SIMAP

SUSTAINABILITY INDICATOR MANAGEMENT & ANALYSIS PLATFORM

Introduction to SIMAP™

Training on the use of the new
carbon and nitrogen calculator platform
www.unhsimap.org

UNH Sustainability Institute

University of New Hampshire

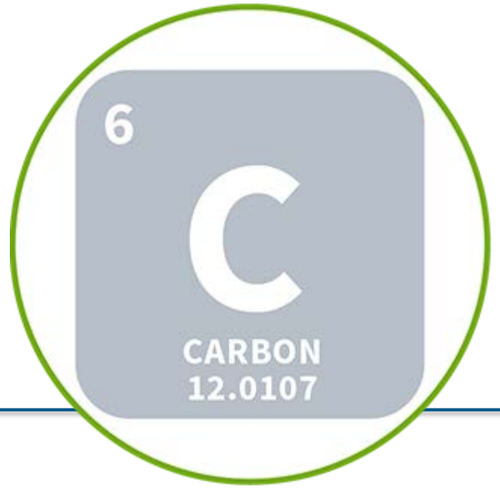
Agenda

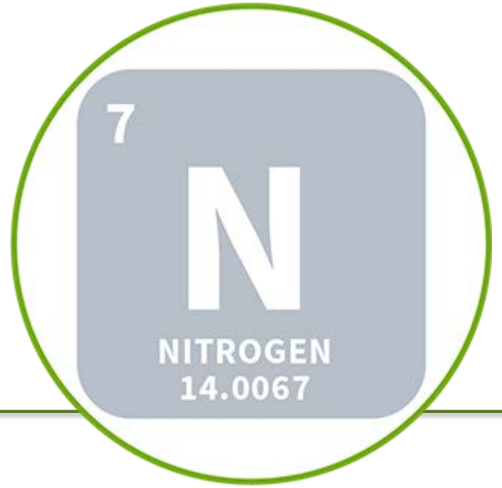
1. Background and functionality
2. Data entry and customization
3. Results
4. Future plans

This webinar was presented on November 30, 2017

University of New Hampshire

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**

University of New Hampshire

How does SIMAP work?

Enter your inventory data:

