

# Science for Environment Policy

## Manufacturers should stress 'green' packaging qualities to educate consumers on real impact

**Consumers in France, Germany and the USA perceive 'environmentally friendly' packaging to be reusable, recyclable and 'biodegradable'<sup>1</sup>, finds a new study.** These results suggest that producers should emphasise the end-of-life merits of packaging to appeal to consumers' environmental concerns, and design packaging that is reusable, recyclable and 'biodegradable'. However, they also indicate a need to raise public awareness of packaging's true life-cycle environmental impacts, such as those during production and transport, which are greater than consumers generally perceive them to be.

**In Europe, each person produces around an average of 163 kilograms (kg) of packaging waste per year.** This represents around one-third of each person's total waste. The figure is even higher in more prosperous countries: 220 kg per person in Germany and 189 kg in France, for instance.

While it is important to reduce the amount of packaging produced in the first place, it is also important to explore how to cut its environmental impact through better design and material use. Consumer preferences are critical to packaging design and product success; marketing research shows that packaging is responsible for up to a third of a consumer's judgement of a product, and strongly influences what we choose to buy.

The EU's [Product Environmental Footprint](#) (PEF)<sup>2</sup> is a definitive measure of the environmental performance of a good or service throughout its life cycle. The PEF criteria aim to reduce environmental impacts of goods and services – focusing on supply chain activities (from extraction of raw materials, through production and use, to final waste management). The aim of the PEF is to provide a common method of measuring environmental performance for companies within the EU<sup>3</sup>.

To help inform packaging design, this study explored consumer preferences for environmentally friendly qualities in packaging. The researchers surveyed consumers in Germany, France and the USA – all large Western packaging markets – on their 'green' packaging preferences, asking participants to rate various green packaging options and comment on what they believe makes packaging 'environmentally friendly'.

The survey was the first to consider attitudes towards packaging made using the renewable resource of biomethane, a gas produced from 'fresh' organic matter such as plants or manure by microbes in anaerobic (without air) conditions. The survey informed respondents that this form of packaging is non-biodegradable. Germany has an established market for biomethane, while France has set ambitious targets for the gas.

There were 948 respondents in Germany, 610 in the USA and 443 in France. They represented a balanced cross-section of society in terms of age, sex and educational attainment.

The results showed that respondents considered the end-of-life stage of packaging most important to environmental friendliness. Recyclable and reusable packaging was rated highly (on average scoring 4.04 and 4.07 out of 5, respectively), while plastic which is biodegradable, but made from non-renewable resources, was rated higher (2.9), on average, than non-biodegradable plastic made from renewable resources (2.65). Germany was the only country to rate reusability higher than recyclability.

*Continued on next page.*

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Beuthner, C., Ramme, I,  
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attitudes towards biobased  
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1.The word 'biodegradable' on a piece of plastic can lead to the assumption that the material will degrade over time. However, this type of plastic will only break down in temperatures of over 50 degrees C and therefore does not biodegrade in ocean waters.

2.EC Joint Research Centre (2012), [Product Environmental Footprint Guide](#)

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This end-of-life focus is understandable, say the researchers: it is the stage with which consumers interact most, and recycling is considered important in Western cultures. However, other stages of a packaging item's lifecycle, such as production and transport, are also critical to environmental impact. In many cases, these outweigh the impacts of disposal, but many consumers (and, often, manufacturers) are unaware of this.

Biomethane-based plastic received a low average score of 2.52 from participants. This reflects a lack of awareness of biomethane, as well as a misconception that manure enters biomethane-based plastics. The consumer preference for recyclable materials, such as glass, may also put bio-based materials at a relative disadvantage.

The researchers suggest that manufacturers could focus on communicating the biodegradable, reusable and recyclable qualities of their packaging to meet current consumer preferences. But in the long term, they should also educate consumers on the real impact of different packaging options, including impact from transport and production. Moreover, ecolabels for packaging could overcome consumer confusion and the risk of 'greenwashing' (companies making misleading or unsubstantiated claims of sustainability and environmental friendliness) — but reliable testing and certification standards must first be developed.

