Outcomes Estimation Tools Training Webinar Series

Featuring:
Cool Farm Tool

March 6, 2024
Noon to 1:30 pm eastern

Michelle Perez, PhD
Water Initiative Director

Aysha Tapp Ross
Water & Soil Health Scientist

American Farmland Trust

Michelle

Agenda

- Welcome, Poll (10 min)
- Cool Farm Tool Presentation (25 min)
- Cool Farm Tool Demonstration (40 min)
- Q&A (15 min)

Michelle

Zoom Webinar Reminders

- Use Q&A Box - last 20 minutes (Vote up!)
- Use Zoom Direct Message feature to Aysha if having technical difficulties
- Email with resources to follow each webinar
- Recordings posted on the webinar series site the following Monday
- **Evaluation survey in the Chat Box**
  - **Complete to be entered to win a $25 gift card!!**

Aysha

American Farmland Trust

Tools in 2023 Trainings*

May 3: Webinar Launch & PCOC (recording)

June 7: Model My Watershed (recording)

July 12: Nutrient Tracking Tool (NTT) (recording)

August 2: NRCS Cover Crop Economics Tool (economic) (recording)

September 6: FieldPrint Platform (recording)

October 4: EPA PLET (water quality) (recording)

November 1: PTMApp Web Tool (water quality) (recording)

December 6: AFT Retrospective-Soil Health Economic Calculator (R-SHEC) Tool (recording)

Tools in 2024 Trainings*

January 10: SIPES Method/SIDMA Tool (recording)

February 7: Fast-GHG (climate) (recording)

March 6: Cool Farm Tool (climate)

April 3: Critical Source Area Identification and Management

May 1: COMET-Farm & COMET-Planner (climate)

June 5: CAST Tool (water quality)

July 3: TBD

August 7: TBD

September 4: AFT Predictive-Soil Health Economic Calculator (P-SHEC) Tool

Michelle

American Farmland Trust

Cool Farm Tool

March 2024

Michaela Aschbacher
Training & Consultancy Manager

Michaela Aschbacher

- Training & Consultancy Manager based in Seville, Spain
- Part of a small team mainly based the UK (10), Spain (1) and Vermont (1)
- Responsible for learning resources and training sessions for members and users
- Academic background in languages and economic & cultural studies focussed on East Asia
- Professional experience in member support, voluntary certification programmes and international development work
- Hobbies: cooking, family, hiking

Cool Farm

Agenda

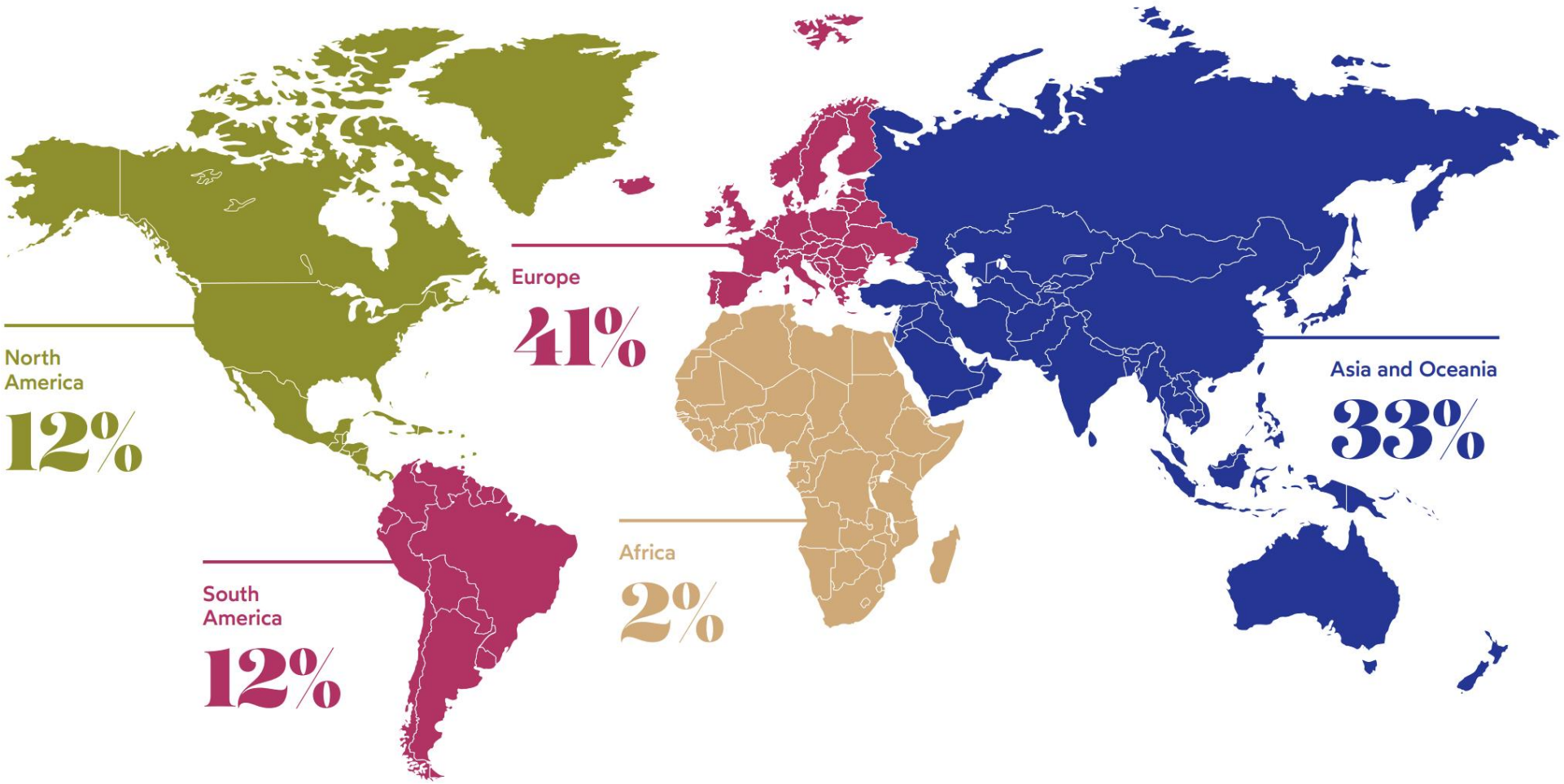
1. Introduction to the Cool Farm Alliance
2. Scope and use of the Cool Farm Tool
3. Interpret and compare results, simulate “what-if” conservation practice scenarios
4. Measure the effect of conservation practices – LIVE DEMO
5. Data aggregation & reporting on project-level outcomes
6. Project examples
7. Costs & Resources

159 MEMBERS (Status 01/2024)

Cool Farm

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

38,633

+30%

Assessments

184,331

+47%

Countries

157

+5%

API Connections

84

-9%

Science Advisory Council (SAC)

- Monthly meetings
- Crucial role in making strategic decisions regarding science and methods
- Ensure the credibility and transparency of methods used
- Enable the acceleration of science and method development
- Revise methods and proposed improvements

Dr. Frank Brentrup
Science Engagement
Yara

Dr. Megan McKerchar
Science & Methods Manager
Cool Farm Alliance

Julia Chatterton
Researcher
Unilever

Dr. Sat Darshan Khalsa
Researcher & Tree Agronomist

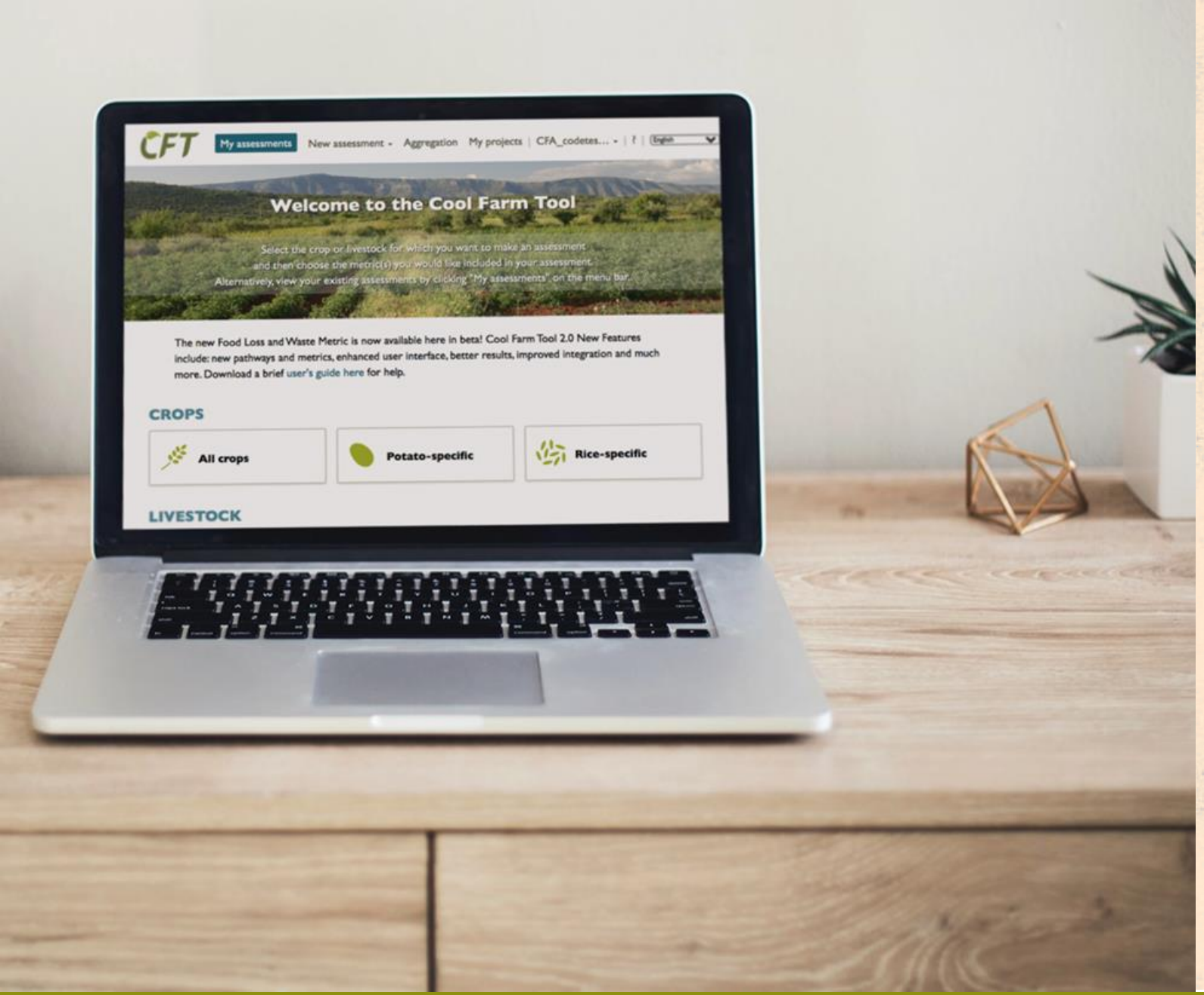
Dr. Jan Peter Lesschen
Senior Researcher
Wageningen Environmental Research

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

Prof. Quirine Ketterings
Animal Science, Cornell University

Prof. Eduardo Arellano
Associate Professor
Universidad Católica de Chile

Prof. Lynn Dicks
Professor of Ecology
University of Cambridge



Cool Farm Tool

A quantified decision support tool for the measurement and impact of agriculture practice at farm-level with a focus on greenhouse gases (GHG), water efficiency and biodiversity.

Complete methodology in our Technical Description.


