SIMAP

SUSTAINABILITY INDICATOR MANAGEMENT & ANALYSIS PLATFORM

SIMAP® 101

Review and refresh on the carbon and nitrogen accounting platform

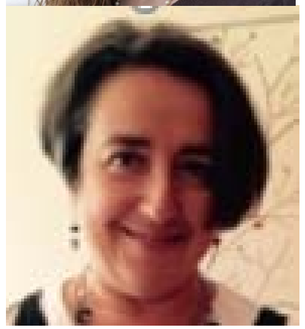
UNH Sustainability Institute

University of New Hampshire

Introduction

Jennifer Andrews, Program Director

Allison Leach, Post Doctorate Researcher



Yulia Rothenberg, Program Assistant

These training slides will be posted on https://unhsimap.org/cmap/resources/training

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Agenda

1. **Background**

   History, goals and methods

2. **Data entry and customization**

   Navigating the tool

3. **Results and reporting**

   Managing data, utilizing outputs and accessing support

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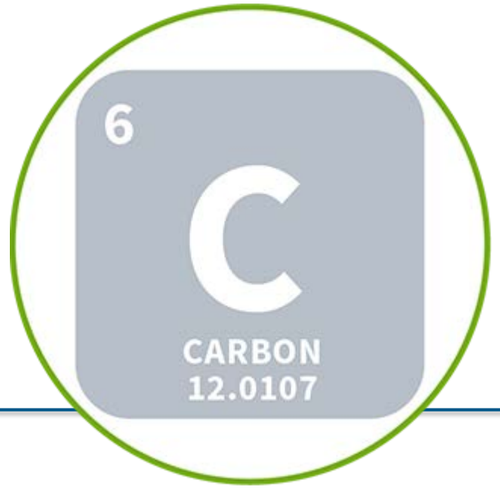
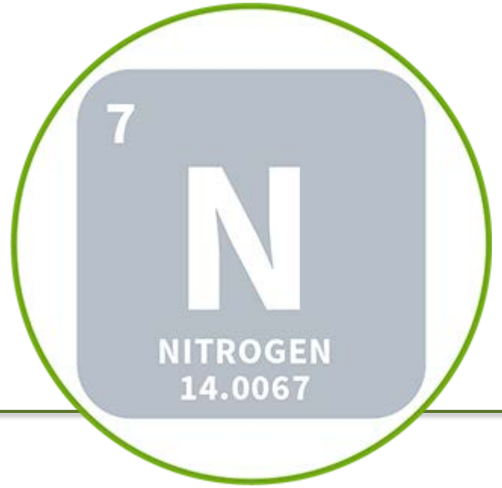
What is SIMAP?



UNH Sustainability Institute

- Developed in 2001 at UNH
- Excel and web version
- Used by **thousands** of institutions



N Print

- Developed in 2009 at UVA
- Excel-based
- Used by 20 institutions
- **Completed pilot testing**

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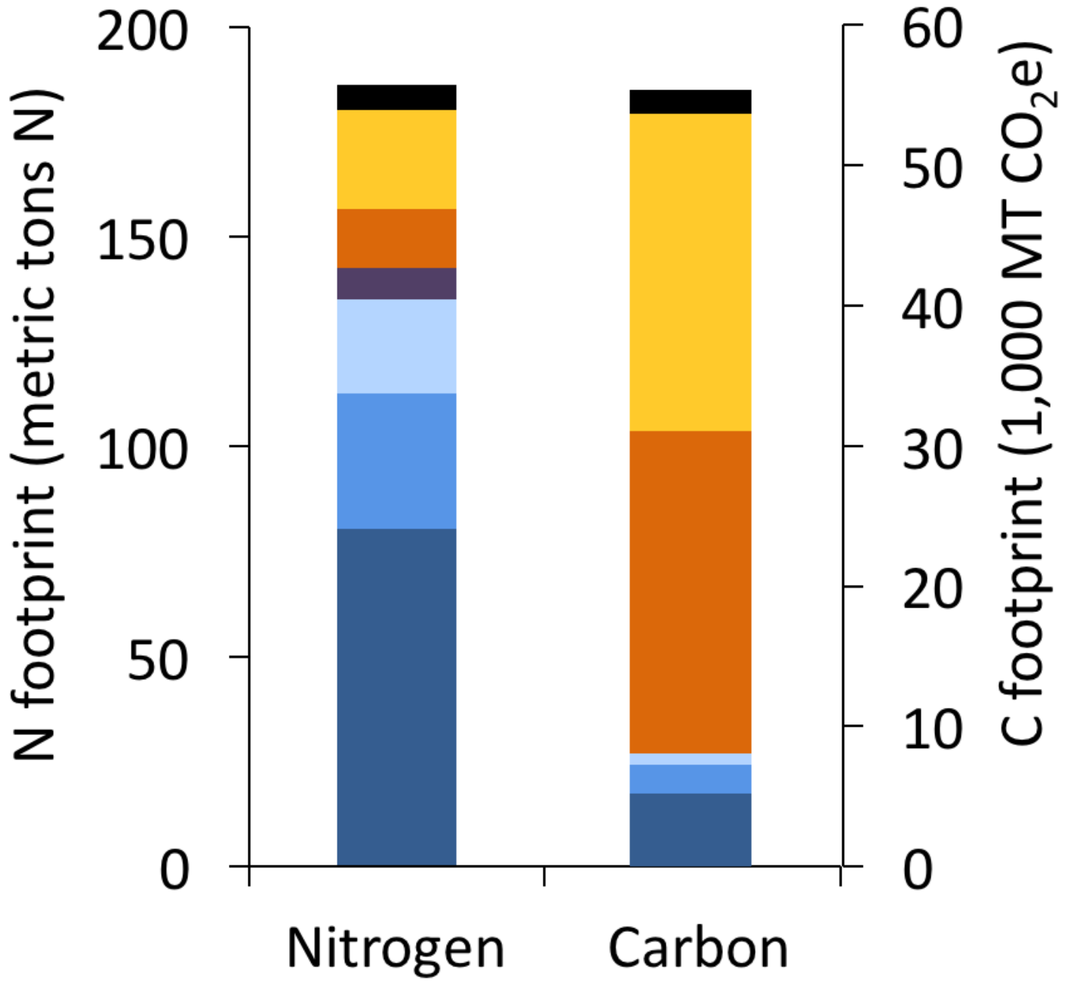
What is a nitrogen footprint?



Food is key sector for nitrogen

Energy sectors are key sector for carbon

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Protocols, Standards and Partners

Scientific Modeling

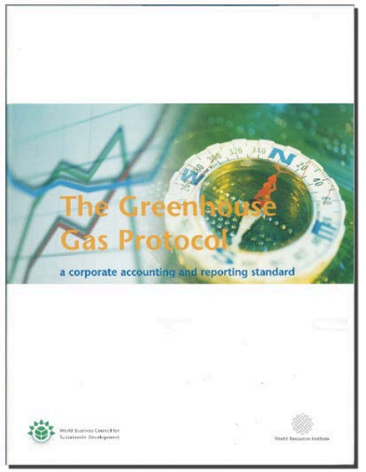
Intergovernmental Panel on Climate Change (IPCC)

Nitrogen Footprint Network

Accounting

GHG Protocol

GREENHOUSE GAS PROTOCOL



Reporting

Second Nature

AASHE

Second Nature

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How does SIMAP work?

Enter your inventory data:

Scope 1

- On campus stationary
- Direct transport
- Agricultural sources
- other

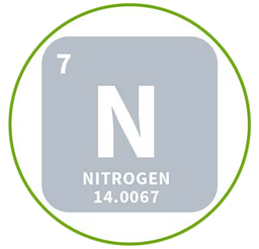
Scope 2

- Electricity
- Steam
- Chilled water
- Renewable energy

Scope 3

- Commuting
- Food
- Wastewater
- other

Carbon footprint



Nitrogen footprint

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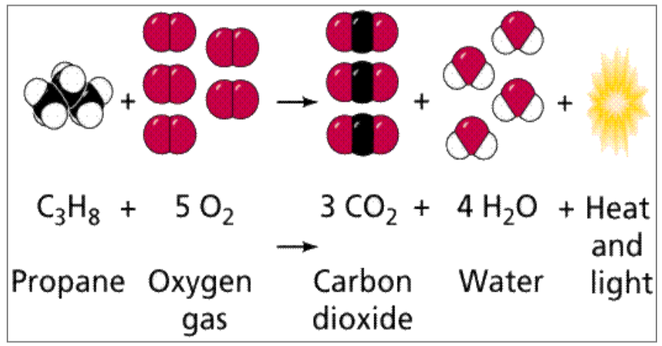
Calculations

Activity Data

X

Emissions Factor



= **Emissions** from a given source

Weight and total these for:

1. Metric Tons Carbon Dioxide Emissions (MTCDE) or
2. Metric Tons Nitrogen (N)

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Key Concepts

- Boundaries
  - Organizational Boundaries (Equity vs Control)
  - Operational Boundaries (i.e. Scopes)
  - Temporal Boundaries (i.e. Baseline)
- “Anthropogenic” vs Biogenic Emissions
- “De Minimus” Threshold
- Global Warming Potential

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What is different from CCC and CarbonMAP?

