



# **10027883 Taking Commercial Apple Production to Net Zero (Biochar)**

*Funded through Innovate UK – Farming Innovation Pathway Grant funding*

*June 2022-July 2024*



*Commercial in Confidence*

# Taking Commercial Apple Production to Net Zero (Biochar)

This Innovate UK funded project brings together a varied consortium comprised of two English commercial orchard growers (Stocks Farm and Adrian Scripps), experts in end-of-life orchards processing, pyrolysis and biochar production (UoE and Combind Industries), plus agricultural engineers (RE Collins HS), agronomists (Hutchinson's) led by the trade association representing the whole apple and pear industry. Providing academic expertise on the project are the University of Edinburgh and Cranfield University. With support from Carbogenics.

## Project Partners



STOCKS FARM

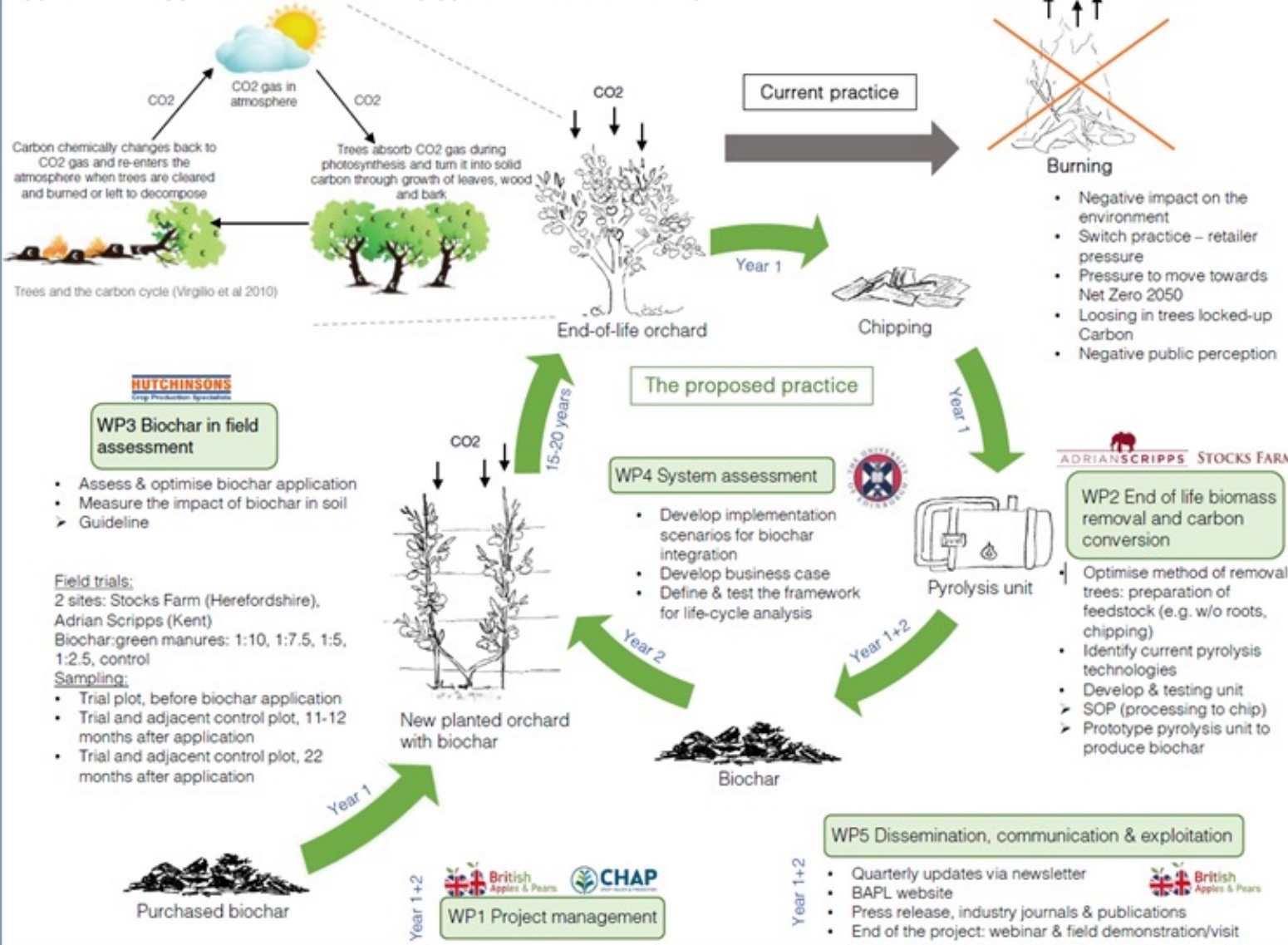


R E Collins HS



carbogenics

Appendix Q5 Approach and Innovation (Application No 100027883)



