Cool Farm®

Annual Report Calendar Year – 2023







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Our vision We work towards a vision of a global food and agriculture system that builds soil carbon, helps to mitigate climate change, and restores ecological balance.

Our mission To accelerate the transition to regenerative and sustainable agriculture by providing globally aligned, credible and science-based metrics, tools and resources that create impact.

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About Cool Farm

The Cool Farm Alliance is a science-led, not-for-profit membership organisation (community interest company) that owns, manages, and improves the Cool Farm Tool and cultivates the leadership network to advance regenerative agriculture at scale.

The Cool Farm Tool is an on-farm greenhouse gas calculator now used by most of the world's largest food and beverage companies to reveal changes that farmers can make to reduce emissions and sequester carbon with co-benefits for soil quality, water, biodiversity, and farm economics.

The purpose of the Cool Farm Alliance is to put knowledge in the hands of farmers and empower the full supply chain to support agro-ecological restoration by providing a respected, standardised calculation engine to measure and report on agriculture's impact on the environment. The Cool Farm Tool has established widely endorsed, science-based metrics for water, climate, and biodiversity.



- The Cool Farm Tool engages and empowers users through quantification and modelling "what-if" scenarios. The Cool Farm Tool is simple to use yet scientifically robust in the complex arena of carbon accounting, characterised by:
- It is farmer focussed, reflecting common farm management practices and requiring only input data a farm manager would typically have easily to hand.
- The use of robust, deterministic site sensitive, peer reviewed models and methods to calculate greenhouse gas emissions, carbon sequestration and other environmental impacts of agricultural activities.
- Uncovering in a practical and pragmatic way, practices and actions which are associated with positive (and negative) environmental performance.
- By utilising the tool to support Scope 3 greenhouse gas calculations, companies can track greenhouse gas emissions across their supply chain.

The Cool Farm Tool is used by tens of thousands of users in over 150 countries supplying global markets.











Chair welcome

Dear Cool Farm Alliance Members,

I express sincere gratitude for your ongoing support to the Cool Farm Alliance, which has been instrumental in fostering a vibrant and diverse membership.

Together as members, academics, farmers and partners, we wield the unique power to implement better farming practices and build resilience amidst climate changes, collapsing natural systems, and disrupted supply chains.

In 2023, Richard and the team have dedicated efforts to advance the Cool Farm Tool, strengthen internal and external engagement, and ensure robust financial control, leading to continued Alliance credibility and growth.

Challenges encountered with the release of Cool Farm Tool v2.0 underscore the necessity to redesign the underlying architecture. This has highlighted the need for the development of the Cool Farm Platform and the Perennials GHG Pathway, with future plans to migrate the Cool Farm Tool. More resources are allocated to refining calculation methodologies and enhancing the development processes.

However, the pace of this change needs continued support from members. Our ambitions for 2024 and 2025 need to accelerate the implementation of the new Cool Farm Platform, and so the creation of an accelerated development fund will be key to our future success.

As a Board, for 2024, we have set a key priority for the Alliance to focus on strengthening **Trust** in the Cool Farm Tool. This is underpinned by:

> **Regulatory and Standards Alignment** Deliver consistency to GHG Protocol Land Sector Removals Guidance (LSRG) and Science Based Targets Initiative (SBTi) Forest Land and Agriculture Guidance (FLAG) as part of the Cool Farm Platform upgrade and v3.0 methods release. Identify and plan for consistency to other key International Standards to follow on from v3.0 release (to ensure relevance) of CFP as a Monitoring, Reporting and Verification support tool).

> Credible, usable CFP delivering key science, strong methods and accessible user functionality. Implement robustly with support and easily actionable insights for farmers and in line with members business needs. Use this to drive adoption, scale and impact.



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Diversity, representativeness and outreach reflecting our CFA membership, serving key stakeholders, in particular farmers, to enable positive impact.



Transparency – demonstrate inclusive and consistent governance and processes, maintain breadth of interests and voices that inform our work, greater visibility and communication of priorities, decisions, timelines, and incident tracking and resolution.

As we transition to the new platform, active member support is crucial to establish the Cool Farm Platform as the primary hub for effective compliance reporting. Amidst climate challenges and evolving supply chains, our focus on implementing better farming practices remains paramount. The Cool Farm Alliance plays a key role in supporting members for long-term sustainable growth and transformative capabilities in agriculture.

Your engagement signifies not just financial support but a collective commitment to building a resilient, thriving Cool Farm community. Let us unite as a membership, bringing diverse perspectives from across the food system to aid the Alliance's transition and provide the tools needed for impactful change. Thank you for your unwavering dedication to our shared mission.

Best,



Acting-Chair **Tobias Bandel** Chair CFA Supervisory Board





Chair welcome 4

CEO welcome

It has been another great year for the Cool Farm Alliance, with continued growth in members, a more resilient financial foundation and improved support and engagement activities and services. Tempered by technical issues with the Cool Farm Tool v2.0 release and an out-dated architecture foundation of the CFT. For 2024 and into 2025, we now set our sights on a robust new Cool Farm Platform (CFP) and the next round of development to deliver consistency with the GHG Protocol Land Sector Removals Guidance (LSRG).

In 2023, the Cool Farm Alliance strengthened our governance structure, through the expansion of the Board to nine members, ensuring a more diverse representation of our membership. The Terms of Reference (ToR) for both the Member Advisory Council and Science Advisory Council were updated to reflect their key roles in Alliance governance.

Engagement & Learning initiatives flourished in 2023, featuring the return of our face-to-face Annual Event, the launch of the Certified Advisor Programme, and the establishment of a Cool Farm Knowledge Base (KB) and Learning Portal (LP). These initiatives were complemented by a series of Thought Leadership webinars, a website update, external engagements with organisations such as WBCSD, WWF and OECD, as well as participation in events like the Low Carbon Agriculture Show and Groundswell. These have all contributed to enhancing the Alliance's global reach and reputation.

The delivery of CFT v2.0 saw notable improvements in calculation methodologies, aligning core Greenhouse Gas (GHG) calculations for crops, dairy, and beef with IPCC 2019 standards, upgrades to our N_20 and soil carbon (SOC) models, regionalisation and enhanced disaggregation of results through the API's. The Alliance also forged a strategic partnership with Cirevo, paving the way for the Cool Farm Platform to replace the aging Cool Farm Tool. Notably, the new Perennials GHG Pathway prototype has entered member testing in early 2024.

Challenges surfaced in 2023 with bugs in the CFT v2.0 release that adversely impacted a number of our members. We thank them for their patience as we resolved these issues. The Alliance responded with transparency and accountability, striving with a commitment to learning and improvement. As we move forward, the science and methods team will now oversee the creation of calculation components for the new platform, and revised development processes now adopt a more cautious approach to timelines and budgeting. We will also increase engagement with working groups for rigorous testing. As we move forward to 2024, our priority will shift to the development of the Cool Farm Platform as the replacement for the Cool Farm Tool in order to bring greater resilience and reliability to our tools.

Financially, the Alliance experienced growth in membership, with a 14% net increase in members and notable API licensing uptake, resulting in an overall revenue increase by 56% from the previous year and 3% ahead of plan.

Looking forward to 2024, a priority is further enhancing diversity on the Board and broader community representation, particularly with farmers. The establishment of a Farm Advisory Board in collaboration with the Future Food Movement will serve as a vital engagement channel, reflecting the Alliance's commitment to strategies for inclusivity and diversity. Strengthening trust in the Alliance and the Cool Farm Platform will be our primary focus as we deliver consistency to the new GHG Protocol LSRG.



CEO **Richard Profit** Cool Farm



Cool Farm priorities

Alignment of core workstreams with Supervisory Board priorities

At the close of 2022, we identified five **core workstreams** to steer and concentrate our efforts.

Looking ahead one year, under the guidance of the Supervisory Board, we have collectively determined that the single top-level priority for Cool Farm is to build **Trust.** This priority is supported by four key areas 1) Transparency, 2) Diversity, representativeness and outreach, 3) Regulatory and Standards Alignment, and 4) Credible, usable Cool Farm Platform, as illustrated below:



Cool Farm Alliance High-Impact Hub

Cool Farm Tool Science and Methodology

Robust highquality future fit Cool Farm Platform

Transparency, Diversity, representativeness and outreach Regulatory and Standards Alignment, Credible, usable Cool Farm Platform, Transparency Credible, usable Cool Farm Platform, Transparency





Establish a range of training and advisory services

Diversity, representativeness and outreach, Credible, Usable Cool Farm Platform Highly effective Secretariat team

Diversity, representativeness and outreach, Transparency



Supervisory Board and Secretariat

Meet the Supervisory **Board & Secretariat**

Supervisory Board

In 2023, Andre Eitner made the difficult decision to step down from his role as the Supervisory Board Chair of the Cool Farm Alliance. In accordance with our Supervisory Board governance document, the Board took necessary measures to ensure the organisation's continued smooth operation, appointing Tobias Bandel as Acting-Chair until our 2024 Annual General Meeting. Furthermore, we acknowledge Giulia Stellari's departure from her role and warmly welcomed three new Board members, Sarah Lockwood from Danone, and Andrew Voysey from Soil Capital and Tobias Bandel from the Landbanking Group



Acting-Chair **Tobias Bandel** The Landbanking Group



Vice-Chair **Graham Mullier** Syngenta



Science Engagement **Frank Brentrup** Yara



Farming Mateusz Ciasnocha



Community **Eduard Merger** Solidaridad Network



CEO **Richard Profit** Cool Farm



Sarah Lockwood Danone



Andrew Voysey Soil Capital

Secretariat

Maintaining steady membership growth, the Secretariat remained unchanged in 2023. However, we are pleased to announce the addition of three new members to the team in 2024 to further strengthen our position.