Scope 1

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

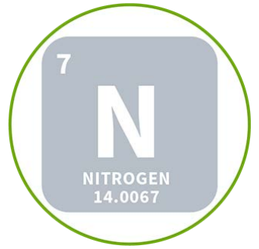
Scope 2

- Electricity
- Steam
- Chilled water
- other

Scope 3

- Commuting
- Food
- Wastewater
- other

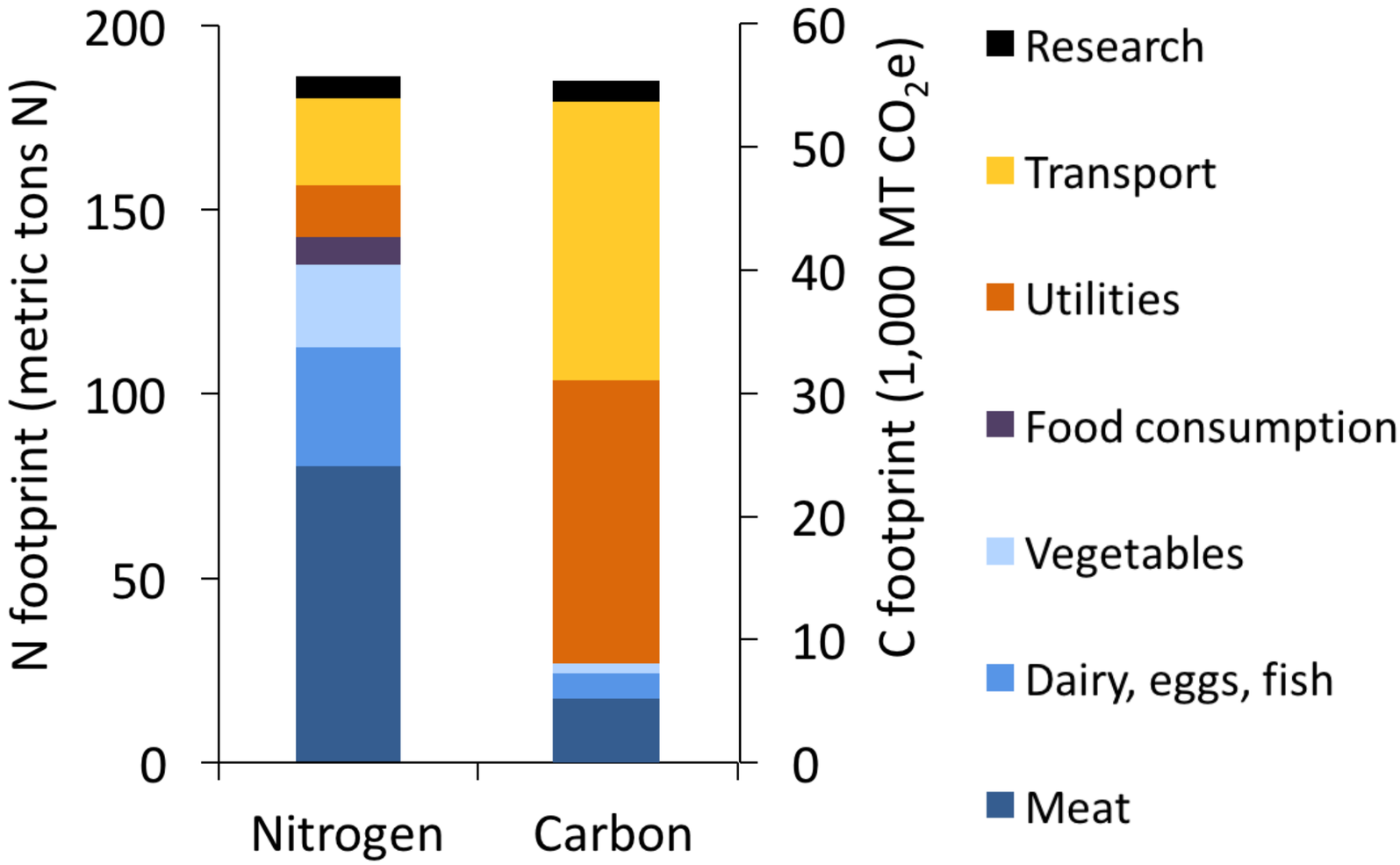
Carbon footprint



Nitrogen footprint

University of New Hampshire

What is a nitrogen footprint?



7 N NITROGEN 14.0067

Food is key sector for nitrogen

6 C CARBON 12.0107

Energy sectors are key sector for carbon

University of New Hampshire

Why a new tool?

- Capture a **range of environmental impacts** by adding nitrogen
- Use a **single tracking tool**
- Align with **new GHG protocols**
- Integrate with **other reporting platforms**
- Ensure UNHSI's continued **ability to provide the tool and support its user community**
- Conduct and publish **research about data trends**

University of New Hampshire

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

www.unhsimap.org

GET STARTED!

YOUR CAMPUS FOOTPRINT

CARBON

CO_2 emissions from generating power, treating waste, daily commuting, and even the use of paper, contribute to a campus' carbon footprint. Reducing these greenhouse gas emissions will help slow the effects of climate change and global warming.

NITROGEN

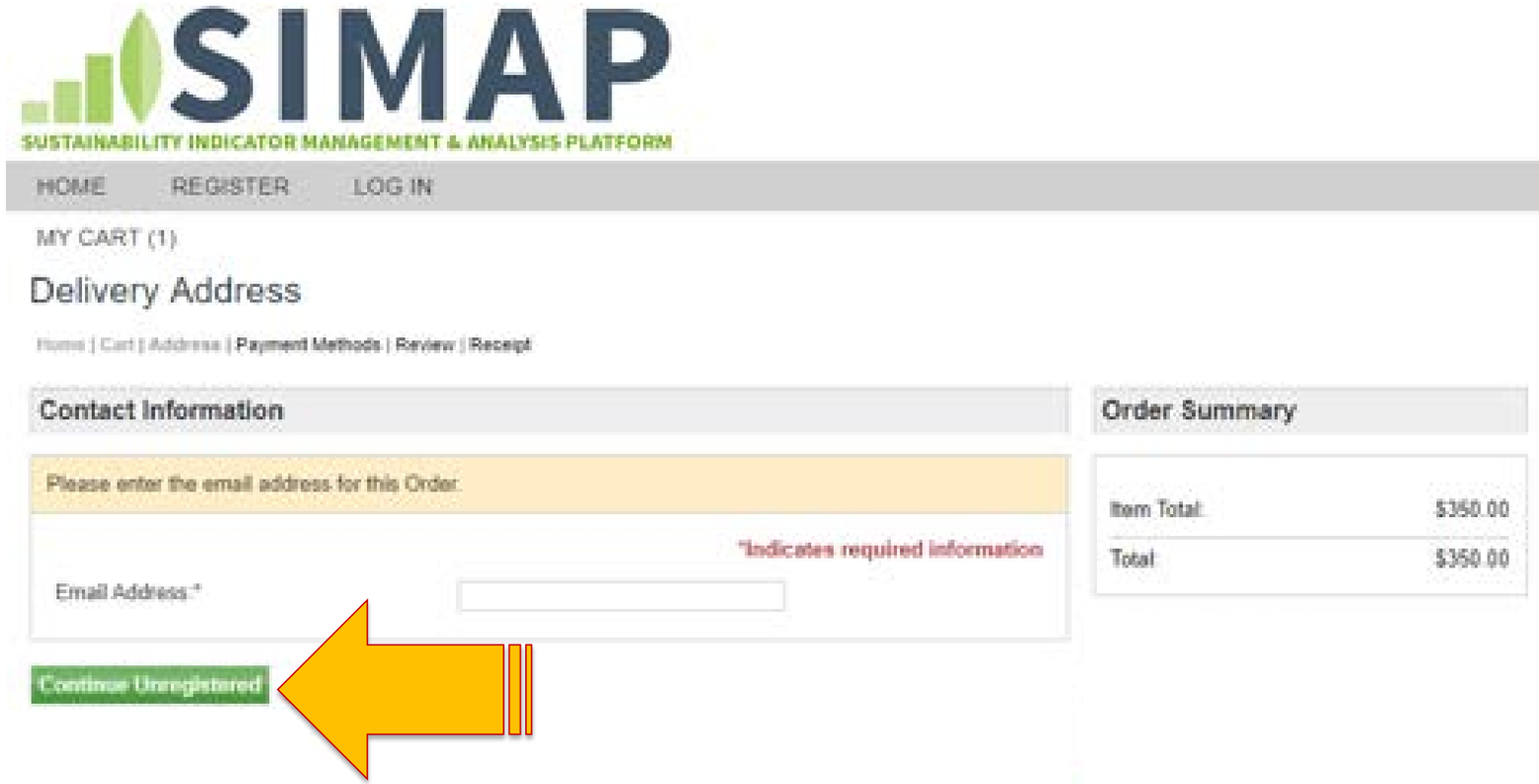
Reactive nitrogen can result from everyday activities like food service, energy use, transportation, and ground fertilizer. Reducing your nitrogen footprint can provide benefits to air and water quality, while helping prevent climate change.

