Farm Sustainability Toolkit

theory of change

VISION

Farmers world-wide monitor and reduce their environmental impacts, revolutionising the food system

ACTIVITIES

Software development, data expansion, partnership building, and farm trials

OUTPUTS

Evidence on how digital tools can be used to reduce farm impacts

HYPOTHESIS

Digital tools can enable farmers to monitor and reduce their environmental impacts

OUTCOMES

Digital tools are used to reduce the environmental impact of agriculture at a large scale

outputs & outcomes

Unlike the current in-person model of farm advice, which is costly and hard to scale, digital tools can scale rapidly. Our outputs will contribute to knowledge on how this may occur, but also provide the necessary infrastructure so that we can produce tangible outcomes, specifically the monitoring of farm sustainability at scale for the first time.

Partnerships

Working with farmers, existing digital tools, and fellow food sustainability researchers.

Integration

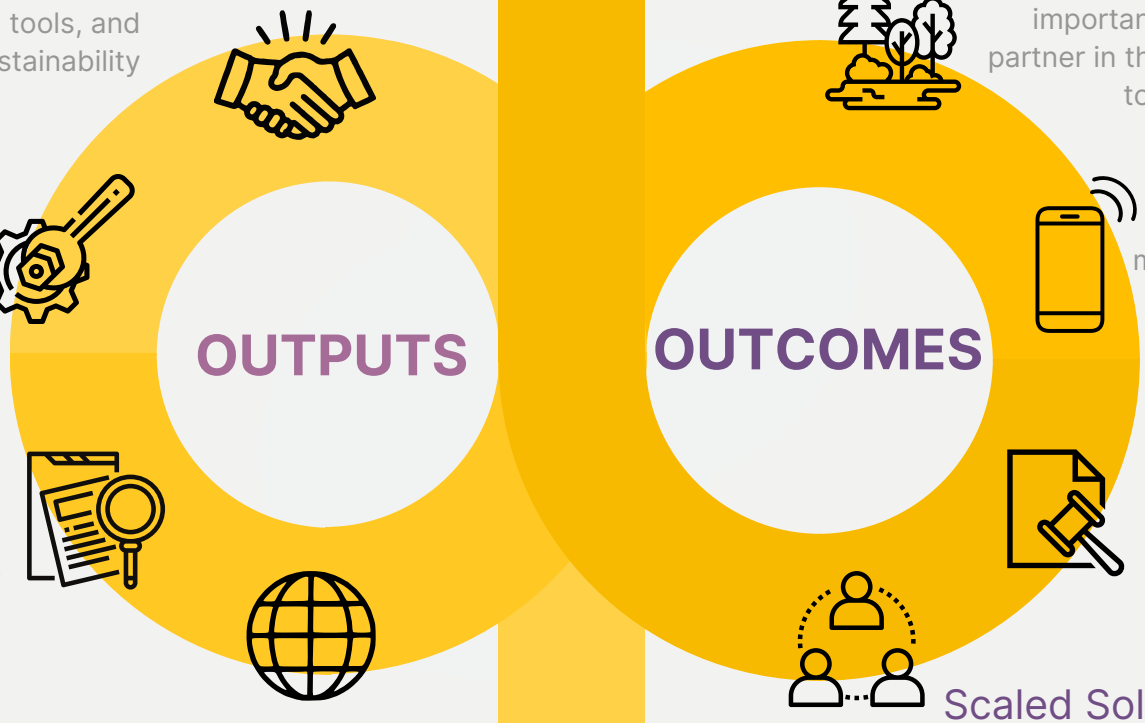
HESTIA is integrated with multiple digital tools that are already being used by farmers.

Trial Results

Produce results on how digital tools affect farmer behaviour in our case study sites.

Insight

Provide insight into scaling opportunities for digital solutions for sustainable agriculture.



Salience

The FST project becomes an important, recognised partner in the digital farm tool landscape.

