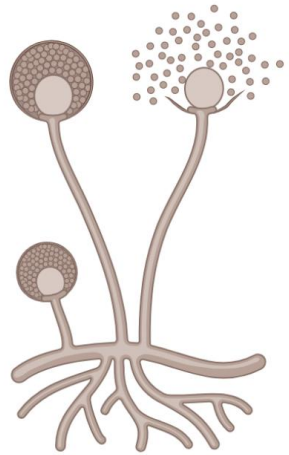
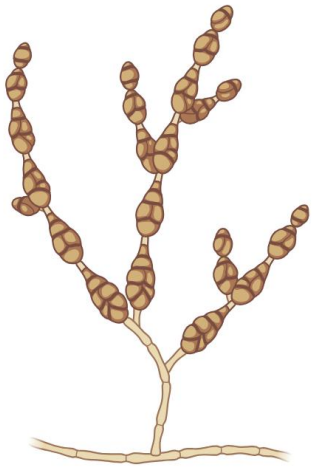
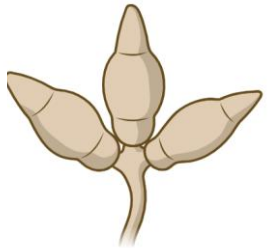




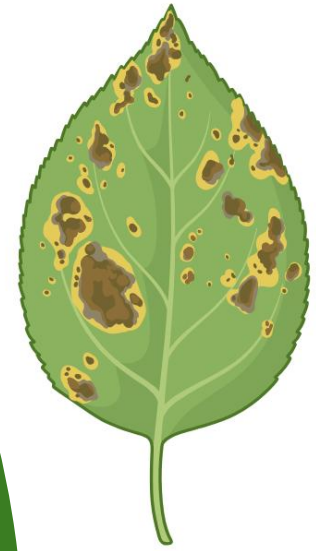


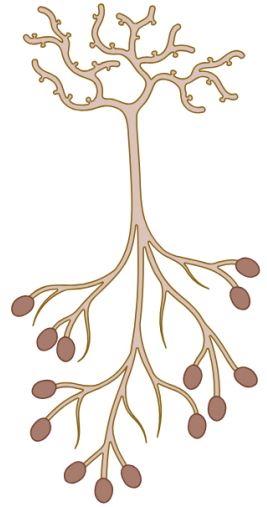
The solution for fungal diseases is:

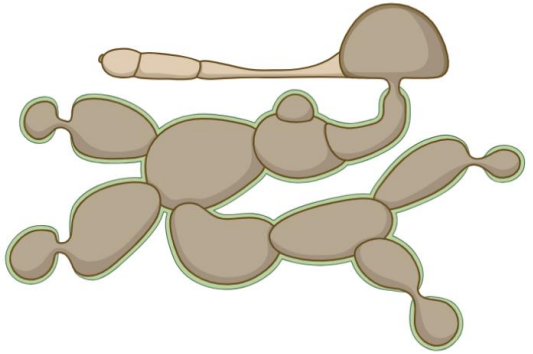
Sporette ™

From the earth for the Earth

Turning native soil microbes into a scalable defence system







Our mission:
to protect and improve the **livelihoods of farmers**
by beating fungal disease

Fungal disease is eroding global crop yields

- 20-40% losses across major crops worldwide
- Severe local impacts can be far higher
- Billions of dollars lost annually
- Existing controls are costly, labour-intensive, and unevenly adopted

Fungal disease is already one of the largest constraints on agricultural productivity.