Updated Methodology

- Scope 1: On-site renewable energy
- Scope 2: Purchased and sold renewable energy
- Scope 3: Commuting (and student travel to/from home), Air Travel
- Biogenic allocation for incinerated waste
- Sinks and offsets
- Weighted campus users

Emission Factors

See 'Resources' tab in SIMAP for details and future updates

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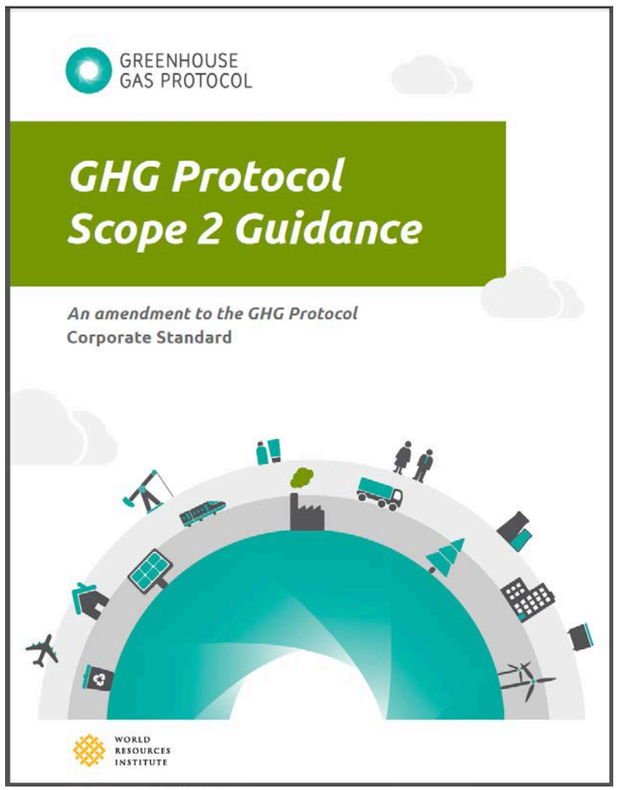
Methodology Change: Scope 2

Organizations are now required to do two approaches to calculation and reporting, then select one for use in CAP:



Location Based

Shows the actual emissions of electricity consumption from a specific grid region

Market Based

Captures the impact of specific supplier relationships and voluntary participation in renewable energy markets and programs

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Functionality

Feature /Level	Basic	Tier 1
Cost	Free	$350 per year
Data access	2 months	One Year
Data import/export	N/A	Available from 3 formats
Sectors	Existing scopes 1-3	Existing scopes 1-3
Support level	Basic technical	Advanced
Emission factors	Basic	Customized
Report template	N/A	Two report formats
Data review	N/A	Data review by UNHSI

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Development plans

1. Tier 2
   - Multi-campus accounts – beta testing in February
   - Complete scope 3
2. Annual Emission Factor Updates
3. Future Possibilities
   - Projections and Solutions
   - Additional “indicators”
4. User-driven Evolution

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Why SIMAP?

Because it's….

- Efficient
- Credible and accurate
- Aligned with other platforms
- Transparent, customizable and user- friendly
- Contributing to a Sustainable Learning Community, and Higher Ed Leadership

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SIMAP

SUSTAINABILITY INDICATOR MANAGEMENT & ANALYSIS PLATFORM

HOME | ABOUT | RESOURCES

USER LOGIN

Username *

Password *

▶ CREATE NEW ACCOUNT

▶ REQUEST NEW PASSWORD

LOG IN

SIMPLIFYING SUSTAINABILITY DECISIONS

SIMAP® is a carbon and nitrogen-accounting platform that can track, analyze, and improve your campus-wide sustainability. Our proven algorithms, based on nearly two decades of work supporting campus inventories with the Campus Carbon Calculator, CarbonMAP and Nitrogen Footprint Tool, will help you:

- **Create a baseline**
- **Benchmark your performance**
- **Create reports**
- **Set goals**
- **Analyze your progress year over year**

GET STARTED!

NEWSFEED

January 22, 12-1 EST: Reporting with SIMAP: overview and refresher webinar. Register here.

Request projections for food reduction scenarios tool for nitrogen and carbon.

Check out the AASHE webinar presented on 10/17/18 on importance of food data collection and how to do it in SIMAP.

SIMAP data review appointment request and data review document are on our Support page.

Graphs are now interactive! Check them out on the results tab and review the user guidance for how to use them.

www.unhsimap.org

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Account Setup

Please see a detailed training presentation about how to setup and upgrade your account on our training page:

https://unhsimap.org/cmap/resources/training

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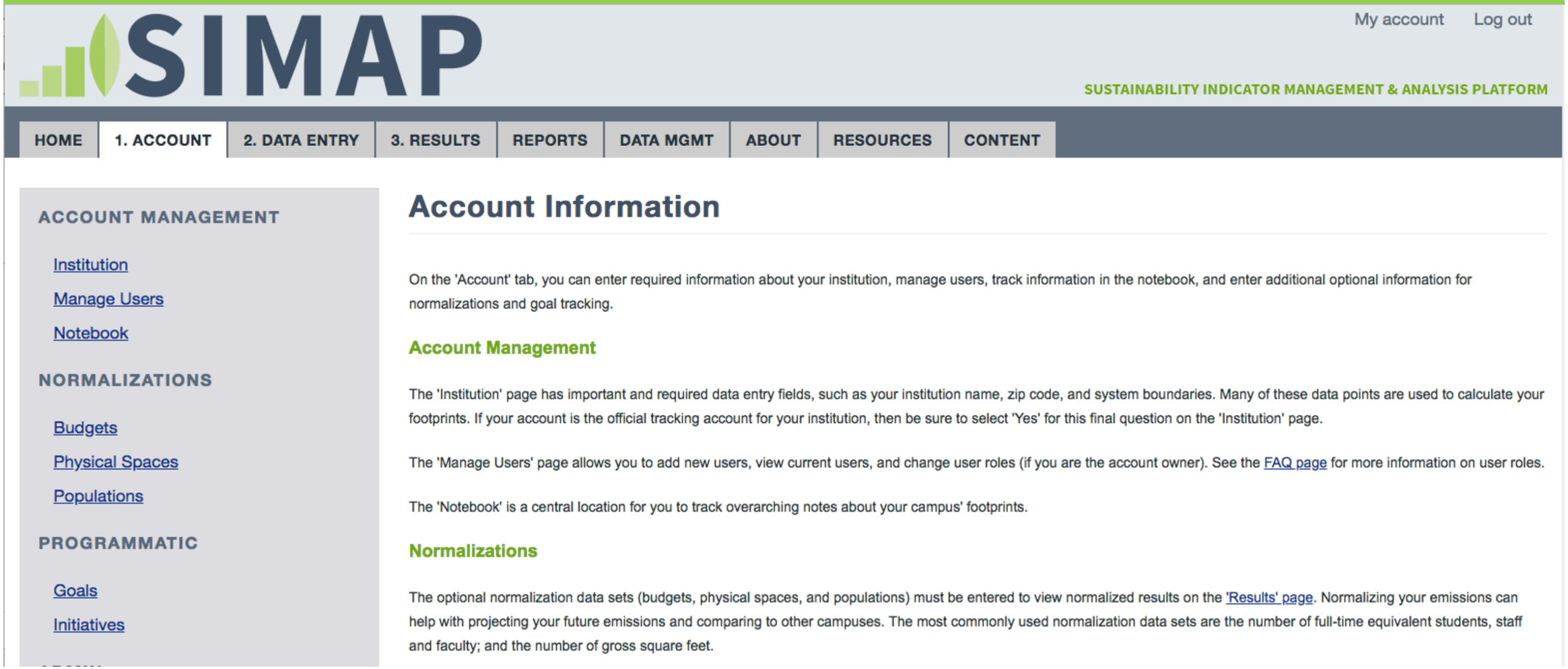
Account: Institution information