Farmer Focused
Science based
Industry owned
Global
Multi pathway
Multi metric

Cool Farm

Cool Farm Tool - Scope

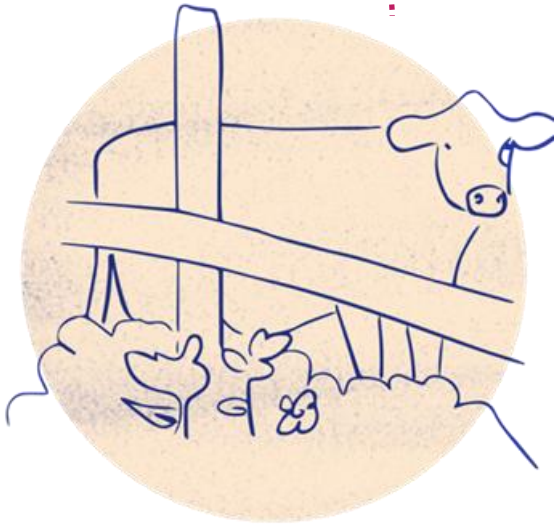
Product level

Farm level

Crops

GHG + Water

Soon: Perennials



Dairy & Beef
Other Livestock

GHG

Biodiversity

Temperate Forest

Semi-Arid Mediterranean

Upcoming: Beta Tropical Forest

Methods: IPCC Tiers

- Method is mainly based on internationally recognised science from International Panel of Climate Change (IPCC 2019), and for dairy also International Dairy Foundation (IDF 2022)
- Global Warming Potential AR6
- Tier = level of methodological complexity. Tier 1 = basic, Tier 2 = intermediate, Tier 3 = most demanding in terms of complexity and data requirements.
- Cool Farm Tool is variety of Tier 1 and 2 methods (e.g. Fertiliser use):
    - Soil Organic Carbon (SOC) model is currently a refined tier 1 model -> will be tier 2-3 model in CFT 3.0
- Further detail of tiers per section in our Technical Description.

Greenhouse Gas Protocol (GHGp) - Scopes

- Tool methodology designed to reflect corporate needs for reporting requirements
- Scope 1 - Direct emissions on farm: combustion of diesel, N2O emissions from fields, CH4 emissions from cattle…
- Scope 2 - Indirect emissions from purchased energy/electricity used on farm.
- Scope 3: Other indirect emissions products or services provided to farm operations, e.g. fertiliser and pesticide application and production, transport.
- Active work to close gaps and be consistent with Land Sector Removal Guidance (LSRG) of the GHG Protocol (156 requirements, 98 in scope, read more here) -> No full scope 3 reporting, but Cool Farm Tool supports corporate scope 3 inventories that conform to the LSRG.

Snap Shot of Features	Cool Farm Tool
Scale & level of specificity	**Product & Field level for crops (GHG & water) and livestock (GHG).** Scalable through aggregation and outcome comparison on state/national level. **Farm level for biodiversity.** **Site-specific**: Field & product-specific estimates reflecting best management practices adapted to specific soils, locations and weather conditions, or specific animal categories and her management practices.
Outcomes	**GHG:** GHG emissions with CO2/N2O/CH4 breakdown (disaggregation as per GHG Protocol in 2025), carbon sequestration, soil organic carbon increase, Nitrogen use efficiency (NUE). **Water quantity:** crop water consumption (per kg), crop water requirements, and crop water footprints. **Biodiversity:** Beneficial effect on biome-specific species groups and monitoring of natural habitats sizes.
Conservation practices	**Crops:** Reduced tillage, improved nitrogen management, carbon input increase -> cover crops, manure, compost, residues etc., sustainable yield intensification, irrigation efficiency, reforestation, additional trees. **Livestock:** Improved herd & manure management, feed use (enteric emissions) & deforestation-free feed. **Biodiversity:** Diversity, food/nests for pollinators & birds, watercourses & windbreaks, habitat increase etc. **In Q2 2024:** Perennials: yield efficiency, residue management, agroforestry, hedges, shade trees, intercrops. **In 2025:** new process-based soil organic carbon model, perennials model improvements for crop model.
Land uses & production systems	Crops grown in mineral soils & livestock systems (currently dairy & beef, other livestock to be updated). Currently not suitable for organic soils (>12% SOC), non-soil or hydroponic systems, polar regions.
States & territories	Global – all U.S. territories (incl. islands)
How much time, data, & skills needed to generate an outcome estimate	No special skills needed, basic data at hand available from farm records, bills, etc. Data collection may take up some time, but once available, creating a field/farm assessment takes 10-15 minutes. Fields with same soil & management characteristics can be combined.

Strengths, Limitations, & Trade Offs of the Cool Farm Tool – Is this the Right Tool for You?

Strengths

- Free for farmers – fee for project-scale use covered by project budgets
- Simple to use – data needs limited to what is available & needed for scientifically credible assessment
- U.S. wide – can be used anywhere
- Units in imperial and metric
- User friendly online interface - No software download needed
- Site-specific analysis - granular data with own soil structure data, local weather datasets from ERA5
- Default ranges or values where available or support functionality (e.g. machinery)
- Data aggregation, results can be downloaded
- Industry-backed and scientifically robust
- Certified advisor course for full tool training

Limitations

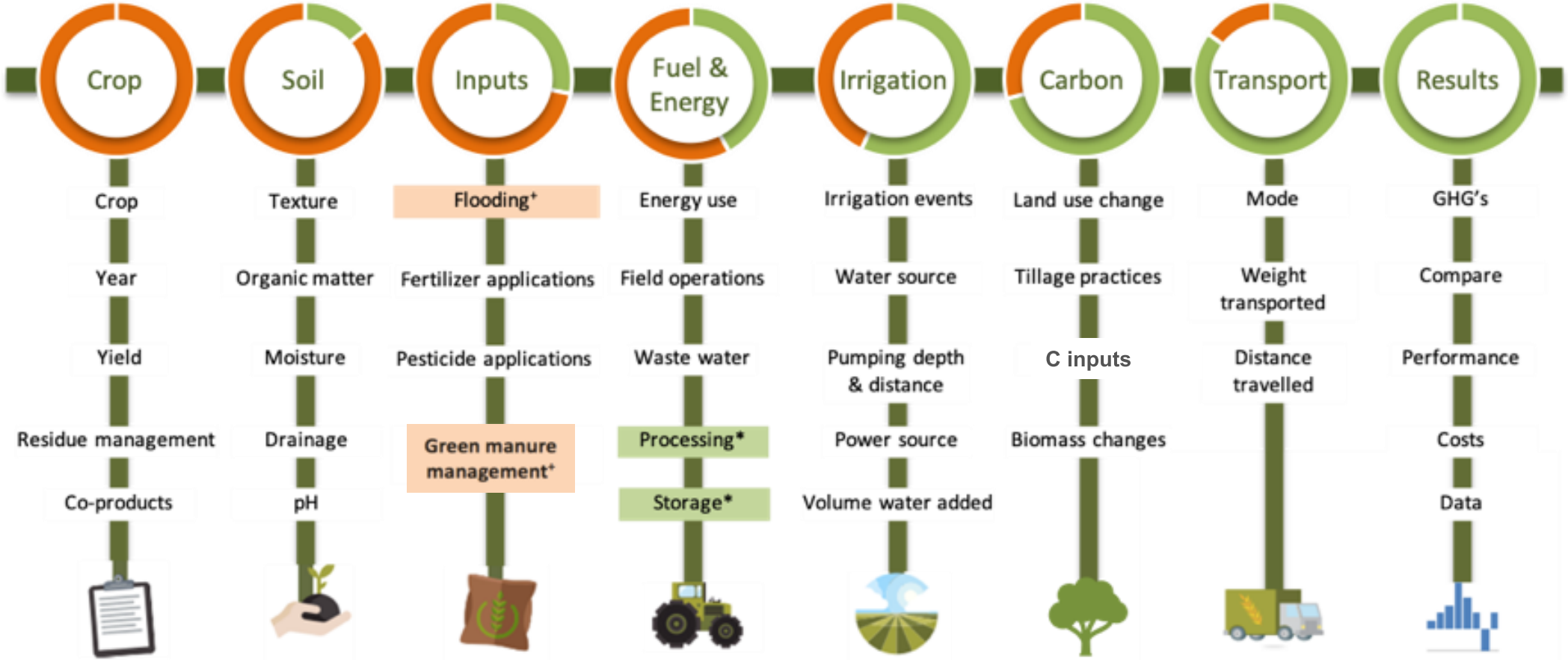
- Currently not suitable for: organic soils (>12% SOC), non-soil or hydroponic systems, polar regions (few areas in Alaska), other livestock (needs update)
- No rotational grazing or grassland sequestration in livestock
- No water quality assessments possible
- No offline use
- Whole-farm analysis needs multiple assessments
- External data analysis for project-scale comparisons
- No benchmarking comparisons with peers

CROP DATA INPUTS

The data needed from users to calculate Crop GHG & Water assessments are summarised here at a glance. Find detailed explanations for each item in the Data Inputs Guide.

+ Rice assessments only

* Potato assessments only

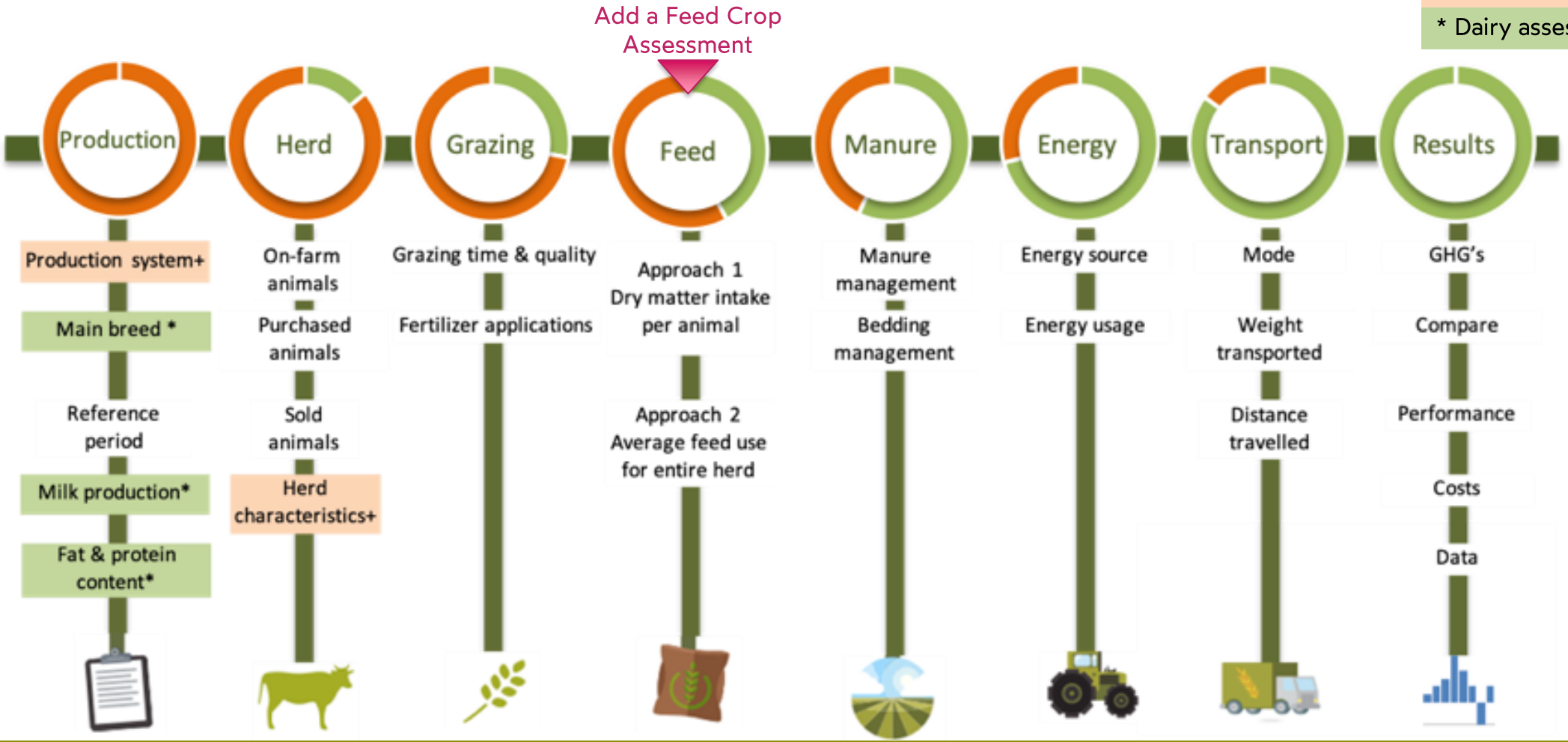


LIVESTOCK DATA INPUTS (Beef & Dairy)

The data needed from users to calculate Livestock GHG assessments are summarised here at a glance. Find detailed explanations for each item in the Data Inputs Guide.

