

# The open access list

– an extract from the **RISE Food climate database d v 2.0 (2021)**

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**The open access list** provides information material about RISE Food Climate Database and consists of an extract from the database with approximately 40 food products as well as information about the climate database's method and boundaries. As the name suggests, the information is public, organizations and companies may use information from the open access list provided the source are specified.

**RISE food climate database** contains general carbon footprints for approximately 750 food products developed to represent Swedish consumption. The database is updated once a year and is used for a subscription fee by multiple actors in the food chain for different purposes. The RISE food climate database is not open and individual carbon footprints must therefore not be distributed to third parties.

RISE food climate database can with the help of general carbon footprints e.g. be used to calculate aggregate climate information for a meal, purchase or food bag or be used as a tool in product development and menu composition. The database provides information on what is big and small and can also indicate suggestions for more climate-smart choices between different food groups.

## **Important to know about the carbon footprints in RISE food climate database**

- The carbon footprints are presented in the unit kg CO<sub>2</sub>e per kg of food, from cradle to leaving the industry/food producer, excluding packaging. For imported food products, a general transport to Sweden is also included.
- One kilogram of food has been used as the calculation basis (reference unit), although different foods are far from comparable in function (e.g. nutritional content).
- The database contains general carbon footprints, i.e. not carbon footprint for a specific producer's product.
- The carbon footprints are based on Life Cycle Assessment (LCA), which is not an exact science; the carbon footprints should be seen as approximate numbers and not as precise numbers.
- The carbon footprint of a particular food can vary between different producers and different years depending on the production method, growing conditions, weather conditions, etc. and should not be considered as exact values for this reason.
- The carbon footprints are based on the best available data in terms of quality, time and geography. Access to representative LCA-studies and climate data varies between different types of food groups, which affects the quality of the carbon footprints in the database.

Food product	Origin	The carbon footprint, (kg CO <sub>2</sub> e/kg)	Reference unit
<b>Protein sources</b>			
Beef	Sweden	28	Per kg boneless meat, not cooked
Beef	Brazil	41/63*	Per kg boneless meat, not cooked
Lamb	Sweden	21	Per kg boneless meat, not cooked
Pork	Sweden	4,2	Per kg boneless meat, not cooked
Chicken	Sweden	2,6	Per kg boneless meat, not cooked
Minced meat (50% beef, 50% pork)	Sweden	16	Per kg boneless meat, not cooked
Egg	Sweden	1,1	Per kg egg with shell
Salmon	Norway	6,1	Per kg filé, not cooked
Saithe	Norway	1,5	Per kg filé, not cooked
Herring	Norway	0,8	Per kg filé, not cooked
Mussels, farmed	Sweden	0,4	Per kg cooked mussels without shell
Beans, dried	Sweden	0,4	Per kg dried beans
Gray peas, dried	Sweden	0,2	Per kg dried peas
Chickpeas, dried	Kanada	0,6	Per kg dried chickpeas
Lentils, dried	Sweden	0,3	Per kg dried lentils
Quorn	Great Britain	1,7	Per kg quorn minced
<b>Carbohydrate sources</b>			
Potatoes	Sweden	0,1	Per kg unpeeled potatoes
Spagetti	Sweden	0,8	Per kg unboiled spagetti
Oat rice	Sweden	0,7	Per kg unbolied oat rice
Rice (Jasmine)	Thailand	3,1	Per kg unboiled rice
Soft bread (wheat)	Sweden	0,5	Per kg bread

Rye crisp bread	Sweden	0,3	Per kg rye crisp bread
<b>Dairy</b>			
Semi-skimmed milk	Sweden	0,9	Per liter milk
Half fat crème fraiche, 17% fat	Sweden	2,2	Per kg crème fraiche
Cream, 40% fat	Sweden	4,2	Per kg cream
Butter	Sweden	8,0	Per kg butter
Cheese, 31 % fat	Sweden	5,3	Per kg cheese
<b>Fruit and vegetables</b>			
Apple	Sweden	0,2	Per kg apple with peal
Orange, with peal	Southern Europe	0,5	Per kg orange, with peal
Banana, with peal	Costa Rica	0,7	Per kg banana, with peal
Strawberrys	Sweden	0,3	Per kg strawberrys
Yellow onion	Sweden	0,1	Per kg yellow onion with peal
Spinach, fresh	Sweden	0,3	Per kg fresh spinach
Green peas	Sweden	0,3	Per kg green peas
Tomatoes, greenhouses heated with a high proportion of renewable energy	Sweden	0,2	Per kg tomatoes
Isberg lettuce	Sweden	0,2	Per kg Isberg lettuce
<b>Other plantbased food</b>			
Wheat flour	Sweden	0,4	Per kg wheat flour
Suger	Sweden	0,6	Per kg suger
Vegetable fat spread, 40 % fat	Sweden	1,1	Per kg vegetable fat
Almonds	USA	2,6	Per kg almond without peal
Rapeseed oil	Sweden	1,4	Per kg rapeseed oil
Chocolate, dark	Sweden/Ghana	0,8	Per kg dark chocolate
<b>Drink</b>			
Brewed coffee	Central/south America/Sweden	0,5	Per liter of brewed coffee