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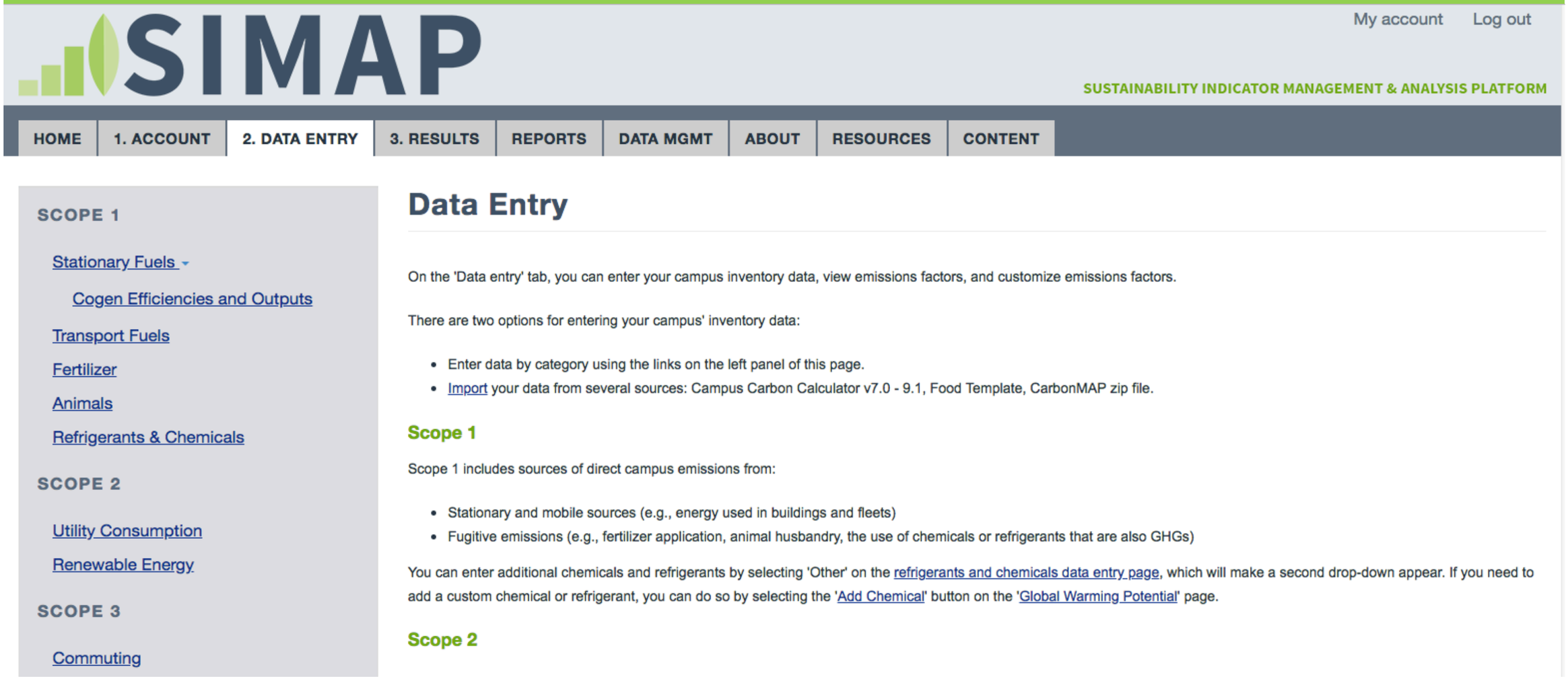
Data entry: landing page



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Data entry: Other sectors

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

SCOPE 1

- Stationary Fuels
  - Cogen Efficiencies and Outputs
- Transport Fuels
- Fertilizer
- Animals
- Refrigerants & Chemicals

SCOPE 2

- Utility Consumption
- Renewable Energy

SCOPE 3

- Commuting
- Business Travel & Study Abroad
- Student Travel to/from Home
- Food
- Paper
- Waste & Wastewater

SINKS

- Compost
- Non-Additional Sequestration
- Offsets

CALCULATION FACTORS

- Emission Factors
- Utility Emission Factors
- Food Conversion Factors
- Global Warming Potential
- Unit Conversions

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Data entry: manual

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

SCOPE 1

- Stationary Fuels
  - Cogen Efficiencies and Outputs
- Transport Fuels
- Fertilizer
- Animals
- Refrigerants & Chemicals

Scope 1: Stationary Fuels Data

ENTER DATA

Filter by start date >= YYYY-MM-DD

Filter by end date <= YYYY-MM-DD

Filter by source

- Any -

FILTER

Click column headers to change sorting.

Start Date	End Date	Category	Source	Label	Quantity	Unit	Confidence	Action
2016-07-01	2017-06-30	On-Campus Stationary Sources	LPG (Propane)	CCC: LPG (Propane) 2017	84,875.00	US gallon	Medium	Edit | Delete
2016-07-01	2017-06-30	On-Campus Stationary Sources	Other	CCC: Cogen Other 2017	590,746.00	MMBtu	Medium	Edit | Delete

For manual data entry,
click on the enter data button

Data entry: Scope 1 stationary (for on-site renewables)

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

If you generate renewables on your campus:

- Report any on-campus renewable generation in Scope 1 stationary
- Indicate whether you retain/own RECs for this installation in Scope 1 stationary

If there are RECs purchases or sales, where do you enter the purchase or sale of those RECs?

---> Scope 2

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Data entry: Scope 2 utilities & renewables

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

SCOPE 2

Utility Consumption

Renewable Energy

REQUIRED for all users:	REQUIRED if you have renewable purchases or sales:
• Total electricity consumption from the grid (kwh)	• Enter renewable kwh (purchased or sold) in scope 2 data entry • Note: This WILL BE duplicative data entry

This is a change from location-based to market-based accounting, according to updated GHG Protocols

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Data entry: Food

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

1

REQUIRED food data entry:

- Date range
- Label (descriptive text)
- Food category 1
- Weight
- Unit (kg, lb)

2

OPTIONAL food data entry:

- Vendor name
- Organic
- Local
- Food category 2 & 3 (multi-ingredient)
- Dollars
- Confidence level
- Notes

3

FOOD SCALING FACTORS

For more information:

- User's Guide (Resources tab)
- Food Template (Resources tab)

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Data entry: food uploader

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

Food data entry

**Required field in SIMAP*

Start date*	End date*	Label*	Weight*	Unit*	Organic	Local	Category 1*	Category 2	Category 3	Vendor

DATA MANAGEMENT

- Status
- Import
- Export
- Delete Year

Import

Note: Years in the upload are treated as fiscal years based on the s
07-01 to 2017-06-30.

Upload File

Choose File | No file chosen

Type *

- ○ Campus Carbon Calculator v7.0 - 9.1
- ◉ Food Template
- ○ CarbonMAP zip file

UPLOAD Cancel

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Data entry: Sinks and offsets

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

SINKS

- Compost
- Non-Additional Sequestration
- Offsets

Add Offsets Data

Home / Offsets Data / Add

Source *

Select source

Composted by *

- (•) Campus
- ( ) Third party provider

Used as soil amendment on campus? *

- (•) Yes
- ( ) No

Origination *

- (•) Third-party project developer (i.e., Purchased)
- ( ) On-campus, by institution or through partnership (i.e., Produced)
- ( ) Off-campus, by institution or through partnership (i.e., Produced)

Type *

- ( ) Land-based (e.g., afforestation, reforestation)
- (•) Other (e.g., anaerobic digester, community energy project

Verification *

- ( ) Third party verified
- ( ) Peer-reviewed
- (•) Unverified

Data entry: calculation factors

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

CALCULATION FACTORS

- Emission Factors
- Utility Emission Factors
- Food Conversion Factors
- Global Warming Potential
- Unit Conversions

Food Conversion Factors

This table provides conversion factors used in the food calculations. The nitrogen content is based on the protein content of food (protein is 16% nitrogen), "Conventional" describes the food production nitrogen loss factors used for conventional food, "Organic" describes the food production nitrogen loss factors used for organic food, "Miles" describes the average number of miles that food travels to be consumed, "Waste" is the average % of food waste by food category, and "Truck capacity" is used to calculate how many trips are necessary to deliver your food. These factors cannot be edited in the current version of SIMAP, but please let us know if you would like to modify any of them.