Functionality

	Basic	Tier 1
Cost	FREE!	$350 per year
Data storage	2 months	Long term
Import/export	N/A	Import/export
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

University of New Hampshire

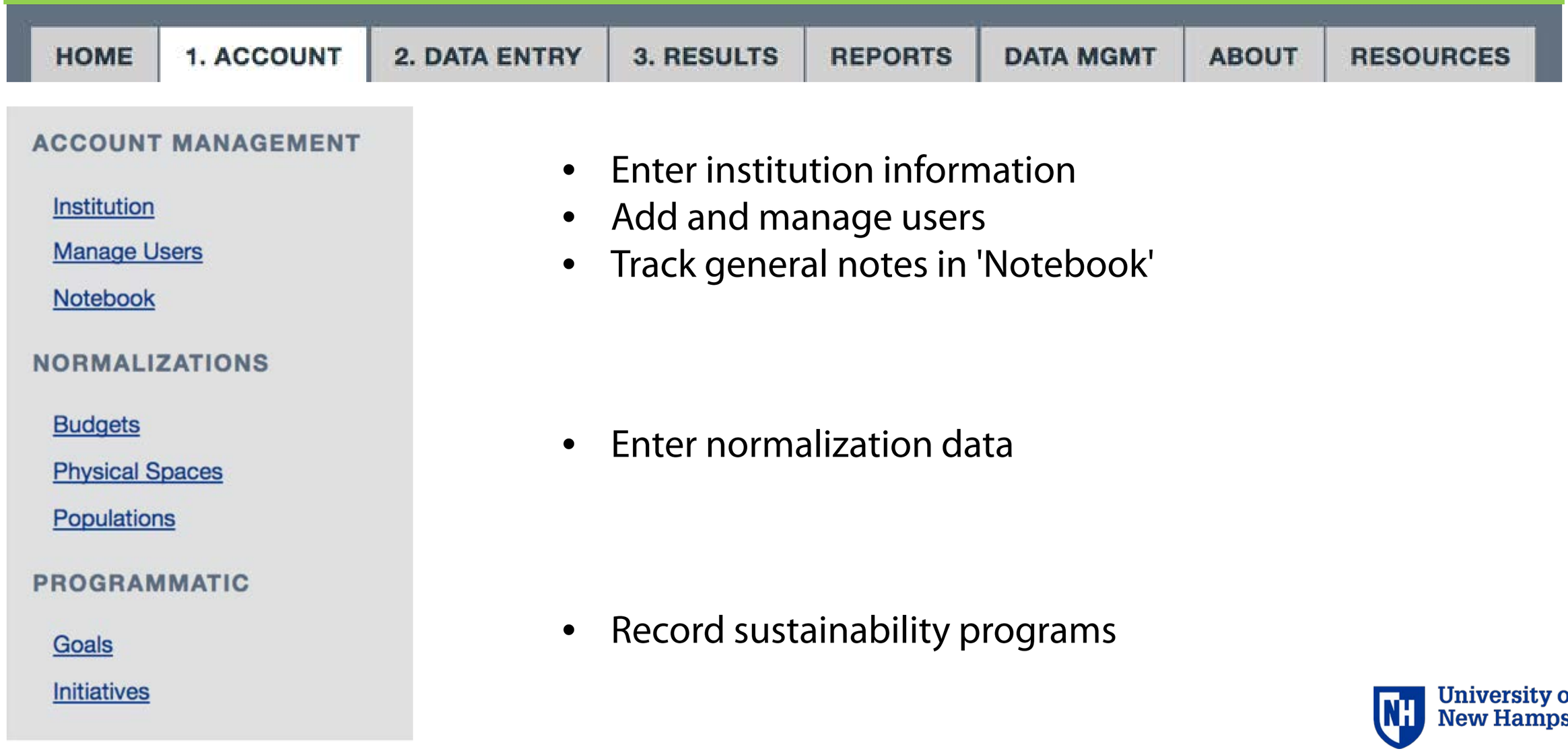
Account: Tier 1 upgrade



- Select 'My account' in top right and click 'Upgrade.'
- **In shopping cart, select 'Continue Unregistered'**

