



Biofuels, a summary

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The objective of 10% biofuels for transportation in 2020 has been decided by the EU. However, some conditions have been taken into account.

The production should be sustainable, without any influence on the food production (right now, only 2% of the corn production in Europe is used for biofuels) and the second generation of biofuels should be speeded up and be ready as soon as possible

Hereunder you can find the positions and suggestions for sustainability criteria of the European Biotech Industry for biofuel production.

1. Environmental Sustainability Criteria for Biofuels

The challenges of increasing CO₂ emissions, climate change, increasing import dependence and higher energy prices need Europe to deliver sustainable, secure and competitive energy

Robust European Certification Scheme for Biofuels

Must include a set of credible sustainable criteria and some transparent and enforceable controlling measures (certification of biomass and biofuel production)

The use of biomass for fuel purposes should not jeopardize European and third countries' ability to secure its people's food supply, nor should it prevent achieving environmental priorities such as protecting forests, preventing soil degradation and keeping a good ecological status of waters.

The **sustainable criteria** should be developed not only for the biomass used for biofuel production, but for all (energy) applications. They must be technology-neutral, transparent, and based on scientific evidence and on clear definitions.

GHG savings thresholds should be set at a level which would allow current technologies and processes to be maintained. Europe should start with a relatively low GHG savings threshold and increase in time (stepwise approach).

The commission should perform an impact assessment before implementation.

2. Biofuels and land use

The development of sustainability criteria will help avert unsustainable use of plant material for biofuel production

Current biomass resources

The European Environment Agency study on the sustainable biomass available for bioenergy and biofuels in Europe shows that significant amounts of biomass are available to support the ambitious renewable energy targets

Strict assumptions were made in this study on maintaining food crops for domestic supply, preserving natural habitat, protected forest, and also land with extensive or 'environmental-oriented' farming

Second generation biofuels production

An important step in increasing biofuels' production and sustainability is the competitive production of biofuels from (hemi) cellulose and organic agricultural waste. These are the second generation biofuels. Second generation biofuels have a better GHG emission balance. Their use has the potential to reduce the pressure on food crops and increase land use.

Increase biofuels production without using more land

Land productivity (producing more biomass per hectare), as well as crop quality (producing crops that have more fermentable carbohydrates or higher oil content) can be increased via plant improvement through modern breeding techniques and biotechnology. Combining food production and environmental protection is a key challenge.

Deforestation in tropical areas

Biofuel can put pressure on forest resources. Establishing and enforcing sustainable criteria for biofuels are crucial to ensure that biofuels use does not lead to further deforestation.

3. Biofuels and food

Price increases in foods (pasta, bread, milk, meat) have been swiftly attributed to increased biofuels production.

It is true that the price of agricultural raw materials has risen, the alleged impact of biofuels on food price is disproportionate and a number of factors, including bad harvests in Australia and Ukraine in 2007 and an increased demand for meat in developing countries are responsible.

Globally, world meat production increased by around 65% during last 20 years, therefore increasing demand for feed.

Meat consumption increase is most acute in India and China due to increased wealth, creating a greater demand for meat and dairy products.

On average meat consumption in China alone increased from 27 to 59 kilogram per person per year between 1990 and 2005. This has been the one of the **largest drivers of cereals rising price** on the world market.

The market tension created by high demand was reinforced in the past years by **poor harvests and record oil prices**. Between 2003 and 2008, the oil price has raised from 25\$ to 120\$ per barrel, heavily impacting agriculture production and transportation costs.

Food prices and agricultural raw material prices are not directly linked in developed countries. Energy prices have two to three times more impact on retail food prices than raw materials prices. For the problem of food availability in

developing countries factors like political stability, infrastructure and access to capital must be taken into account.

The **adoption of sustainability criteria** has been specifically designed to avoid competition with food and supports 2nd generation/lignocellulosic biofuels development.

4. Biofuels and developing Countries

The development of biofuels has a **large potential** for Developing Countries. In Developing Countries the majority of the population often lives in rural areas and subsists on agriculture. Such people are more vulnerable to natural disasters such as storms, floods and droughts and all efforts to counteract climate changes will therefore be beneficial. Global warming itself is today a bigger danger to the biodiversity in these areas.

The development of biofuels will also bring direct opportunities to Developing Countries because their production will **create many local jobs** in the value chain from growing raw materials to their actual manufacture.

Industrialised countries must be prepared to set up the **right regulatory frameworks** with their local counterparts which can support a sustainable development for these countries and prevent unsustainable cutting of rain forests and similar (such as biofuels and sustainable production certification schemes).

5. Biotechnology : Making Biofuels more sustainable

To move towards a future with a sustainable energy supply and healthy consumer goods production, every solution is important. Industrial biotechnology with its competitive, clean and clever use of bio-based technologies can play a key role in making biofuels more sustainable.

Biofuel technologies are able to manufacture biofuels from biomass. Biomass is a wide-ranging term meaning any source of organic carbon that is renewed rapidly as part of the carbon cycle.

A European Commission impact assessment showed that -as a result of the biofuels targets- the EU would see a **120,000 increase in net employment** and a 0.17% rise in the overall EU's GDP, assuming all biofuels are produced domestically from European feedstock. Finally, thanks to first and second generation biofuels, European farmers will be able to live on their production rather than receiving subsidies in exchange for lower production levels.

In order to achieve the goals of biofuel use set by the European Union (5.75% in 2010 and 10% in 2020) in a sustainable and competitive way it will be critical to **increase land productivity** (meaning more biomass output/ha), as well as crop quality (meaning more fermentable carbohydrates or higher oil content). This can

be done via plant science (modern plant breeding techniques and biotechnology) in combination with state-of-the-art application of crop protection

Several studies have been published on the **eco-efficiency of biofuels**. They all found that CO₂ savings with the present biofuel technologies are between 20 and 80% (depending on the feedstock and conversion process) compared with using conventional petrol. And this can increase to 90% and higher for second generation biofuel such as cellulosic ethanol. High energy feedstock, less fuel intensive cultivation of crops and low carbon conversion processes could further help us to achieve this.

Although first generation biofuel processes are useful, the so-called **second generation biofuels** can supply a larger proportion of our fuel supply sustainable, affordably, and with greater environmental benefits.