Version: 2017

Food Category	Nitrogen Content	Conventional virtual N factor (kg N loss / kg N food)	C footprint (kg eCO2 / kg food)	Food transport distance (miles)	Local food transport (miles)	Food waste	Truck capacity (kg)
Meat: Chicken	0.02782	4.2	5.05	950	250	0.15	22700
Meat: Pork	0.02825	4.7	6.87	950	250	0.15	22700
Meat: Beef	0.02916	11.3	26.45	950	250	0.15	22700
Dairy & eggs: Milk	0.00633	3.1	1.34	250	250	0.15	22700

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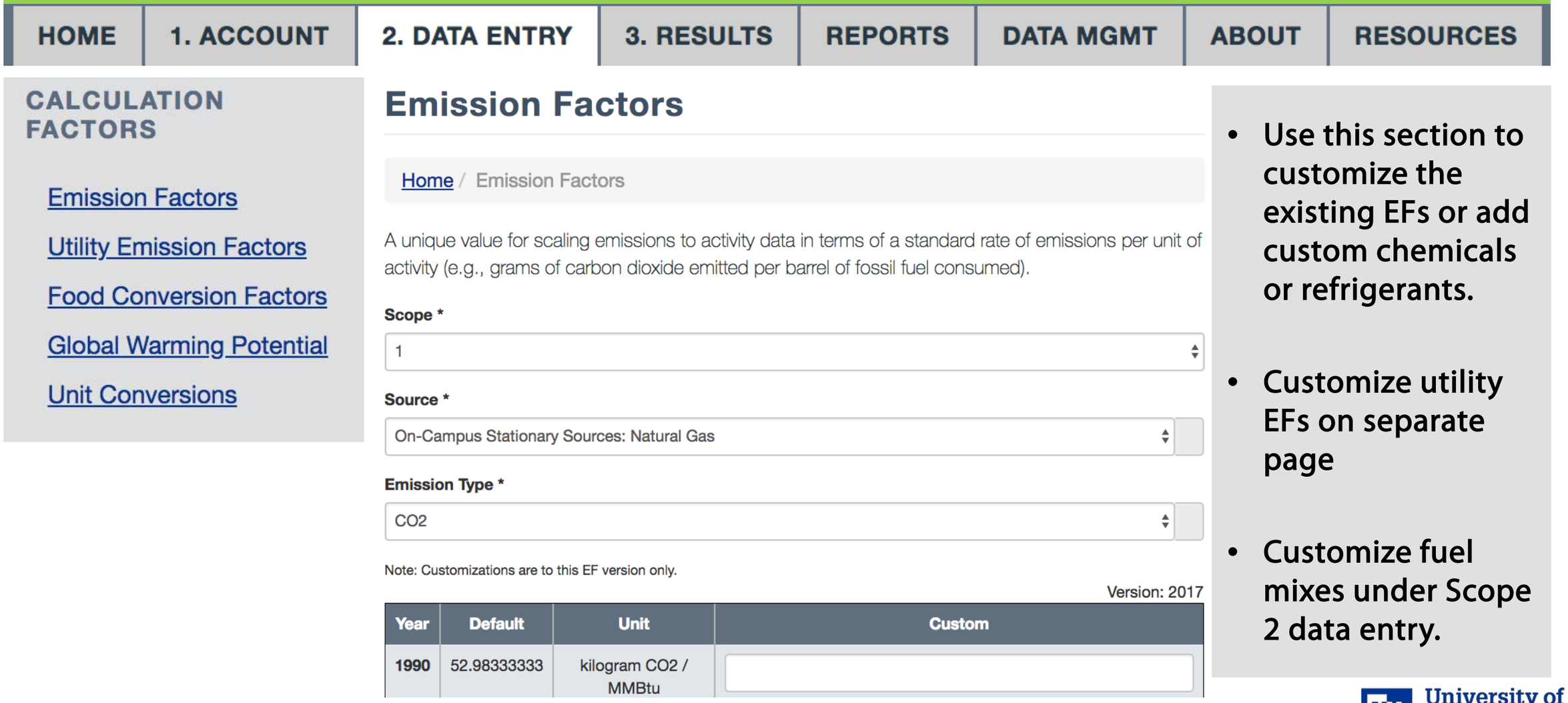
Data entry: customization – *Tier 1 only*



- Use this section to customize the existing EFs or add custom chemicals or refrigerants.
- Customize utility EFs on separate page
- Customize fuel mixes under Scope 2 data entry.

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Results: select parameters

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

3. Results

Footprints *

☑ Carbon ☑ Nitrogen

Report Type *

○ Total footprint ○ Scopes ◉ Categories ○ Sources ○ Gas/pollutant

Scope 2 Method ⓘ *

◉ Market-Based ○ Location-Based ○ Custom Fuel Mix

Graph Type *

○ Line ◉ Bar

Fiscal Year Range *

2025 - 2025

Normalization

None

CALCULATE

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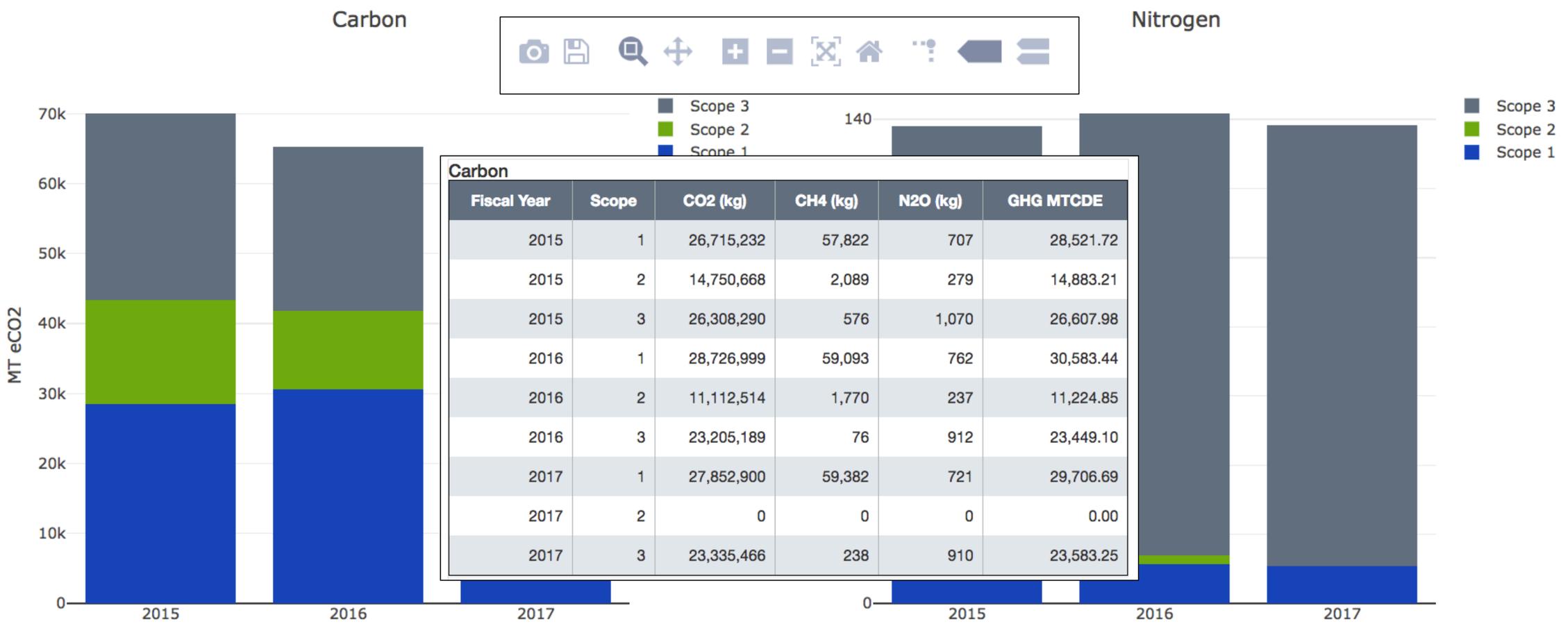
Results: scopes selection

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES



Carbon

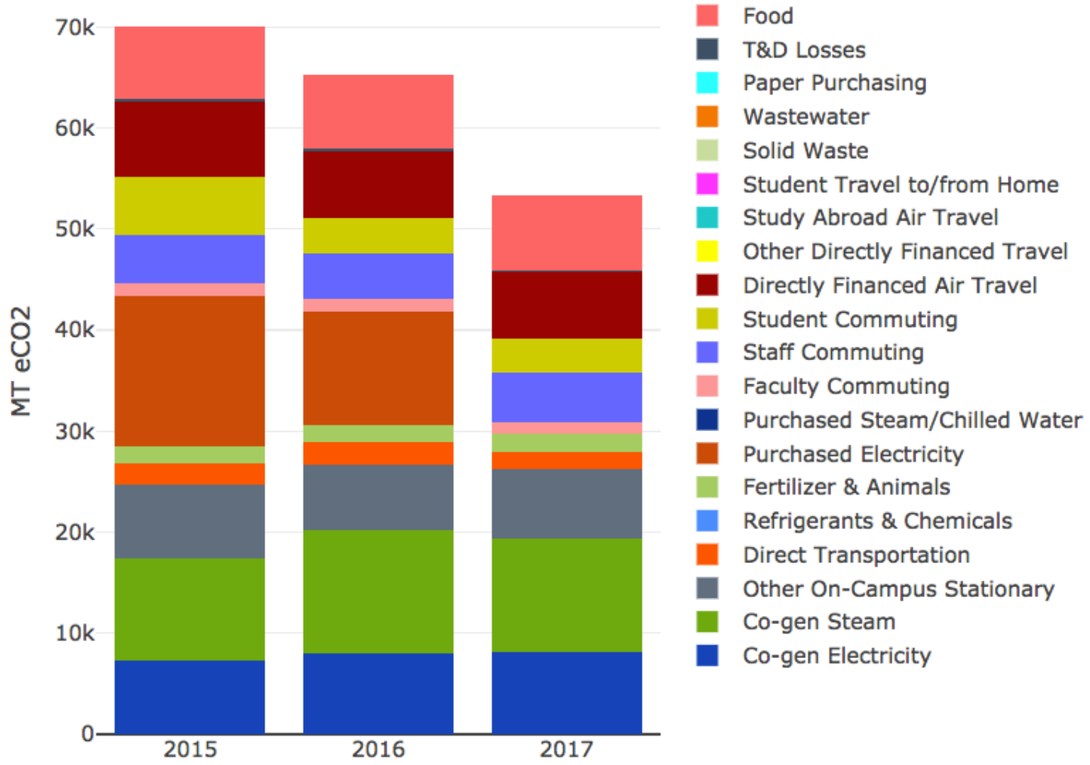
Fiscal Year	Scope	CO2 (kg)	CH4 (kg)	N2O (kg)	GHG MTCDE
2015	1	26,715,232	57,822	707	28,521.72
2015	2	14,750,668	2,089	279	14,883.21
2015	3	26,308,290	576	1,070	26,607.98
2016	1	28,726,999	59,093	762	30,583.44
2016	2	11,112,514	1,770	237	11,224.85
2016	3	23,205,189	76	912	23,449.10
2017	1	27,852,900	59,382	721	29,706.69
2017	2	0	0	0	0.00
2017	3	23,335,466	238	910	23,583.25

The results display in a graph and a table below.