University of New Hampshire

Account: Institution information



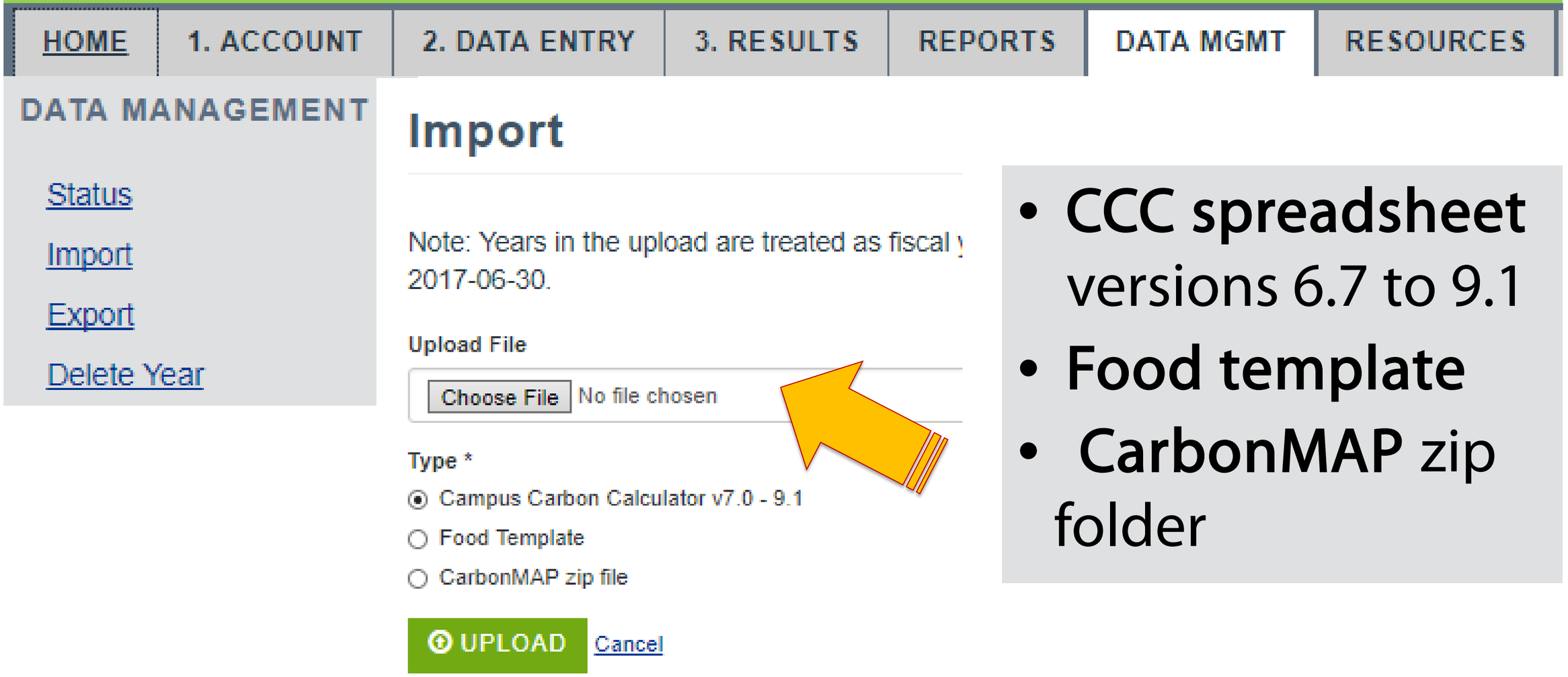
- Enter institution information
- Add and manage users
- Track general notes in 'Notebook'

- Enter normalization data

- Record sustainability programs

University of New Hampshire

Data import – *Tier 1 only*



- **CCC spreadsheet** versions 6.7 to 9.1
- **Food template**
- **CarbonMAP** zip folder

University of New Hampshire

Data entry: Manual

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

SCOPE 1

- Stationary Fuels
  - Cogen Efficiency
- 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	Source	Label	Quantity	Unit	Confidence	Action
2015-07-01	2016-06-30	Incinerated Waste	CCC: Cogen Incinerated Waste 2016	5.00	short ton	Medium	Edit | Delete
2015-07-01	2016-06-30	Wood Pellets	CCC: Cogen Wood Pellets 2016	3.00	short ton	Medium	Edit | Delete
2015-07-01	2016-06-30	LPG (Propane)	CCC: Cogen LPG (Propane) 2016	275.00	US gallon	Medium	Edit | Delete
2015-07-01	2016-06-30	Coal (Steam Coal)	CCC: Cogen Coal (Steam Coal) 2016	2.00	short ton	Medium	Edit | Delete
2015-07-01	2016-06-30	Residual Oil (#5-6)	CCC: Cogen Residual Oil (#5-6) 2016	7,589.00	US gallon	Medium	Edit | Delete

For manual data entry, click on the enter data button

University of New Hampshire

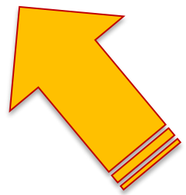
Data entry: Other sectors

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

SCOPE 2

Utility Consumption

Renewable Energy



SCOPE 3

Commuting

Business Travel & Study Abroad

Student Travel to/from Home

Food

Paper

Waste & Wastewater

CALCULATION FACTORS

Emission Factors

Utility Emission Factors

Food Conversion Factors

Global Warming Potential

Unit Conversions

University of New Hampshire

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

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

University of New Hampshire

Data entry: Scope 2 utilities & renewables

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

SCOPE 2

Utility Consumption

Renewable Energy

REQUIRED for all users:

- Total electricity consumption from the grid (kwh)

REQUIRED if you have renewable purchases or sales:

