before Q2 2021



**Market Cap**  
£21.3bn

**Revenue**  
£19.7bn

**Global Ranking**  
No. 1

Corteva Agriscience combines the crop protection chemical and seed businesses of Dow Chemical and DuPont, which merged in 2017.

# Covid 19 General Update

- At onset of the pandemic in March 2020 there was no direct operational impact, and our stakeholders were reassured by Eden's strengthened balance sheet
- Mild levels of disruption experienced including import and export activities, limitations on field trial capacity due to reduced CRO workforces, and limited promotional activity
- Some regulatory authorities working at reduced capacity and we have experienced delayed product approvals (e.g. apple storage disease in France)
- Despite the full impact remaining unknown, we have continued to make progress with new authorisations from late May onwards
- We have also been able to execute on some key plans such as opening our new facilities in Oxfordshire and making key hires



# Covid 19 Wine Production Update

1

The countries that rank highest for total wine consumption (the United States, UK, Spain, Italy, France, etc.) experienced the most severe impacts

2

Closing of restaurants and bars impacted demand

3

Wine tourism – vineyard tours, dining in the winery and cellar door sales were halted

4

Large volumes of grapes available for harvest but demand is substantially weakened

5

Growers will refrain from spending money on crop protection, with many finding low value alternatives to wine production such as hand sanitizer

## Spain's vineyards destroy record harvest as wine sales crash

Covid pandemic hits nation's grape growers in what should have been a bumper year

- [Coronavirus - latest updates](#)
- [See all our coronavirus coverage](#)



▲ The grape harvest around Malaga began earlier this month. Photograph: Lorenzo Carnero/Zuma/Rex Shutterstock

It should have been a great year for Spanish wine: a bumper crop of grapes resulting in millions and millions of extra bottles for sipping or swilling at home and abroad.

But with Covid-19 leading to a catastrophic drop in wine sales, the Spanish

## Cham-pain: grape harvest cut as pandemic crushes bubbly sales

By Gus Tromp

2 MIN READ



PARIS (Reuters) - France's champagne makers reached a last-minute agreement on Tuesday to cut the volume of grapes they will harvest this year by more than a fifth as they try to cope with a collapse in sales caused by the coronavirus crisis.



Shutterstock (4 images)

With harvesting off to an early start after warm, dry weather this year, producers struck a deal to reduce grape volumes to 8,000 kg per hectare, down nearly 22% from 10,200 kg in 2019, the CIVC industry body said.

Producers have been locked in talks for weeks over harvest output. Leading champagne houses have pushed for a steep fall to shore up prices, while some growers wanted a smaller reduction to take advantage of a promising 2020 crop.

With the world still grappling with the COVID-19 pandemic ahead of the crucial year-

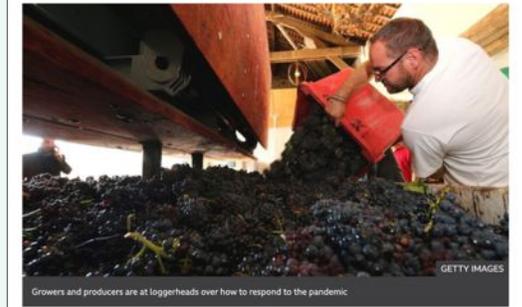
## Coronavirus: France's champagne industry goes flat amid pandemic

By Hugh Schofield

BBC News, Paris

12 August

[Coronavirus pandemic](#)



It's been an exceptional year in Champagne.

The weather has been near perfect, with plenty of sunshine and rain falling at just the right time to give the vines their necessary oomph. The grapes in this famed French region are bursting with expectation for an early harvest.

But never in living memory have market conditions been so poor.

A billion bottles have been left idle in cellars. Weddings and business jollies have been cancelled because of the pandemic. Ultimately, who feels like celebrating when there's a potential virus on the lip of every cut-glass flute?

These factors have led to plummeting demand and ignited tensions in the hundreds of wine villages around Reims and Eprenay of a kind not seen since World War Two.

# New Facilities

- New office and laboratory at Milton Park in Oxfordshire
- Growing R&D team including key hires
- Increased in-house capabilities such as formulation, microbiological screening, plant and seed evaluations and analytical work
- Features high-tech equipment to undertake product testing



# Eden in the Media

## Opinion: Why alternative pesticides are set to become mainstream



The rise of the 'ethical consumer' has created conflicts around the use of traditional pesticides in agriculture. People are becoming increasingly concerned about the chemicals that they're ingesting, as well as their impact on the environment. In response to these evolving consumer demands, regulators have become more active in assessing the impacts of pesticides and, when they deem necessary, restricting or banning their use. This was demonstrated by the recent EU ban of chlorothalopil, the UK's most used pesticide.

## SMALL CAP IDEAS: Eden Research could be pick of the crop after inking Corteva deal

By IAN LYALL, PROACTIVE INVESTORS, FOR THISISSUE.CO.UK  
PUBLISHED: 14.53, 20 January 2020 | UPDATED: 15.16, 20 January 2020

The focus of crop science on protecting plants from seed to harvest is changing as it faces environmental and regulatory challenges.

Key among them is the issue of polymer-based coatings used to preserve and protect seeds that are adding to the microplastics problem.

Two years ago, the European Union initiated restrictions on the use of these tiny pollutants in cosmetics and most experts believe the agri-sector has no more than



Crop science is preparing for a regulatory crackdown on microplastics

And while this appears to give the industry some leeway, one should remember that once a replacement for traditional encapsulation technology is found, the whole process of registration and field trials kicks in, adding at least two years to the process.

Bearing that in mind, it shouldn't be a surprise to learn that the world's largest chemicals businesses are casting around for ready-made solutions.

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# Summary & Outlook

# H1 Summary

- Fund raise of £10.4m (gross) completed in March 2020
- Exclusive, one year evaluation agreement with Corteva Agriscience covering seed treatments signed and progressing as anticipated
- New laboratories established in Oxfordshire: in house capabilities replacing contracted services
- Organic certifications received in key European countries
- New authorisations received in multiple countries including Australia and Spain; realised too late to impact 2020
- Impact of Covid-19 on regulatory approvals, promotional activities, field trials, import and export activities and agricultural production
- Likely impact on full year product sales arising from dramatic drops in the demand for wine, translating into decreased demand for late-season agricultural inputs



# Outlook



Strengthened balance sheet following capital raise



Moving forward with our new products, including insecticide products, seed treatments and optimised fungicides



Additional regulatory approvals expected in H2 2020 and 2021 with commercial impact in 2021 and beyond



In-house work including formulation, microbiological screening, plant and seed evaluations and analytical work now on-line and producing results and shortened development cycles

