

Biofuels are targeted to provide **10%** of Europe's fuel needs by 2020

## Biomass crops are reducing Europe's dependence on fossil fuels

The use of biomass as a renewable source of energy has become an important output for EU agricultural production. The development of bio-energy and biofuels are key elements in fighting against climate change and have a unique role to play. The EU's target of 20% renewable energy by 2020, with a 10% share for biofuels is driving this change.

The cultivation of bio-energy crops specifically for generating heat and energy or biofuels for transport presents a viable means of achieving a positive energy balance that is less dependent on fossil fuels.

Biomass is already making substantial contributions to the generation of energy in both conventional and highly efficient combined heat and power plants in many countries within the EU.

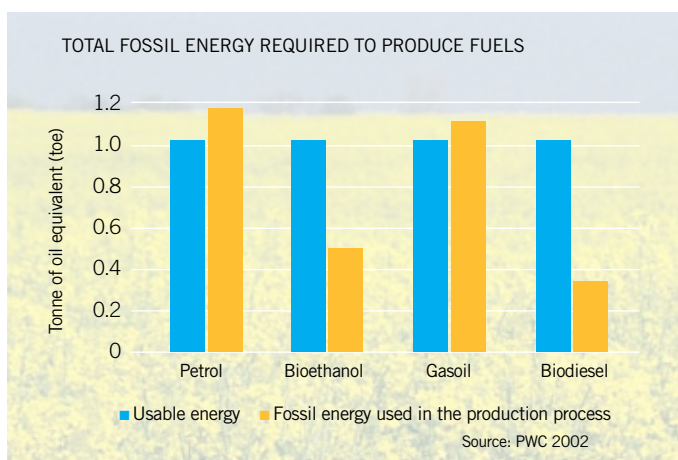
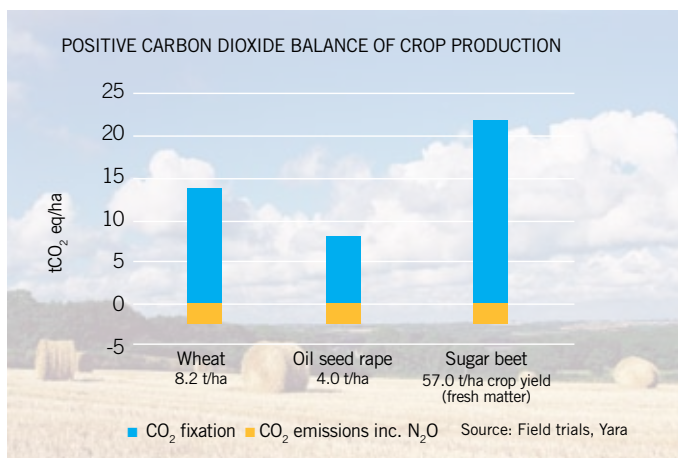
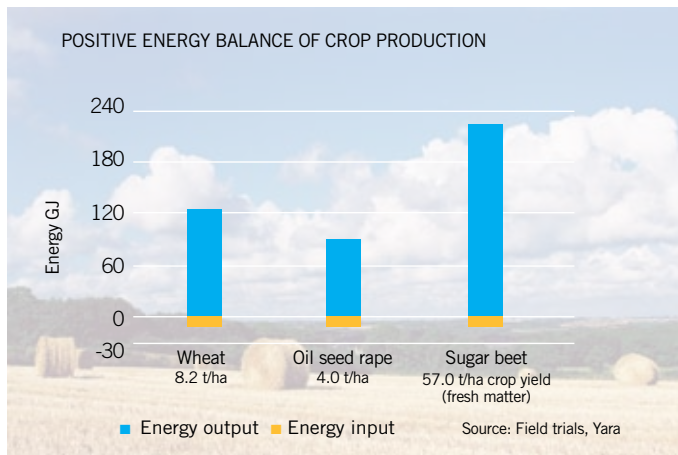
An increasing number of vehicles are being powered by fuel containing bio-components and research continues to improve its efficiency.

In exactly the same way as for food production, the use of mineral fertilizers increases the yield of bio-energy crops and their intrinsic value as a raw material. Both the energy and CO<sub>2</sub> balance of the production and use of biomass crops are positive when fertilizers are involved.

### POSITIVE ENERGY BALANCE

When the complete life cycle of biofuels is also considered, they exhibit a positive energy balance. Half as much fossil energy is required to produce bioethanol compared to petrol with the same amount of usable energy and a third as much required to produce biodiesel compared to gasoil.

Mineral fertilizers also play a key role in the cultivation of crops destined to meet the ambitious renewable energy targets set by the EU. They increase the yield of bio-energy crops both in terms of tonnage and intrinsic energy content, thereby optimising land use and maximising the return on useful energy.



As a result of amendment to the EU Common Agricultural Policy, crops destined for renewable energy purposes are currently grown on 4 million hectares of set-aside or idle land in Europe. To date, therefore, they have had no real impact on land use or food

availability. However, the food versus fuel debate continues in many countries and the final allocation of land for renewable energy purposes remains under review.

In 2007, after a slow start in European biofuel production, the market took off, greatly surpassing the ambitious target set in January that year. Demand was boosted by three main factors - an exploding global demand following the sudden development of bioethanol in the USA; tensions on the energy market, which kept energy prices at a high level; and the start of the implementation of a national biomass plan in EU Member States.

The related impact on the supply/demand balance induced record price rises in all agricultural commodities at the beginning of the 2008 season. However, with a falling oil price, the situation had already changed completely by the end of the year, with a general stabilisation of biofuel production. There was a dramatic drop in USA and a significant slowdown in the EU due to the debate on the impact of first generation biofuels.

#### VIABLE BIOFUEL PRODUCTION

For the immediate future, biofuels represent the only viable substitute for fossil fuels that can be produced relatively simply and on a large enough scale. Other technologies such as hydrogen, have enormous potential. However, they are far way from large-scale viability and will require major changes to both vehicles and fuel distribution systems.

The EU's transport system is virtually wholly dependent on oil. Changing the fuel mix is important because most of the oil is imported, much of it from politically unstable parts of the world. Oil is the energy source that represents the most severe security of supply challenge for Europe.

The need for greenhouse gas savings from transport is also particularly pressing, because emissions are expected to grow substantially between now and 2020 – three times as much as in any other sector. Thus, increasing biofuel production offers benefits both for security of supply and for climate change. There is a need, however, to ensure that EU biofuel policy operates with a high degree of efficiency and creates a framework which gives investors the confidence to invest in better, capital-intensive forms of production.

The commercialisation of "second-generation" biofuel production techniques, including the use of forestry products and other types of organic waste, also promise more positive energy balances and substantial reductions in emissions.