- 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

University of New Hampshire

Data entry: Food

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

University of New Hampshire

Data entry: food uploader

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

University of New Hampshire

Data entry: Sinks and offsets

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

SINKS

- Compost
- Non-Additional Sequestration
- Offsets

Add Offsets Data

Origination *

- ○ On-campus
- ◉ Off-campus

Type *

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

Verification *

- ○ Third party verified
- ○ Peer-reviewed
- ◉ Unverified

University of New Hampshire

How to view calculation factors

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

CALCULATION FACTORS

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

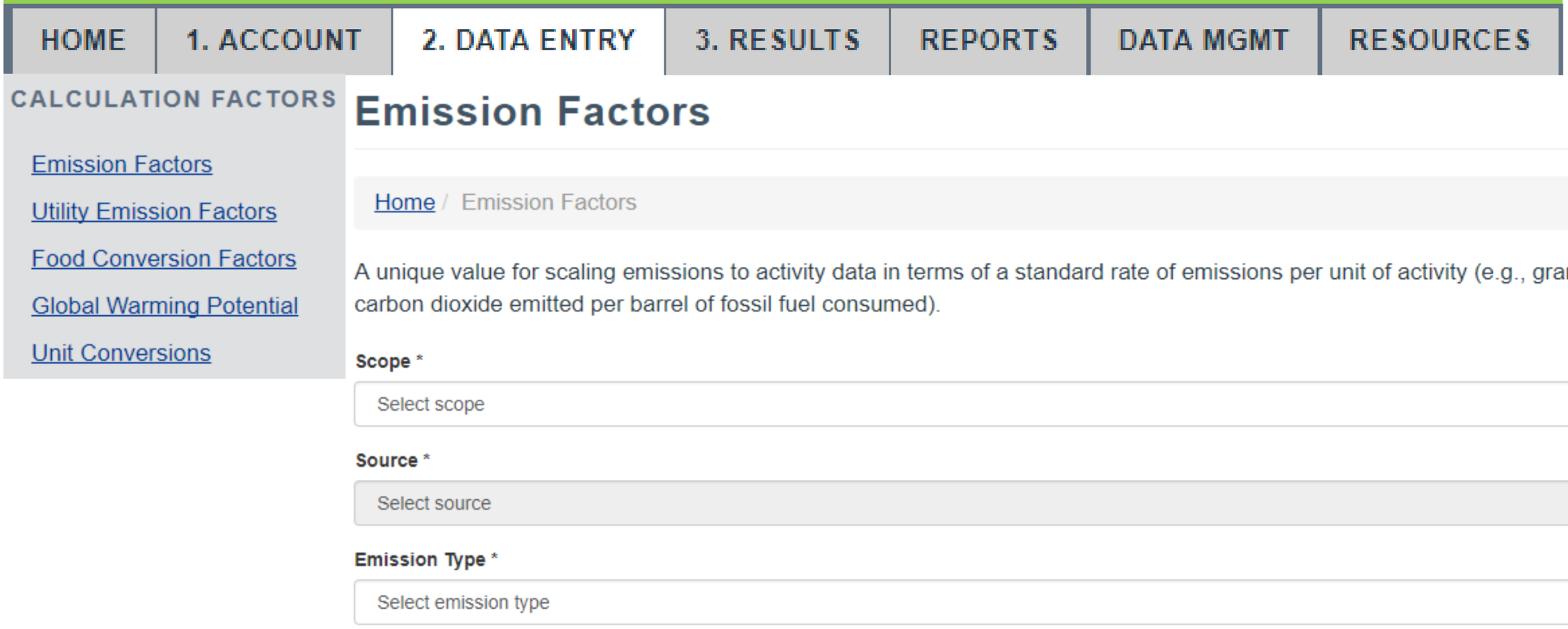
Food Conversion Factors

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 type 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.

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	11.4	26.45	950	250	0.15	22700
Dairy & eggs: Milk	0.00633	8.3	1.34	65	250	0.15	22700
Dairy & eggs: Eggs	0.01855	3.2	3.54	65	250	0.15	22700
Dairy & eggs: Cheese	0.03010	8.3	9.78	65	250	0.15	22700
Seafood: Fish	0.02871	2.5	3.83	950	250	0.39	22700