Daniella Malin Head of Impact and Collaboration



Richard Profit CEO



Michaela Aschbacher Training and **Consulting Manager**



David McMahon Product Manager



Kirsten Crutchley Finance and Admin Manager



Megan McKerchar Science & Methods Manager



Charlie Curtis Head of Agronomy and Environment



Nina Fischer Yargici Membership Manager



Emily Durrant Programme and Impact Manager



Adam Slate Technical Manager



Kandia Appadoo Communications Manager



Honor Leyshon Project Support Officer





Cool Farm Alliance members

Growth in membership

Cool Farm's success is significantly influenced by our members, who strive to drive positive environmental impact in agricultural supply chains.

We welcomed 33 new members to make the tool even more fit for purpose and drive positive change. Despite our best efforts, 22 members decided to leave the Cool Farm Alliance. Nevertheless, we are using this feedback to gain a deeper insight into our members.

New members

By member profile



Total members

By member profile



By membership tier

- 22 Small member
- 5 Large member
- Corporate Brand member 3
- Corporate Group member 2
- Medium member



New members

38	Food & Beverage Company	
26	Consultancy	By membership tier
14	NGO	71 Small member 32 Corporate member
13	SaaS	22 Large member 17 Corporate Group m
13	Agribusiness	13 Medium member
10	Agtech	
9	Agricultural Initiative/ Network	
9	Food & Beverage Trader	
7	Carbon Credits	
6	Fertiliser producer	

- **Chemical Company** 5
- **Financial Institution** 4
- Water supply company



Members 14% vs 2022

Growth in membership **8**



orate Group member

Cool Farm members (as of December 2023)





Our members 9

Cool Farm Tool - global user distribution

2023 performance in numbers



Cool Farm Tool

Operating at both ends of the supply chain, the Cool Farm Tool empowers farmers with knowledge and helps corporate buyers understand where and how to support change.

WebApp Users

14

38,633 +30%

Assessments

+47%

Countries

+5%

-9%

157

API Connections

Asia and Oceania

B3%

Cool Farm Tool - global user distribution 10





Accounts Summary

Cool Farm Alliance Annual Accounts Summary 2023

Our 2023 financial performance finished in a stronger position than originally planned. Driven by membership growth and successful uptake of the new commercial API licencing, it resulted in less drawdown from our reserves than forecasted. Rephasing of some of the Perennials development budget to cover the final testing phase in 2024 resulted in 3% saving in total expenditure versus planned.

Our investment in the Cool Farm Tool (CFT) resulted in the delivery of the upgrade to CFT v2.0, bringing with it improvements to the N₂0 and SOC modelling, as well as regionalisation functionality and desegregated results for emissions and removals in the API calls. However, the upgrade to CFT v2.0 highlighted the challenges with the aging CFT architecture as several of our members experienced functionality errors.

The member funded development of a new Perennials Pathway for Cool Farm has been built in a new architecture platform and moved to member testing early in 2024. This platform will become the Cool Farm Platform (CFP), and the core development activity for 2024 will be to migrate the existing Cool Farm Tool onto the new stable platform.

As in previous years, we were again able to claim research and development tax credits for our ongoing innovative work in translating science for practical application into the CFT, which in turn we are able to reinvest back into our core reserves for future deployment.

Our plans for 2024, see us invest in more staff capability, bringing more capacity to product development with a new Methods Modeller and Platform Engineer to support the new CFP; and a new Member Services Officer to bolster our frontline support to members.

We will focus our development efforts to stabilise the existing CFT, whilst we continue to build the CFP and migrate the CFT v2.0 methodology into the new platform. We have made a call to members to provide additional project funding support in order to accelerate the pace of development. With this funding we will be able to invest an additional £750,000 into 2024 development and an additional £250,000 in 2025. This will enable us to hit our planned target of delivering a Cool Farm v3.0 methods upgrade and consistency with the anticipated GHG Protocol Land Sector Removals Guidance by the end of Quarter 2 2025, the budget for this is reflected in the 2024 Accelerated Development column.

With the significant investment budgeted for 2024, we plan to maintain an appropriate contingency reserve, reflected in the table in the YE P&L reserve row, which will be deployed to respond to unforeseen challenges to our planned activities, or otherwise move to our core reserves for future deployment.

Accounts Summary

Cool Farm Alliance Annual Accounts Summary 2023

	2023 Plan	2023 Actual	2024 Plan	2024 Plan Accelerated Development	Comments
Income					
PY Reserves brought forward	£ 361,075	£ 361,075	£342,560	£342,560	
Membership Fees	£1,504,261	£ 1,545,927	£1,926,918	£1,926,918	Growth in membership at higher t and inflation fee increase for 2024
Other funds	£578,481	£ 595,358	£826,040	£1,576,040	Includes Dreamfund, AGM revenu Licencing, Member Project Contri Training Services
Draw down from Reserves	£218,244	£18,515	£0	£0	None planned for 2024
Total Income	£2,300,986	£2,159,800	£2,752,958	£3,502,958	
Expenses					
Technical Sub-contractors	£253,228	£207,588	£254,908	£484,908	Science & methods subcontractor & project management
Technical Product Development	£981,443	£916,696	£761,709	£1,281,709	CFT/CFP maintenance and develo
Management Costs	£709,342	£715,959	£836,870	£836,870	Secretariat staff including new hir
Operational costs	£356,973	£384,801	£617,087	£617,087	AGM costs, CPD, professional fee & employment taxes, recruitment travel, subscriptions.
Total Costs	£2,300,986	£2,225,044	£2,470,574	£3,220,574	
Net R&D Tax credit benefit		£65,244	ТВС	TBC	
YE P&L reserve	£0	£0	£282,384	£282,384	Annual Contingency reserve
YE Reserves Carry forward	£142,831	£342,560	£624,944	£624,944	Core reserves, uplift reflecting un Annual Contingency Reserve.







2024 Accelerated Development Plan





Expenses













Cool Farm



Here are some highlights from 2023:

Annual Event

On a sunny day in May, Cool Farm held its first in-person meeting since 2019. Over 150 people gathered for two days of workshops, discussion and problem solving at the Cool Farm Annual Event. <u>See page 23</u> for more information.

Cool Farm Tool v2.0 Release

In April 2023, we delivered the second major upgrade to the methods of the CFT. This was a very ambitious piece of work requiring 4,754 hours of development work spread more than 200 tickets.

While we take pride in the value incorporated into this upgrade and its timely deliver, we acknowledge that the upgrade wasn't as smooth as we had hoped. We encountered a few issues, from which we have learnt valuable lessons, including:

- To meet the deadline, additional resources were brought in, resulting in overspend and underfunding later in the year. We have implemented tighter finance tracking, with monthly reviews of spend to date and forecast against budget.
- Recognising the difficulty in transferring knowledge from science to development, our future approach involved the methods team directly writing the methods into the code base of the Cool Farm Platform (CFP).
- Member engagement is essential for effective testing, and we recognise the need for more input from members in future.
- Acknowledging that pre-deployment testing can always be improved upon, we have now written unit tests into all new scientific methods. This ensures that when methods are worked on in future new code cannot be pushed to production if the unit tests do not pass.

External Engagement

Cool Farm reached a noteworthy achievement with the launch of its "Thought Leadership" series, a significant first for the organisation.

During 2023, Cool Farm took an active role in the WBCSD Regenerative Agriculture, focused on the climate metric.

This included help in drafting the Terms of Reference and contributions to the report: "Business guidance for deeper regeneration -> Regenerate Agriculture Metrics: Climate <u>chapter</u>". Case Study 1 on page 18 of the report highlights the Cool Farm Tool.

For more information about our External Engagement in 2023, see page 24.

Greenhouse Gas Protocol Alignment

With support from 3Keel, the Cool Farm team studied the following three key pieces of guidance documents on how to account and set targets for emissions from land use:

- 1. The GHG Protocol (GHGp) Land Sector and Removals Guidance (LSRG)
- 2. The Science-Based Target Initiative's (SBTi) Forest, Land and Agriculture Guidance (FLAG)
- 3. The SBTi Net Zero guidance.

By July, Cool Farm were in a position to release a report along with an executive summary. that detailed three main aspects; discrepancies between the CFT and the recently proposed LSRG, aspects that are beyond the tool's scope boundaries, and new functionalities that are within the tool's scope and are planned to be in scope of CFT 3.0.



For additional details or to access the complete report or executive summary, please click here.

Incident Reporting

One of the focus points for the Cool Farm Secretariat in 2023 was to create a smoother and more efficient support process. This included the onboarding of a help desk app and Knowledge Base, as well as the definition of a Major Incident Support process with structured roles, SLAs and communication channels to keep members informed of active incidents, timelines and lessons learnt.

Knowledge and Literacy

This year, knowledge and literacy was all about engagement. We connected with members, farmers, and allies, spanning from the fields of rural England to late-night sessions with members in Tokyo and Chicago, as well as early morning calls with users in New Zealand.

