

Bioethanol: producing food **AND** fuel

Raw material: for bioethanol fuel production...

Bioethanol produced in Europe is almost 100% produced from **European-grown raw material**.

The most commonly used feedstock is wheat, although other cereals can be used such as barley, rye, maize and triticale. Close to two thirds of all raw material used is cereal-based. The rest of the feedstock is mainly derived from sugar beet.

...and to produce animal feed

Many people think that a fuel ethanol plant produces only fuel (ethyl alcohol) for cars. In reality, it produces a very important ingredient for the feed and subsequently food chain as well.

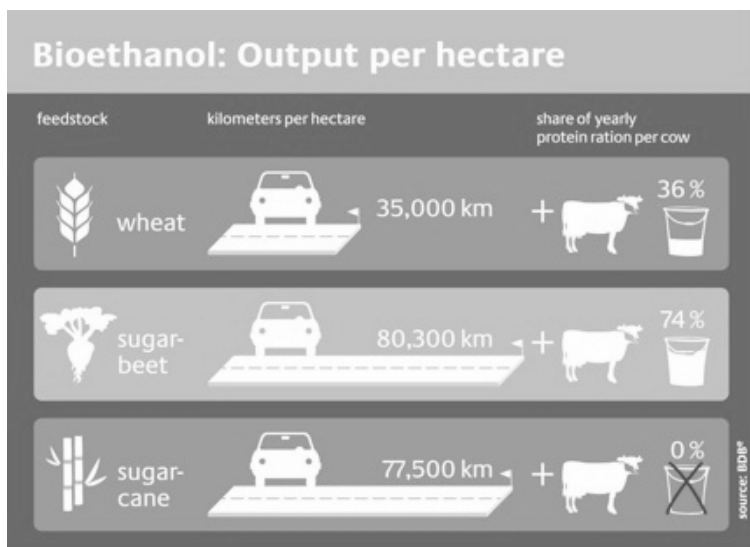
On average, 2.7 kg of grain produces 1 litre of ethanol and 1kg of **protein-rich animal feed**. During the production process, valuable animal feed is yielded as a co-product. The same applies for sugar beet. When 7,9 kg of sugar beet is used to produce 1 litre of ethanol, 600 grams of a co-product called vinasse is produced at the same time. Vinasse is a rich fertiliser and can also be used as source of biogas production. Additionally, 1.2 kg of carbohydrate-rich beet pulp are finally left over from the process and used as animal-feed concentrate.

Optimal use of the raw material

Raw material in the EU ethanol sector is used in an optimal way: it delivers energy for the transport sector and nutrients for the food chain.

One hectare of sugar beet or wheat provides fuel, and also a protein-rich animal feed (see graphic).

The protein benefit does not exist in the case of sugarcane ethanol: its leftover called *bagasse* is a non-digestible material and is used as energy source.



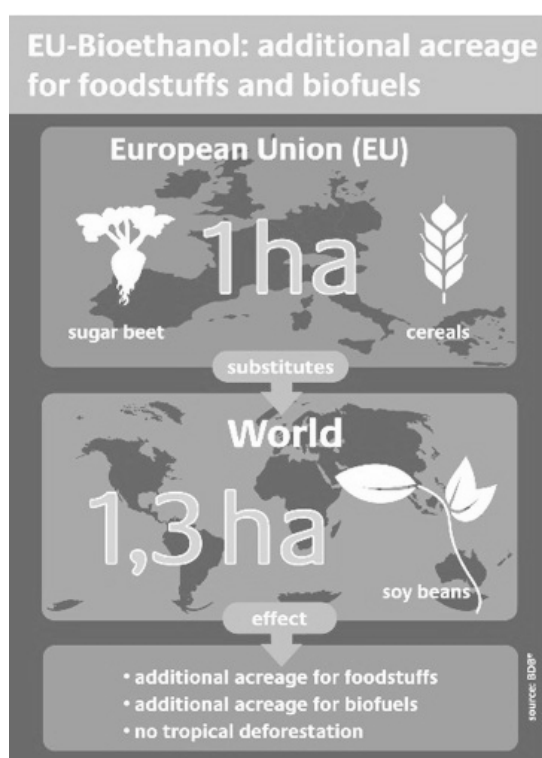
Double benefit: Mileage and protein levels that can be achieved from 1 hectare of various crops.

EU bioethanol production = reducing land use

In 2007 the EU imported well over 44 million tons of protein-rich animal feed - mainly soybeans from Argentina or Brazil. As the EU produced 2.8 billion litres of ethanol in 2008, over 3 million tonnes of **animal feed** have been produced in parallel. About 0.7 million hectares are needed to obtain this amount of bioethanol fuel and animal feed from EU grown cereals and sugar beet.

For the same amount of protein feed produced from soybeans in South America, roughly 0.9 million hectares of arable land are needed. Thanks to the co-products of EU bioethanol production, these 3 million tonnes of animal feed do not need to be **imported from South America**. Consequently, 0.9 million hectares of land can be used differently or left idle. Soy is one of the main drivers of deforestation. Lower soy demand means potentially less deforestation.

Put differently, through the added value of domestically co-produced ethanol and animal feed, 1 hectare of sugar beet or wheat cultivated for bioethanol production frees up 1.3 hectares of **arable land** in other regions of the world.



Domestic ethanol production thus achieves three objectives:

- It produces renewable fuel and animal feed at the same time;
- It makes optimal use of EU arable land and domestic grown crops;
- More animal feed produced at home means less land needed abroad.



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Founded in 2005, eBIO serves as the voice of the European bioethanol fuel industry, providing advocacy, authoritative analysis and industry data to its members, the European Institutions, strategic partners and the media. With over 60 members, eBIO pursues the promotion of European policies and initiatives that lead to increased production and use of bioethanol fuel. The association regularly participates in educational activities to increase public awareness of renewable fuels and the positive contribution they make to European energy independence, climate change and the wider economy.

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