Orange juice	Brazil/ Sweden	0,6	Per liter of orange juice
Soda	Sweden	0,1	Per liter of soda
Beer	Europa (average several countries)	0,7	Per liter of beer
*The higher value includes land use change/effect of deforestation			

When data from the Open List is used, there must be a reference, stating the full document name: “the Open access list - an extract from the RISE climate database for food v 1.7”.

## More about climate data

RISE foodclimate database is based on results from life cycle assessments of food and has been developed to represent Swedish food consumption. Life cycle assessment is an ISO standardized method and means, that you analyze a product's environmental impact from the entire life cycle, step by step. RISE food climate database is limited to climate impact, no other environmental effects are included. The climate impact of products is usually called carbon footprint and is expressed here in kg carbon dioxide equivalents (CO<sub>2</sub>e) per kg food.

The carbon footprints in the RISE climate database are based on previous life cycle assessments/ carbon footprints carried out by RISE (formerly SP and SIK) or other national and international actors, scientific articles, publications from conferences, popular science reports, environmental-/climate-declarations, international climate labeling initiatives or simplified calculations/modifications based on RISE's collective experience in the area of food and climate impact.

### Climate impact from production and consumption of food

What characterizes climate impact and other environmental impact of food, compared to other products, is that the primary production with its use of resources and activities (feed, animal production, production of mineral fertilizer, emissions from manure and animals) often cause a larger impact than any other part of the production chain, and thereby stand for the major part of the total impact. This is especially the case for animal products such as meat, dairy products and seafood.

It is well-known that there is a distinct difference in impact between plantbased products and animal products. This is due to the feed production needed to feed the animals and the biological emissions from the animal’s digestion and handling of manure.

### The climate footprint of one and the same food varies

There is a significant difference in climate impact of different types of food. But it is also important to note that the climate impact of a single food product can vary greatly depending on how the product has been produced. This is influenced by conditions of climate, soil quality, which electricity production is used etc, and active choices that affect the production such as increasing the crop yield due to an improved fertilization practice or crop rotation. It is therefore important not to interpret the carbon footprint from a life cycle assessment as an



exact number, but rather an approximation of a product's climate impact. RISE Food Climate Database can include different carbon footprints from different countries of origin.

The data sources used in the database have, besides representing the "right" geographic origin, to the greatest extent possible been chosen based on the widest data coverage. For example, the ambition has been to choose data based on statistics for a specific country, rather than to choose data from a few farms in the country, in order to "even out" variations as much as possible.

## **Calculation base and function**

The carbon footprints are in all cases presented in the unit kg CO<sub>2</sub>e (carbon dioxide equivalents) per kg of food and include emissions of all important greenhouse gases from food production (e.g. methane, nitrous oxide and carbon dioxide)

The carbon footprints are calculated per kg "edible" part, even if the product is for example raw meat. For fish and meat products this means bone-free meat. There are a few exceptions (e.g. fruits with peel and chicken with bone), but this is then specified clearly in the database.

## **Scope**

The carbon footprints include the food products' climate impact up until and including any potential processing in industry. Transport from industry, via any wholesaler, and to the organization that will prepare the meal is thus not included. Exceptions are made for imported products where a climate contribution for a generally accepted transport to Sweden is added to the total carbon footprint.

Packaging of food is not included in the climate footprint. This method choice was done due to the primary target group at the initial development stage of the database which was the public meal sector who often buy food in very large packs. The studies on which the climate data are taken from are in most cases based on consumer packs, which gives a higher climate contribution from the packaging per kg food, compared to very large packs.

The climate impact from cooking in the household/restaurant (emissions from energy use) is not included. For products such as fried meat/fish, cooked rice etc, the cooking has only been taken into account by calculating the amount of "uncooked" food that corresponds to 1 kg of cooked food. Cooked food can get a lower carbon footprint per kg if water is absorbed and the concentration of the food is decreased, while fried food can get a higher carbon footprint per kg due to evaporation of water that often occurs when frying.

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