This is not a local problem – it is a systemic agricultural risk

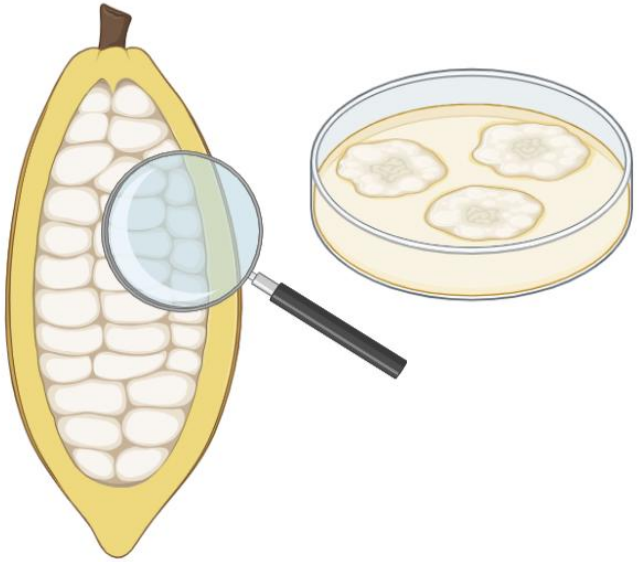
- Major crop pathogens belong to globally distributed fungal groups
- Soil-borne, long-lived, and extremely difficult to eradicate
- Rapid evolution, host switching, and geographic spread
- Climate change and global trade accelerate new disease emergence

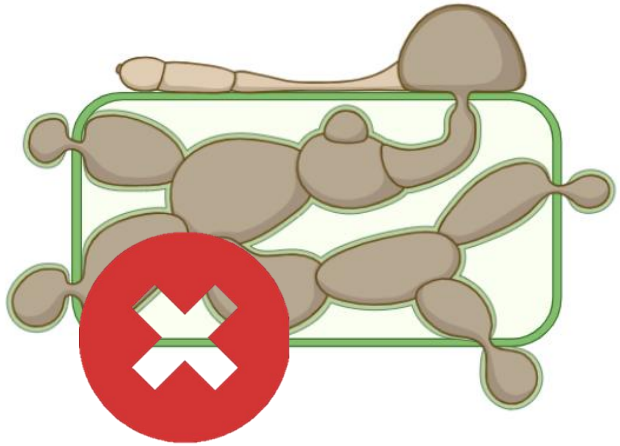
The risk is persistent, adaptive, and increasing.

Disease control works better when ecology does the work

- Crops exist within complex native microbial ecosystems
- When correctly structured, resident microbes **suppress disease naturally**
- *Sporette* focuses on:
  - Leveraging existing biodiversity
  - Shifting ecological dynamics toward plant health
  - Holding pathogens at stable, low-impact levels
- **No chemicals, GMOs, or introduced species**

We control disease by restoring balance, not by fighting biology.





How *Sporette* Works

Microbial Diversity is harnessed and manipulated

Ecological dynamics are adjusted, at the expense of the disease-causing fungus

Plasticity and behavioural control prevents disease-causing growth

Bio-security: no foreign introductions or down-stream effects

Key Private IP underlying the technology:

BioFortify: Fungal diagnosis and prevalence technology

Strain manipulation techniques:
-Anti-contamination resistance
-Anti-pathogen functionality

How **Quickly** *Sporette* Works (Typical Model)

Sporette will drastically reduce fungal disease losses of crops **three years.**

And will also dampen **new external threats which are new to the region in question.**

Field trials starting at 3-6 months

Pre-year 1: Customisation (UK Laboratory)

Year 1: 20% reduction in loss

Year 2: 80% reduction in loss

Year 3: Near-total reduction in loss

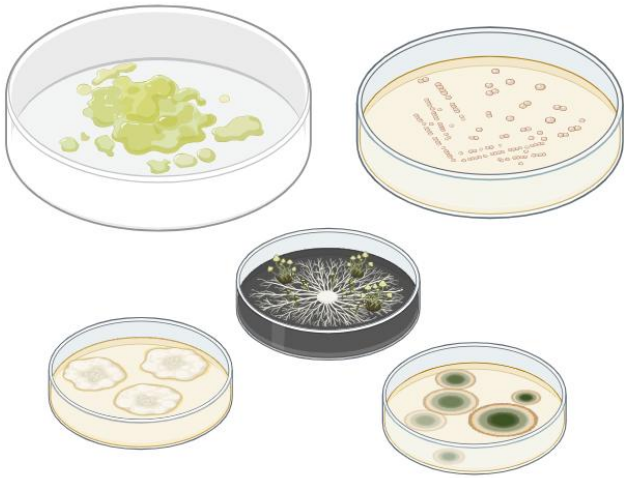
Predicted impact of *Sporette* on fungal disease losses in a given crop setting