It was fulfilling to meet the wider membership and provide support throughout. The joy of connecting with a diverse audience and being a supportive presence defined our year.

Launch of the Cool Farm Learning Portal

For the first time, Cool Farm Alliance members received access to an exclusive, dynamic learning platform that empowers them with a wealth of insightful resources curated by both Cool Farm and Future Food Movement (FFM). See page 21 for more information.

Perennial Assessment Pathway

Member-funded work to translate the perennial methodology and prototype tool into a new perennial assessment pathway made remarkable progress, ready for member testing at the start of 2024. This is a huge milestone for our Cool Farm community.

We are grateful to the sponsors of the Perennials project for their support and continued engagement. When Cool Farm Platform lands at the end of Q1 2024 we will have in our hands we believe to be the foremost perennials carbon emissions calculator for global agriculture. See page 20 for more information.







MAC year overview

Cultivating Collaboration: Reflecting on a Productive Year with the Member Advisory Council

The purpose of the Cool Farm Member Advisory Council (MAC) is to act as the primary conduit through which the members' voice, collectively, reaches the Cool Farm Secretariat and Supervisory Board. In its first full year of existence the MAC Participants did a fantastic job at building up momentum toward that joint purpose.

The MAC held five meetings throughout 2023, roughly every two months, to build up momentum within the first full year. The second meeting of the year took place face-to-face at the Cool Farm Annual Meeting.

Initially, the MAC was set up with Chair Eduard Merger from Solidaridad, six CFA member representatives, as well as various Cool Farm Secretariat members. Throughout the year the MAC lost one of its participants, Andrew Voysey who moved to the Cool Farm Supervisory Board, and gained two new members, Cristian Terrones from ICL representing the Soil Consortium and Namy Daniela Espinoza Orias from Nestle representing the Perennials Working Group.

Inaugural activities of the MAC included defining its Terms of Reference including its purpose, functions (strategic, administrative and added value), structure, appointment and roles, ways of working as well as decision making authority.

Other significant activities and achievements of the MAC throughout 2023 included:

• Execution and analysis of a CFA member survey to understand member interests and satisfaction. The purpose of this survey, which is intended to be renewed annually, was to help focus the MAC's energy based on members' interests and to keep a pulse on membership and have a metric to track progress over time - in member

interest, engagement, and satisfaction. Enhancements to the 2023 survey design have been identified and will be applied to the 2024 CFA members' survey.

- Analysis of existing CFA membership makeup to understand what kind of members (size and profile) there are, how engaged they are, and what potential gaps should be filled to address a lack of diversity.
- Structuring and connection of Cool Farm working groups. Including the creation of Terms of Reference for all active groups, removal of non-functional groups from the Cool Farm governance structure, monitoring of participants lists and attendance. As well as regular updates from working group chairs about current activities in order to join efforts with other groups wherever possible.
- Definition of a simple and transparent member channel prioritisation flow as part of the Cool Farm Agile Portfolio Management (APM) process for filling the Cool Farm Platform development pipeline.
- Linking the Supervisory Board priorities for the next years to CFA members' needs in balance with the Cool Farm Secretariats' resources.

The MAC also looks forward to playing a more active role in facilitating the 2024 Cool Farm Annual Event.



Eduard Merger Chair Solidaridad



Nina Fischer-Yargici Co-Chair **Cool Farm**



Kandia Appadoo **Comms Secretariat** Representative Cool Farm



Khaoula Essoussi Dairy & Beef Working **Group Representative** Danone



Caitlin McCormack Biodiversity Working Group Representative 3Keel





David McMahon

DevOps Working

Cool Farm

Group Representative

Brandy Wilson Independent Representative Simplot



Namy Daniela

Espinoza Orias

Nestle

Perennials Working

Group Representative

Peter-Erik Ywema Independent Representative Avebe



Adam Slate

Cool Farm

Working Group

Representative

Technology Partners

James Holmes Independent Representative Unilever



Cristian Terrones Soil Consortium Representative ICL



Dr. Megan McKerchar Science Advisory **Council Representative** Cool Farm









Science Advisory Council

A year of collaboration, innovation and planning

The Cool Farm Science Advisory Council (SAC) convenes bimonthly to review science and methodological progress in the cool farm. The council guides our journey in refining robust, globally-aware methodologies for sustainable agriculture. This assembly underlines our collective expertise and dedication to scientific excellence and stakeholder engagement for the year ahead.

Our 2023 journey has been one of collaboration, innovation, and meticulous planning. The Science Advisory Council (SAC) meetings throughout the year have been instrumental in shaping our approach and refining our methodologies. From the update of our method policy and advising the need of a regionalisation policy and improving data validation and user guidance, every action has been taken with a view towards enhancing the reliability and applicability of our calculations and processes.

The composition of the Science Advisory Council has evolved: we bid farewell to Dr. Murray Gardener and welcomed Dr. Piet van Asten and Prof. Horacio Gilabert Peralta, whose expertise expands our horizons into the realm of forestry.

A pivotal focus has been the Methods Plan for 2024, anticipating a budget allocation for subcontractors and nearing completion of the soil organic carbon model. The upcoming Cool Farm Platform 3.0 is set to fill existing



Dr. Frank Brentrup Science Engagement Yara



Dr. Megan **McKerchar** Science & Methods Manager Cool Farm



Julia Chatterton Researcher Unilever



Dr. Sat Darshan Khalsa Researcher & Tree Agronomist



Dr. Jan Peter Lesschen Senior Researcher Wageningen Environmental Research

gaps in line with the GHG Protocol Land Sector removal guidance, with a comprehensive SAC review of all new methods targeted for completion by Summer 2024. These efforts underscore our commitment to scientific rigour and reflect our readiness to adapt and incorporate new data and uncertainties into our methodologies.

The SAC's increased involvement in reviewing methods and highlighting sensitive data points stand as a testament to our commitment to transparency and user support. As we look to the next year, we're not only focusing on methodological enhancements but also on elevating our stakeholder engagement, with plans to spotlight our activities in the Cool Farm newsletters but also increase the SAC's visibility on our website.

Concluding the year with an annual meeting set for April 2024, we're poised to consolidate our progress and set new benchmarks for excellence in sustainable agriculture. Our resolve to provide the most current and impactful methods remains as strong as ever, underpinned by a collaborative spirit and a global awareness of the diverse challenges faced by the agricultural sector.



Dr. Piet van Asten VP - Head Sustainable Productions Systems OFI



Dr. Dali Rani Nayak **Research Fellow** University of Aberdeen



Prof. Eduardo Arellano Associate Professor Universidad Católica de Chile



Prof. Lynn Dicks Professor of Ecology University of Cambridge



Prof. Quirine Ketterings Animal Science, Cornell University



Associate Professor Pontificia







New Cool Farm Alliance members

Empowering Collective Action: A Year of Growth

The Cool Farm Alliance experienced remarkable growth in its membership, witnessing a healthy increase in 2023, with 33 new members joining. Within our dynamic community, members collectively embrace the vision of the Cool Farm Alliance. Discover firsthand the motivation behind joining the Cool Farm Alliance as shared by some of our newest members.

Intersnack's theory of change

"As part of our SBTI commitment we recognize that scope 3 is one of our major challenges to meet the objectives of the Paris Agreement. We are therefore setting up a Sustainable Agriculture Program which will drive the reduction plans within priority agricultural commodities. We see the Cool Farm Tool as a key building block in securing data , measurements and tracking of reduction. In addition we see opportunity to engage in pre-competitive learning and knowledge exchange with like-minded companies."

Technoserve's theory of change

"The Cool Farm tool provides a rigorous methodology for TechnoServe's impact and progress evaluation for our Regenerate30 commitment to cut 30 million tons of greenhouse gas emissions. By 2030, we also aim to improve the resilience of 30 million people, increase average incomes by 30%, and place 30 million acres of land or water under strengthened protection, management or restoration. We put farmers and small businesses at the heart of a people, nature, and climate positive world."

HowGood's theory of change

"HowGood is an independent research company with the largest database for ingredient and product sustainability. Drawing from over 600 verified data sources, HowGood's research team utilises LCA studies from peer-reviewed journals when they are available and pass HowGood's data quality criteria. For many food ingredients, however, there are no available high-quality LCAs; in these cases, as a service provider and partner, we would like to offer our customers the ability to model farm-level metrics from the input data they gather.

Once the Cool Farm Data Output is verified by Control Union we would like to display that information in our database with due credit to the Cool Farm Tool. Additionally, we will offer our customers the possibility of modelling the GHG metrics for the remaining product lifecycle. As a result, more companies will be able to access Verified Cool Farm data and compare it on a like-for-like basis with data from LCA studies, helping democratize access to high quality sustainability data to inform strategic decision-making."









New Cool Farm Alliance Members 17

Materra's theory of change

"Materra is highly interested in Cool Farm and Cool Farm Tool for the following reasons:



Integration into sustainability strategy: CFA / CFT aligns with our sustainability strategy by providing a standardised approach to measure and manage environmental impacts. Using the CFT and its API for calculations, we can accurately assess our carbon emissions and water usage, enabling informed decisions to minimise our environmental footprint.



Finding allies: Joining the CFA allows us to connect with like-minded organisations in the agricultural sector. By collaborating within the alliance, we can leverage collective knowledge, share best practices, and contribute to developing sustainable cotton farming solutions.