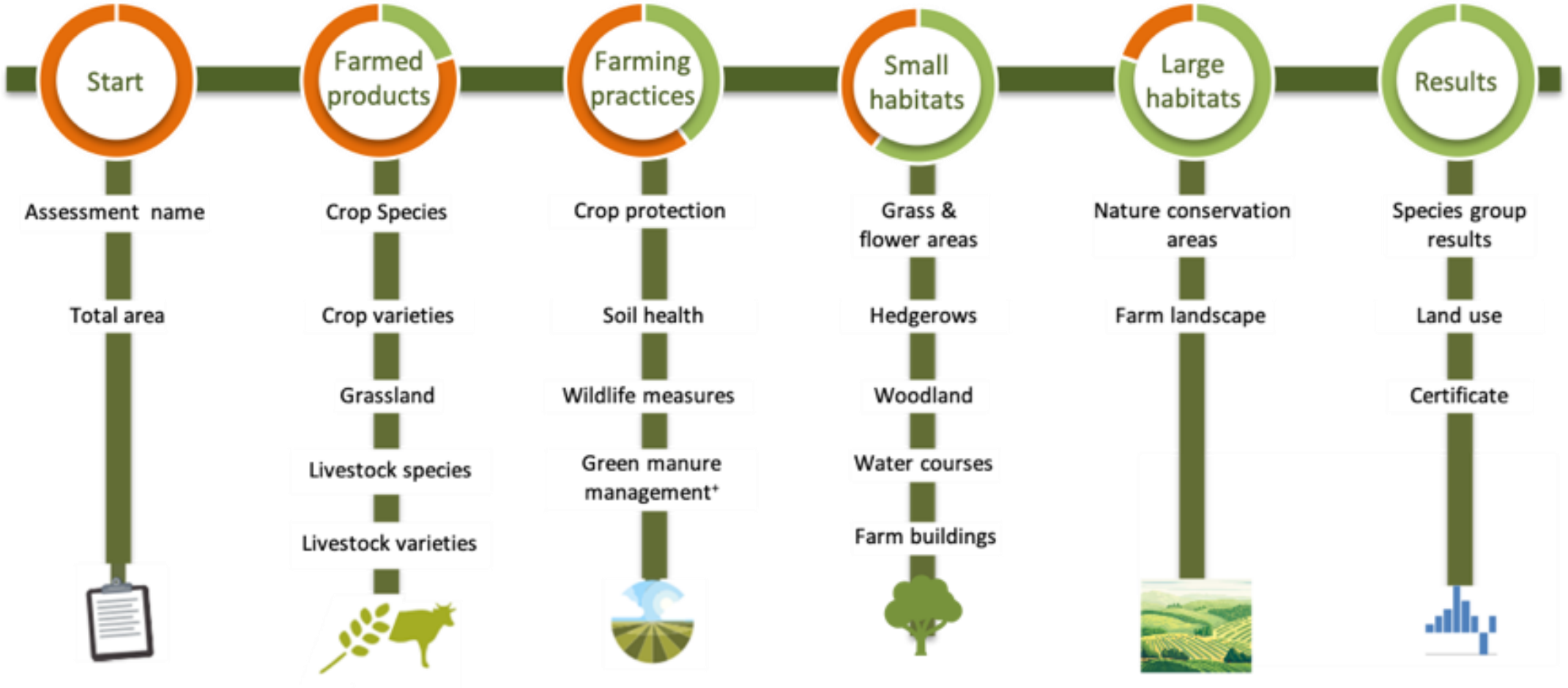
+ Beef assessments only

* Dairy assessments only



BIODIVERSITY DATA INPUTS

The data needed from users to calculate Biodiversity assessments are summarised here at a glance.



Data Entry Page

Assessment Name & Product Details

Share Results with other Users

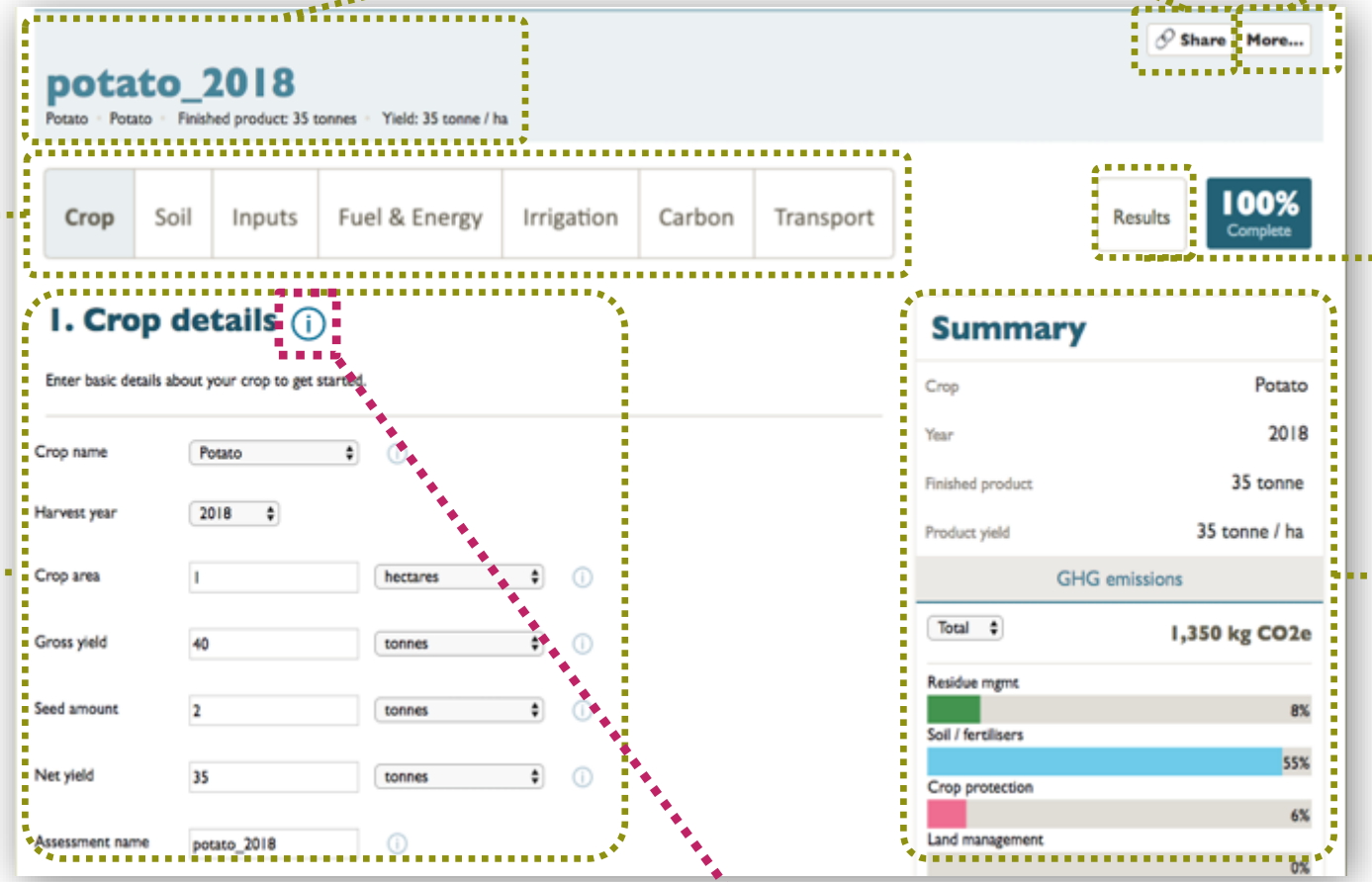
Download Results as Excel & Save Crop Assessment as Animal Feed Item

Navigation tabs to move through pathway sections

Final Results after Completion

Data entry fields

Live Results that adjust with each entry

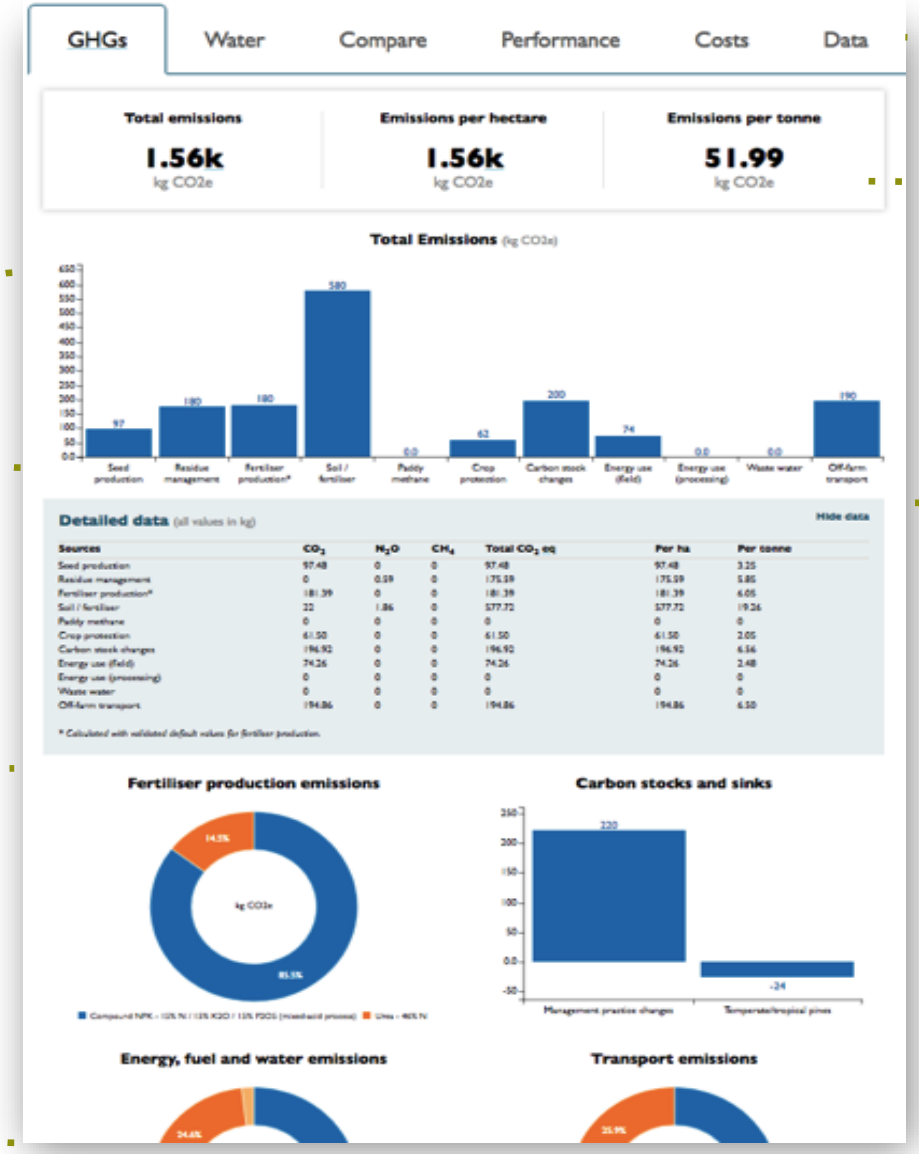


The Info Buttons for sections and fields guide you through the CFT

Final Results – Overview Crops

Graph of emissions by category

Emissions broken down within categories



Tab views

Headline results

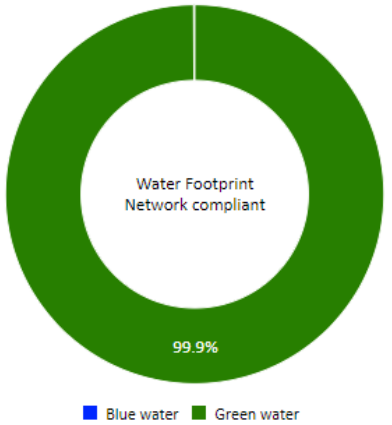
Detailed emissions by category and greenhouse gas (CO_2, N_20, CH_4)