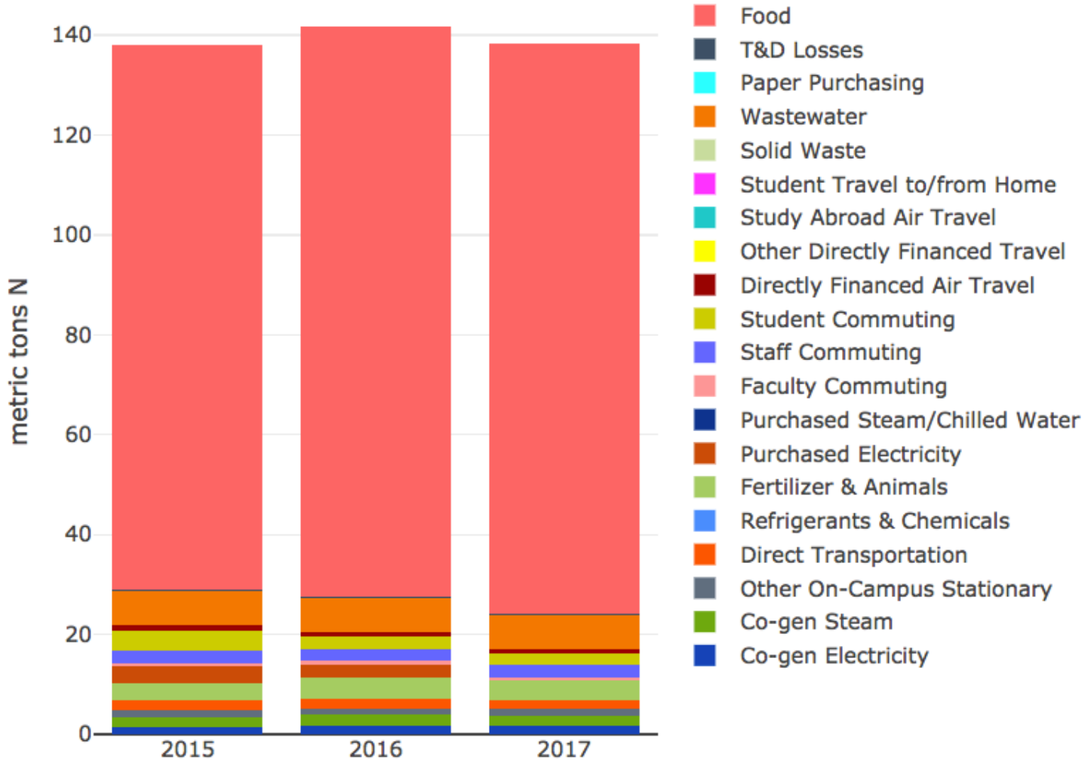
Results: categories selection

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

Carbon



Nitrogen



The results display in a graph and a table below.

Annual Report – *Tier 1 only*

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

Reports

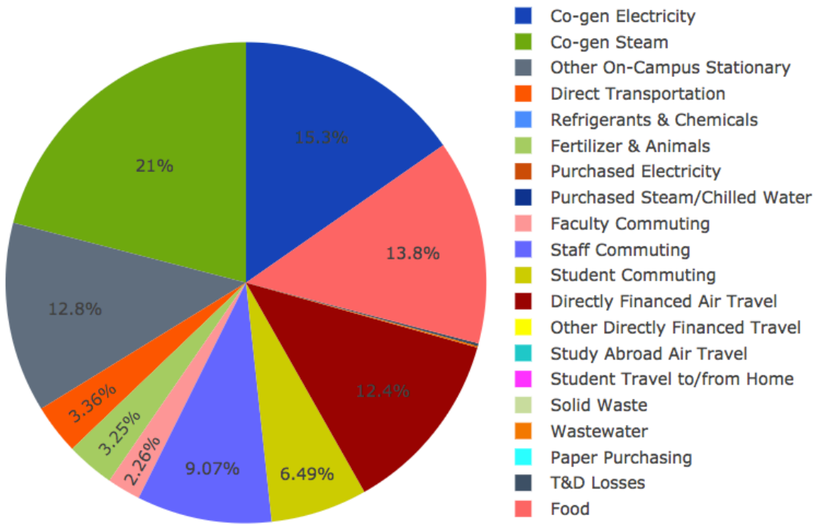
Report Annual Report

Footprint * (•) Carbon ( ) Nitrogen

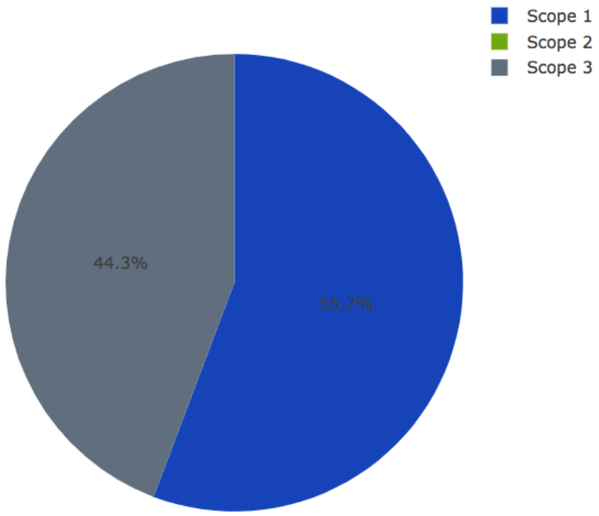
Year * 2017

DISPLAY EXPORT

Carbon: 2017



Carbon: 2017



- The reports tab provides an overview for an entire year.
- You can export the tables
- This is equivalent to the S_Annual tab in CCC

Second Nature Report – *Tier 1 only*

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | ABOUT | RESOURCES

Reports

Using Market-Based Scope 2 Method.

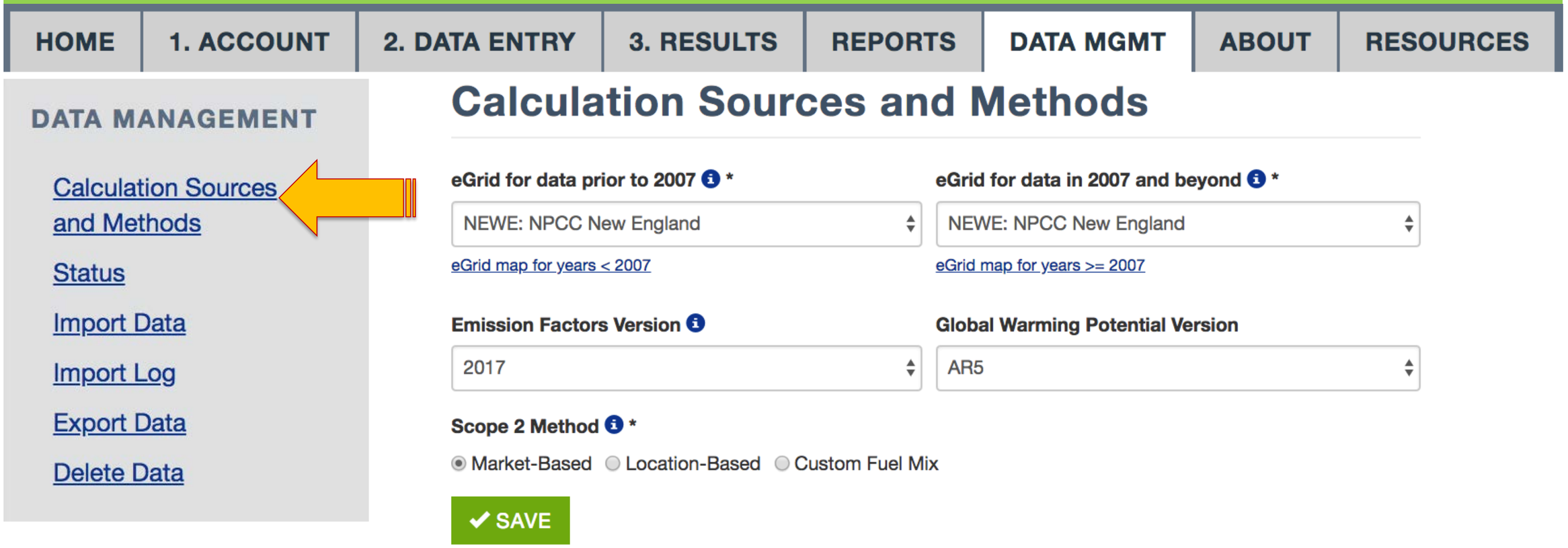
Report: Second Nature | Year *: 2017 | DISPLAY | EXPORT