Integration

HESTIA can integrate with more tools, and becomes the go-to platform for agricultural data.

Action

FST has shown how digital tools influence farmers and informs action how to improve the food system.

Scaled Solutions

Changes in agriculture occur at a larger scale compared to current in-person models of advice giving.

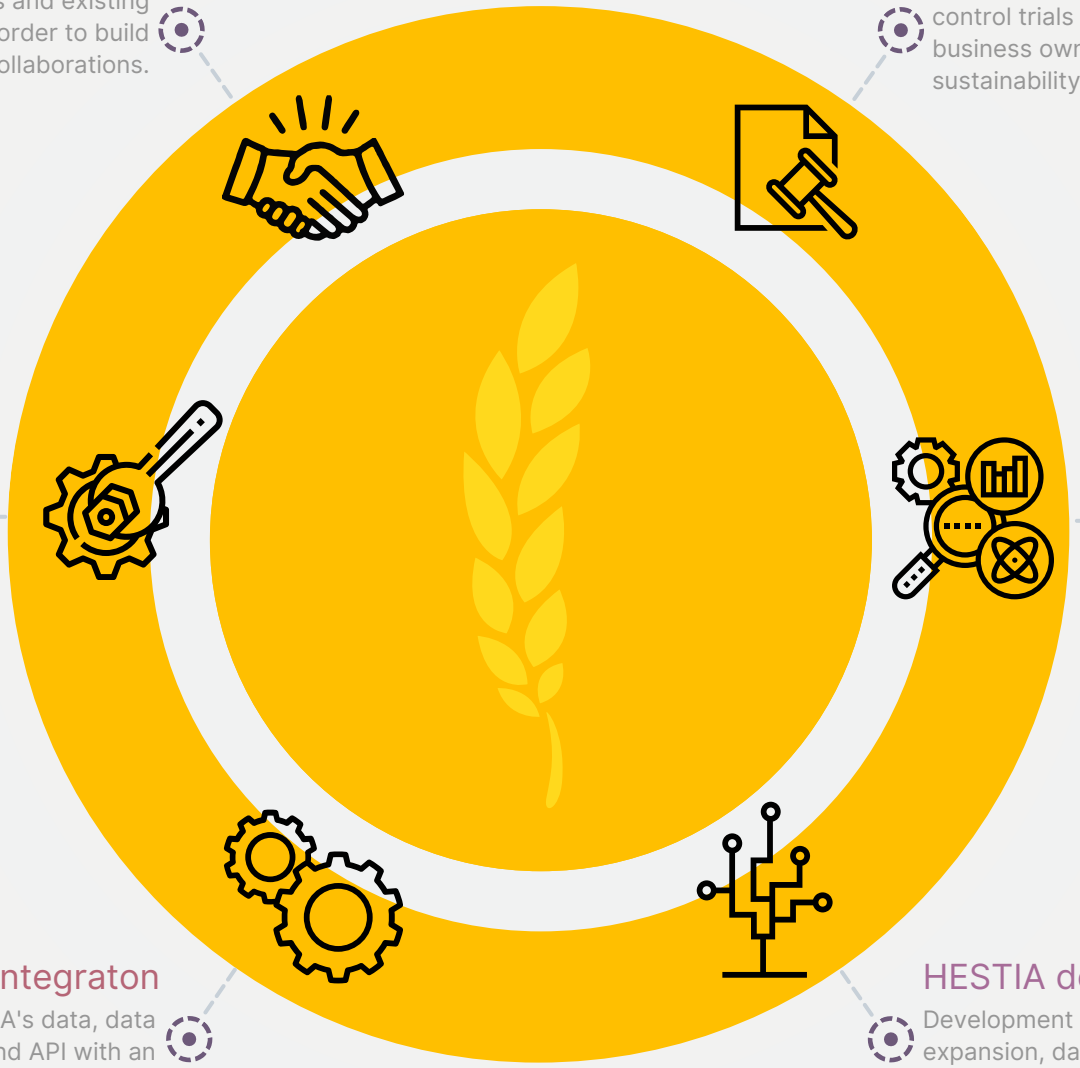
activities

Partnership building

Engage with users and existing digital tools in order to build potential collaborations.