Final Results – Water (Crops)

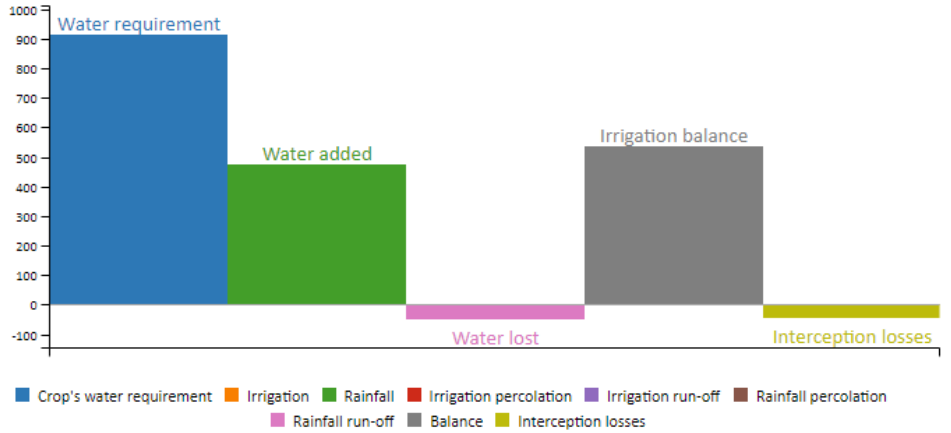
- Quick-check of crop water consumption (per kg), crop water requirements, and crop water footprints
- sustainable water management at the basin level by providing water figures for all agricultural water users
- Different crops and irrigation methods
- Soil properties, such as soil organic matter and texture.

Water Productivity	Total water footprint	Irrigation efficiency
2.27 kg / m^3	441.15 litre / kg	0.00 litre / litre

Blue/green water footprint (l / kg)

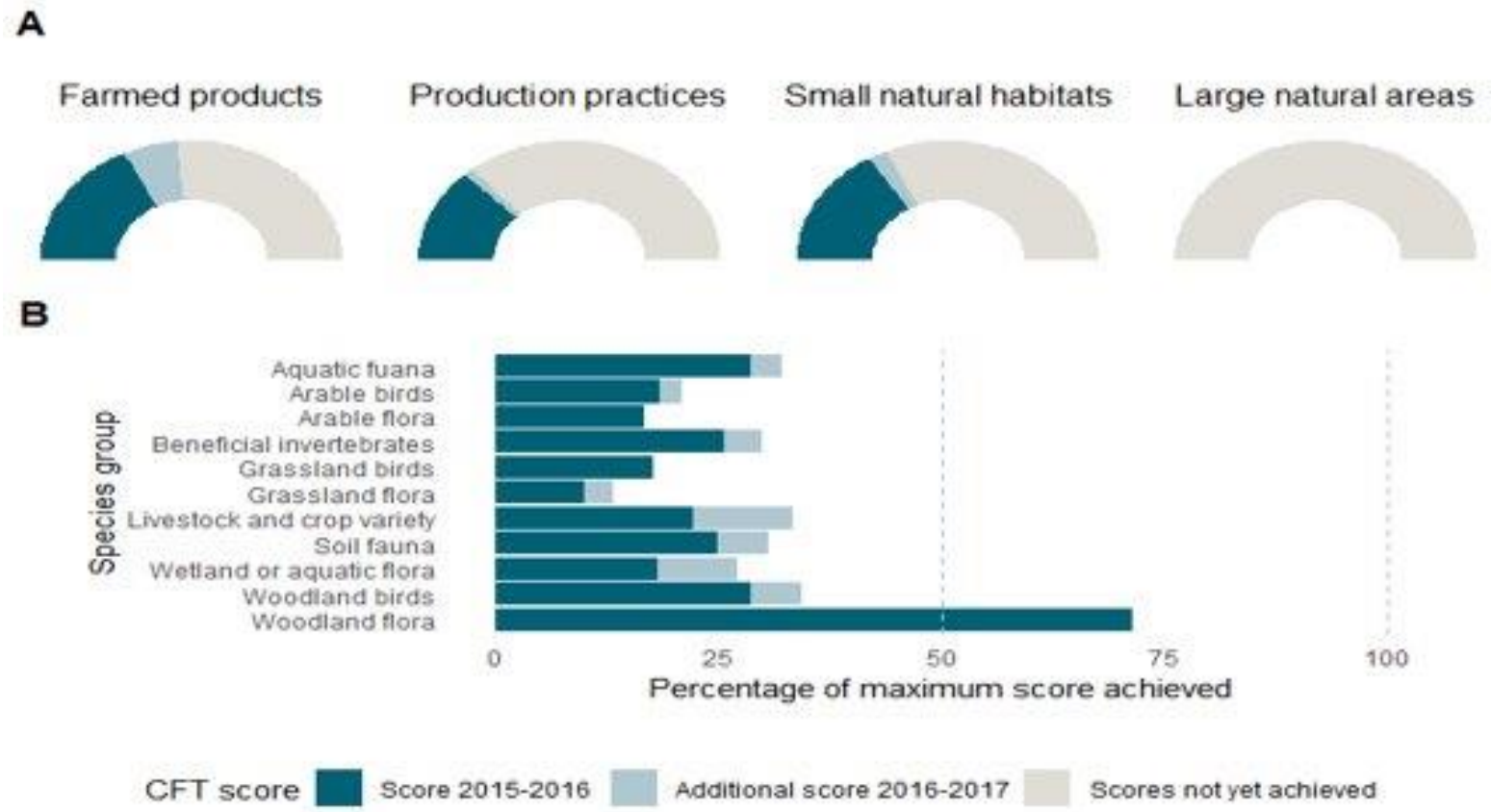


Water balance (mm)



Start	Farmed products	Farming practices	Small habitats	Large habitats	**results**

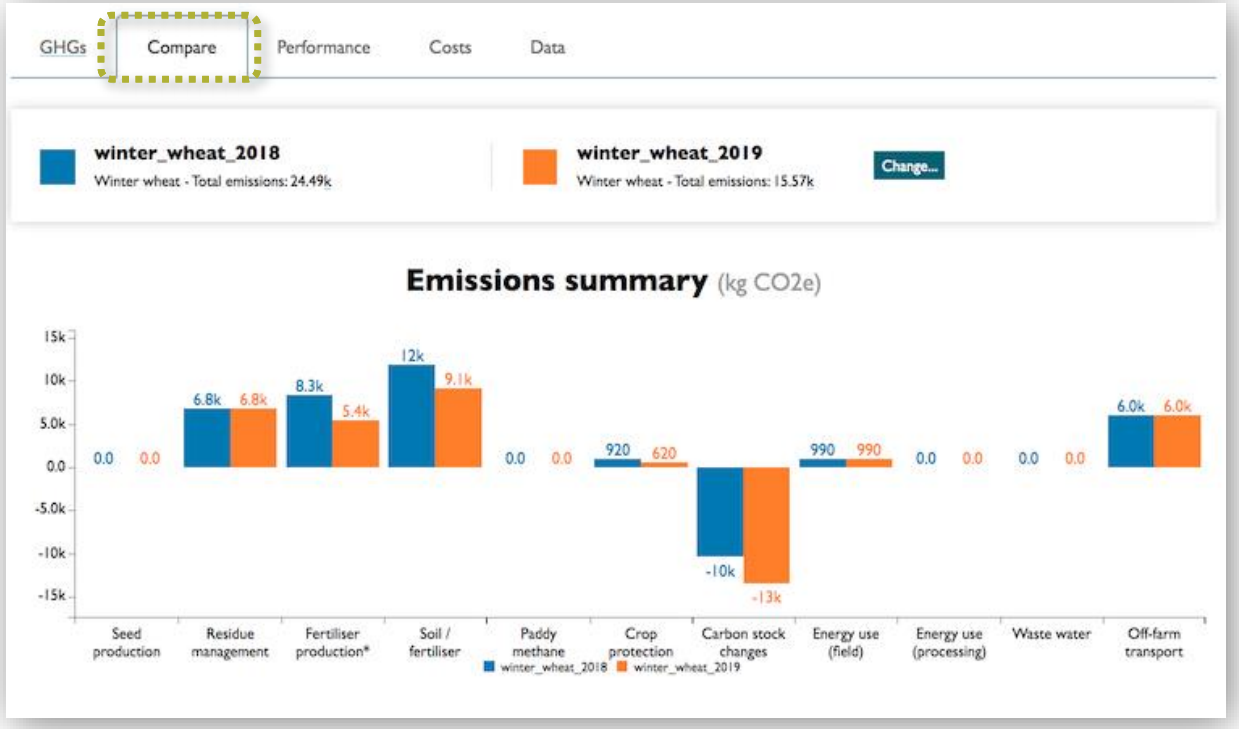
Final Results – Biodiversity



‘Save as’ & Compare

Duplicate an assessment via ‘Save as’ at the end of each assessment tab to create ‘what-if’ scenarios for conservation practices.

Compare the assessments in the ‘Compare’ tab under ‘Results’.



‘What-if’ scenarios for conservation practices

- Cool Farm Tool results are blueprint for understanding and making changes on-farm
- Look at biggest source of emissions, but start where changes are technically or financially feasible/beneficial
- Define all possible change to evaluate and create action plan, consult and learn from peers
- Consider differences in conditions and the scope of assessments during comparisons or evaluation of adoption

Live Demo

Crop

Close | Share | More...

winter_wheat_2018

Other Crops • Winter Wheat • Finished product: 120 tonnes • Yield: 8 tonne / ha

Crop | Soil | Inputs | Fuel & Energy | Irrigation | Carbon | Transport | Results | 100% Complete

1. Crop details

Crop name: Winter wheat

Harvest year: 2018

Crop area: 15 hectares

Harvested amount (total): 130 tonnes

Farm-gate ready amount: 120 tonnes

Assessment name: winter_wheat_2018

1.2 Crop residue management

Residue amount here is above-ground plant residue and must be entered as "dry weight". Default values for dry matter weights are provided for most crops. If you have better data, you can overwrite the default value.

This section only considers emissions from residue management. Any increase of soil organic carbon due to residues can be indicated in the carbon tab.

Residue amount: 12.82 tonnes / ha — Reset Residue Amount

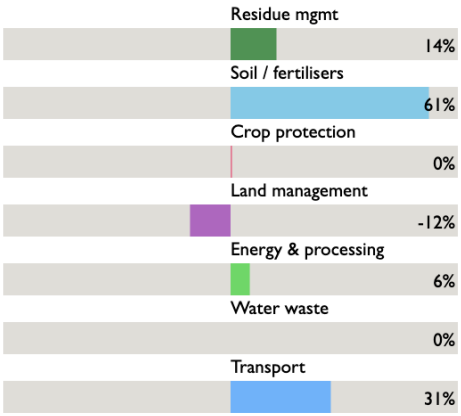
Residue management: Left distributed on field, OR incorporated, OR n

Summary

Crop	Winter wheat
Year	2018
Farm-gate amount	120 tonne
Yield	8.00 tonne / ha

GHG emissions

Total: 40,672 kg CO2e



Cool Farm

Close | Share | More...

winter_wheat_2018

Other Crops • Winter Wheat • Finished product: 120 tonnes • Yield: 8 tonne / ha

Crop | **Soil** | Inputs | Fuel & Energy | Irrigation | Carbon | Transport | Results | **100% Complete**

2. Soil characteristics

Specify the soil characteristics of the field in your assessment.