Categories

Fiscal Year	Scope	Source	CO2 (kg)	CO2 (MTCDE)	CH4 (kg)	CH4 (MTCDE)	N2O (kg)	N2O (MTCDE)	GHG MTCDE
2017	1	Fugitive Emissions	0	0.00	56,400	1,579.21	575	152.36	1,731.57
2017	1	Mobile Combustion	1,762,268	1,762.27	300	8.40	82	21.76	1,792.43
2017	1	Stationary Combustion	26,090,632	26,090.63	2,682	75.09	64	16.97	26,182.69
2017	3	Air Travel	6,614,728	6,614.73	66	1.83	75	19.98	6,636.55
2017	3	Commuting	9,295,360	9,295.36	1,779	49.82	603	159.86	9,505.04

- This report tab provides an overview of the data for Second Nature reporting platform.
- Go to https://secondnature.org/signatory-handbook/simap/ for instructions on how to export the data into the Second Nature reporting system.

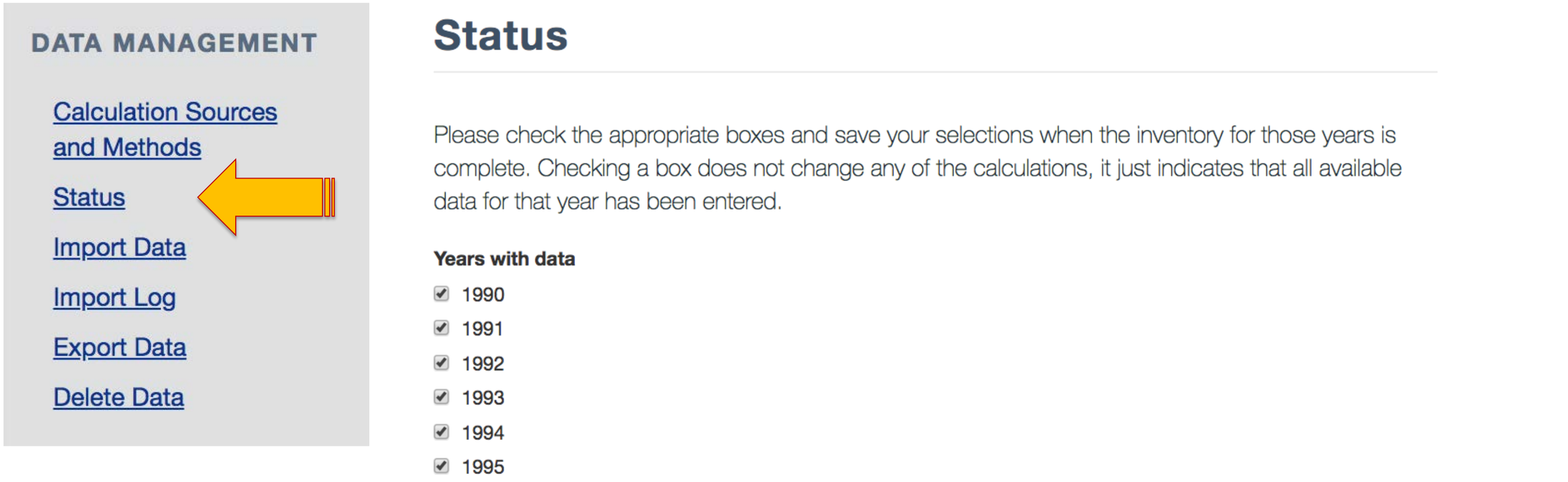
Data management: calculation methods



Important method selections in Data Mgmt include:

- Select your NERC region for eGrid
- Emissions factors version
- Purchased electricity method
- Global warming potential version

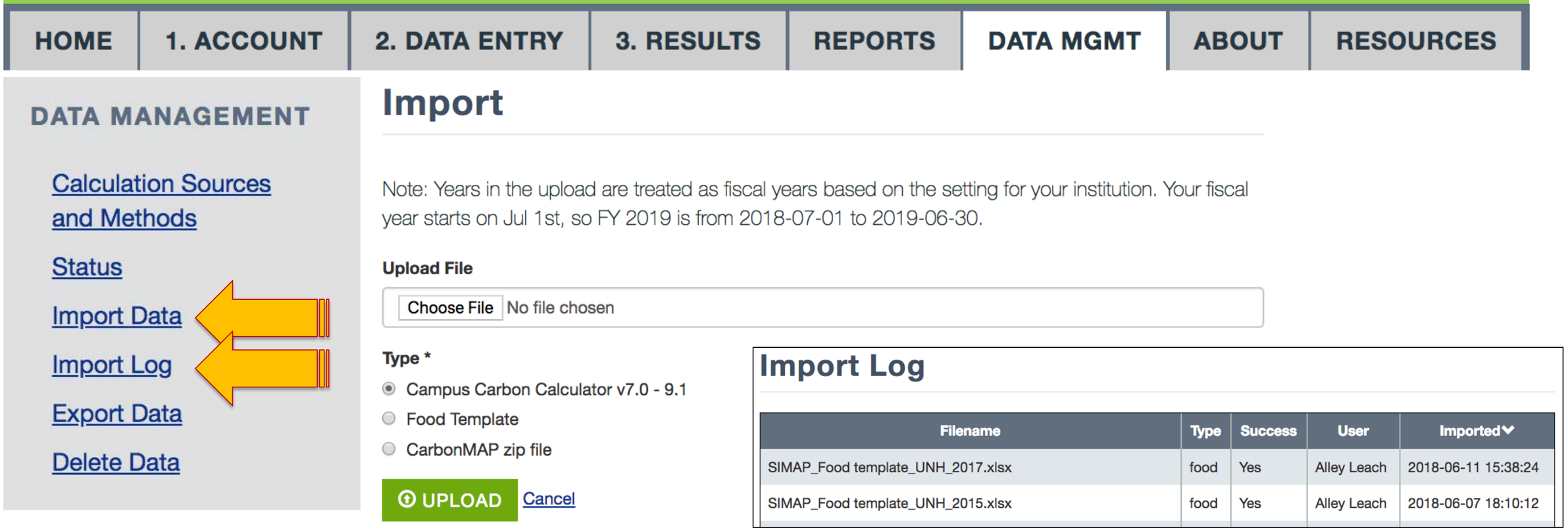
Data management: status



Check the status box for your completed years of inventory.

This is required to enable the Second Nature API export.

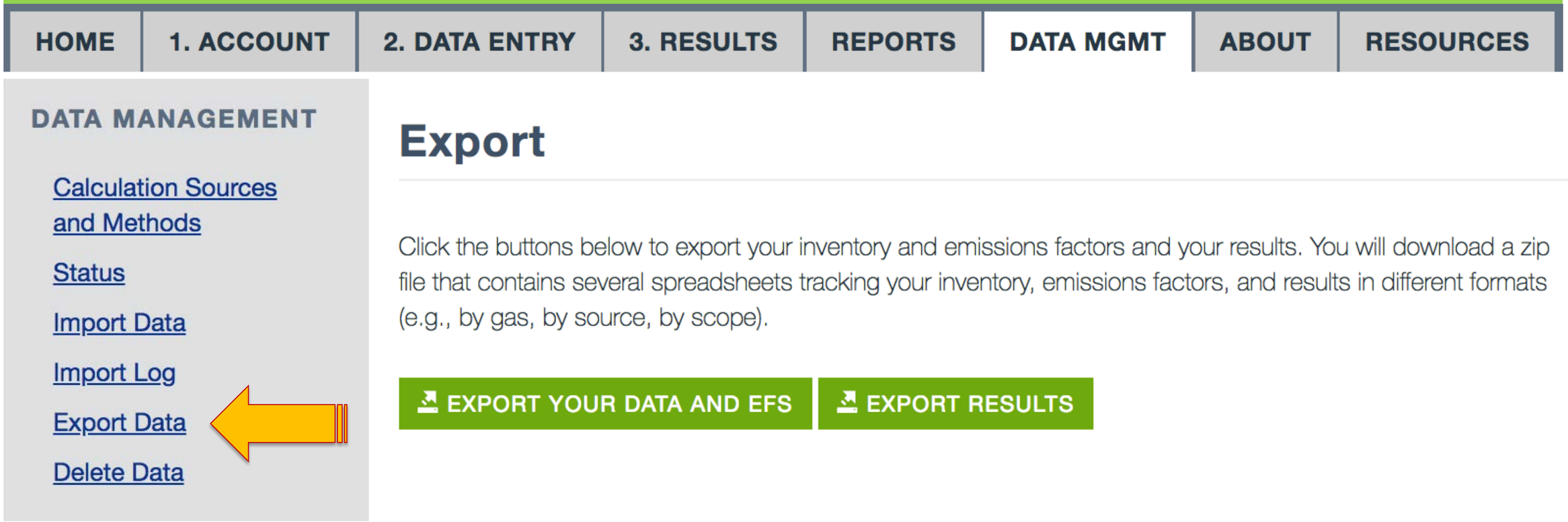
Data management: import data – *Tier 1 only*