This approach is proven, repeatable, and engineered for scale

- **Ten years** of development across multiple crops and disease systems
- Demonstrated:
  - Significant reductions in fungal infection
  - In some systems, complete disease inhibition

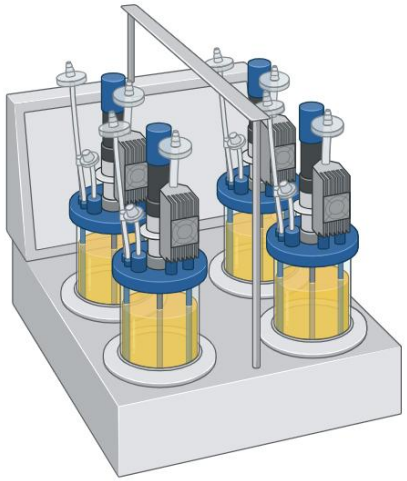
This is not a concept – it is a validated biological platform.

The *Sporette* Timeline (next few slides):



Field sample extractions

Strain manipulation



Culture development

Sporette Timeline

Proof of concept for multiple agricultural plant species.

[UK: Oxford, Imperial, Nottingham universities].

Lab development, fungal strain manipulation for given crop setting, model tests [UK].

Field extractions, background ecological assessments, and field trials (from 6 months) [on site].

We are ready to start this phase, with authority backing

Feedstock production, transported in 300 mL batches [UK].

Farmer application training, 300 mL feedstocks ➔ 1000 L inoculum (covers 500 hectares each). Widescale applications, early ecological and yield impact assessments [on site].

Repeated application, ongoing ecological and yield assessments [on site].

Parallel lab support [UK].

Sporette Invention

[2015-2025] Invention of *Sporette*

Proof of concept for multiple agricultural plant species.

[UK: Oxford, Imperial, Nottingham universities].

Wheat (*Triticum*)

Nicotiana

Courgette (*Cucurbita*)