Nb. CFT is currently only suitable for assessments on mineral soils with a Soil Organic Carbon content of less than 12%.

Soil texture	sandy (coarse)
Soil moisture average	Moist
Soil organic matter %	Custom value
Soil organic matter custom	2,000
Measured years ago	1
Soil organic carbon	1.16%
Soil drainage	good
Soil pH	7.3 < pH <= 8.5
Your field name	sandy (coarse), moist

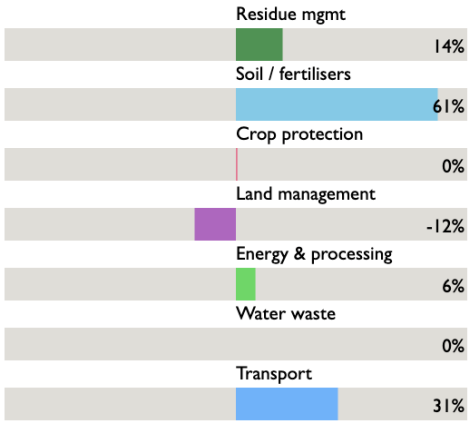
User notes

Summary

Crop	Winter wheat
Year	2018
Farm-gate amount	120 tonne
Yield	8.00 tonne / ha

GHG emissions

Total — **40,672 kg CO2e**



Cool Farm

3.1 Fertiliser inputs

Please provide information regarding the application rate of fertiliser per unit of growing area. Please keep in mind that you have the option to input data either based on 'fertiliser weight' or in terms of 'units' of the active ingredient, such as nitrogen (N).
If you cannot find your specific fertiliser type listed, you have two choices:
1. Select the fertiliser that closely matches your own and, if necessary, only specify the active element under 'fertiliser, weight, or units.'
OR 2. Select 'Compose your own NPK' and create the fertiliser by indicating the percentage of active ingredients and the nitrogen (N) composition.

Fertiliser Application 1

X Remove

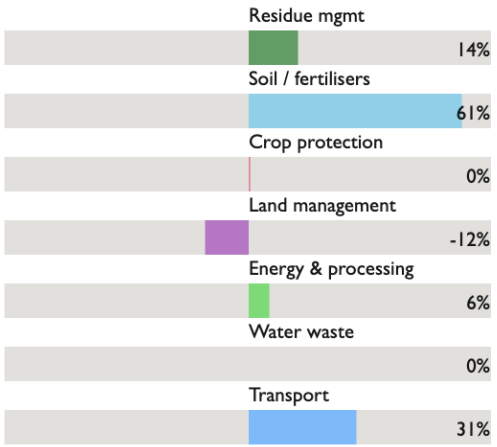
Fertiliser type	Ammonium nitrate - 33.5% N (granulated)
Production	Estimate production impact from region of origin
Manufactured in	Europe 2014

NB: if you choose the "custom fertiliser production impact" option, a warning message will be shown on the results page and in exported files. This feature should only be used where validated data is available, or where you wish to explore the potential impact of changes in fertiliser production technology.

Application rate	120 kg / ha
Fertiliser weight, or units?	units of nitrogen (N)
Application method	Broadcast
Date of application	dd/mm/yyyy
Emissions inhibitors	None

GHG emissions

Total — **40,672 kg CO2e**



Enter data for fuel and electricity. Usage data from meters and fuel records is most accurate, and should be entered in 4.1. If you do not have fuel data records for field operations, estimates of fuel use can be calculated in 4.2. Include all fuel used for applying inputs.

4.1 Direct energy use

Enter data for electricity and fuels used for crop production and on-farm processing.
If you enter all of your 'in field' energy in 4.1, then you should skip section 4.2 to prevent double-counting.

Energy usage 1

X Remove

Energy source: electricity (grid)

Energy used: 5,000 kWh

Category: Facility (processing)

Label: Add label

+ Duplicate

+ Add energy usage

4.2 Field operations energy use

Use this estimator for any individual field operations not captured in 4.1, above.

Fuel use 1

X Remove

Machine category: Tillage — 80.79 litres

Machine: roller harrow

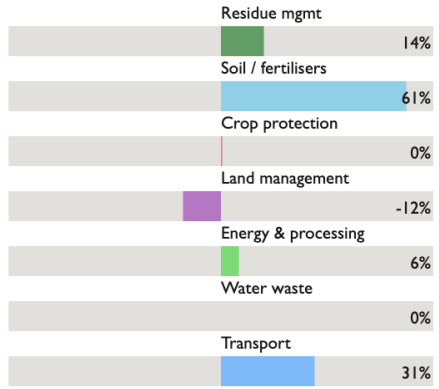
Fuel use: diesel (average biofuel

Number of operations: 3

Custom: ☑

GHG emissions

Total — 40,672 kg CO2e



6. Carbon changes & sequestration

Section 6.1 calculates the in crop carbon changes and section 6.2 calculates the out-of-crop carbon changes

6.1 In Crop carbon changes

Tick the relevant boxes below if you have made changes to land use, tillage, or carbon inputs in your assessment area during the last 20 years.

We appreciate that many crops are grown in rotation. As such, this guidance is for the field over the last twenty years - but the practices must be undertaken at least every three years to qualify.

Enter changes starting from the most recent intervention, working backwards to the first intervention undertaken.

The 'From' state of your oldest change is your baseline (i.e. the state prior to your first intervention).

☑ Has any part of the field management practice changed between tillage, land use or inputs in the last 20 years?

Current Management Practices

Land use	Tillage	Carbon Inputs
Cultivated	**Full**	**High C Input Without Manure**

Prior change 1

X Remove

Year of Change: 2003

allocation: 50 %

Land use: Cultivated (No change)

Tillage: Full (No change)

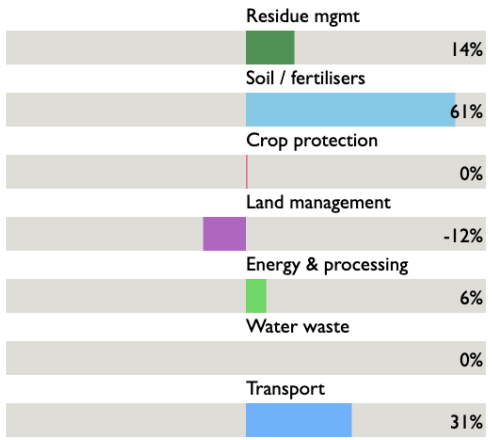
Carbon Inputs: Medium C Input >> High C Input without manure

Summary

Crop	Winter wheat
Year	2018
Farm-gate amount	120 tonne
Yield	8.00 tonne / ha

GHG emissions

Total: **40,672 kg CO2e**



7. Transport

Inbound transportation of inputs - such as manures from a neighbour, or fertiliser from the merchant - to your farm should be included. It is good practice to also include outbound transportation of finished crop and co-products from your farm to the processing or storage site.

7.1. Transport

For each transportation mode, calculate or estimate the weight of goods and distances transported. You may have to allocate bulk or shared transport, in which case add User notes on how this was done.

Transport entry 1

X Remove

Mode: road LGV diesel (light goods vehicle <3.5t)

Weight: 120 tonnes

Distance: 50 kilometres

Label: Add label

+ Duplicate

Transport entry 2

X Remove

Mode: ship small tanker (~1000t)

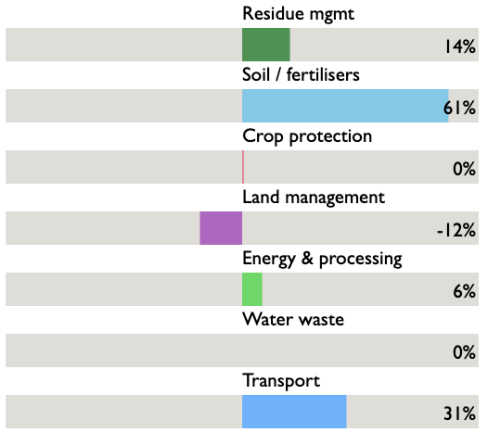
Weight: 120 tonnes

Summary

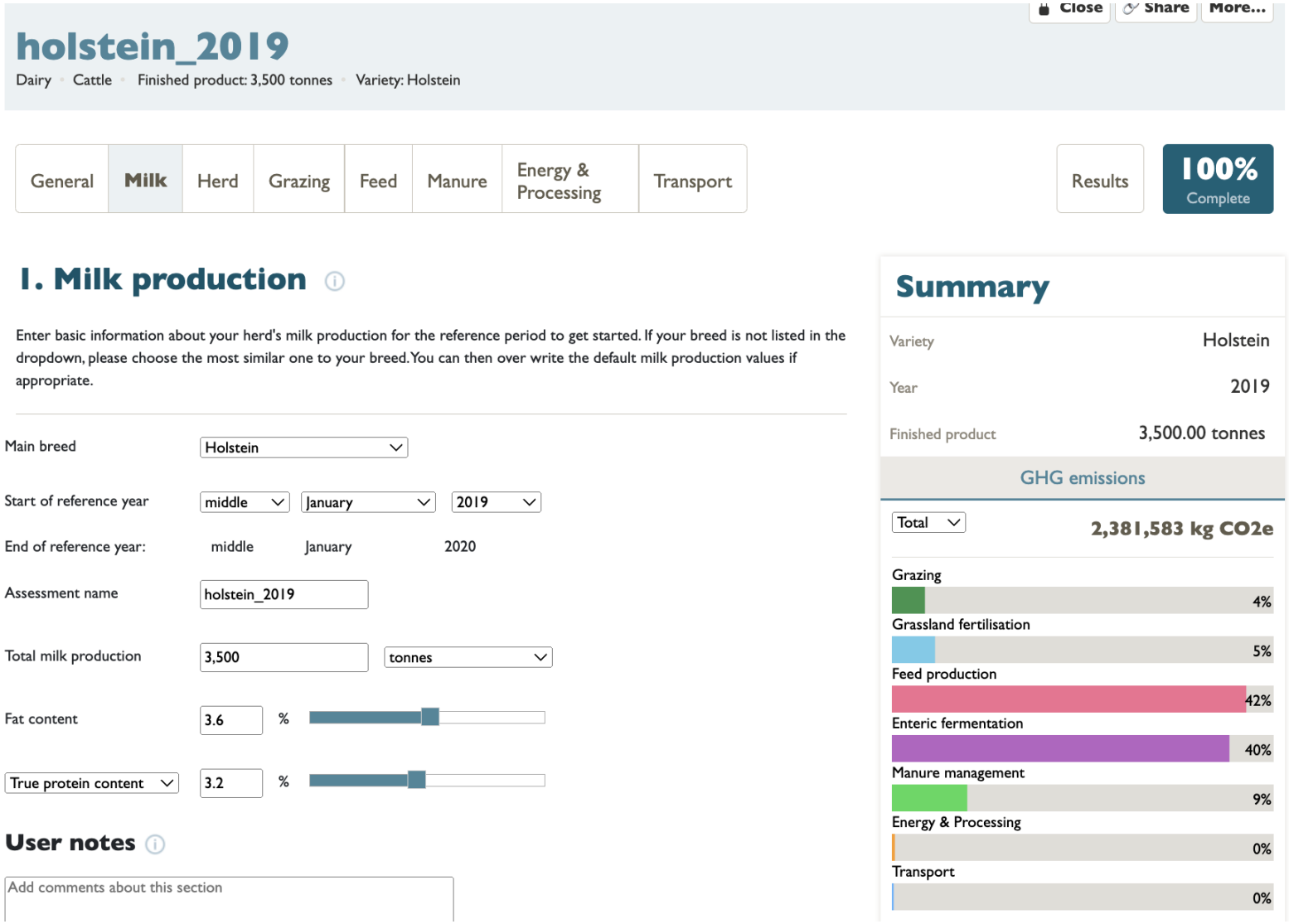
Crop	Winter wheat
Year	2018
Farm-gate amount	120 tonne
Yield	8.00 tonne / ha

GHG emissions

Total — **40,672 kg CO2e**



Dairy



Cool Farm

2. Your herd

Please fill in the average number of animals on the farm for the reference year, and the actual number of animals sold and the number purchased. If you indicate sold animals, the total milk footprint is reduced as a part of the emissions is allocated to the production of meat (the weight gain and used feed energy determine this). Dead animals are NOT included under sold animals, as the GHG footprint per milk/meat would be underestimated.