# Project Overview

## Taking Commercial Apple Production to Net Zero (Biochar)

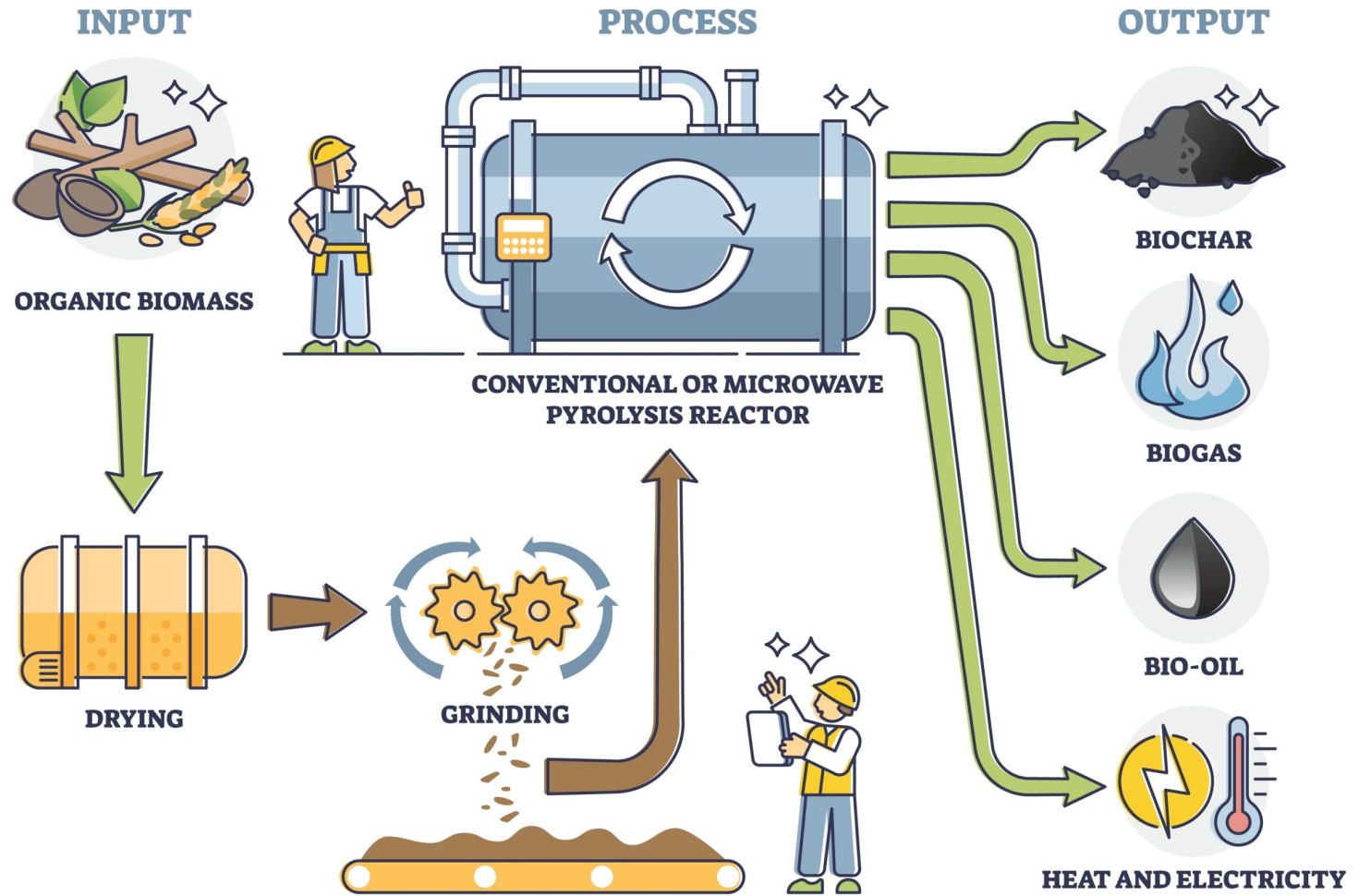


 **British Apples & Pears**



  
**ADRIANSCRIPPS**

# BIOCHAR





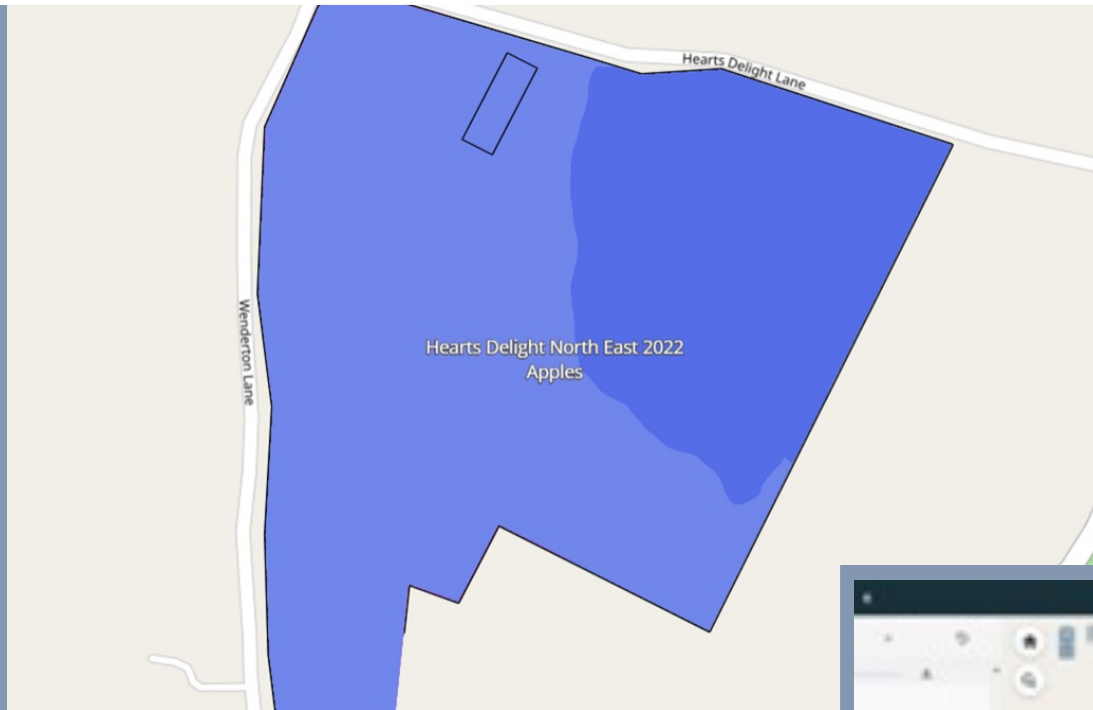
## University of Edinburgh – UK Biochar Research Centre

Continuous flow unit demonstrator site with examples of biomass processing types and resulting biochar





 **Combina**



*Figure 2. TerraMap to demonstrate available water table on trial site.*

*Figure 1. TerraMap to demonstrate available phosphorus on trial site*

To select the appropriate biochar application sites within the orchard the TerraMap system was applied via drone scanning.







New plantings marked out and Biochar applied

# Full Life Cycle Analysis of UK orchard growing systems – Specifically Gala Apples.

The work assess the following:

- New orchard planting/establishment
- GHG emissions (as pictured)
- Fuel/energy consumption
- Soil sample analysis
- Agronomy – Feeding, Pruning, thinning out etc
- Machinery use efficiency





R E Collins HS

## Main project outputs:

- LCA on biochar production
- LCA on UK Orchard Growing systems (Gala)
- Academic analysis of research and literature
- Guide to Carbon Credit landscape – Focus on Biochar
- Industry guide to biochar production – Systems and economics
- Preliminary report of biochar incorporation in UK orchards – Benefits and effects
- Biochar production from orchard biomass – conditions for pyrolysis

Summarised in an industry facing report at the end of the project term



# Taking Commercial Apple Production to Net Zero (Biochar)

# Thank you

Funded by  Innovate  
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