Impact assessment for smallholder/regenerative farming: We aim to enhance impact assessment methodologies for smallholder and regenerative farming systems. By collaborating with the CFA, we can contribute our expertise to refine and expand the impact assessment capabilities of the CFT, ensuring its applicability to diverse farming practices with granularity.

Our theory of change centres on integrating the Cool Farm Tool into our sustainability strategy to achieve the following:



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Quantify and optimise environmental impacts: The CFT enables us to measure environmental impacts accurately, identify areas for improvement, and optimise our farming practices to minimise our ecological footprint.

Drive positive change in the cotton industry: Through active participation in the CFA and collaboration with stakeholders, we aim to promote sustainable cotton farming practices, share experiences, and advocate for regenerative and smallholder farming, inspiring positive change across the industry.

Key to benefiting from this, especially in the arena of accessing new funding such as the government's Sustainable Farming Incentive (SFI), is the ability to measure and report information related to natural capital. Frontier's farm management platform, MyFarm, equips farmers and their Support the transition to future-proof cotton farming: advisors with the ability to capture vital data, while the Cool Our ambition is to transition towards resilient, Farm Tool adds further value through additional reporting sustainable, and economically viable cotton farming and monitoring. By providing access to this kind of insight, practices. By leveraging the CFT and the knowledge we can support all parts of the supply chain to make more shared within the CFA, we can continuously improve informed decisions that contribute to reducing agricultural operations, adopt innovative technologies, and emissions and access emerging funding opportunities." implement regenerative farming practices for longterm sustainability."

Welcome to our 33 new members (in date order of joining)

- Sustainable Agriculture Network
- Trustea
- Nature's Pride
- Pinion
- Nuveen Natural Capital
- GreenoSoil AG
- Ostrom Climate Solutions (Canada) INC
- Regenagri CiC
- Frontier Agriculture

- Wiuz
- Biospheres
- Doktar
- Materra
- HowGood, Inc.
- Corteva Agriscience (Pioneer Hi-Bred International Inc.)
- Croptimistic Technology Inc.
- Lasso Solutions Inc.

- Bunge Alimentos S/A
- Campbell Soup Company
- Auravant Corp SL
- UK Tea & Infusions Association (together with Tea and Herbal Association of Canada)
- Intersnack (incl. KP Snacks)
- Downforce Technologies Limited
- Catholic Relief Services (CRS) Latin American and Caribbean Regional Office
- Fundacion Aliados

Frontier's theory of change

"At Frontier Agriculture we connect arable farmers and grain consumers/food manufacturers to build and advance mutually beneficial supply chains.

Through our team of agricultural experts, we help our customers to better understand how and where emissions are generated during food production, and where improvements to land management, on-farm activities and supply practices can be made as a result.



- Yagro Ltd
- Root Global GmbH
- Purity Coffee Farms
- TechnoServe Mexico
- Pure Strategies
- Livelihoods Venture SAS
- Plataforma Puma
- SLM Partners

155 Cool Farm Alliance members

(at the end of 2023)



Working Group summary

Building alliances through our Working Groups

Beef and Dairy Working Group

The Dairy and Beef Working Group is comprised of Cool Farm member businesses that have common interests in these modules of the Cool Farm Tool, and a desire to work together to maximise knowledge exchange and jointly refine the use of the Cool Farm Tool. This is the longest running Working Group and was established in 2016 to shepherd a major revision to the dairy and beef pathway. The group has grown significantly in the last year with good participation from a range of new members. We continue to work on identifying and developing a more comprehensive manure management approach from deposition, through storage to application. Guidance is also in development for making best use of the existing functionality around manure storage and understanding the IPCC categories used in the CFT.

In addition there has been increasing focus on encouraging members to share their experiences of decarbonisation in cattle systems to support others in their decarbonisation programmes.

Biodiversity Working Group

Throughout 2023, the Biodiversity Working Group engaged in various discussions and actions aimed at enhancing biodiversity considerations within the Cool Farm Biodiversity Metric (CFBM). The group agreed on incorporating both improved guidance and results in the CFBM, emphasising the importance of context in biodiversity results to help users understand their scores and identify improvement opportunities. However, this work has not yet been prioritised due limited resources. Additionally, there were deliberations on how to effectively communicate results and the "So What?" of biodiversity assessments, aiming to provide clear, actionable insights for users. The API and tropical projects moved forward with discussions on funding, while the potential inclusion of ecotoxicity as an optional module was considered. The group also reviewed the Biodiversity Performance Tool (BPT), discussing its role in farm-level biodiversity management and action planning. The year's discussions highlighted the group's commitment to evolving and refining the biodiversity components of the CFBM, with a focus on practical tools and advice for farmers and stakeholders.Looking ahead, we will be looking at requirements for when we migrate the metric from Cool Farm Tool To Cool Farm Platform in the future.

We would like more of our members to participate in our working groups. If you would like to participate please get in touch with support@coolfarmtool.org

Greenhouse Gas (GHG) Protocol Working Group

The GHG Protocol Working Group was established in 2023 in response to the draft Land Sector Removals Guidance (LSRG) guidance published in 2022. The group focused on refining ways of working, including prioritisation processes and Terms of Reference, to ensure efficiency and alignment with broader CFA goals. The group discussed updates on CFT reporting, particularly the prototype of result disaggregation. The importance of flexible reporting, tagging within farm boundaries, and addressing missing data was discussed. Additionally, the group explored approaches to carbon credit reporting, debating the tool's role in indicating whether credits have been issued or sold, underscoring the need for simplicity and user utility in reporting mechanisms.

The group engaged in deep discussions on Land Use Change (LUC) accounting methods, emphasising the need for linear discounting options to comply with Science Based Targets Initiative (SBTI) requirements. Challenges in data collection, particularly the use of satellite imagery for land use change, were explored, though deemed currently beyond scope. Efforts to align with SBTI guidance, data quality and further refine scope boundaries and transport emissions tagging were prioritised for future meetings.

Soil Consortium Working Group

In 2023, the Soil Consortium progress was made in soil organic carbon (SOC) modelling, examining differences between various tiers and planning for a new process-based model. The consolidation of annual and perennial working groups was a significant step towards unified methodologies. Additionally, the importance of soil health was emphasised, with regular meetings established and an ongoing project with the University of Edinburgh and Syngenta underway, aiming to advance soil health assessments accessible to farmers worldwide.

The group discussed the regionalisation of methods, specifically regarding emission factors relevant to Australian dryland farming. The Consortium considered various strategies for implementing regional emission factors, including user selection of country-specific factors and a dialogue option for advanced users to input their data. Moreover, the group acknowledged the need to communicate clearly which factors were used in reports and considered how these strategies could be scalable to other climate differences and agricultural factors.

The group also revised the soil roadmap, targeting the prioritisation of critical topics the group intends to delve into over the forthcoming 2-3 years.







Perennials Working Group update

Perennial Crop Carbon Assessment: 2023 Progress Report

In 2023, significant progress was made in the design and build of the new perennials carbon assessment in the Cool Farm Platform (CFP). Cool Farm worked closely with our excellent technical partner Cirevo to bring the calculations from the science and prototype to our new CFP.

The enhanced perennial crop carbon assessment brings to life several sought-after features:

- Enhanced residue management options
- Multiple residue types
- New intercrop and shade species
- Land use change to/from agroforestry/monoculture
- Establishment period amortisation
- Life cycle view of carbon impact

The decision to deliver the perennial crops assessment on the CFP was not the original plan, but as the CFT faced challenges and began to creak a little, it became clear that building perennials into the CFT carried too many risks. Therefore, perennial crops took the spotlight, becoming the first assessment pathway delivered on the CFP. This introduced significant scope-creep on an already significant project. Not only was the whole platform to be built, but we also needed to translate and build all of the crop generic calculations (those also used for annual crops, such as transport and water use) into the CFP.

As we began to analyse the perennial prototype tool ready for translation, we discovered several methodological issues, some of which had been carried forward from the original research. We sought expert support* in correcting these which took several weeks and diverted the attention

Perennial crops took the spotlight, becoming the first assessment pathway delivered on the CFP.

of some of the team at Cirevo, further impacting the software The Perennials Working Group, chaired Namy Espinoza Orias, With all of the challenges development schedule. Despite the temptation to cut corners met for the first time in May. The working group has met four the perennials project for a timely delivery (which was tempting!), a decision was times in total, bringing together 30 members across at least made to introduce a more rigorous testing protocol, further 40 perennial crops. As the perennial pathway is launching faced we are extremely delaying the delivery. We stand by this decision, as we with six crop options, followed closely by the addition of understand that quality and reliability are paramount and almonds, we have work to do as a group to bring more onto proud of where we arrived have now introduced more rigorous testing into our standard the tool. The Perennials Working Group has been a great development protocol. support to the development of the perennials assessment by the end of 2023. pathway already and is ready to go on joining us for the The original plan allowed for member testing from November period of intensive member testing.

The original plan allowed for member testing from November of 2023, prior to the final CFP (perennials) launch at the end of 2023. Instead, we ended the year with a complete API calculation in the CFP and the foundation of the user interface built. Internal and expert testing began in autumn of 2023, with member testing scheduled for the start of 2024. With all of the challenges the perennials project faced in mind, we are extremely proud of where we arrived by the end of 2023.