Live weight unit kilograms

Category	On-farm animals		Sold animals		Purchased animals	
	Number	Live weight	Number	Live weight	Number	Live weight
Milk cows lactating dairy cows	280	1,350	0	0	0	0
Dry cows non-lactating dairy cows	10	650	2	650	0	650
Heifers 1 year until first calving	10	435	0	435	0	435
Dairy calves 0-1 year for replacement of dairy cows	0	180	0	180	0	180
Meat calves 0-1 year for beef production	0	250	0	250	0	250
Nursing / suckling cows	0	601	0	601	0	601

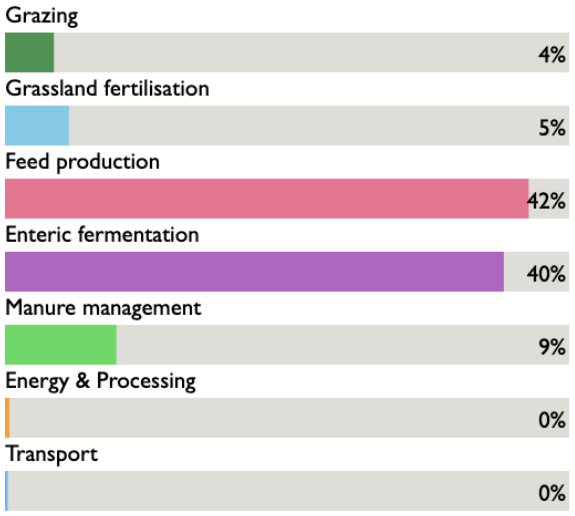
User notes

Summary

Variety	Holstein
Year	2019
Finished product	3,500.00 tonnes

GHG emissions

Total — **2,381,583 kg CO2e**



holstein_2019

Dairy • Cattle • Finished product: 3,500 tonnes • Variety: Holstein

General | Milk | Herd | **Grazing** | Feed | Manure | Energy & Processing | Transport

Results | 100% Complete

3. Grazing

Please provide the information to estimate the amount of grazing time, total days and average hours per day during the grazing period and the select the grazing type and grass quality.

Category	Days	Hours / day	Grazing type	Grazing quality
Heifers 1 year until first calving	250	14	Confined pastu	High
Milk cows lactating dairy cows	150	24	Rangeland / rou	High
Dry cows non-lactating dairy cows	100	20	Confined pastu	High

Grassland fertilisation

Edit Complete this section for the grazing area used by your dairy herd only.

Enter data on fertiliser application rate per unit of area. Note that you can enter inputs by 'fertiliser weight' OR by 'units' of the active ingredient, such as units of N (nitrogen).

If your fertiliser type is not listed, you can compose your own, selecting your own values for active ingredients.

Grazing, grass silage ai

Grassland area 80.937 hectares

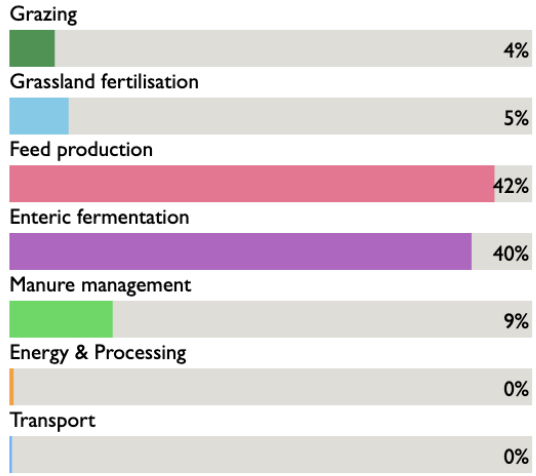
Complete this section for the grassland area used by your dairy herd only. Includes areas used for grazing and forage production.

Summary

Variety	Holstein
Year	2019
Finished product	3,500.00 tonnes

GHG emissions

Total — **2,381,583 kg CO2e**



Cool Farm

holstein_2019

Dairy • Cattle • Finished product: 3,500 tonnes • Variety: Holstein

General | Milk | Herd | Grazing | **Feed** | Manure | Energy & Processing | Transport

Results

100% Complete

4. Feed

If you know dry matter intake (DMI) values, select the first method. Otherwise, select the second method and the tool will estimate DMI.

☑ Dry matter intake per animal

Herd average DMI/day: 16.89 kg

Milk cows

Milk cows average DMI/day: 16.89 kg

Feed component: Grass fresh managed · | System boundary: At farm | **X Remove**

Region: Global (world)

DM / animal / day: 13.89 kilograms ⓘ

Use dry matter value calculated by the tool ☑

Feed component: Milk powder (dry mat | System boundary: At farm | **X Remove**

Region: Global (world)

DM / animal / day: 2.5 kilograms ⓘ

Feed component: Soybean cake/meal | System boundary: At plant | **X Remove**

Region

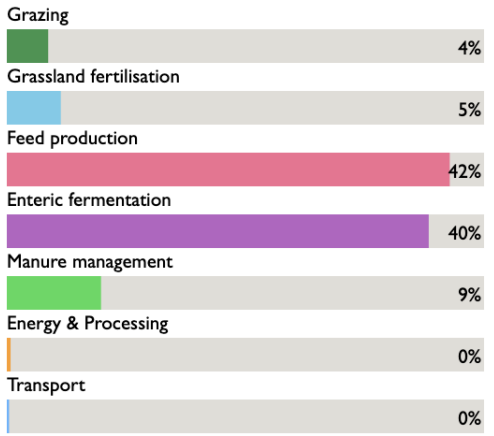
Summary

Variety	Holstein
Year	2019
Finished product	3,500.00 tonnes

GHG emissions

Total

2,381,583 kg CO2e



Cool Farm

5. Manure

Under manure management, only the manure that is collected while the herd is in the stable should be considered. The tool automatically calculates the manure "production" during grazing. Choose the a manure management types (excluding grazing) applicable to for each animal category in your herd. The percentage of the different management types should add up to 100 % per animal category . If no manure management is selected for an animal category, grazing will be assumed.

1 X Remove

Animal category: Milk cows (lactating d: | Type: Composting - Passive

Percentage: 60 %

2 X Remove

Animal category: Milk cows (lactating d: | Type: Anaerobic Digester, H

Percentage: 57 %

+ add manure management

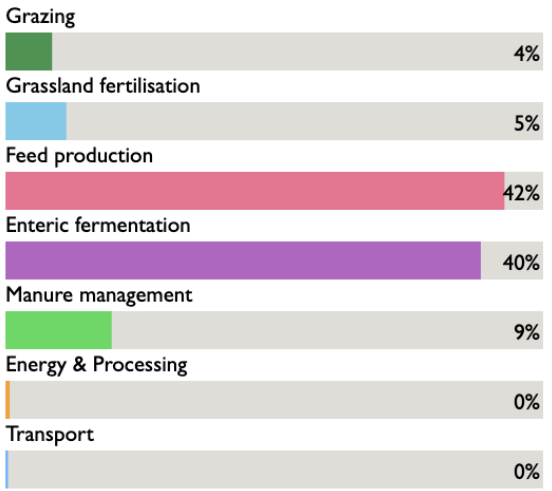
5.1 Bedding

Summary

Variety	Holstein
Year	2019
Finished product	3,500.00 tonnes

GHG emissions

Total — **2,381,583 kg CO2e**



6. Energy & processing

Energy use

Select the source of energy and enter the amount used during your one year reference period.

Include energy (fuel/electricity) used in the production of grass crops (grazing areas, hay, silage). Energy used in the production of non-grass crops grown on farm and entered in the Cool Farm Tool, is included in the Cool Farm Tool crop footprint and thus should NOT be included here

1 X Remove

Source: diesel (average biofuel

Usage: 5,000 litre

Label: Add label

+ Duplicate

2 X Remove

Source: electricity (grid)

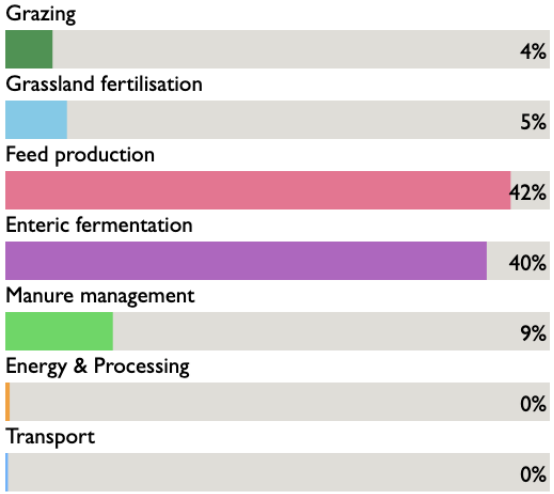
Usage: 4,000

Summary

Variety	Holstein
Year	2019
Finished product	3,500.00 tonnes

GHG emissions

Total — **2,381,583 kg CO2e**



Close | Share | More...

holstein_2019

Dairy • Cattle • Finished product: 3,500 tonnes • Variety: Holstein

General | Milk | Herd | Grazing | Feed | Manure | Energy & Processing | **Transport** | Results | **100%** Complete

7. Transport

Inbound transportation of inputs - such as feed from the mill, or fertiliser from the merchant - to your farm should be included. It is good practice to also include outbound transportation of finished products to the processing site.

Transport

For each transportation mode, calculate or estimate the weight of goods and distances transported. You may have to allocate bulk or shared transport, in which case add User notes on how this was done.

1 — X Remove

Mode	road LGV diesel (light	
Weight	54	tonnes
Distance	78	kilometres
Label	Add label	

+ Duplicate

2 — X Remove

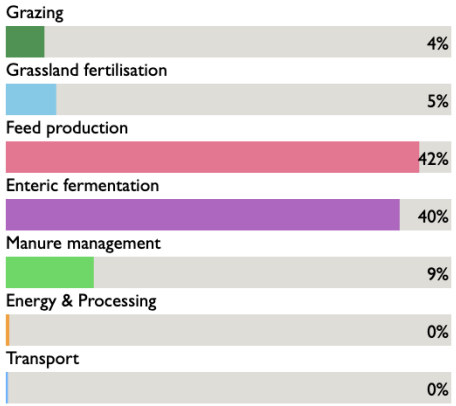
Mode	road LGV diesel (light	
Weight	54	tonnes
Distance	78	kilometres

Summary

Variety	Holstein
Year	2019
Finished product	3,500.00 tonnes

GHG emissions

Total — **2,381,583 kg CO2e**



Cool Farm

Start | **Farmed products** | Farming practices | Small habitats | Large habitats | results

Fill this in for THE CURRENT YEAR ONLY, for your whole farm (including cropped and uncropped areas)

1.1 How many different crops do you grow?

- ○ I have 1-3 types of crop
- ◉ I have 4-6 types of crop
- ○ I have more than 7 types of crop
- ○ I do not grow any crops
- ☐ I grow at least one rare or heritage type of crop, namely ..