Sporette Invention Case Study

Courgette

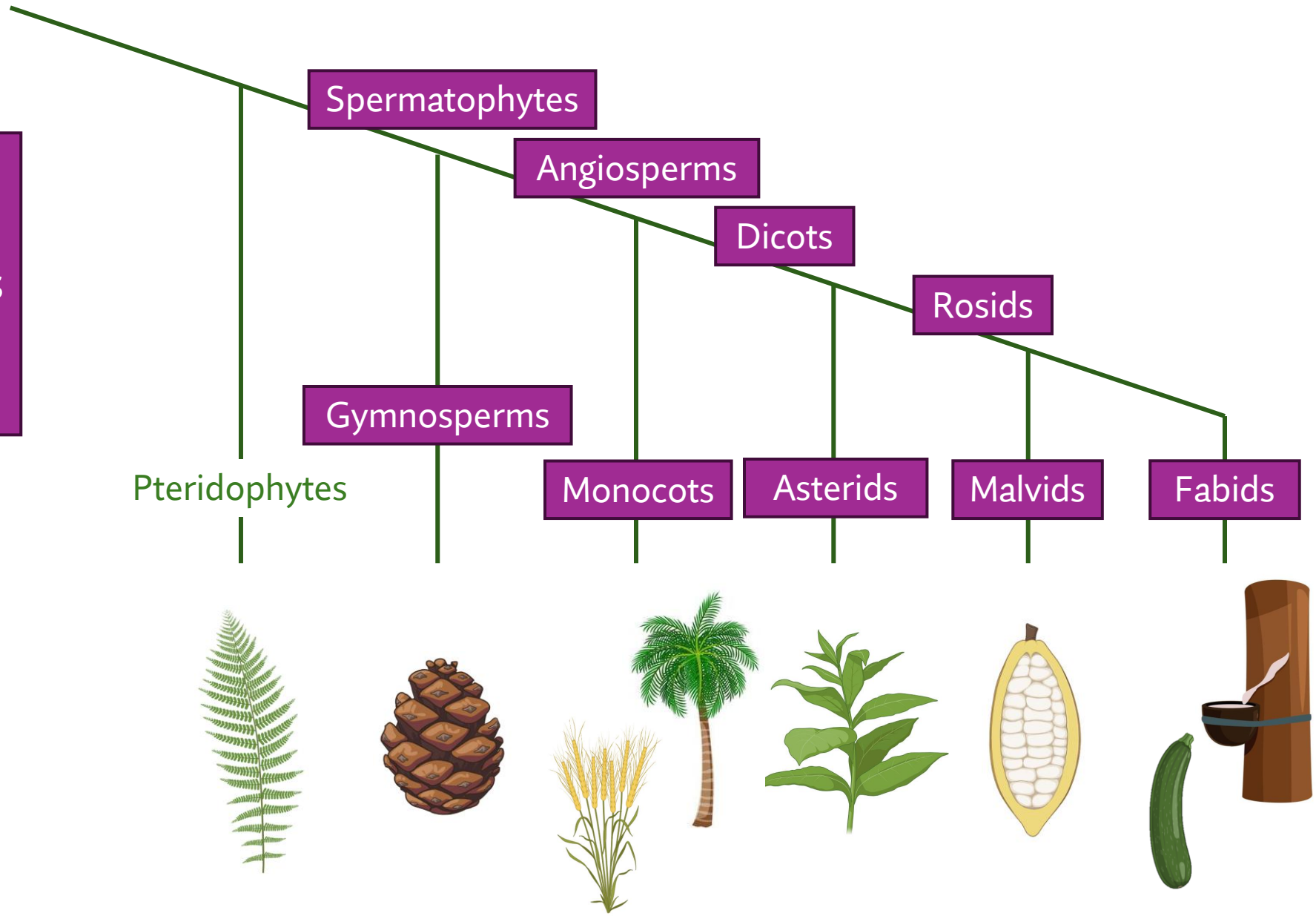
Proof of Concept (2020)

- Spray method application in field-simulation setting (laboratory)
- Use of three native microbes in fungal assemblage feedstock
- Complete inhibition of powdery mildew pathogen (from 30% impact)

Courgette (*Cucurbita*)

Sporette is customisable for *any* plant species throughout the Spermatophytes

We are able to address **multiple crop settings** and fungal disease cases **at the same time**