*With thanks to Annette Pronkt, Wageningen Uni



The Learning Portal in numbers Since August, we're launched:

of the events were hosted by the Cool Farm

Cool Farm training videos

events have taken place

active standard uses

31 articles

active premium FFM users (of 220 that have or have been signed up)

Training and Consultancy update

Cool Farm Learning Portal: A home for knowledge, resources and climate expertise

Developing a credible, simple tool to assess Greenhouse Gasses, Biodiversity and Water is a highly complex process, as it is based on a multi-layered scientific and technical foundation. However, it is no less difficult to ensure that the users of such a tool understand how it works and how they can implement it successfully. The Cool Farm Learning Portal is a comprehensive instrument for achieving this goal.

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If you have knowledge, let others light their candles in it."

Margaret Fuller.

The portal has two user categories – standard and premium - with its unique set of content privileges. Whilst we are busy At Cool Farm, transparency and knowledge-sharing is key. creating content around the Cool Farm Tool and future-We believe it is essential that the methodology behind the Cool Farm Tool is fully transparent – which is why we made it proof solutions that build on it for standard users, we have openly accessible to anyone directly in the tool. In the same partnered with the Future Food Movement (FFM) – a digital way we are constantly seeking to equip our members with movement and platform that seeks to strengthen the climate useful resources, inspire them with new insights, and to build competency of the food industry workforce. Their extended knowledge and a unified language around carbon accounting. environmental and social climate literacy content is provided This has to go beyond the tool, as the understanding of to a number of selected premium users of each CFA member. trending concepts like "Net-Zero" and Sustainable Diets can Additional employees can upgrade their standard access to a be very different or often lacking. FFM membership within the Cool Farm Learning Portal.

In 2023 we built a home that accommodates all these knowledge needs, a unique space that bridges the gaps. In August, we proudly launched our new Cool Farm Learning Portal, a bespoke online learning platform exclusively designed for Cool Farm Alliance members to upskill and be inspired. Members can discover Cool Farm Tool training videos, community events, articles, guidance notes, our member discussion forum and much more – all conveniently located in one place. And the Learning Portal goes beyond carbon measurement.

Members and new joiners can find the recordings in the on demand section which already holds over 50 events. This includes Cool Farm's webinar series around the CFT 2.0 upgrade, our Thought Leadership webinars (see page 24 for more information) with practical, innovative solutions and learnings around farmer incentives or the dairy sector, or an Ask the Expert session on how biodiversity frameworks can help design a nature-positive world. Member users with premium access can also watch expert-led practical masterclasses and events on human rights, ED&I, climate and nature risk, regenerative food systems, next gen consumer insights, sustainable sourcing and sustainable diets.

Looking ahead

The new year will not only bring new training videos, but also events tailored to the needs of our members - expect new Thought Leadership webinars, member learning huddles on regenerative agriculture, support sessions and our newest Farmer Advisory Board (see page 22 for more information). It will also be the year to work hard to add value and increase adoption and engagement within our membership.

"In 2024, we're strengthening our mission by partnering with Future Food Movement to broaden the climate conversation for Cool Farm Alliance members. Leveraging their deep knowledge, we aim to provide a critically informed perspective on climate solutions, to support industry resilience.

While our Cool Farm Tool quantifies environmental impacts, our new Farmer Advisory Board is a game-changer, enabling informed decision-making and building an open dialogue between farmers and food businesses."

Richard Profit, CEO of the Cool Farm



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Training and Consultancy update

Introducing the Farmer Advisory Board in **Collaboration with FFM**

Farmers are essential for their practical insights and firsthand experience, ensuring that our decisions are grounded in the realities of agriculture. Their inclusion fosters a more informed and relevant approach, vital for addressing challenges and shaping successful strategies within the agricultural sector.

Our members shared that they wanted more farmers involved and included, and we took that feedback to heart. We're thrilled to announce the launch of our Farmer Advisory Board this year, in partnership with Future Food Movement. The first meeting is taking place in January 2024, with subsequent meetings planning throughout the year. Keep an eye out for these updates in the regular CFA comms.

The board includes farmers representing a mix of backgrounds, including lamb, beef, dairy, cereals, and produce. Their role will be crucial in ensuring that the field's perspective is always considered when we make significant decisions and implement changes. We can't wait for you to meet them, and we're excited about the valuable insights they'll bring to the table.

Establishing a Farmer Advisory Board is crucial for several reasons:



Diverse Perspectives: Farmers bring diverse experiences. Their varied insights ensure a comprehensive understanding of the challenges and opportunities within the agricultural sector.



Informed Decision-Making: Farmers, being directly involved in the field, offer practical and firsthand knowledge. Including them in decision-making processes ensures that strategies and changes are well-informed and realistic.



Addressing Member Feedback: Creating the board responds directly to member feedback, demonstrating a commitment to meeting the needs and preferences of those involved with the Cool Farm Alliance.



Industry Representation: The Farmer Advisory Board serves as a representative body, giving a voice to the agricultural community. This representation helps align organizational decisions with the broader goals and concerns of the industry.



Strategic Planning: Involving farmers in strategic planning ensures that the Cool Farm Allaince's goals align with the realities and dynamics of the agricultural sector. It enhances the relevance and effectiveness of our tool and our initiatives.



Community Building: The establishment of the Farmer Advisory Board fosters a sense of community and collaboration. It creates a platform for open communication, trust-building, and a shared commitment to the success of the agricultural community.

In summary, the Farmer Advisory Board is an essential mechanism for inclusivity, practical insights, and community engagement, ensuring that oorganisational decisions are well-grounded and beneficial to the broader agricultural community.

It's your time to become a CFT super user!

Training available for anyone working with the Cool Farm Tool.

Certified Advisors excel in the Cool Farm Tool, not only mastering its use but also possess a deep understanding of interpreting data for practical on-the-ground actions. Their expertise ensures effective implementation, allowing farmers and advisors to make informed decisions for sustainable and impactful agricultural practices.

We proudly launched our Certified Advisor programme (CA) this year. This initiative aims to enhance the skills of technicians globally who work directly with farmers. The objective is to ensure that these technicians are adequately trained in using the Cool Farm Tool and equipped to assist farmers in collecting and measuring data related to their own GHG emissions.

We're thrilled to share that our Certified Advisor (CA) programme has exceeded expectations, receiving overwhelmingly positive feedback. Technicians globally have embraced the training, and the results showcase their enhanced skills in assisting farmers

with GHG emissions data. The success of the programme underscores its valuable contribution to promoting sustainable agriculture and reducing environmental impact.

"All members thought it was well run, the teachers were great, and content was valuable."

Marc Rakoczy, Suntory

Whether you are a member or not, if you're interested in becominga Certified Advisor and enhancing your skills to support farmers in managing GHG emissions, feel free to reach out to us. We welcome your enthusiasm and commitment to regenerative agriculture!

Get in touch here: learning@coolfarmtool.org

Charlie Curtis from the CFA Secretariat says 'We're excited about our goal for 2024 — expanding our Farmer Advisory Board globally. Currently comprising of only British farmers, this initiative aims to incorporate voices from around the world. We believe this will bring diverse, region-specific perspectives, enriching discussions and addressing unique challenges in the global agricultural landscape'

Anna Jackson, Arable Farmer, The Pink Pig Farm and FAB member: "Working with farmers and learning from farmers who are either sequestering carbon or working towards that goal is essential. We need more trials with goals to reduce overall chemical usage. We really need to discuss the necessary income for farmers to achieve sustainability."



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Membership Engagement: Annual Event

Harvesting Actions for Impact at Scale

While leaning into the urgency of the moment in the face of advancing climate change, the 2023 Annual Meeting had an upbeat, purposeful, and often joyful tone, with peers eager to dig in on projects and progress together.

In May, the Cool Farm Alliance held the 2023 Annual Meeting titled, "Harvesting Actions for Impact at Scale." Being in-person again for the first time since 2019, allowed the Cool Farm Alliance to design the event with an emphasis on building connections among members with ongoing engagement throughout the event.

High on the minds of most Cool Farm Alliance members, were questions about alignment between the Cool Farm Tool and the draft Land Sector and Removal Guidance coming out of WRI's GHG Protocol. As with so many tools, the Cool Farm Alliance is working to accommodate this guidance to the extent feasible and delegates got to hear the details of what these accommodations entail.

One of the most enlivening speaker provocations was from the community to the community. Our keynote speaker Brandy Wilson of Simplot said, "We, those of us that are not farmers, must stop talking about 'getting farmers to change.' Instead, we can use the Cool Farm Tool to look at changing ourselves and how we organise markets and supply chains so that agriculture products that are better for the environment are in higher demand." This provocation has resonated throughout the community ever since.

Other highlights included:

- Dedicated time to allowing participants to get to know each other through progressive small group interactions. The investment in intentional connections, led to more meaningful conversations and facilitated members finding common ground in interests, activities, perspectives, objectives, and projects.
- Case studies in coffee, rice, dairy, barley, and potatoes showcasing the value of the Cool Farm Tool use at scale to help the industry "speak the same language" while educating, engaging, and taking action.
- A breakout session on carbon monetization, a topic that has consistently generated high interest and was one of the early aspirational motivations for the Cool Farm Tool. Delegates learned that though still young, some entities now have a few years' experience enabling carbon payments using the Cool Farm Tool. Buyers in the food and beverage sector use the estimated reductions as "insets" in their Scope 3 accounting rather than as formal carbon market offsets. Ensuring the integrity of these transactions has required a mix of modelling, remote sensing, measurements, and a healthy dose of humility, but this combination seems to be delivering on the promise of both getting more revenue to farmers for good practice and increasing enrollment in the practices and outcomes.