1.2 Do you grow more than 1 variety of any of your crops?

- ○ No, always 1 variety of each crop
- ◉ Yes, for 1-2 of my crops I grow more than one variety
- ○ Yes, for at least 3 of my crops I grow more than one variety
- ○ Yes, for at least 1 of my crops I grow 4 or more varieties

1.3 Do you have any grassland? (at least 0.5Ha, including temporary grassland or leys, excluding grass margins)

- ◉ Yes, almost entirely perennial ryegrass
- ○ Yes, mixed grasses and less than 75% perennial ryegrass
- ○ Yes, grassland which includes clover and/or field flowers
- ○ No, I have no grassland

1.4 What farm livestock do you keep?

- ○ I have one species of livestock
- ◉ I have 2-3 species of livestock
- ○ I have 4 or more species of livestock
- ○ I have no livestock

Live Results

Name: Assessment-2023-02-07

Total area: 500

General | Species group

Start | Farmed products | **Farming practices** | Small habitats | Large habitats | results

Fill this in for THE CURRENT YEAR ONLY, for your whole farm (including cropped and uncropped areas)
Assessments are initially awarded 21% for not using conventional crop protection products, which can impact negatively on biodiversity if not managed appropriately. The 21% is lost when product types (insecticides, fungicides etc) are specified in question 2.3, but can all be won back for actions related to responsible use (2.4 - 2.8)

2.1 What type of crop protection products do you use?

- ◉ I use chemical crop protection products, including those approved for organic systems
- ○ I do not use any chemical crop protection products, either conventional or organic

2.2 What good practices do you use when applying crop protection products?

- ☐ I aim to reduce my use of pesticides to protect wildlife
- ☐ I use GPS for precision spraying
- ☐ I use specific technologies to reduce pesticide drift (such as low drift nozzles, or an air-assisted or wing sprayer)
- ☐ I sometimes or always replace conventional crop protection products with biological pest control, UV light or crop protection products certified under organic agriculture
- ☐ None of the above

2.3 What do you target with crop protection chemicals?

- ☑ Insect pests
- ☐ Fungi and diseases
- ☐ Nematodes
- ☐ Weeds
- ☐ Potato haulms
- ☐ Other targets, namely...

2.4 What good practices do you use when controlling pest insects?

- ☑ I never spray preventatively. I base my decision to spray on thresholds for observed damage in the field
- ☐ I never spray preventatively. I base my decision to spray on the number of pest insects, either measured in the field or based on a decision support system
- ☐ I only spray affected areas
- ☐ I target my spraying on pest insect species only, avoiding beneficial insects (predators or pollinators)

Live Results

Name: Assessment-2023-02-07

Total area: 500

General | Species group

Cool Farm

Start | Farmed products | Farming practices | **Small habitats** | Large habitats | results

Fill this in for THE CURRENT YEAR ONLY, for your whole farm (including cropped and uncropped areas)

3.1 Do you have areas of grass and flowering plants that are not for production?

- [ ] Yes, verges along roads or tracks
- [ ] Yes, field corners
- [ ] Yes, field margins or areas left uncultivated, with naturally occurring grasses and flowering plants
- [ ] Yes, field margins or areas cultivated annually to encourage annual flowering plants and grasses (annual flowering plants could be sown)
- [ ] Yes, field margins or areas sown with perennial flowering seed mixes (nectar and pollen for beneficial insects)
- [ ] Yes, field margins or areas sown with perennial grasses
- [ ] Yes, sown with seed-rich plants as food and cover for birds
- [ ] No, none of the above

3.2 What management do you carry out in perennial grassy or flower-rich areas (not suitable for annual flowers or wild bird mixes)?

- [ ] Grassy or flower-rich areas are mown only between mid-July and September
- [ ] Grassy or flower-rich areas are mown in phases, so there is always some longer vegetation available
- [ ] If mown, cuttings are removed
- [ ] Grassy or flower-rich areas are grazed, but not between March and June
- [ ] None of the above

3.3 Do you have hedgerows?

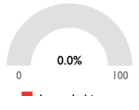
- [ ] I have hedgerows
- [ ] Hedgerows are pruned no more than once every 3 years (or every 2 years during dormancy), with gaps filled by re-planting or laying
- [ ] I have no hedgerows

Live Results

Name: Assessment-2023-02-07

Total area: 500

General | Species group



Start | Farmed products | Farming practices | Small habitats | **Large habitats** | results

Fill this in for THE CURRENT YEAR ONLY, for your whole farm (including cropped and uncropped areas)

4.1 Do you own or manage larger areas (at least 1 ha) of natural habitat that are designated or managed solely for nature conservation?

- [ ] Yes, natural grassland or heathland (do not include areas of grass and flowering plants recorded as small natural habitats in a previous question)
- [ ] Yes, wetland (bog, mire, marsh, reed bed or open water)
- [ ] Yes, forest
- [ ] Some natural habitats on the farm are designated as protected areas, nationally or internationally (includes Natura 2000 sites, Special Areas of Conservation)
- [ ] No, none of the above

4.2 How would you describe the landscape surrounding your farm?

- ( ) A diverse landscape, with small fields, traditional farming practices and frequent patches of natural habitat
- ( ) An intermediate landscape, with a mix of traditional and modern farming practices and some patches of natural habitat
- ( ) A landscape dedicated to modern, technological food production, with large, productive fields and little natural habitat

Back | Save As | **Save & continue**

Live Results

Name: Assessment-2023-02-07

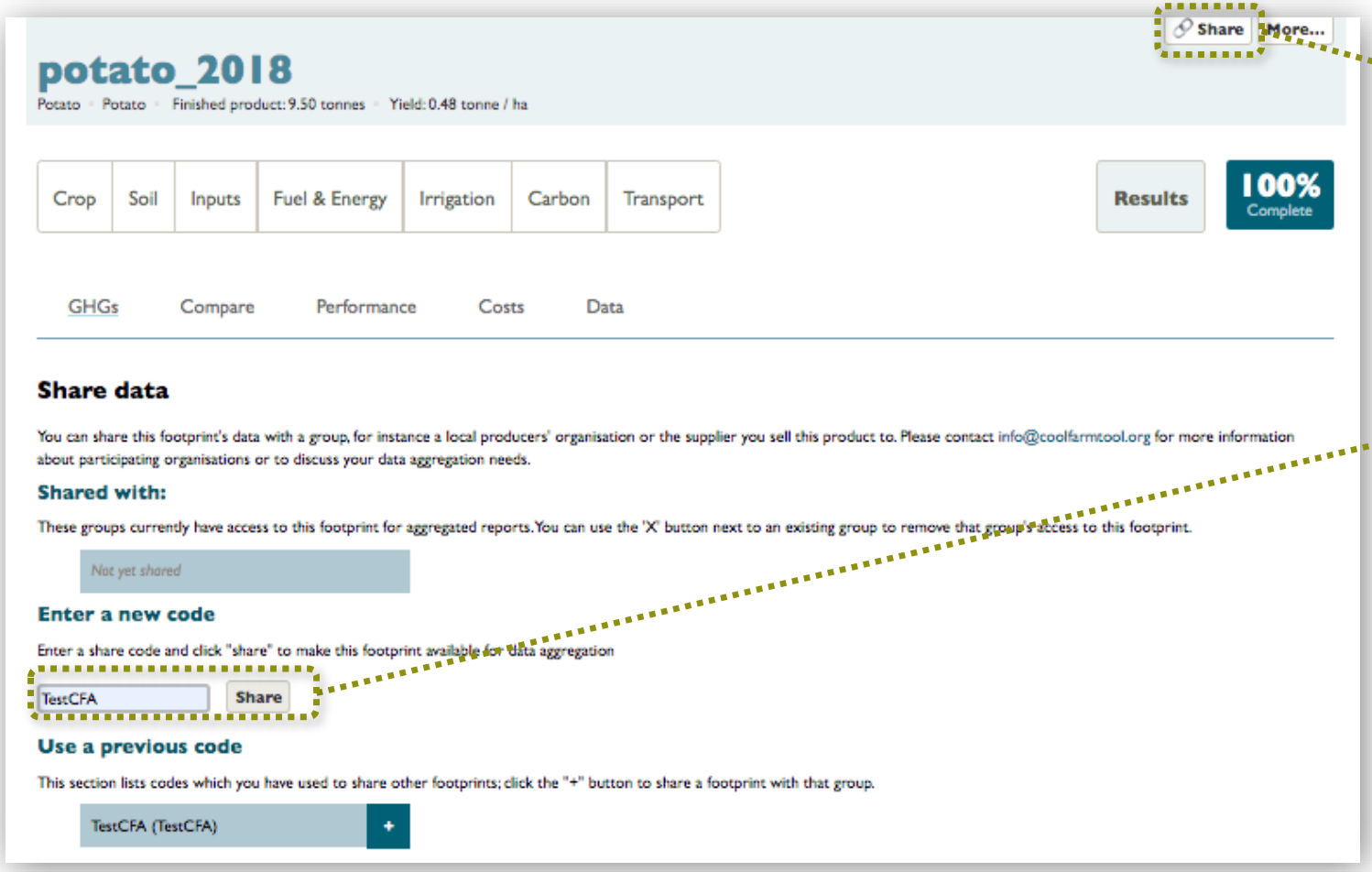
Total area: 500

General | Species group

Cool Farm

Live Demo End

Data aggregation for reporting on project-level outcomes



1. After finishing an assessment, click on 'Share' in the top right corner.

2. Enter the Sharecode in the box and click on 'share'.

Currently for dairy & crops only

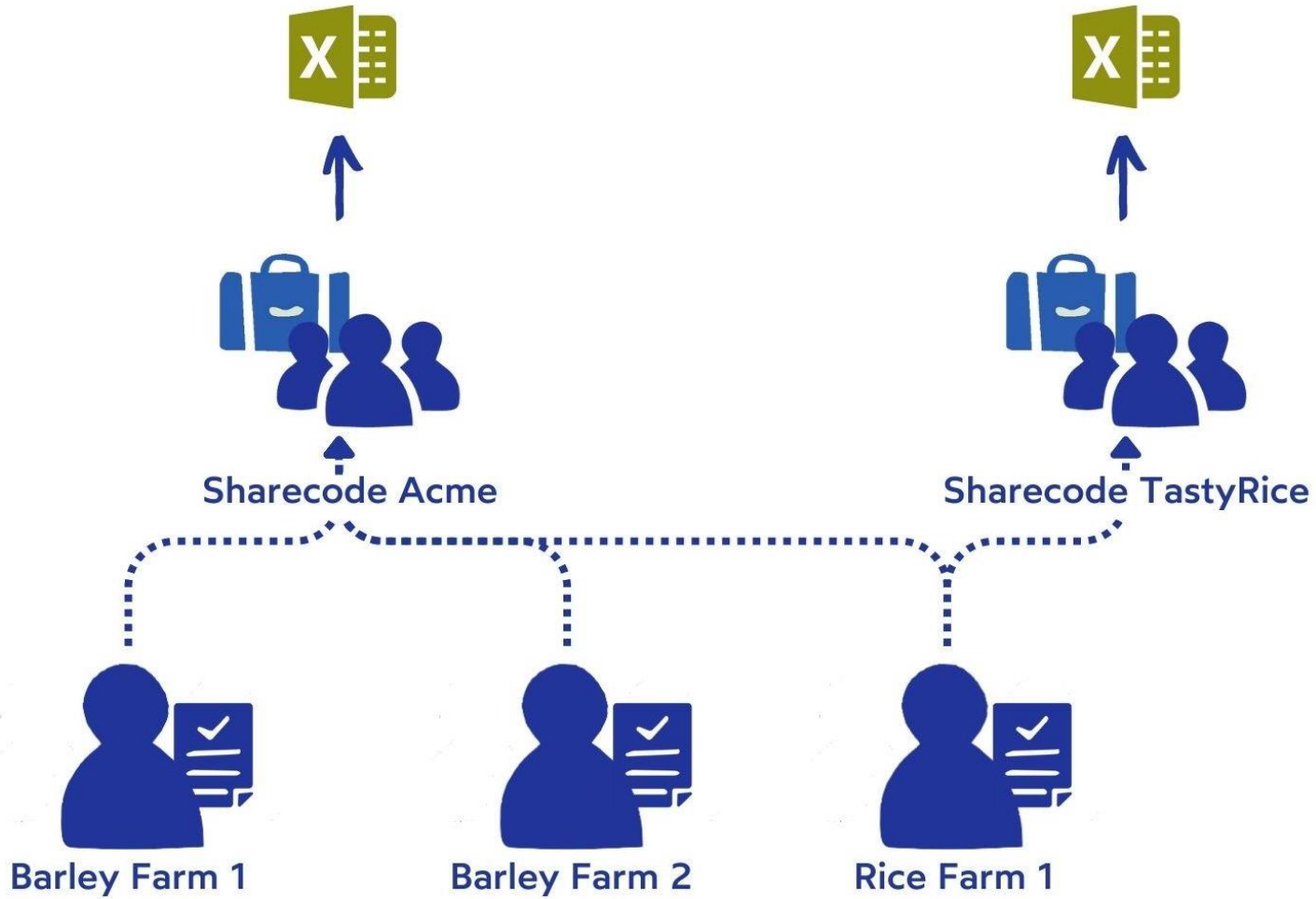
Data aggregation for reporting on project-level outcomes

