

Life Cycle Inventories on Food Production and Consumption in Switzerland



Overview

ESU-services specialises in compiling life-cycle inventories that are of high quality and fully transparent. The **ESU database contains more than 2500 datasets** related to agriculture, food processing and consumption activities [1]. In addition to a wide range of other data, our database includes the following product groups:

- **Agricultural production services:** application of fertilizers, machinery hours
- **Vegetables:** spinach, salad, tomatoes, lettuce, potatoes, onions, asparagus, etc.
- **Fruits:** apples, strawberries, cherries, grapes, oranges, bananas, vine, melons
- **Animal products:** pork, veal, beef, lamb, poultry, eggs, different fish
- **Dairy products:** butter, milk, milk powder, yoghurt, cheese
- **Meat and dairy alternatives:** tofu, falafel, quorn, soy vegetarian mince, vegetable drinks and creams, beyond meat burger, planted chicken, processed fish and meat alternatives, etc.
- **Staple food:** noodles, pasta, bread, wheat flour
- **Drinks:** apple & orange juice, mineral water, tap water, beer, wine, milk, coffee, tea, vegan milk drinks
- **Sweets:** chocolate, ice cream, cakes, bars
- **Food processing and preservation:** Washing, blanching, chilling, freezing, canned food, extrusion, etc.
- **Meals:** roast dinner, lasagne, soups, canteen meals, recipes
- **Household appliances:** cooking stoves and ovens, microwaves, refrigerators, carbonization devices, coffee machines
- **Distribution in supermarkets** for many products including packaging, storage etc. until the point of sale.
- **Food consumption:** packages, transports, cooking, consumption patterns
- **Pet animals and feed:** horses, dogs, cats, rabbits, birds, pet fish

Methodology

The data are fully documented in the electronic EcoSpold v1 format. **BAFU:2025+ESU** is used as a background database. More than 200 customers already rely on data from this database. The following features distinguish this database from others:

- Complete and consistent balancing of all food products relevant to the **Swiss market**
- **Updated background data** by Swiss Federal Authorities
- The **whole chain from field to mouth** is covered for many products
- All data include information on **food waste and water use**
- **Parameterization** for key processes to allow easy adaptation
- All unit process datasets include also flow specific **uncertainty information for Monte-Carlo simulations**
- **Full electronic documentation** for all inputs, outputs and general information in EcoSpold v1 format, many reports freely available on our webpage
- **Fully disaggregated (unit-processes)** available
- Ongoing development and updates

References

1. ESU-services, *ESU World Food LCA Database - LCI for food production and consumption*, Jungbluth N, Meili C, Bussa M, et al., Editors. 2026, ESU-services GmbH: Schaffhausen, CH. <https://www.esu-services.ch/data/fooddata/>.
2. Meili C, Jungbluth N, Scanu S, & Malinverno N, *Ökobilanz von Trinkwasser und Mineralwasser in Deutschland*. 2023, ESU-services GmbH im Auftrag von wvgw Wirtschafts- und Verlagsgesellschaft Gas und Wasser mbH: Schaffhausen, Schweiz. Retrieved from <https://esu-services.ch/de/projekte/lcafood/wasser/>.
3. ÖVGW, *Vergleichende Ökobilanz - Trinkwasser aus der Leitung gegenüber Flaschenwasser*. 2014: Wien.
4. Jungbluth N, Ulrich M, Muir K, Meili C, et al., *Analysis of food and environmental impacts as a scientific basis for Swiss dietary recommendations*. 2022, ESU-services GmbH: Schaffhausen, Switzerland. Retrieved from <https://esu-services.ch/publications/foodcase/>.

Project examples

You can find information about our projects on nutrition and many other areas at www.esu-services.ch/projects/. Below are brief descriptions of a few selected projects.

Seasonality calendar for fruits and vegetables

For many fruits and vegetables, production during their natural main season has a significantly lower environmental impact than, for example, production in a greenhouse at a time when they cannot be grown outdoors. ESU-services has developed a seasonal calendar for fruits and vegetables that shows the environmental impact of distinct types of origins of fruits and vegetables over the course of the year.

ESU-services		Switzerland: Indicator UBP 2021 per kg of good											Country CH			
fair consulting in sustainability		Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov				
Green asparagus	P	CH-kory			12044	12044	12044									
Green asparagus	P	ES-kory			12497	12497	12497									
Green asparagus	P	MX-air	32887	32887	32887											
Green asparagus	P	PE-air	35012	35012	35012											
Green asparagus	P	US-air	28349	28349	28349	28349	28349	28349								
White asparagus	P	Regional				16309	16309									
White asparagus	P	CH-kory		12977	16500	16500	16500									
White asparagus	P	DE-kory		13350	16882	16882	16882									
White asparagus, heated	P	DE-kory		13360	13360	13360										
White asparagus	P	DE-kory			16882	16882										
White asparagus	P	ES-kory		17601	17951											
White asparagus	P	FR-kory		12436	16359											
White asparagus	P	MA-kory		18569	18569											
White asparagus	P	NL-kory			17035	17035	17035									
White asparagus	P	PE-shp	17728	17728				17728	17728	17728	17728	17728	17728	17728		

Mineral- and tapwater

In a series of studies, ESU-services has compared the environmental impact of tap water and bottled water using life cycle assessments. Drinking water from Swiss and German taps is significantly more environmentally friendly than bottled mineral water [2, 3].

Dietary recommendations

ESU-services studied the environmental impact of foods using LCA as a scientific basis for Swiss dietary recommendations that integrate both health and sustainability [4]. The analysis shows that reducing consumption of animal-based products and shifting toward plant-based alternatives can significantly lower environmental impacts while still meeting nutritional needs. Additional recommendations include choosing seasonal and regional foods and reducing food waste to further improve environmental performance.