• Breakout sessions on GHG emissions and carbon quantification in perennial cropping systems, the Dairy and Beef sector, the Cool Farm Tool software development, science and methods pipeline, soil health, biodiversity, and regenerative agriculture

The event was a refreshing look at the nourishing power of convening in a world that has become both more pressured and more motivated to change. We look forward to seeing our members at the 2024 Annual Event.

Be part of the 2024 Annual Event by <u>clicking here</u>.







Membership Engagement: Thought Leadership webinars

The Launch of Cool Farm's **Thought Leadership Webinars**

In 2023 Cool Farm introduced "Thought Leadership" webinars, building prestige, and adding value to members and beyond. The Cool Farm Alliance is home to many thought leaders. Showcasing good work, sharing ideas, and providing an avenue for discussion and learning helps deliver on the mission and build the Cool Farm movement – the community of people actively moving supply chains in a more sustainable direction.

The first webinar, titled, "Dairy of the future," highlighted pathways to net zero in dairy farming. For those discouraged or skeptical, this event was full of ideas for how and why to make this dream a reality.

Participants heard from Othman Algaisi, Senior R&D Animal Science Specialist at Nestle. Othman's provided a global perspective and insight into the practices and approaches this very large company is leaning into to achieve the netzero target.

Next participants heard from Joseph Button, VP Sustainability & Strategic Impact at Strauss Family Creamery, based in CA. This company is the other end of the spectrum in terms of size but provides an up-close view of what achieving a net zero dairy may look like!

Third participants heard from Brechtje De Schipper. Brechtje shared first-hand from the experience of working to move the needle across a thousand farms by keeping an eye on the benefits of these changes to farmers.

"We need to act now! Dairy has the important role to play in GHG mitigation and Bel wants to be part of it. Bel wants to catalyse a fruitful discussion by sharing it's experiences on the field in order to motivate other actors and contribute to new developments. Together we can make the transformation which is necessary for a sustainable future." Anna Brechtje de Schipper, Group Milk Expert, Groupe-BEL

Highlights reported by participants:

- "Just love that graph that Joseph showed of the amount that forage biomass increased from the application of compost and the translation of this into terms of economic benefit." See Straus Impact Story in Impact Report p. 20.
- "The three examples presented were very insightful!!!!"
- "The opportunity to learn from the presenters and engage in dialogue to discuss things further."
- "Seeing the different perspectives from the different scales of operations, and particularly the potential."

The second webinar titled, "Incentives at the farm," took inspiration from the WWF report, "Reducing Greenhouse <u>Gases with Incentives at the Farm</u>: How companies are moving from setting climate targets to delivering on them," and featured the author of this report, Emily Moberg, as well as two of the 24 examples provided in the report:

> The Cool Soil Initiative with Ben Harris of the Sustainable Food Lab presenting

Cooperative Coffees with Melissa Becerril presenting.

To complement these and help provide a framework for the discussion, Ethan Soloviev of HowGood, presented regenerative agriculture metrics and financing mechanisms as a collaborative palette for driving environmental benefits and decarbonisation.

The study explored three types of financing mechanisms: non-market incentives, market incentives, and regulatory

twelve financing mechanisms into three buckets: expense

reduction, risk mitigation, and income enhancement. This

Emily opened the webinar with the following graphic

incentives. And under market incentives, further categorised

framework can support ongoing work to determine the most

effective mechanisms for incentivising changes on the farm.

showing that how food is produced is just as important as what food is produced. These differences are what the Cool Farm Tool helps uncover and why incentives are needed WWF has a growing set of resources on this topic, many created with the help of the Cool Farm Tool at: Measuring and Mitigating Greenhouse Gas Emissions for Specific Commodities "On farm action is critical for sustainability, but farmers

cannot and should not be expected to do this work alone. I hope in this session we can raise awareness of the critical importance of on farm action and highlight the inspiring examples of how these collaborations can work."

Emily Moberg, Director, Scope 3 Carbon Measurement and Mitigation, Markets, WWF-US

Highlights reported by participants:

"Presenting the typologies/frameworks directly followed by case studies to make them feel "real" was a brilliant sequencing of the webinar."

"Variety of speakers which gave multiple different views and led to great insights and thoughts - thank you!"

Looking ahead

Building on the success of the Thought Leadership webinars, Cool Farm staff are excited to continue the webinars in 2024. Keep an eye out for upcoming events on Landscape Level Collaborations, Beyond Carbon Tunnel Vision and Regenerative Agriculture. Head over to the Learning Portal for up-to-date information.

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16 kg002+

We need to act now! Dairy has the important role to play in Greenhouse **Gas Mitigation... Together we can make** the transformation which is necessary for a sustainable future."

Anna Brechtje de Schipper, Group Milk Expert, Groupe-BEL

Producing the same plate has different impacts largely due to farm-level practices. 0.06 kgCO2e 171 kgC02e -0.3 lgCD2e Paim oil (frying): - 9 kgC02e

> Shrimes 0.4 kgCO2e Steak: 144 kgCO3e 0.82 kg(02c

> > Thought Leadership webinars 24



















External engagement initiatives

Cultivating Collaboration

No one company or organisation can drive global food and agriculture transformation alone. System change is by nature a group effort. The Cool Farm Alliance partners with leading organisations in science, technology, stakeholder engagement and creating impact. In addition to being resource effective, these partnerships help to grow the Cool Farm network, create sustainable agriculture metric and method alignment, and build momentum.

World Business Council on Sustainable Development (WBCSD)

Cool Farm took an active role in the WBCSD Regenerative Agriculture Workstream including:

- A presentation on the way companies can aggregate farm level assessments into regions or countries or landscapes. With examples from Cool Farm Alliance members McCain and the USAID led consortium including JDE Peet's N.V, ofi, LDC, and others to illustrate how companies can aggregate and interpret Cool Farm Tool results and use the results to guide actions and interventions.
- Helping to draft the Regenerative Agriculture Workstream Terms of Reference.
- Contributing to the report, "Business guidance for deeper regeneration -> Regenerate Agriculture Metrics: Climate chapter." This report also features the Cool Farm Tool in Case study 1 (p 18).
- Contributing expertise to the climate and water regenerative agriculture metric working group, building familiarity, awareness and understanding of the nature of on-farm sustainability metrics.

Daniella Malin (Head of Impact & **Collaboration, Cool Farm Tool) unpacked** the idea of how data collected on farm ladders up to be expressed globally. **Daniella described Cool Farm Tool's** scalable, accessible, and multi-metric approach through examples ...and the capability of the Cool Farm Tool in investigating different scenarios to support sustainability improvements."

Marc Gijsbers, Senior Associate, Agriculture and Food, WBCSD

The two organisations will continue to collaborate on projects and events including plans for WBCSD to contribute to the Cool Farm Alliance Annual Meeting in Amsterdam in April.





Sustainable Agriculture Initiative Platform (SAIP)

The partnership between SAI Platform and the Cool Farm Alliance flows naturally from their different but aligned organisational objectives. The Cool Farm Alliance focuses on revealing the changes farmers can make to reduce emissions and sequester carbon with co-benefits for biodiversity, water and soil and using this knowledge to encourage, motivate and reward good practice. SAI Platform's purpose is to harness the collaborative power of its members to accelerate the widespread adoption of sustainable agriculture practices and the transformation to sustainable food systems. Specifically, SAI Platform focuses on developing frameworks to assess and report on sustainable and regenerative agriculture outcomes, and to help members actioning them through precompetitive collaboration.

The two organisations have been collaborating more closely and in 2023 co-hosted and co-presented at events, with SAI Platform and Cool Farm Alliance delivering a breakout session on regenerative agriculture at the Cool Farm Alliance meeting and Cool Farm Alliance Head of Agriculture and Environment, Charlie Curtis presenting at a SAI Platform hosted webinar. For 2024 the two organisations plan to collaborate even more closely. The two organisations will collaborate to support members to pilot the combination of the Cool Farm Tool and SAI Platform's newly released global framework for regenerative agriculture. This with the intention to develop costefficient, scalable, yet science-led approaches to measure progress against Regenerative Agriculture outcomes.

Farming a Greener Future: Exploring the role of livestock in food security and environmental stability

Beyond ensuring that there is food on our table, agriculture plays a crucial role in shaping economies, preserving cultural heritage, and promoting environmental sustainability. According to the Food and Agriculture Organisation (FAO), feeding the projected 9 billion global population by 2050 will necessitate a 70% increase in current food production. On the other hand, agriculture (especially the livestock sector) is both a main contributor to the climate crisis and one of the sectors that is most severely affected by climate change.

In 2023, we teamed up with ITN Business and Agriculture and Horticulture Development Board (AHDB) for the 'Farming a Greener Future' programme; a news-style programme launched at Countryside COP and hosted by Duncan Golestani, to explore the role livestock is playing in providing food security and how it can be produced sustainably.

The programme features key industry and newsstyle reports along with sponsored editorial profiles, as well as interviews with Professor John Gilliland from AHDB, Lead Nutritionist Kate Arthur, and conversations with various organisations providing climate solutions to the livestock sector.

