

## **Myths & Facts on Argentine Biodiesel**

**Learn why Argentina is the world's leader in sustainable soy-based biodiesel**

*Myth # 1: Biodiesel production compromises food availability as it earmarks a large percentage of the crops for the production of biofuel.*

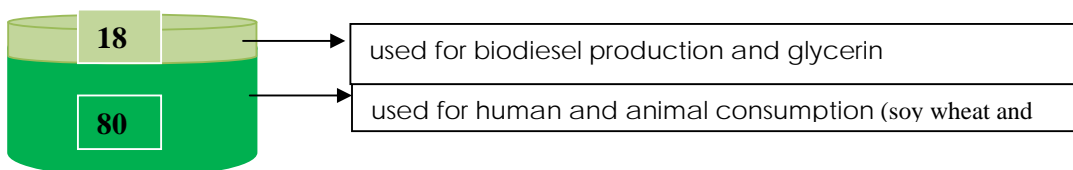
Currently, the demand for agricultural and agro-industrial raw materials does not go beyond the equivalent of 3 % of all the cultivated area of the world.

In addition, the latest FAO report on crops and food foresees a 4,9% increase in cereal production for 2008 with respect to the previous year.\*

The causes of the volatility of the commodities must be sought in factors outside bioenergy production: the inevitable variability of the crops, accentuated by the effect of climate changes and by the increasing structural imbalance between supply and demand produced by a change in the demand of commodities in countries such as China and India (for example, there has been an increase of over 100 % in meat consumption in China from 1995 to date, when about 16 Kg. of grains are required to obtain 1 kg. of meat); and financial speculation, which has found in them a business opportunity, especially in the face of the growing weakness of the dollar.

On the other hand, the increase in the prices of food is not due to the influence of biofuels because these have not caused a decrease of food production. Moreover, the impact of the price of oil on that of commodities is deeper and more intense, as was seen in the recent price drop that brought relief to the pressure of agricultural costs, contributing to the decrease in prices of food raw materials.

In the case of soybean, 80% of each bean is used for human and animal consumption in the form of soybean flour and pellets. Only 18% of it is used for biodiesel production. For each additional biodiesel unit required by the market, eight food units are generated for human and animal consumption. Therefore, more soybean production means producing more food, not endangering its production.



***Myth # 2: Argentine soy-based biodiesel has negative energy balance since its production and distribution require more energy than it contains.***

**Fact:** The energy balance is the difference between the energy available per unit of fuel produced and the fossil energy necessary for its production, its transportation to the industry, its industrialization and its transportation to its point of use.

Eighty per cent of each soybean produced is devoted to human and animal consumption in the form of soybean flour and pellets, and only 18% is used for the production of biodiesel and its byproduct, glycerin. Therefore, when analyzing the energy balance of soy-based biodiesel, 80% of the energy required for the production of the soybeans must be subtracted both at the agricultural and the industrial stage (crushing).

Since the soybean is a leguminous plant with the capacity to fix nitrogen from the atmosphere in a symbiotic process with microorganisms, it significantly reduces the need for urea for fertilization. This translates into an improvement of the energy balance.

Of the total energy used to produce soybeans, 35 mega joules corresponds to biodiesel, and 81 ,75 M/J , to its byproducts, as long as cultivation is performed through no-till farming using leading technology. Therefore included the by product, the balance is 6,48 to 1. **INTA**

***Myth # 3: Producing soy-based biodiesel implies a monoculture that threatens biological diversity, since lands that shelter species already adapted to a certain ecological balance are now devoted to farming a single crop, thus breaking the stability of the environment.***

**Fact:** Argentina is known to have one of the most sustainable agricultural systems in the world. Sustainable agriculture implies a virtuous circle that integrates no-till farming, cultivation rotation, integrated pesticide, herbicide and insecticide management, nutrient recuperation and rational and professional use of agricultural machinery. This circle as a whole constitutes the so-called Good Agricultural Practices (GAP). As a result of the GAP, greater productivity is obtained while at the same time conserving the capacity of the natural resources. This system represents an important contribution regarding carbon sequestration and natural nutrient replacement, preventing soil exhaustion and reducing the areas at potential risk due to the advance of the agricultural frontier (on native

forests, wetlands, high biodiversity areas). These areas represent less than 10 % of the agricultural areas under production.

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***Myth # 4: The growing demand of raw materials for biodiesel manufacture is the cause of the deforestation of native forests, since it promotes the replacement of the tropical forests by agricultural plantations.***

***Fact:*** Argentina has large natural meadows with warm climate and above average productivity. These areas present fewer fertilizer requirements and at the same time reduce the potential risk of other areas due to the advance of the agricultural frontier (on native forests, wetlands, high biodiversity areas).

The pampas region concentrates 75% of the lands devoted to soybean cultivation, as well as the most important plants in terms of production and export capabilities. Besides the fertility of the land, the main reason for this is the proximity to the shipping ports (an average 300 kilometers) which makes it possible to reduce transportation costs. Withholdings (soybean export taxes) indirectly render the crop less competitive in marginal areas at ecological risk because the distance to shipping ports makes transportation of raw material very costly.

In addition, Law 2633 on Native Forests was enacted in November 2007 (its regulatory decree was passed in February 2009) with the object of promoting the conservation of the native forests by means of their territorial planning, and regulating the expansion of the agricultural frontier, as well as of any other change in the use of the land, which implies a concrete action towards conservation of resources.

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***Myth # 5: Soy-based biodiesel emits more greenhouse gases than the fossil fuels it replaces.***

***Fact:*** Soy-based biodiesel contributes to the mitigation of climatic change, reducing the emissions of Greenhouse Gases (GHG) by 74, 9% as compared to fossil fuels, according to a study conducted by INTA (National Institute of Agricultural Technology).

The production and consumption of soy-based biodiesel emits less CO<sub>2</sub> during its life cycle than the CO<sub>2</sub> fixed in the process of photosynthesis by the plants used to produce it (a neutral emission of CO<sub>2</sub>, since during their growth the plants consume the same amount of CO<sub>2</sub> as that emitted by biodiesel). On the other hand, it prevents the liberation of the carbon locked away in fossil fuels millions of years ago.

In addition, because it is an oxygenated fuel, biodiesel has a more complete combustion than that of diesel, reducing the emissions of SO<sub>2</sub>, CO, solid particles, and unburned hydrocarbons. Therefore, its

combustion produces less visible smoke and fewer noxious smells, and its use contributes to decrease air pollution.

**Myth # 6: Soy-based biodiesel is almost as toxic as fossil diesel**

Soy-based biodiesel is practically non toxic upon ingestion, both for fish and mammals. Its toxicity is so low that a 176-lb. person would have to drink approximately 1,6 liters of biodiesel for its effect to be deadly. Common salt (NaCl) is approximately ten times as toxic.

Biodiesel is highly biodegradable in water (95% disappears in 28 days), so in case of a spill it degrades at a much faster rhythm than that of conventional diesel and even as fast as that of sugar. This makes biodiesel an ideal fuel for river vessels and sensitive or protected water environments. It has a flash-point of approximately 150° C compared to that of petroleum, which is 50° C; this makes it less volatile and safer to transport and handle.

**For more information, please visit [www.carbio.com.ar](http://www.carbio.com.ar)**



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