



Press release

Be it apple or pineapple: transport and packaging often determine the climate impact of our food

Heidelberg, 21.05.2020. In a new study, ifeu – Institute for Energy and Environmental Research Heidelberg – has identified the environmental footprint of 200 everyday foods and dishes. It turns out, whether an apple is better for the environment and climate than a pineapple depends less on the fruit itself but rather on the conditions in which it is produced. However, taking only the climate impact of food into consideration often doesn't tell the whole truth.

When freshly harvested, apples, strawberries and peaches are amongst the most climate-friendly foods available to buy in German supermarkets. On the contrary, New Zealand apples, winter strawberries or canned peach perform poorly.

“In terms of the food in our supermarkets, the environmental impact often depends less on the product than on where and how these products were grown and then packaged and transported,” says [Dr Guido Reinhardt](#), head of the now presented study [“Environmental footprints of food products and dishes in Germany”](#). Five product groups were examined, including fruit, vegetables, meat and dairy products, as well as vegetarian/vegan substitutes.

The study identifies that a pineapple delivered by plane to Germany results in a figure more than 25 times worse than the same fruit arriving via ship. The same is often true of local vegetables such as mushrooms, kale or beans, if they are fresh versus if they are in a jar or can in the supermarket.

Land use change is consistently taken into account for the first time

“In many cases, disposable packaging made of metal or glass has a greater effect on the climate than the actual food. This also applies to many beverages such as beer and wine, often the packaging is more important than the contents,” explains Dr Reinhardt.

In addition, the land on which the food is grown often plays a key role: when tropical rainforests are cleared for the cultivation of palm oil or (as is the case in Germany) peatland areas are converted for agriculture, the greenhouse gas balances deteriorate considerably, sometimes resulting in up to double the CO₂ footprint.

The key difference of the current study is that for the first time greenhouse gas emissions related to land-use change have been consistently taken into account for all foods.

Overall, the ifeu study confirms that fresh, seasonal and regionally grown fruits and vegetables are on average much more climate-friendly than off-season

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imported food from distant countries. The study also highlights that a switch to less meat and dairy products are the key factors towards a sustainable change in the impact of our diet.

Going organic does not save the climate – but it saves water, soil and resources

Surprisingly, meat, milk and eggs from organic farming in some cases do not perform better than products from conventional agriculture in terms of saving CO₂. The main explanation for this is that organic farms generate lower yields on average and therefore need more land. As a result, the researchers reported higher hectare figures, which can lead to higher CO₂ emissions. “This demonstrates that looking only at figures of CO₂ emissions does not tell the whole ecological truth,” explains Dr Guido Reinhardt.

“The slightly higher emissions are evidently more than offset by significantly lower pesticide use, more sustainable soil management and increased biodiversity. Especially when it comes to agriculture, taking a narrow view of CO₂ emissions alone can greatly distort the overall environmental assessment,” emphasises Dr Reinhardt.

A key contributor to the environmental impact of our lunch comes from the side dish

In the second part of the study, ifeu examines various meals to look at just how climate-friendly they really are. Some foods really stood out as having an unexpectedly high impact on CO₂ emissions per serving.

“Not only do beef and rice have a high impact on the climate, but these foods also require a large amount of fertiliser and water for production,” says Dr Reinhardt. Beef can be substituted with much more climate-friendly pork or soy granules, especially in the case of minced dishes. In particular, however, the use of rice as a side dish in our meal preparation can often easily be replaced with pasta, potatoes or spelt. This results in not only fewer greenhouse gas emissions, but also half the size of land use and fertiliser footprint and a one hundred times smaller water footprint. It is also therefore vitally important in this case that CO₂ must not be the sole environmental criterion to measure sustainable food options.

The study provides greater understanding and guidance

The ifeu study is intended to serve as a guide for consumers and consultants towards an environmentally conscious diet.

“We want to contribute to greater clarity and understanding,” says Dr. Reinhardt. The data published so far on the CO₂ footprints of food differ significantly in some cases.



These differences often are due to the scope of the respective assessments. These discrepancies result in a lack of transparency for consumers and in general for advice on nutrition. This is why, for the first time, ifeu has specifically compared the influence of production, transport, packaging and further parameters, for example for seasonal foods and, above all land use.

Study "[Environmental footprints of food products and dishes in Germany](#)" for free use (pdf, 1.5 MB)

[Project](#)

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