You can import data from several sources:

CCC and CMAP; a data collection file on the Resources page; and the food template

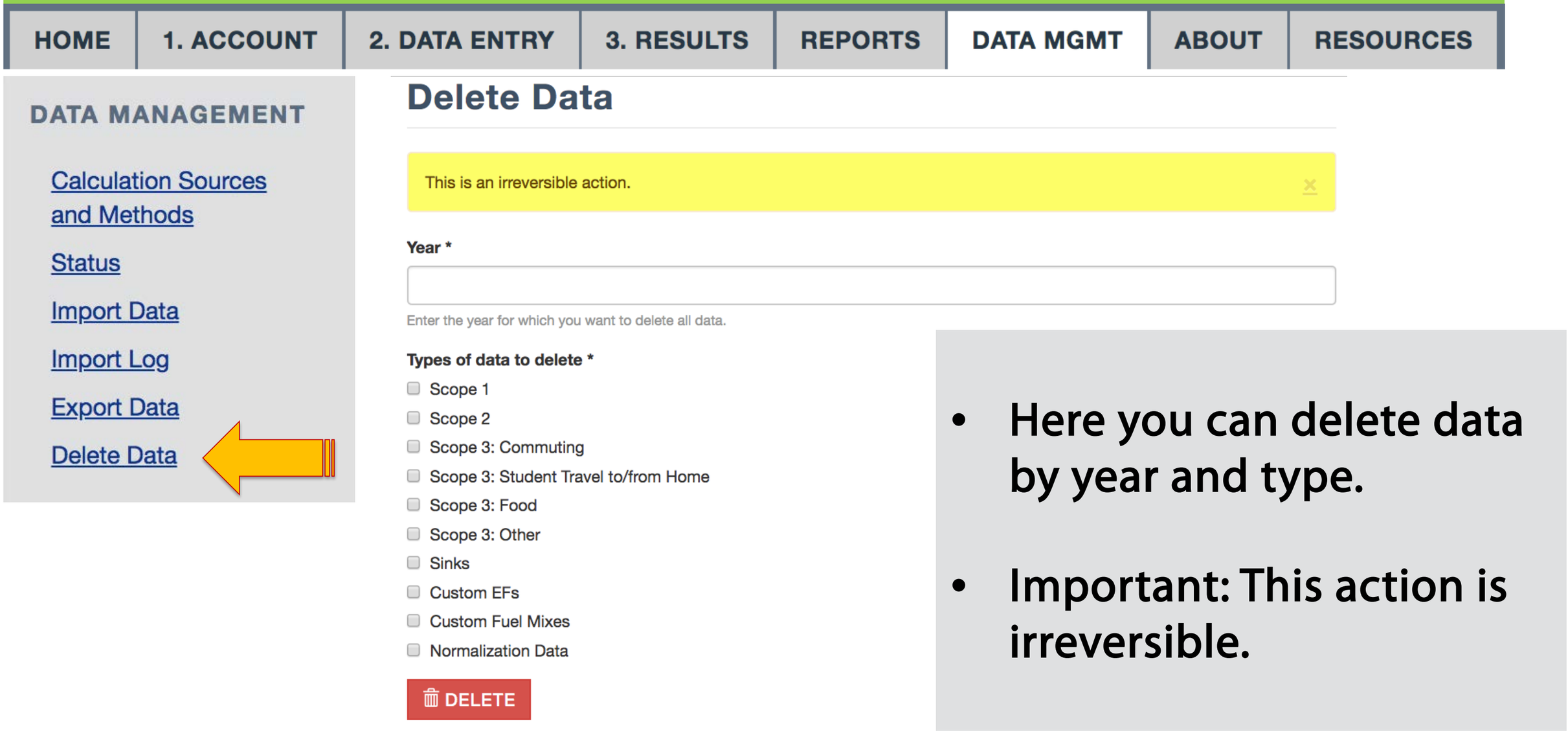
Data management: export data – *Tier 1 only*



On this page you an export ALL the data used to calculate your footprints, including:

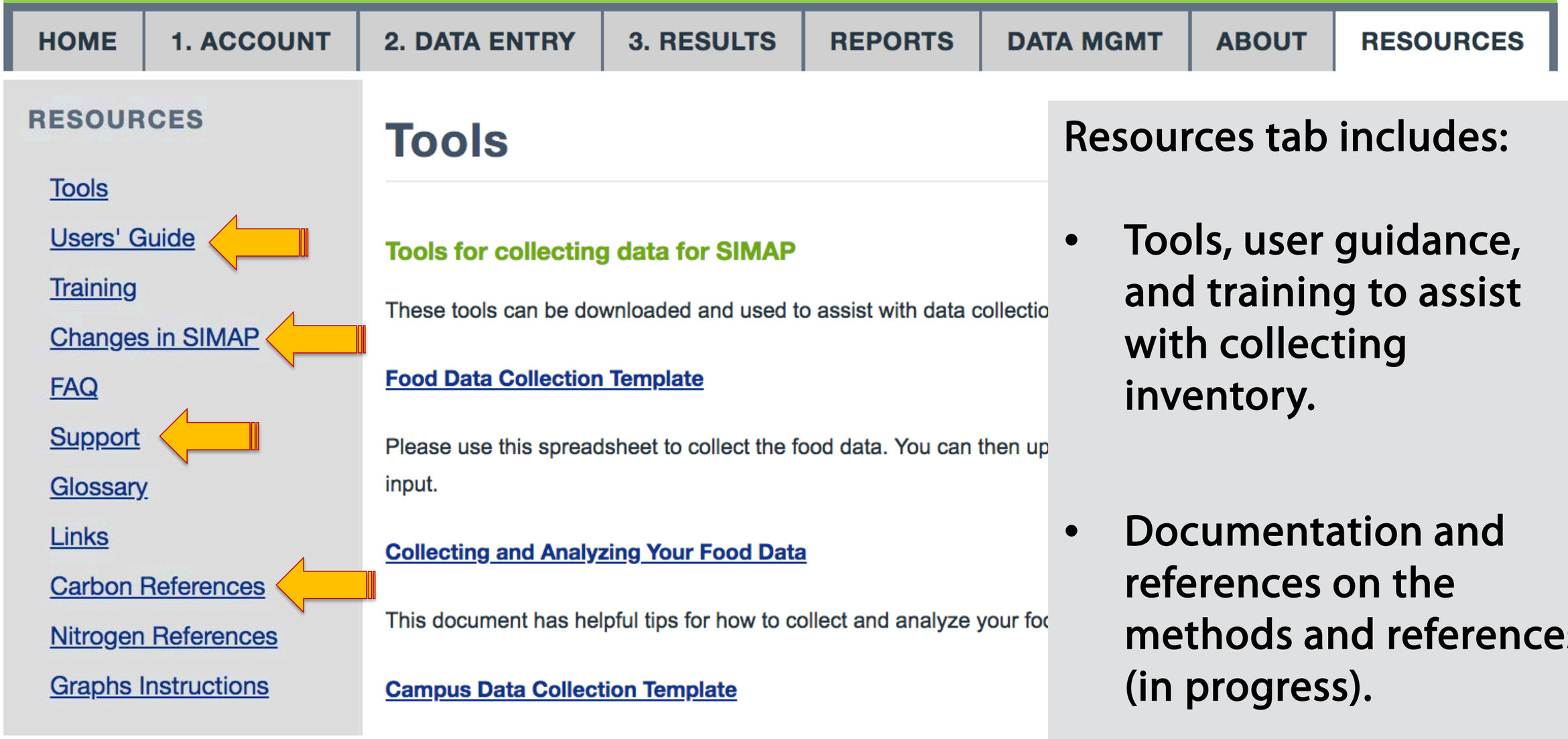
Inventory data entered; Emissions factors used; Your results

Data management: delete data – *Tier 1 only*



- Here you can delete data by year and type.
- Important: This action is irreversible.