Aggregated data report

Sharecode Administrator (Project manager)

Sharecode

Farmer/User

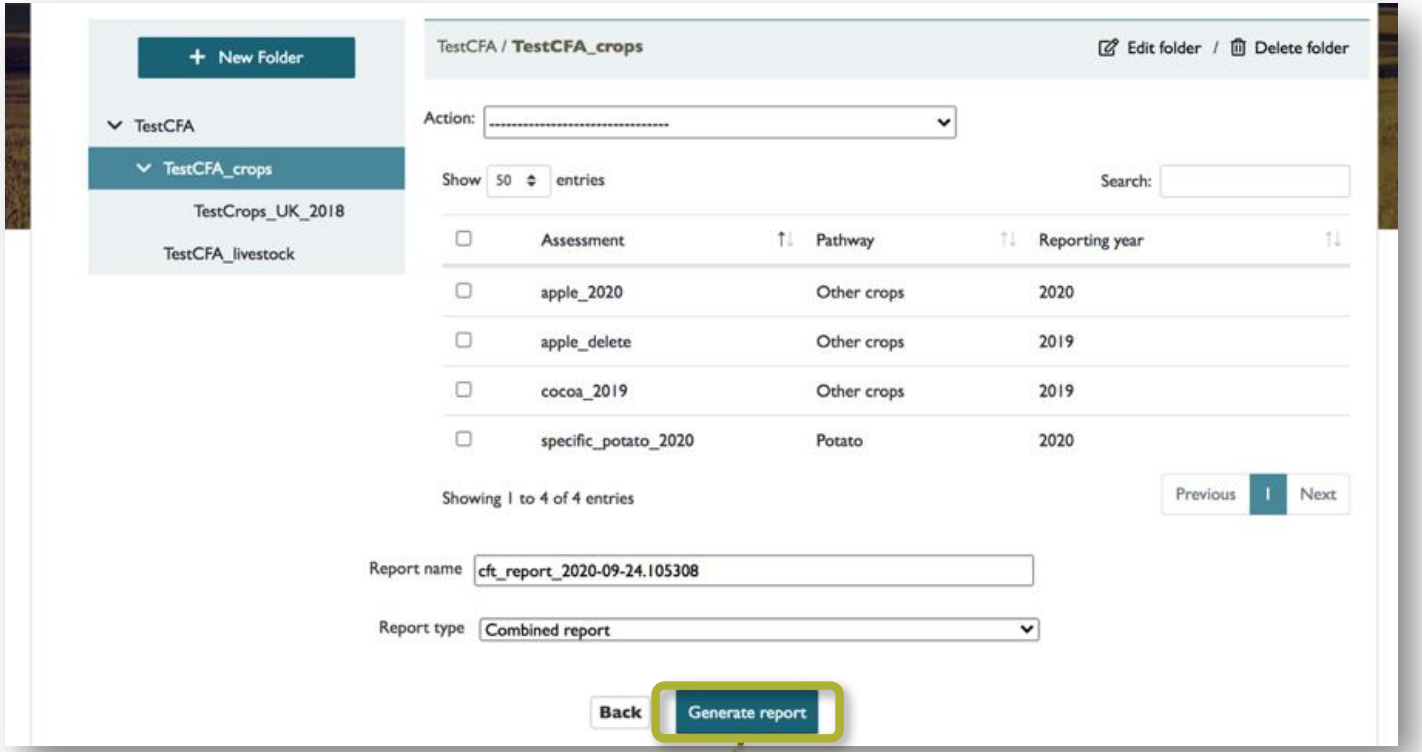


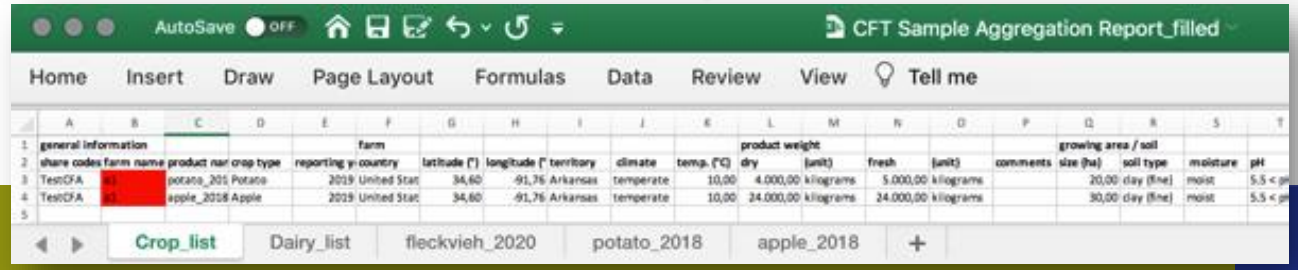
Data aggregation for reporting on project-level outcomes

Project managers can administer sharecodes in the 'Aggregation' tab:

- Create subfolders to organize and move assessments;
- Export aggregated data per folder as Excel report.

The report includes most input data & results (emissions total & per source). Each assessment is displayed as 1 row in the crop/dairy list, as well as in a separate sheet. Farm names are visible or hidden depending on initial setup (see red fields in Excel).





Example Projects

Straus Family Creamery

California, US

Goal
Create a replicable net carbon neutral dairy farm model by 2030.

Results
- Over 50% reduction in greenhouse gas emissions at Straus Dairy Farm measured against a 2003 baseline.

Scale
- 13 organic dairy farmers.
- ~8,000 acres.

Product(s)
Dairy & Pasture Forage.

5 Key Practices
- Novel micro-anaerobic biodigester technology for small-scale dairies (reduce CH4 by 90% & produce renewable energy).
- Electric vehicle fleet.
- Red seaweed fed (potential of 90% less enteric emission).
- Rotational grazing for soil health and carbon sequestration.
- Compost application for soil health and carbon sequestration.

Cool Soil Initiative

Australia (New Sth Wales & MIA, Victoria, Queensland)

Goal
Combat drought and other climate change impacts by working with farmers and supply chain partners to improve soil quality, quantify and reduce greenhouse gas emissions.

Results
- Built a replicable model for supply chain collaboration at scale.
- 95% farmer retention rate.
- Built a Scope 3 measuring, reporting and verification (MRV) framework for supply chain partners.
- Reduction in emissions of 31 kg CO_2 eq/ tonne wheat[1], reflecting mainly seasonal conditions, improved measurement as well as practice adoption.
- 50 percent increase in proportion of paddocks (fields) with a legume in rotation.
- 56 percent increase in proportion of limed-incorporated paddocks (fields).
- $2 million commitment towards soil health and regenerative agriculture.

Partners
- Mars Petcare, Kellanova, PepsiCo.
- Farming groups: Riverine Plains Inc. Central West Farming Systems, FarmLink, MIA, IREC.
- **Cereal processors:** Manildra Group, Allied Pinnacle, Corson.
- **Non-profit:** Sustainable Food Lab, Charles Sturt University, Food Agility Cooperative Research Centre.

Scale
- From 20 farmers in 2018 to 200 in 2023.
- ~340,000 hectares involved.

Key Practices
- Free soil testing per individual field due to big soil differences.
- practice change advice, farmers choice what to implement.
- Individualised reports benchmarked regionally.
- no-till, livestock integration, precision fertilizer application etc.

Example Projects

Kynetec

Global

Goal
To support scope 3 emissions management and reduction with annually collected primary data collected from a statistically representative sample of farmers for each commodity/country.

Results
Depends on client use.

Crop(s)
Crops: Apple; Barley, Spring; Barley, Winter; Coffee; Cotton; Dry Beans; Grapes / vine; Green Peas; Maize; Sweet; Oats, Spring; Oranges; Peanuts; Potato; Pumpkin; Rape, Spring; Rape, Winter; Rice; Rye, Winter; Snap bean; Sorghum millet; Soybean; Sugar beet; Sugarcane; Sunflower; Triticale, Winter; Wheat Durum; Wheat, Spring; Wheat, Winter.

Livestock
Beef, Dairy, Swine, Poultry (Eggs and Meat).

Region(s)/ Country(s)
Argentina; Australia; Brazil; Canada; China; Denmark; France; Germany; Hungary; India; Indonesia; Italy; Mexico; Poland; Romania; Russia; South Africa; Spain; Thailand; Turkey; United Kingdom; USA; Vietnam.

Key Practices
Uses the CFT data to develop a software to show the interplay of different regenerative practices and how they impact overall farm performance and economic sustainability:
- Cover crops
- Tillage
- Fertilisers and carbon programme enrolment

Part of ***Farmers for Soil Health Initiative*** = largest winner of the USDA Climate Smart Commodity Grant, enrolling 1.3 million acres to regenerative agriculture in the USA.

Suntory

USA, Mexico, UK

Goals
- Net zero greenhouse gas emissions across the entire value chain by 2050.
- Reduce emissions across whole supply chain by 30% by 2030 from 2019 baseline.

Crop(s)
Barley, Wheat, Blackcurrant, Agave.

Wheat in the United States
In the United States, Maker's Mark's became the first distillery in the world to receive recognition from Regenified, a leading agricultural certification, for its progress in regenerative agriculture at its 1,110-acre Star Hill Farm.

Costco's

USA

2013, all of Costco's organic egg producers in the US used the Cool Farm Tool to quantify greenhouse gas emissions from their operations. Through use of the tool, and by encouraging dialogue and sharing of good practice among producers, the company observed a 25% reduction in greenhouse gas emissions. This achievement was made in 3 years without emission reduction targets being set.

Costs of Project use

Commercial Company Use

- For businesses, government agencies etc. (EPA, USDA NRCS, state agencies, soil and water conservation districts, etc.), NGOs (watershed groups, environmental organisation, farm trade associations, etc.)
- Fee aligned to the equivalent membership tier based on size of company, consortium or project scope
- Share codes and extended assessment limit for the project duration
- Not included: Participation in CFA governance and member only activities

Membership fees on our website. For project requests, get in touch with us at support@coolfarmtool.org.

Academic Research Project.

- For studies/project of registered research organisation
- Project fee based on the scope, scale and duration of the research
- Share codes and extended assessment limit for the project duration
- Not included: Participation in CFA governance and member only activities
- Project use form

Cool Farm

Resources

- **Cool Farm** Knowledge Base: home to the most up to date FAQs, known issues/ error messages within the (CFT) and resources (such as user guides).
- Technical Description including the methodology and emission factors of the current Cool Farm Tool version CFT 2.0 can be found within the web app.
- Videos for first steps and registration on our website resources page. Other videos for completing demo can be shared after project registration.
- Cool Farm Impact Report 2023.
- Any type of question can be sent to: support@coolfarmtool.org.

Q&A

- Permanence, avoidance vs mitigation
- Nitrogen use efficiency and soil health

…

Thank you

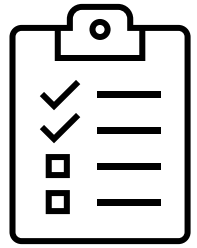
Questions?

Contact us at:

support@coolfarmtool.org

Next steps in our outcomes estimation journey

- ❑ Join April 3 for the Critical Source Area Identification and Management webinar
- ❑ Fill out the 8-question (2-min) online evaluation survey
- ❑ Schedule a free "coaching" session with us
  - ❑ **Email atappross@farmland.org, RE: Coaching Request**
- ❑ Order a free print copy of the OET Guide
  - ❑ Keyword: "AFT outcomes tools"



Please keep in touch:
outcomestools@farmland.org

Aysha

American Farmland Trust