



## New method improves ecological footprinting of food products

**International trade of food products** is increasing. This means that food produced in one country may use ingredients sourced from other countries, which can make it difficult to assess the product's real environmental impact. A new mathematical approach to this problem may help provide a clearer picture of a product's impact.

**Green-thinking consumers** want to understand the real environmental impact of their purchases. Although food producers may include countries of origin on their packaging, they are not required by European law to list the origins of *all* the ingredients in their products. For instance, consumers who buy soy sauce imported from China may be unaware that the soy beans used to make it were grown in Brazil. This has an important environment implication, because in Brazil, soy bean cultivation is linked to deforestation. Because the consumer does not have this information, they cannot make an informed decision. Even official trade data can fail to reveal the true sources of all the ingredients in a product.

The researchers developed a method for making clearer links between agricultural products and their environmental impacts. They devised a calculation that would help link the consumption location of crops with the production location. The researchers say this method could prove valuable in stimulating discussion about how consumers can reduce their impact on the environment.

Using their method, they were able to determine where four different types of soy products consumed in Austria were actually produced. As inputs, they used 'bilateral trade data' on the amounts of primary and secondary products produced by different countries. They were able to present their results in a matrix, clearly showing the origin of each product, and calculate the environmental impact of soy consumption in Austria based on land and water use.

Official data, reported by the Food and Agriculture Organization of the United Nations<sup>1</sup>, indicate that the Netherlands, Germany and Italy are the main sources of soy products. However, the researchers' calculations reveal the main sources as Brazil, Argentina and the United States. In fact, Germany and the Netherlands do not even grow soybeans on any significant scale.

The researchers suggest the method could be used to improve water and ecological footprinting approaches, providing a 'more transparent picture' of how consumption is linked to distant impacts on the environment. Other types of flows could also be traced, such as monetary flows between countries, although the approach is not suitable for the more complex analyses required in carbon footprinting.

There are, however, limitations, particularly a lack of availability of data. In many cases, the detailed trade data required to perform the calculations are not available, although this may change with the increasing importance of international trade. In addition, the method does not take into account products consumed by animals – it could be refined to do so, but this would require further data.

1. See: <http://faostat.fao.org/default.aspx>

**Source:** Kastner, T. Kastner, M. and Nonhebel, S. (2011). Tracing distant environmental impacts of agricultural products from a consumer perspective. *Ecological Economics*. 70: 1032-1040.

**Contact:** [t.kastner@rug.nl](mailto:t.kastner@rug.nl)

**Theme(s):** Sustainable consumption and production