Sporette technology can be customised to any and all crop species

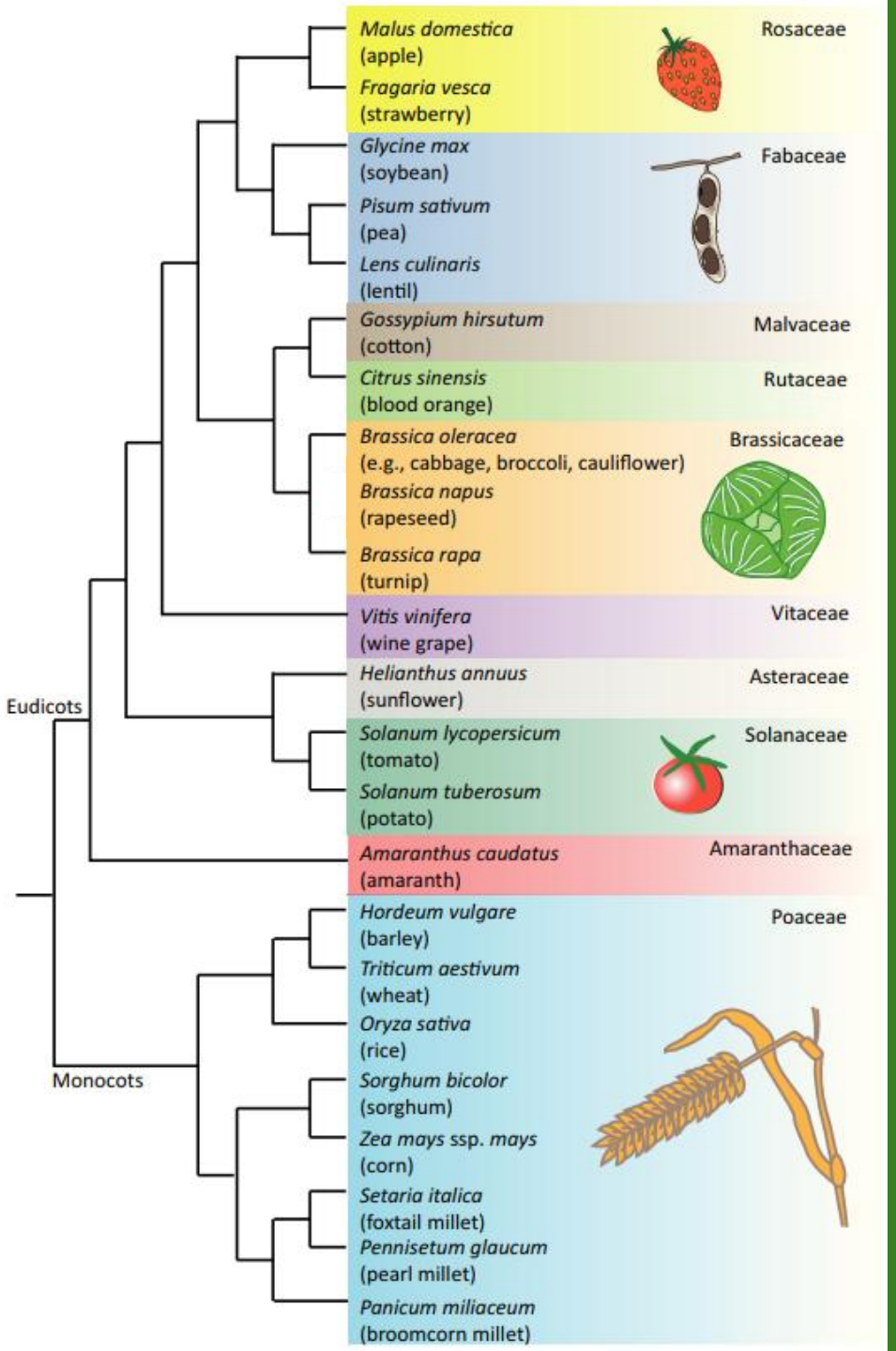


Image source: Lenser & Theißen (2013) *Trends in Plant Science*

Example Customisation Targets – not just crops, also conservation applications

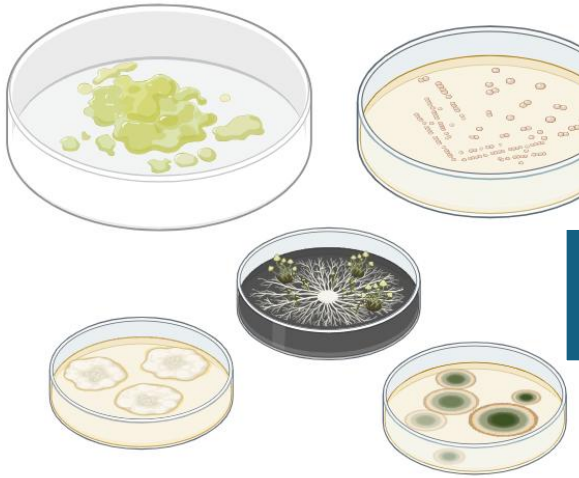
SPECIES	Wheat	Cocoa	Palm	Rubber	Onion	Ash
TIME TO FIELD TRIAL	3 months	6 months	8 months	6 months	4 months	6 months
SOLUTION	9 months	12 months	14 months	12 months	9 months	12 months
KEY DISEASES	*Fusarium* *Zymoseptoria* Rusts	*Phytophthora* *Moniliophthora* *Ceratobasidium*	*Ganoderma* *Fusarium* *Phytophthora*	*Corynespora* *Colletotrichum* *Phytophthora*	*Sclerotium* *Botrytis* *Peronospora*	*Hymenoscyphus*

