

Renewable Ethanol: Producing Food AND Fuel

Raw material is used for renewable ethanol production...

Renewable ethanol 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 are cereal-based with the rest of the feedstock being mainly derived from sugar beet.

...and to produce animal feed

Many people think that an ethanol plant only produces ethyl alcohol to be used as fuel. But in reality, it also produces a very important ingredient for the animal feed sector and, consequently, for the food chain as well. When renewable ethanol is produced, this valuable animal feed is yielded as a co-product.

On average, 2.7 kg of grain produces 1 litre of ethanol and 1 kg of protein-rich animal feed. 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 can be used as rich fertiliser, animal feed or a source of biogas production. Additionally, 600 grams of carbohydrate-rich dried beet pulp are finally left over from the process and used as animal-feed concentrate.¹

Also the carbon dioxide produced during the ethanol production process is a co-product which is important to the food industry. The CO_2 is captured and re-used to carbonate soda drinks and, in many cases, is pumped into greenhouses to improve fruit and vegetable production. These are just some examples of how ethanol co-products contribute towards improving food production.

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 important products for the food chain (see graphic, data based on German production).

The benefit to the food chain does not exist in the case of sugarcane ethanol: its co-product called bagasse is a non-digestible material and does not enter the food chain.



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

¹ Data based on German production.

EU renewable ethanol production = reducing land use

In 2009 the EU imported well over 45 million tonnes of protein-rich animal feed - mainly soybeans from Argentina or Brazil.² As the EU produced 3.7 billion litres of fuel ethanol in 2009, close to 4 million tonnes of animal feed have been produced in parallel. About 0.9 million hectares are needed to obtain this amount of 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 1.2 million hectares of arable land are needed. Thanks to the co-products of EU ethanol production, these 4 million tonnes of animal feed do not need to be imported from places like South America. Consequently, these 1.2 million hectares of land can be used differently or left idle. Soy cultivation drives deforestation directly though the expansion of farmland. Lower soy demand means potentially less deforestation.



EU-Bioethanol: additional acreage for foodstuffs and biofuels

Through the added value of domestically co-produced ethanol and animal feed, 1 hectare of sugar beet or wheat cultivated for EU ethanol production can free up to 1.3 hectares of arable land globally, mostly in third countries.

EU renewable ethanol therefore reduces the amount of crops and agricultural land that are needed globally to sustain food supplies.

EU produced ethanol delivers the following benefits:

- It produces renewable fuel and animal feed at the same time.
- It makes optimal use of EU arable land and domestically grown crops.
- Animal feed produced at home means less land needed globally.
- It limits deforestation across the globe

In short: it is a win-win situation.

² Eurostat.



ePURE is the voice of the european renewable ethanol industry. It is Europe's industry association that promotes renewable ethanol, providing advocacy, authoritative analysis and industry data to its members, European institutions, strategic partners and the media.