We are delighted about this partnership that allows us to delve into critical discussions around regenerative agriculture.

Click here to watch the Cool Farm section

You can find out more about ITN Business here: ITN Business - Amplifying voices across sectors

LEAF Surgery: Looking Ahead to the Role and Value of Digital Tools for Verification

We were thrilled to participate in a LEAF Surgery, focusing on digital tools for verification in November.

Digital tools play a vital role in addressing challenges within the agricultural industry, such as decarbonisation, climate change mitigation, ecological restoration, and the overall health of agricultural soils—from individual farm levels to landscape scales.

Data collected through these tools is crucial for evidence-based decision-making, supporting farmers and supply chains in effecting positive change and offering solutions to environmental and agricultural challenges.

During the session with LEAF, Richard Profit and Tim Hopkin, Founder of the Land App, delved into two crucial pathways: evidencing Greenhouse Gas emissions and showcasing land use for on-farm and landscape biodiversity. Through collaboration and robust data verification processes, these pathways aim to contribute to sustainable agriculture.

We look forward to further collaboration with LEAF in 2024.

Groundswell 2023: The Regenerative Agriculture Festival

In June, we attended Groundswell Festival, a remarkable gathering that brought together over 6,000 individuals from the farming sector. This hands-on event focused on soil health, offering insights for informed decisions.

The two-day gathering featured speeches, forums, and demos by experts. Amid its inspiring format, a serious tone emphasised the urgent need for sustainable food practices.

Reflecting on the festival, Emily Durrant-Munro, Cool Farm Programme and Impact Manager, highlighted Groundswell's role as a hub for collaboration, echoing the sentiment that diverse perspectives are crucial for shaping the future of food.

"A wise person once said, "if you want to change the world, you need to throw a better party than those destroying it". Groundswell does this for soil health in an inspiring and informative two-day party."

Similarly, Megan McKerchar, Cool Farm, Science and Methods Manager, stressed the need for comprehensive discussions, recognizing the festival's impact on diverse perspectives.

"Groundswell underscored the importance of diverse perspectives to shape the future of food in a way that meets the needs of both present and future generations."

In the spirit of action, Charlie Curtis, Cool Farm, Head of Agronomy, stated, "6,000 attendees are 6,000 ripples; let's become one wave turning the tide on our food systems."







Cool Farm Platform

Cool Farm Platform: game changing innovation

In 2023, the Cool Farm product entered a pivotal phase, building the perennials pathway on the Cool Farm Platform (CFP) and paving the way for migration of the Cool Farm 2.0 calculations on to CFP followed by the Cool Farm 3.0 calculation upgrade in 2025.

The Cool Farm Tool has given incredible service for more than ten years. It is now facing into the final years of its useful life. We know that continuing to drive ambitious change through such an aged tool carries greater risk of instability than would be the case with a younger system. The priority now for the Cool Farm Tool is to play to its strengths and give you and your farmers a stable and reliable service. For that reason, future work in the tool will focus on dealing with support issues when they arise rather than building out existing functions or adding novel features.

It has been clear for some time that the Cool Farm calculation service needs a new home to meet the challenges and opportunities that face us all. Our response has been to build the Cool Farm Platform – the successor product to the Cool Farm Tool, and the first task of 2023 was to find the right technical partner to work with. We have partnered with the brightest and the best in the form of Cirevo, an inspiring new UK data science start up. We are working together to build a platform with game changing innovation and an inspiring roadmap for regenerative agriculture.

Many years and as many hands have served the Cool Farm Tool, so we say from our hearts it has been a labour of love to live with the tool's shortcomings while not having the resources or capacity to overcome them all, nor would it have been appropriate to invest heavily in an aged system. For example, key gaps in functionality for API and

aggregation reporting. We must ensure that each service is complete. The approach to platform migration will ensure that API and aggregation reporting cover all metrics, including beef, other livestock, and biodiversity.

We are grateful to the sponsors of the Perennials project for their support. Fulfilling their strongly felt requirement marks a meaningful milestone as we make the first impactful delivery of Cool Farm Platform. When the Cool Farm Platform lands at the end of Q1 2024 we will have in our hands we believe to be the foremost perennials carbon emissions calculator for global agriculture, thank you Perennials stakeholders! Your faith and backing are making the difference allowing the CFA team to deliver a stable, reliable, and resilient system, driven by an API-first approach and a versatile and adaptable system for farmers globally.

Cool Farm Platform is being built on Amazon Web Services (AWS) and will use state-of-the-art architectural principles and components engineered for data security, efficient design and deliver a broad capacity for product evolution in response to stakeholder needs. AWS provides a comprehensive suite of benefits, including the well-architected framework for optimal system design, component-based architecture promoting modularity. These features collectively empower efficient, scalable, and agile cloud solutions.

The CFA build into the space will seek to add further benefits:

- Data granularity will reveal detailed emissions informing better field level decisions.
- Science built models will deliver cleaner solutions with reduced cost, time and risk.
- Parallel projects will enable adjacent change channels for broader impact.
- Improved system ownership and control will accelerate change and innovation.
- Version handling will make transparent the impact of calculation version updates.

The journey ahead begins with Phase 1, where through 2024 and into 2025 we will migrate the 2.0 service for Crop and Dairy & Beef Pathways. We will migrate the:

- Method calculations and reference/factor data
- Active user assessment data and,
- Ancillary, second level functions.

Where we see opportunity for functional improvement, we will take them up - as long as doing so doesn't hinder the projects forward momentum. Through this work we will establish a solid and secure foundation for Cool Farm science and methods calculations for the future.

In Phase 2, we will build 3.0, the next full calculation version upgrade. The primary goal of this work is to achieve consistency with the Greenhouse Gas Protocol demonstrating the CFA's commitment to international sustainability standards. If there is capacity in Phase 2, we also hope to the Other Livestock Pathway, addressing known issues in that service so that it is fit for purpose.

In the third and final phase of this strategy, we will complete the migration of remaining 2.0 functions, covering the Biodiversity Pathway, Water, and Food, Loss & Waste. These components complete the Cool Farm metrics framework, supporting farmers across a range of standard and regenerative farming practices globally. By integrating these functions, we reinforce our commitment to providing a viable and complete solution for sustainable agriculture practices for the future.

The Cool Farm Alliance's product vision revolves around innovation, sustainability, and collaboration. As we navigate the complexities of an ever-evolving global agriculture landscape, our roadmap ensures that the Cool Farm Platform not only addresses current challenges but also anticipates and adapts to the expanding and deepening needs of farmers worldwide.



Cool Farm Platform **28**











2023 in numbers

Approximately 300 Tasks and Issues were addressed and successfully closed in 2023, comprising:

major release

interim releases

admin or other

development items



Features & Improvements

Navigating Change: A Year of **Lessons Learned and Progress**

In 2023, we experienced a year of two halves. The first half saw us deliver the second major upgrade of the science and methods of CFT to version 2.0, accompanied by some issues surrounding the bedding in of the new updates. In the second half, we transitioned to a smaller development team on the CFT with a greater focus on improving stability of the tool, whilst we built up a new technical partnership tasked with designing and building out the new version of the Cool Farm Platform.

Though largely behind the scenes, the team made remarkable progress. By the end of the 2023, we had b most of the infrastructure for the new platform had bee built, along with a new API interface, as well as a comp re-write of all the methods required for the new perenr pathway. This work paved the way for new processes which allows our methods team to build and test all new scientific updates, methods and pathways without having knowledge transfer to a development team. While men testing of the new pathway is set for early 2024, we early anticipate sharing the production version with you.

In 2023, we also saw some renewed focus on the **Regionalisation** – Allows CFT API users to select region administration of the CFT which goes on in the backgro specific emissions calculations on the crop pathway. with a spotlight on financial forecasting and tracking, Local region and local climate conditions can be specified and the establishment of a new cadence around monthly in the Crop_Product/Calculate endpoint, which enables DevOps updates. disaggregated emissions factors. At this point, this feature is enabled for Australia regional settings.

Additionally, the Technical Partners Working Group underwent a review, with a view to establishing deeper **API results granularity** – Provides more details in the results partnerships, and driving collaboration with partner software section of the crop_product/calculate/ end point. CO₂e systems. Whilst we are still finding out footing, it will be emissions are now reported for each individual line item a key focus in 2024. We welcome new members interested under the headings, Fertiliser Production, Field Energy, in joining us. Machinery, Transportation and Crop Protection.

Simply get in touch here: product@coolfarmtool.org

A full list of release's, features and improvements can be found on our website here

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GHG Reporting constituent gasses aggregation report – Reporting of disaggregated greenhouse gases, broken down as CO₂, N₂O and CH₄ as well as CO₂e in the aggregation report for crop and dairy pathways.

GHG Reporting constituent gasses API – Disaggregated reporting of GHGs as above, but within the API for crop and dairy pathways.

2023 development highlights summary:

CFT2.0 Upgrade – more details here

Aggregation report enhancement – This functionality enables greater clarity on aggregation reports that are failing. The aggregation report email will provide all successful

assessments in the usual report, but if any fail they will be excluded from the report. The email will provide additional details on the reasons why the assessments have failed.

Adding Potassium Nitrate – Two new fertilisers were added into the CFT; Potassium Nitrate – Crystallized and Potassium Nitrate – Prilled. Both of these fertilizers have the production region as Chile 2021.