Resources



Resources tab includes:

- Tools, user guidance, and training to assist with collecting inventory.
- Documentation and references on the methods and references (in progress).

SIMAP ongoing work

February

- Multi-campus beta testing
- Launch 2 working groups: Commuting & Biomass

Ongoing

- Updating references and methods documentation
- User data reviews
- Support

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SIMAP communication and outreach

February

- Quarterly updates newsletter
- Webinar with Second Nature (date TBD)
- Monthly emails about renewals

March

- Webinar Q&A with users (date TBD)

Contact us any time with questions at simap@unh.edu

Questions?

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Questions to ponder

- the drivers of both footprints, complementary mitigation strategies,
- how schools approached goal setting or commitments for both
- will you report the carbon footprints and nitrogen footprints separately, and approach goal-setting separately, or might you do one annual report with both indicators?
- Would you start talking about the nitrogen and carbon benefits of various campus initiatives "side-by-side" as a matter of course? The question is, if the calculation of the two things are now integrated in the tool—but will we also try to USE them in an integrated fashion? And if so what would that look like?

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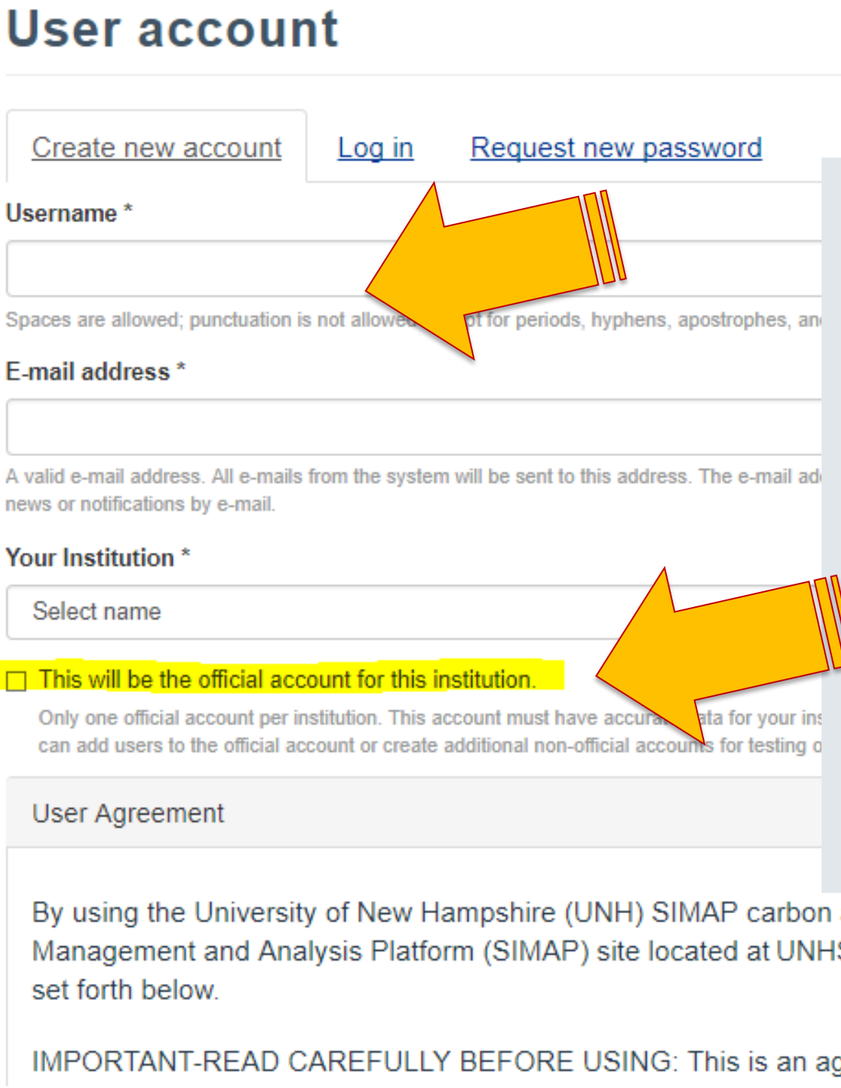
Account: set up your account



To set up your user account,
check the official institution button, then read and accept the user agreement.

Official Institution designation means that your data will be a part of the aggregated data set.

All others are considered test institutions.

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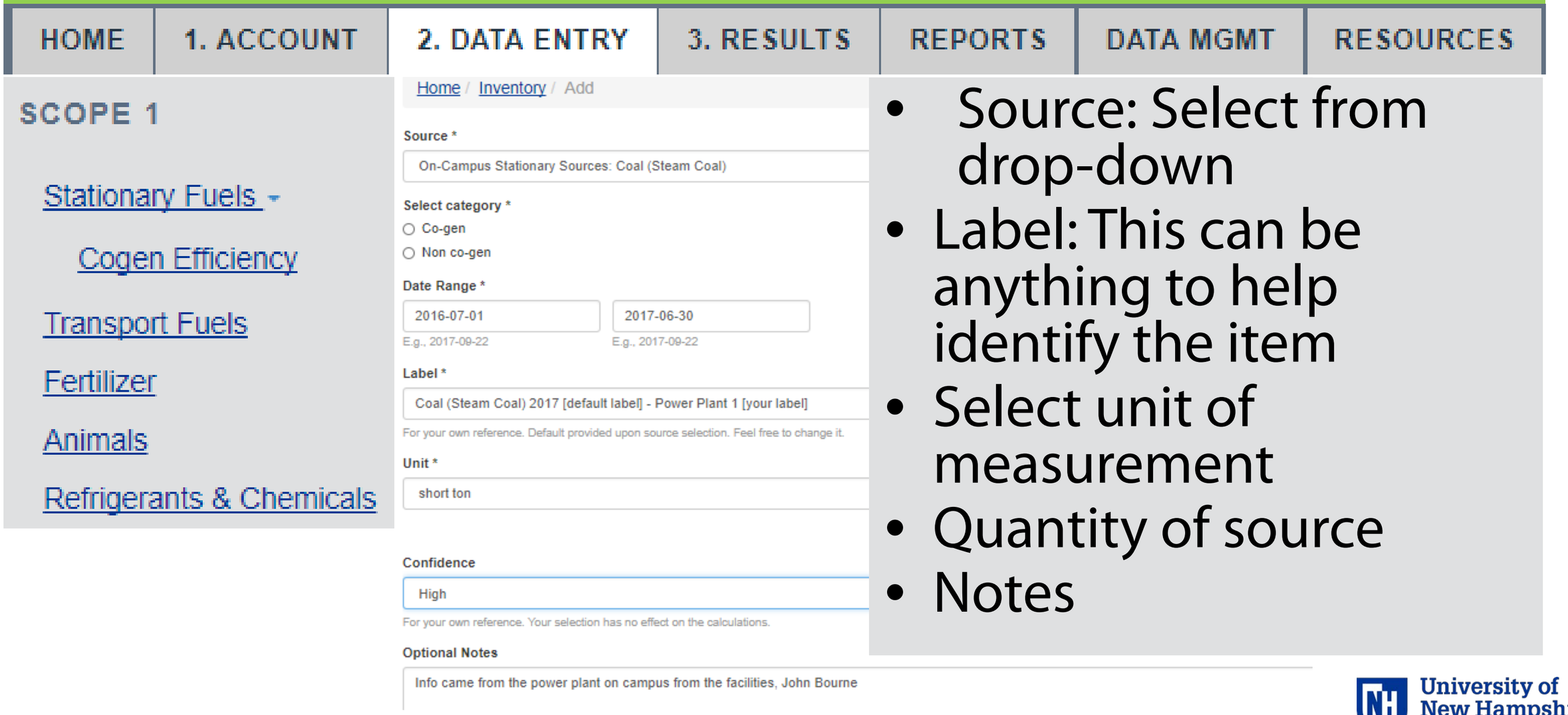
Data entry



- Source: Select from drop-down
- Label: This can be anything to help identify the item
- Select unit of measurement
- Quantity of source
- Notes

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Account: basic vs tier 1

Basic

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | DATA MGMT | RESOURCES

1. Calculation of your GHG and nitrogen footprint
2. Manual data entry
3. No ability to customize any emissions factors

CALCULATION FACTORS

- Emission Factors
- Utility Emission Factors
- Food Conversion Factors
- Global Warming Potential

DATA MANAGEMENT

- Status
- Delete Year

Tier 1

HOME | 1. ACCOUNT | 2. DATA ENTRY | 3. RESULTS | REPORTS | DATA MGMT | RESOURCES

1. Reports
2. Customization of EFs and global warming potential
3. Import of data and
4. Export of all source data and EFs and of results

CALCULATION FACTORS

- Emission Factors
- Utility Emission Factors
- Food Conversion Factors
- Global Warming Potential
- Unit Conversions

DATA MANAGEMENT

- Status
- Import
- Export
- Delete Year

EXPORT YOUR DATA AND EFS | EXPORT RESULTS

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