Sporette Timeline

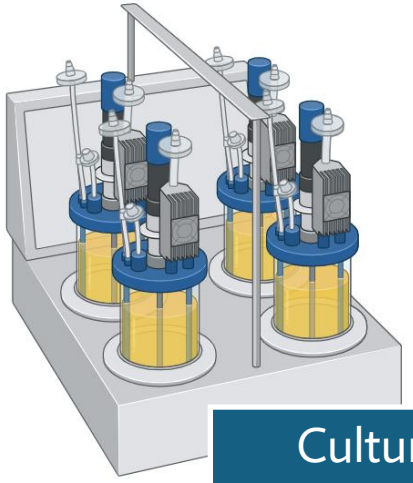
[0-12 months] Customisation and Field Trials

Lab development, fungal strain manipulation for given crop setting, model tests [UK].

Field extractions, background ecological assessments, and field trials (from 6 months) [on site].



Field sample extractions



Culture development

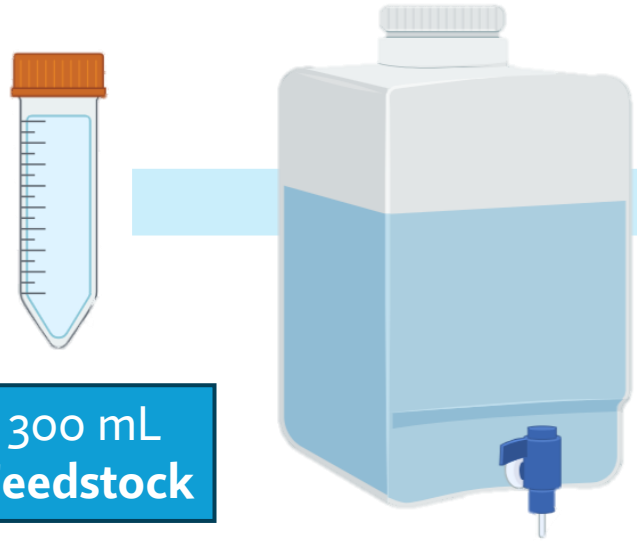
Strain manipulation

Sporette Timeline

[12-24 months]
Implementation
Year 1

Feedstock production, transported in 300 mL batches [UK].

Farmer application training, 300 mL feedstocks ➔ 1000 L inoculum (covers 500 hectares each).
Widescale applications, early ecological and yield impact assessments [on site].