We also tackled a number of support issues, below is a summary of a few of the more high profile ones.

Dairy, meat allocation bug - introduced as a part of CFT2.0 The fix included updating the Mcal to MJ conversion and updating the meat_allocation_factor in the equation.

Bedding emissions - were previously not included in the disaggregated gases breakdown in the dairy aggregation report. This fix ensures that dairy bedding emissions are now included in the GHG disaggregated results breakdown.

Fertiliser bug - in dairy results export, dairy results export was not working for assessments with fertiliser applications.

Dairy Excel export bugs – multiple issues with dairy excel export relating to manure, fertilisation, energy and transport have all been resolved.

Agg report mail out issue – We delivered a DevOps task, which involved implementing a dependency check, ensuring that issues identified in the mail out process are monitored and fixed, this resulted in a notable improvement in the success rate of report mail outs.

Implement Security Enhancements for AggGroupDetailView and ShareView – This fixes an issue with the crop assessment share function, relating to how sharing is managed via API's in the backend. Previously, when the form was submitted, it used a GET request. This form was rewritten so that now POST requests are sent which is both the proper method for sending data, as well as being much more secure.



Science & Methods activities

Advancing Agricultural Science & Methods: Innovations for Impactful Sustainability

In the Science and Methods section, we detail our significant strides in the development and refinement of agricultural methods, ensuring our approach remains innovative and impactful. Through rigorous analysis, collaboration, and forward-thinking, we've pushed boundaries in cattle and crop GHG methods, soil organic carbon, and sustainable practices, demonstrating our unwavering commitment to making credible science accessible.

Methods Activities

The launch of Cool Farm 2.0 methods signifies a key step in our efforts to update our agricultural models, incorporating new N₂O and SOC methodologies, as well as revising dairy and beef factors to align with IPCC 2019 and updating the meat allocation method to IDF 2022 guidelines. We undertook a bespoke project to regionalise the fertilizer, N_2O_1 , and crop residue models to align with the 2022 Australian national inventory report, highlighting the possibility and cost of regionalisation. As a result, we've drafted a regionalisation policy set for release in 2024, reflecting the careful consideration required for such efforts.

A comprehensive gap analysis with 3Keel of the draft land sector removal guidance from the GHG protocol has laid the groundwork for future updates which is outlined in our looking ahead section.

The CFT 2.0 project has provided insights into the strengths and weaknesses of implementing new methods, leading to updates in process and policy throughout 2023. With a new platform on the horizon in 2024, the last guarter focused on transitioning methods to this new platform, introducing a novel approach that allows scientists to directly integrate

methods and unit tests into the codebase. We also added a full new methodology on perennial biomass, residues, and impacts on Land use change following a prototype built in 2022. This allows a significant development into the ways of working enabling higher quality control of new and migrated methods into the new platform and welcomes a new chapter of cool farm science and methods.

Our initial phase in developing non-cattle livestock models has identified essential equations and factors, setting the stage for future enhancements. Although temporarily on hold, this work is crucial for the continued improvement of our livestock models.

We did some early scoping of novel manure management options not included in IPCC in the dairy and beef working group.

Science Activities

Our team of PhD students continues to make substantial progress in their research. Marte has successfully published two papers that illuminate the gaps in the IPCC 2019 methodology, offering an improved approach to N₂O and

methane emissions modelling in rice systems (with an N_2O paper in progress). This pivotal work paves the way for methodological enhancements in the future, contingent on st rategic resource allocation and prioritisation.

Jordi Buckley Paules is advancing hydrological science under the guidance of Dr. Thanos Paschalis by developing an intricate model that integrates 'biology' and topography with water dynamics. His focus on nutrient flows and the influence of field topography is set to improve our water module, incorporating factors such as slope for better runoff and percolation vector predictions.

Helen Hughes' PhD research focuses on ways to maximise the value of soil carbon prediction models for farmers with annual crops. This includes considering the role of global datasets for field-scale prediction and novel options for utilising small amounts of farm data. Helen's priorities are farmer-feasible methods with reasonable data requirements that are applicable at the field scale.

In parallel, the Cool Farm biodiversity metric has been rigorously evaluated by Professor Lynn Dick's team. We anticipate the peer-reviewed paper on biodiversity methodology to deliver a full exposition of the metric, significantly contributing to scientific understanding in this area. Together, these efforts underscore our commitment to advancing agricultural science through practical, data-driven research.

Ongoing Research Initiatives

At Cool Farm, we place a high emphasis on partnerships to bolster the credibility of our methodologies. We are engaged in a collaborative project with the University of Edinburgh and Cirevo to enhance our soil organic carbon (SOC) model. Using the IPCC steady-state method coupled with Monte Carlo simulations, this project is focused on rigorously quantifying uncertainties and applying the first process based model in our calculations.

In an effort to refine our perennial methodology, we have joined forces with Wageningen University & Research and Nestle. This collaboration will entail a sensitivity analysis performed by Wageningen University & Research, examining the perennial model to identify the most critical data points that influence model outputs, both from user inputs and internal model factors.

Further expanding our collaborative network, we are working with Sure Harvest to establish an almond typology to use in our perennial methodology. We have embarked on a project with the University of Aberdeen aimed at quantifying the uncertainty in biomass estimations that can be used for LSRG reporting. These partnerships are integral to our mission of delivering scientifically robust and reliable agricultural methodologies.













Funding proposal to accelerate development plans

In 2024 and beyond, funding for the Cool Farm Platform is vital to propel our mission forward in the face of pressing agricultural and environmental challenges. As we transition to a new platform, the active support of our members is crucial in establishing the Cool Farm Platform as the primary hub for effective compliance reporting.

The Cool Farm Alliance is dedicated to supporting our members in achieving long-term sustainable growth and transformative capabilities in agriculture. However, to realise this vision, additional project funding support is necessary to accelerate the pace of development.

Your engagement is not just a financial commitment but a testament to our collective dedication to building a resilient, thriving Cool Farm community.

As Tobias Bandel, Chair Supervisory Board explains:

"The Supervisory Board enthusiastically endorses this crucial funding proposal which is aligned with the Board's vision and priorities for the Alliance.

Let's make sure the Cool Farm Platform strengthens its position to be the go-to-place for effective and convergent compliance reporting at farm level and beyond.

We urge your active support to turn this vision for a more effective and efficient Cool Farm Tool, consistent

with the latest GHG Protocol Land Sector Removals Guidance, into reality. Together, let's build a stronger, more resilient Alliance."

We invite all Cool Farm Alliance members to reach out for a detailed walkthrough of our 2024 plans and how you can contribute to our cause. For further information, please contact support@coolfarmtool.org.

Approach to diversity & inclusion

Cool Farm is deeply committed to cultivating a culture of Equity, Diversity, and Inclusion (EDI). We firmly believe that embracing diverse perspectives, backgrounds, and experiences enriches our workplace, fostering an environment that stimulates innovation. Our dedication to diversity is not only a commitment but also a recognition that every team member's unique contribution is essential to our collective success.

In our pursuit of fostering an inclusive workplace, Cool Farm acknowledges that we are on an ongoing journey. In 2023, we took a significant step by seeking consultation support to develop a comprehensive strategy for identifying and seamlessly integrating EDI responses into our business operations.

To achieve these goals, we are excited to announce our strategic partnership with Honey Badger, a leading provider of culture design solutions. Stay tuned for further updates

as we embark on this transformative journey with Honey Badger to enhance our commitment to diversity and inclusion at Cool Farm.

Building close and more collaborative relationships

The first FAB meeting took place in January 2024, with the aim to:

- Amplify the voices of seven brilliant British farmers from livestock, dairy, produce and arable sectors
- Bridge the gap between businesses and farmers
- Build closer and more collaborative relationships

We're excited to announce that the FAB meetings will take place bi-monthly, with all guests able to access fresh, farmer-led conversations and rich and tangible ideas to bring back into their organisation. Please <u>email us</u> if you'd like more information.

FAB meeting dates:

- Wednesday 27th March 3:00 4:30
- Wednesday 22nd May 3:00 4:30
- Tuesday 23rd July 3:00 4:30
- Wednesday 23rd October 3:00 4:30
- Wednesday 27th November 3:00 4:30

Commitment to global impact and reporting

The future at Cool Farm is one of continuous improvement and innovation. A key initiative will be the migration of all GHG methods from CFT to our new platform, which will involve rigorous identification and resolution of any existing bugs, adding unit tests for every new method and revising our technical description.

We are poised to embark on the second phase of the LSRG project, which will be dedicated to developing new methods under strict coding and testing protocols. Our forthcoming projects aim to broaden our methodological scope to encompass capital items, off-farm waste disposal, refrigerant gases, embedded emissions from purchased livestock and seed or nursery production. Additionally, we plan to update factors such as our electricity and feed factors from IEA and GFLI respectively. We will also include the refinement of emission factors for crop residue compost, the implementation of the process-based SOC model, and the incorporation of new data sets that will improve our models for livestock emissions and grazed land SOC.

These strategic moves are designed to fortify our foundation of innovation, accountability, and trust, assuring our stakeholders of our steadfast commitment to global impact and reporting.





Looking ahead **31**

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Impact Report 2023

<u>Click here</u> to view the Impact Report 2023



Contact us

Stay up to date

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