University of New Hampshire

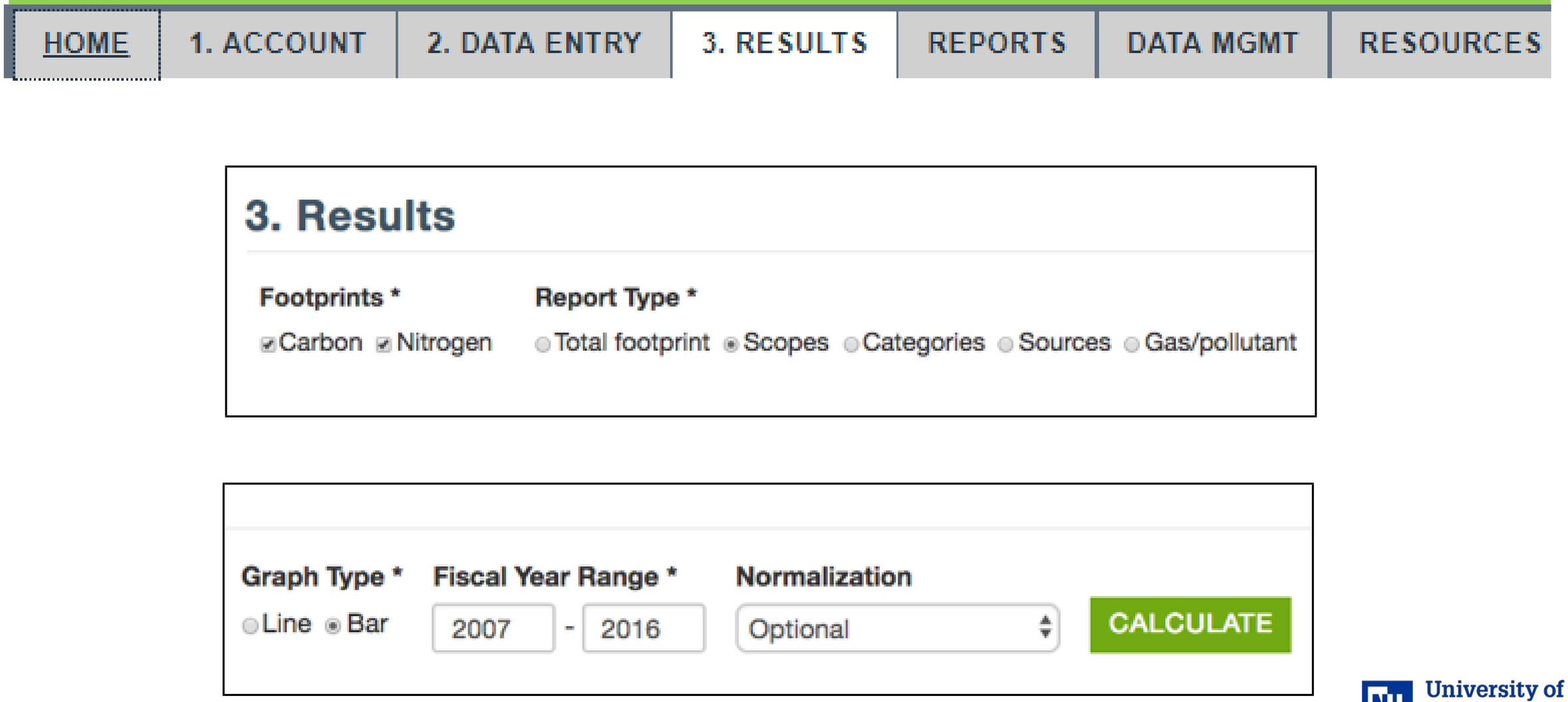
Customization – *Tier 1 only*



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

University of New Hampshire

Results: select parameters



University of New Hampshire

Results

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

3. Results

Footprints * ☑Carbon ☑Nitrogen

Report Type * ◉Total footprint ○Scopes ○Categories ○Sources ○Gas/pollutant

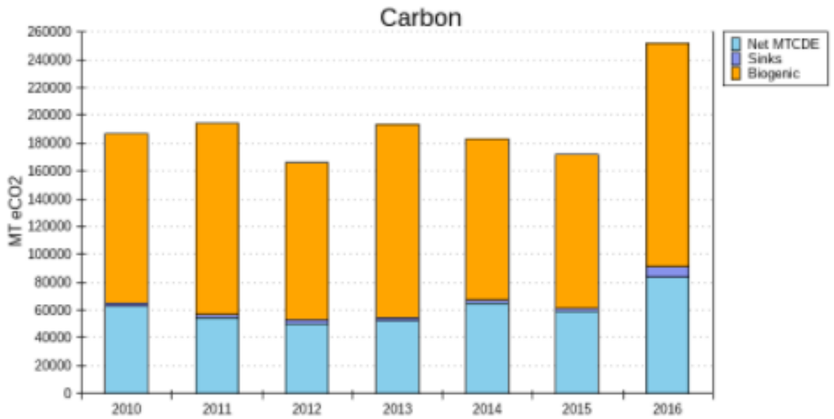
Biogenic ☑Show

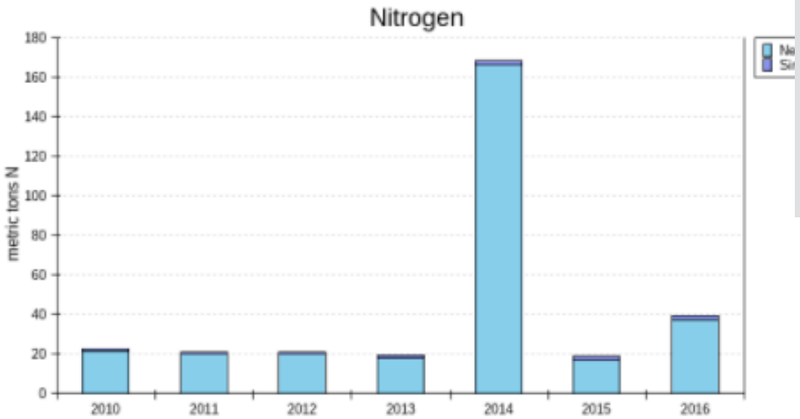
Graph Type * ○Line ◉Bar

Fiscal Year Range * 2010 - 2016

Normalization: Optional

CALCULATE





The results will display a bar graph for each footprint and also a table with data below

Carbon

Fiscal Year	CH4 (kg)	CO2 (kg)	N2O (kg)	Gross MTCDE	Offsets (MTCDE)	Compost (MTCDE)	Non-Additional Sequestration (MTCDE)	Biogenic (MTCDE)	Net MTCDE
2010	54,695	62,877,607	1,894	64,809.53	-2,328.00	-53.34	0.00	122,184.45	62,428.19
2011	52,778	54,793,822	1,786	56,817.04	-2,328.00	-48.72	0.00	137,307.37	54,440.32
2012	60,112	50,708,828	1,681	52,712.58	-2,328.00	-44.09	0.00	112,932.59	50,340.49