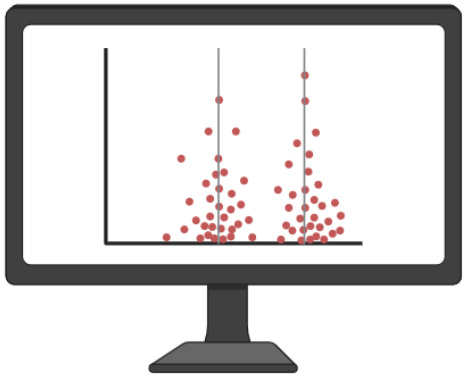


300 mL
Feedstock

1000 L
Inoculum

Simple feedstock ➔ inoculum dilution application process

1000 L
covers **500 hectares**



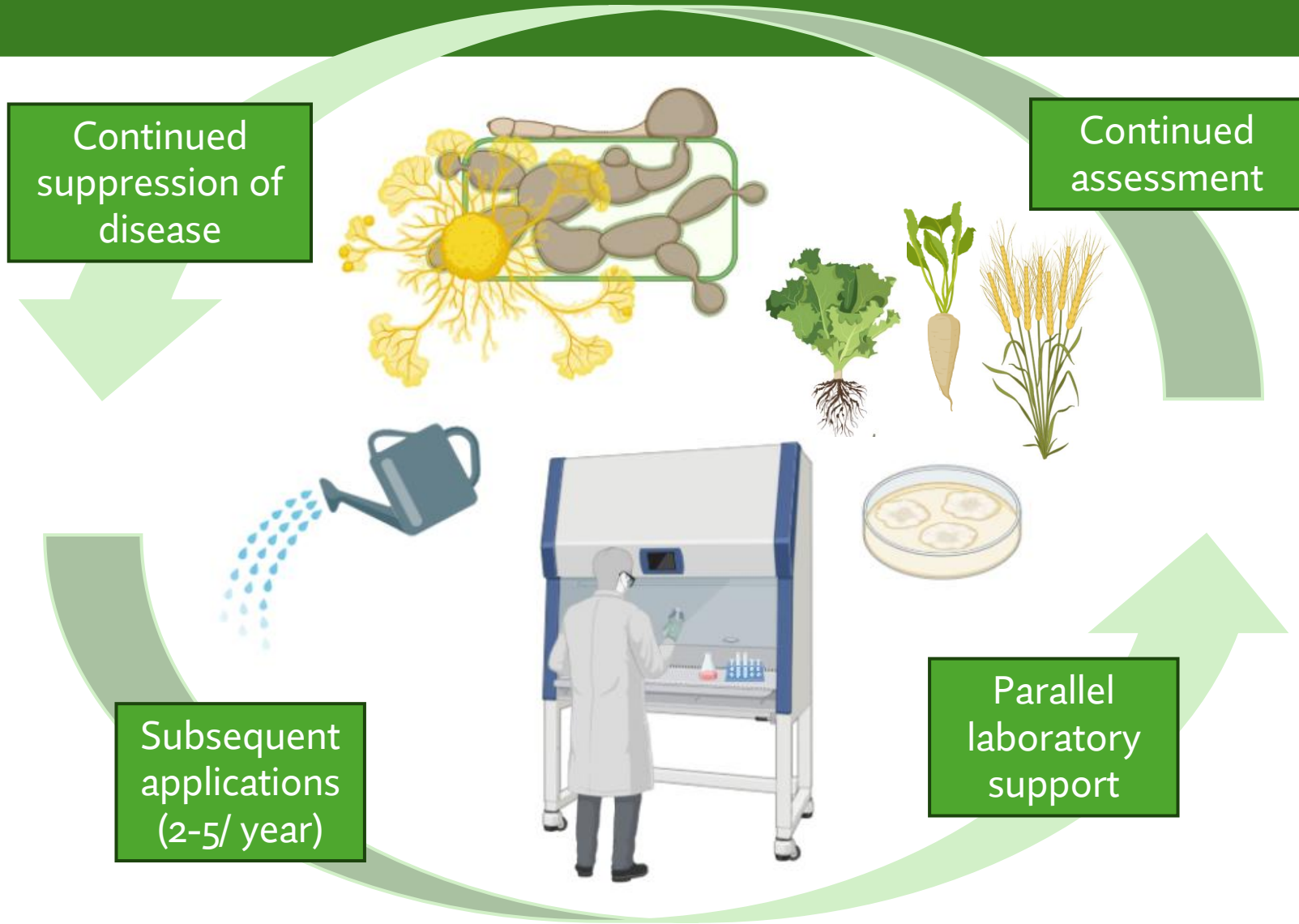
Impact assessments carried out: measurable progress

Sporette Timeline

[Years 2 – 5]
Repeated
Implementation

Repeated application, ongoing ecological and yield assessments [on site].

Parallel lab support [UK].



The ease of *Sporette* implementation and maintenance

Easy inoculum scale up and **application**.

Ongoing **assessment methods** carried out by us.

Measurable **progress** from 1 month after first implementation.

