

SIMAP Guidance for NFT Network: What has changed from the NFT

November 2017

This document provides a complete list of the changes in methodology and emissions factors in SIMAP, relative to the Nitrogen Footprint Tool (NFT) 2.2, and how those changes could affect your results. See the 'Data transfer' document for guidance on how to transfer your data from the Excel-based Nitrogen Footprint Tool to the web-based SIMAP.

TIER 1

The text in green refers to Tier 1 functionality. To perform these functions, you would have to upgrade your account from Basic to Tier 1. See www.unhsimap.org for more information.

OVERVIEW: What has changed from the NFT to SIMAP?

- Food purchases:
 - Food categories
 - Multi-ingredient foods
 - Protein contents
 - Virtual N factors
- Food consumption:
 - Two approaches: wastewater and food consumption
- Emissions factors
 - Purchased electricity: eGrid
 - Stationary and mobile combustion: US GHG Inventory
- Research animals and research farms:
 - Not yet built into SIMAP but may be entered manually
- New additions:
 - Additional fuel types (e.g., wood chips, biofuels)
 - Carbon footprint of food
 - Renewable Energy Certificates (RECs) and offsets
- **What do you need to do?**
 - Update food categorizations for your footprint data
 - Transfer your data into SIMAP to calculate a new baseline footprint with updated VNFs, food protein contents, and emissions factors (see 'Data transfer' document for guidelines).
 - We will publish a short note in *Sustainability: The Journal of Record* with these changes and new results

DETAILS: What has changed from the NFT to SIMAP?

1. Food production

- a. Updated virtual N factors (VNFs)
 - i. Improved and expanded the underlying methodology for the entire US.
 - ii. These VNFs will replace the old VNFs.
 - iii. Will be published within the year but included in SIMAP with launch.
 - iv. Biggest changes: beef increases, while fruits and vegetables decrease.
- b. Updated protein contents

- i. Improved the database of protein contents to better reflect the protein content of foods in the form that campuses purchases (e.g., dry beans vs. canned beans).
 - ii. These protein contents will replace the old protein contents.
 - iii. Biggest changes: decreases in protein contents of meat, beans, and oils.
 - c. Food categorization:
 - i. Food category assignments: updated to group foods with similar protein contents and similar production system. Biggest change: Soybeans are now in the beans category instead of oilcrops (which is now oils).
 - ii. Food category names: renamed categories to commonly used names (e.g., beef instead of bovine, beans instead of pulses).
 - iii. Multi-ingredient food guidance: only products with a second ingredient that contributes >1/3 of the food product's weight should be considered multi-ingredient. This generally means that only pre-assembled foods with distinct ingredients should be listed as multi-ingredient (e.g., lasagna, pizza, eggrolls, ravioli).
 - d. Food uploader for NFT Network
 - i. Developed a food uploader spreadsheet for the NFT Network
 - ii. Food data can be copy-pasted directly from NFT
 - iii. Data set is then processed to the format needed for **import into SIMAP**
 - e. New addition:
 - i. Carbon footprint of food
- 2. **Food consumption / wastewater**
 - a. Two methodologies are possible. See the 'Data transfer' document for more details on how to choose an approach and how to enter it into SIMAP.
 - b. Wastewater volume:
 - i. This is the method currently in SIMAP
 - ii. Calculated as follows:
 - 1. (wastewater volume) * (N content) * (1 – N removal)
 - iii. Notes: This result is larger than the food consumption approach because it also includes storm water and includes all sewage produced on campus, regardless of where it was purchased.
 - c. Food consumption N:
 - i. This is the method used by the NFT, and may be entered manually into SIMAP using a **custom emissions factor**. It will be incorporated into a future upgrade of SIMAP.
 - ii. Calculated as follows:
 - 1. (food supply) * (N content) * (1 – N removal)
 - iii. Notes: This only includes N associated with the food purchased by a campus, regardless of where it is excreted.
- 3. **Fertilizer/agriculture**
 - a. Uptake factors:
 - i. The NFT used 4 different fertilizer uptake factors (general landscaping, turf, shrubs, trees).
 - ii. SIMAP has just one fertilizer uptake factor: General landscaping
 - iii. In the future, we will expand this to include an agriculture option.
 - b. Category name:

- i. Your campus fertilizer footprint will now appear under the category "Agriculture" to be consistent with the carbon footprint methodology.

4. Purchased electricity

- a. eGrid emissions factors:
 - i. To align with the carbon footprint methodology, we are now using the EPA eGrid database for purchased electricity.
 - ii. eGrid is a region-specific and regularly updated data set that is the standard for purchased electricity emissions calculations.
 - iii. In some regions, the eGrid NOx emissions factors will change your purchased electricity footprint (e.g., 86% change for UVA). In other regions, the purchased electricity N footprint will remain unchanged (e.g., Brown, UNH).
- b. Custom fuel mix:
 - i. You still have the option to enter a custom fuel mix for your purchased electricity.
 - ii. We recommend using your regional eGrid average unless you are also using a custom fuel mix for your carbon footprint calculation.
- c. Renewable energy for electricity:
 - i. The purchase and sale of renewable energy to/from the grid can be entered.
 - ii. SIMAP uses the "market-based" method for scope 2 electricity calculations, which first calculates the net kwh (purchased electricity minus any RECs purchased and/or plus any RECs sold), and then calculates the associated emissions.
 - iii. Any renewable energy purchased (whether directly from your utility, through a PPA, in the form of RECs, etc.) should be entered.
- d. Scope 3 Transmission & distribution losses
 - i. This is a new addition. The N footprint of upstream transmission & distribution losses associated with your purchased electricity is now included in your scope 3 footprint.
- e. These changes are all compatible with the GHG Protocols guidance.

5. On-site stationary combustion

- a. Emission factors:
 - i. Database was updated to the U.S. EPA. Inventory of U.S. Greenhouse Emissions and Sinks: 1990 - 2014
- b. Additional fuels now available:
 - i. Distillate bioheat, residual bioheat, propane, ethanol, wood chips, wood pellets, grass pellets, solar – electric, solar – thermal, wind
- c. The changes to the on-site stationary combustion N footprint are minimal.

6. Transport

- a. Emission factors:
 - i. Database was updated to the U.S. EPA. Inventory of U.S. Greenhouse Emissions and Sinks: 1990 – 2014
- b. Additional on-site vehicles now available:
 - i. B5, B20, B100, E85, natural gas, hydrogen
- c. Additional scope 3 travel now available:
 - i. Taxi, train, alternative fuel bus, charter bus – CNG, charter bus – diesel, personal mileage reimbursement
- d. The changes to the transport N footprint are minimal.

7. Research animals and research farms

- a. Not yet included in SIMAP, but your NFT result can be manually entered using a custom emissions factor. See the 'Data transfer' document for details.
- b. The result will be the same as your NFT because it is calculated in the NFT.
- c. Research animals (e.g., mice, frogs) and research farm animals (e.g., cows, pigs) will be incorporated in a future upgrade of SIMAP.

8. Sinks and offsets

- a. Compost:
 - i. This is now in the 'sinks and offsets' category.
 - ii. Following the GHG Protocols, any composted food waste N is now subtracted from the total nitrogen footprint instead of from the food production N footprint. In SIMAP, you can view this on the 'Total footprint' view of the 'Results' tab.
 - iii. The net change to your N footprint is the same; it is just subtracted at a different time.
- b. Offsets:
 - i. New addition for nitrogen!
 - ii. You can enter a nitrogen offset, which will subtract that value from your total nitrogen footprint.