Stakeholder engagement

Use the results of the randomised control trials to inform policymakers and business owners on how to address sustainability issues in the food system.



Build toolkit

Enable benchmarking, and create both a general and personalised advice engine.

Field trials

Test the effect of using a digital sustainability monitoring tool on farmers in the UK and Kenya.

Tool integraton

Integrate HESTIA's data, data structure, and API with an existing digital tool, or tools.

HESTIA development

Development including data expansion, data structure improvement and data validation.

extended theory of change

The problem

Agriculture is the single biggest driver of biodiversity loss, deforestation, water scarcity and pollution, pesticide toxicity. It is also a major contributor to climate change. Despite this, today, very few farms measure their environmental impacts. Without this, neither farmers nor policymakers can make informed decisions about how to act.

Our vision

We aim to revolutionise the food system by providing evidence on how to enable farmers worldwide to monitor and reduce their environmental impacts using digital tools integrated with HESTIA's data, format, and API.

Our outcomes

- We become an important, recognised partner in the digital farm tool landscape.
- HESTIA can integrate with more tools, and becomes the go-to platform for agricultural data.
- We have shown how digital tools influence farmers and informs action how to improve the food system.
- Changes in agriculture occur at a large scale.

Our outputs

- Partnerships with farmers, existing digital tools, and fellow food sustainability researchers.
- Integration between HESTIA and multiple digital tools that are already being used by farmers.
- Evidence on how digital tools affect farmer behaviour in our case study sites.
- Insight into scaling opportunities for digital solutions.

Detailed activities

HESTIA development
- Data expansion, particularly on wheat and maize.
- Improve data structure.

Toolkit Building
- Enable benchmarking.
- Build general and personalised advice engine.

Tool integration
- Integrate HESTIA's data, format, and API with existing digital farm tools.
- Validate data input by users.

Partnership building
- Collaborate with existing digital farm tools and their user base.
- Fundraise for years 3-5.

Field Trials
- Measure the effect of our digital tools on farmers in the UK and Kenya.
- Analyse and publish the trial results.

Stakeholder engagement
- Present results to researchers, businesses, and policymakers to inform action on how to act at scale.

Assumptions

Platform and toolkit development
- HESTIA is compatible with existing tools already used by farmers.
- HESTIA development, toolkit building, and integration is complete in time for the trial.
- Our data is trustworthy.
- The team has capacity for all the necessary activities.

Field Trials
- Farmers can overcome constraints to behaviour change.
- Digital farm tools are used widely and can change behaviour.
- Farmers engage with the tools' sustainability component.
- Attitude, behaviour, and impact are linked.
- Two years is long enough to see an effect.
- The case study areas have the necessary digital infrastructure.
- External factors won't undermine the trial (e.g. drought, pests).
- Farmers' data can be validated with sufficient accuracy.
- Trial results are generalisable.
- The ESG environment will be conducive to change.

Mitigations

Platform and toolkit development
- Identify compatible tools and perform early integrations.
- Effective project delivery management and working methods are employed.
- Make data accuracies clear.
- Efficient and collaborative work, as part of an integrated team.

Field Trials
- Previous case studies have shown change is possible, that digital tools promote change, and our careful trial design will test this, including the effect of an added sustainability component.
- Appropriate selection of outcome indicators e.g. attitude as proxy.
- Use crops with short rotations; measure attitude as an outcome.
- Early screening of case study sites and site-specific data expansion
- Use a large enough sample of farmers across multiple areas.
- Automated validation; accurate data leads to accurate advice.
- Select crops grown globally.
- Maintain awareness of and contact with those shaping ESGs.