University of New Hampshire

Annual Report – *Tier 1 only*

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

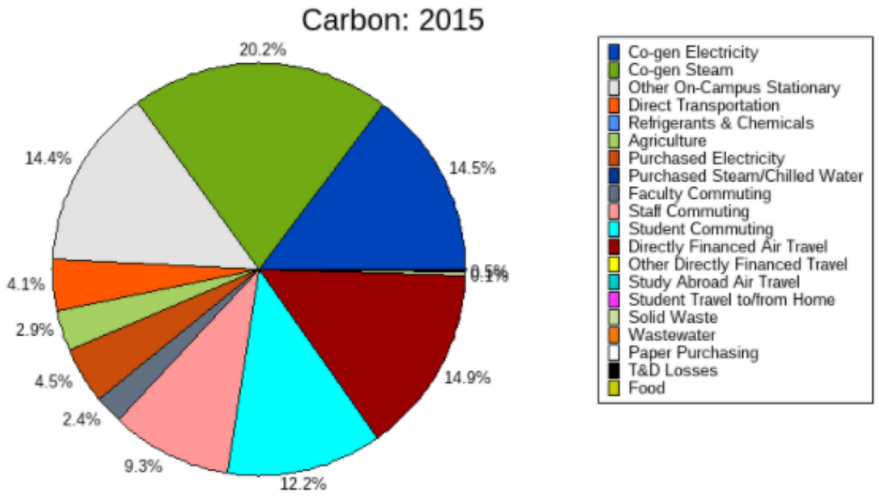
Reports

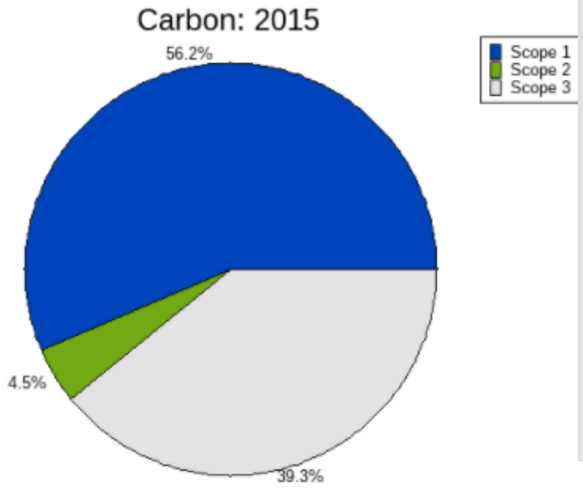
Report: Annual Report

Footprint *: (•) Carbon ( ) Nitrogen

Year *: 2017

DISPLAY | EXPORT





The reports tab provides an overview for an entire year and you can export the tables – it is equivalent to the S_Annual tab in CCC