300 mL inoculum

Added water, 2-4 weeks

1000 L application liquid

Soil soaks across 500 hectares

Re-application 1-3 times per year

Fungal prevalence

Wider biodiversity

Threat status

Measurable progress (deliverables) – via proprietary methods

Crop Yield

Decreased fungal infection

Reduced new disease threat

[0-12 months]
Customisation

Q1

- Crop samples [On site to UK]
- Background assessments [on site]

Q2

- Laboratory Customisation [UK] ; further samples [to UK] ---------->

Q3

- Minor mid-season assessments; field trials [on site]

Q4

- *Sporette* production preparations [UK]

[12-24 months]
Implementation Year 1

Q1

- *Sporette* application production [UK]
- Follow up assessments

Q2

- Application (inoculum) production [UK], ---------->
  transport [UK to site], field training [on site], ---------->
  applications (treatments) ---------->
- Prevalence, biodiversity, and threat assessments [on site] ---------->
- Progress updates: threat level

Q3

Q4

- Progress updates: threat level, infection, yield

[Years 2 – 5]
Repeated Implementation

Q1 Q2 Q3 Q4

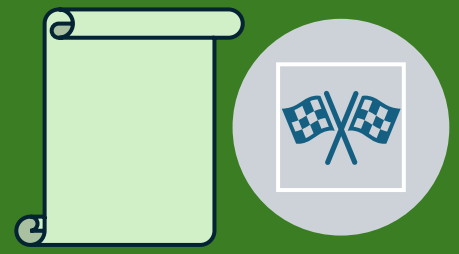
Treatments on site (2-4 per year) [on site] ----------→
Parallel lab support, updated formulations [UK] ----------→

Prevalence, biodiversity, and threat assessments [on site] ----------→

Threat level, infection, and yield progress updates (2 per year) ----------→

[Post year 5]

Sporette transition period, gifted to the authority:
IP details, laboratory manuals and protocols, and fungal strain stocks handed over.
On-going technical advisory support available.



Sporette Finance

Licensing Period
(per annum fee)

Customisation Fee
($ to be agreed)

Licensing arrangement determined by *Sporette* performance

[2015-2025] Invention of *Sporette*

[0-12 months] Customisation and Field Trials

[12-24 months] Implementation Year 1

[Years 2 – 5] Repeated Implementation

Authority ownership of *Sporette* technology

Proof of concept for multiple agricultural plant species.

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Repeated application, ongoing ecological and yield assessments [on site].

Parallel lab support [UK].

With your backing, we can protect crop harvests from fungal disease

- ***Sporette*** technology has been developed over **ten years** – and has capability to reduce fungal disease losses from **20-80%+ over three years**
- With customisation fee funding by a backing authority, we can prepare the tailored solution for field trial validation in 12 months
- We then are able to produce and ship feedstock to cover **80,000 hectares per week**. With local logistical and regulatory support, this enables implementation over national/regional-level land coverage in **18 months**.
- Phoenix Biocide is a **social venture.** Following a performance-based licensing arrangement, we will then **gift the IP and technology.**

Advisers

Prof. Paul Dyer
Professor of Fungal Biology, School of Life Sciences, University of Nottingham.
Specialist in fungal genetics, life cycles, and population biology.

Dr. Ailsa McLean
Royal Society Research Fellow, Department of Biology, University of Oxford.
Specialist in microbial interactions and community ecology.

We have strong connections with Oxford and Nottingham universities and are establishing collaborations with agricultural organisations and stakeholders worldwide.

Directors

Geoff Shucksmith
Managing Director

High impact executive with over 30 years' experience in supply chain and logistics; specialist in biotechnology and natural products.

Geoffrey@phoenixbiocide.com

Dr. Peter Wellham
B.A. M.A. (Oxon.)
M.Res. D.I.C. Ph.D.
Scientific Director, Sporette Inventor

Biologist, biochemist, and biotechnologist. Specialist in mycology and agricultural ecology.

Peter@phoenixbiocide.com