University of New Hampshire

Second Nature Report – *Tier 1 only*

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

Reports

Report: Second Nature

Year *: 2015

DISPLAY | EXPORT

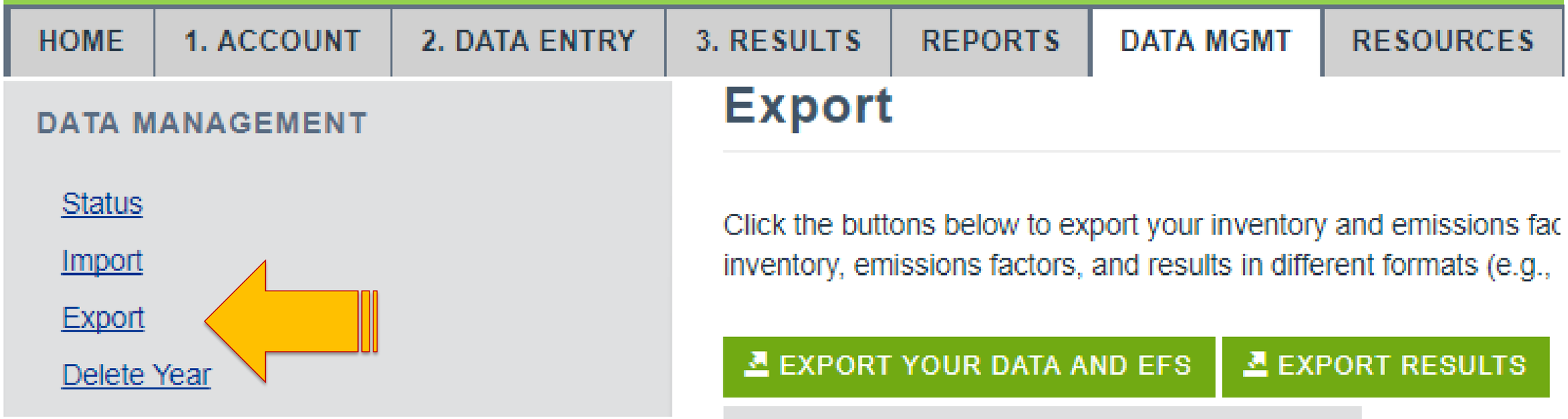
Categories

Fiscal Year	Scope	Source	CH4 (kg)	CH4 (MTCDE)	CO2 (kg)	CO2 (MTCDE)	N2O (kg)	N2O (MTCDE)	GHG MTCDE
2015	1	Fugitive Emissions	54,857	1,371.44	0	0.00	366	109.13	1,480.57
2015	1	Mobile Combustion	336	8.41	2,036,577	2,036.58	92	27.54	2,072.52
2015	1	Stationary Combustion	2,126	53.14	21,819,893	21,819.89	63	18.74	21,891.78
2015	2	Purchased Electricity	256	6.39	2,238,512	2,238.51	38	11.20	2,256.10
2015	3	Air Travel	74	1.86	7,509,756	7,509.76	86	25.50	7,537.12
2015	3	Commuting	2,284	57.11	11,843,165	11,843.17	776	231.12	12,131.39
2015	3	Waste Generated in Operations	-1,778	-44.45	0	0.00	0	0.00	-44.45

This report tab provides an overview of the data for Second Nature reporting platform. You can display it or export to complete your signatories report.

University of New Hampshire

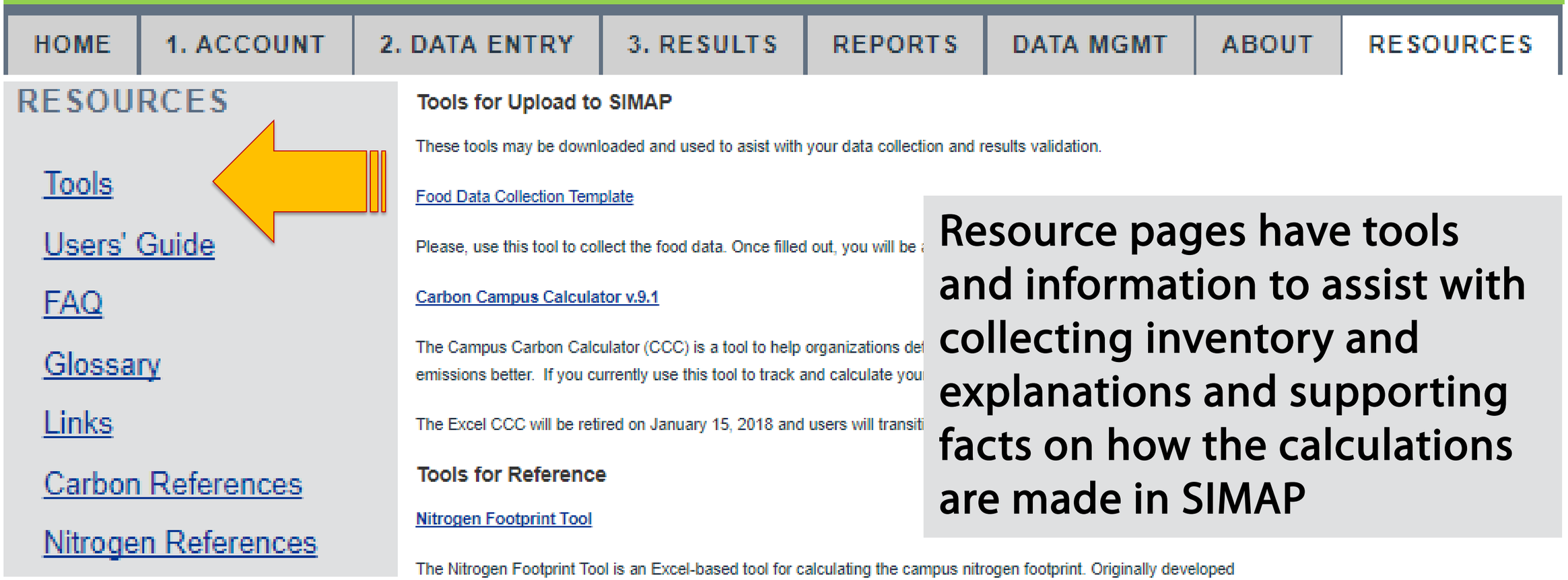
Data export – *Tier 1 only*



- All inventory data
- Emissions factors
- Results
- Reports (on reports tab)

University of New Hampshire

Resources – Basic and Tier 1



Resource pages have tools and information to assist with collecting inventory and explanations and supporting facts on how the calculations are made in SIMAP

University of New Hampshire

SIMAP timeline: Short term

1. **November:** Launch!
2. **December**: Transition data to SIMAP
   - We will post video tutorials to orient users on the SIMAP Resource page and on https://sustainableunh.unh.edu/calculator
3. **January:** UNH discontinues support for CCC and CarbonMAP

We are here to help!

University of New Hampshire

What is different from CCC and CarbonMAP?

Updated Methodology

- Scope 1: On-site renewable energy
- Scope 2: Purchased and sold renewable energy
- Scope 3: Student Travel to/from home data entry
- Biogenic allocation for incinerated waste
- Sinks and offsets
- Weighted campus users

Emission Factors

- On-campus stationary combustion and electricity custom fuel mix
- Air travel CO2

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

University of New Hampshire

Future plans

1. Tier 2:
    1. Projections and Solutions
    2. Complete scope 3
    3. Multi-campus accounts
    4. International emission factors

2. Add other sustainability indicators (e.g., water, phosphorus)

University of New Hampshire

Questions, suggestions, concerns?

For updates and training schedule, check our website

https://sustainableunh.unh.edu/calculator

or

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

or email us at simap@unh.edu

University of New Hampshire