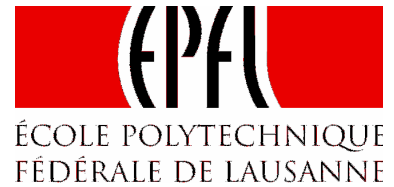


Roundtable on Sustainable Biofuels

An initiative of the EPFL Energy Center



1st Meeting of Expert Panel on Biotechnologies - Synthesis 11th of January 2008

[For more details, please consult the full minutes of the meeting]

1. General objectives:

Biotechnologies are presented as a **concrete solution to reach global targets in terms of energy supply through biomass**, but not without a lot of distrust, as per their possible environmental and social impacts.

This first virtual meeting aimed at drafting a **synthesis of the first elements discussed over the last weeks**, mainly the content of criteria on biotechnologies and scientific background of risks and opportunities related to their use.

2. List of attendees:

Christian Hardtke	University of Lausanne
Kirk Leonard	Marion Polk Food Share
Alain Vertes	Global Alliance
Juan Gonzalez-Valero	Syngenta
Sebastien Haye (moderator)	RSB

3. Criteria on Biotechnologies:

- What is the origin of using biotechnologies? As an aspiration, we are looking for **less water, less synthetic inputs and increased productivity**.
- 3.1 **Benchmark** to introduce an idea of benefit and improvement? What is the **reference for comparison**?
 - This benchmark could be the **existing intensive agricultural practices**.
 - We need to **benchmark with local conditions**. “Improved efficiency and productivity under local conditions” should be mentioned.
 - Mention should be made of the **“local economy value chain”**.
 - **Secretariat:** The **comparison could be based on a Life Cycle Analysis (LCA)** (e.g. Functional Unit: **amount of useful energy supplied per hectare**). On this basis, one can compare the amount of water, pesticide, etc... in both GM and non GM-cases, with a possible use of the methodology developed by the GHG WG, as **system boundaries** are delicate to define.

- **Transfer of economic profit** from one link of the value chain to the next is crucial.
- **Soil erosion** needs to be considered.

3.2 What does a **case-by-case” approach** concretely involve?

- Some **issues from early biotechnologies** (e.g. antibiotic markers) are already solved and these are not surely relevant for biofuels. Hence, general statements based on these techniques are useless.
- Reference to Standard legislation needed (e.g. Cartagena Protocol). Elements for a particular variety should be evaluated under the **local conditions**.
- A distinction in the end-uses is needed to ensure **public acceptance**.

3.3 The possible **failures** in the current way **GMOs and biotechnologies** are assessed are **not specific to the biofuel sector**. Could we set criteria that would be stricter than national policies on agriculture? How would producers react?

- In the USA, case-by-case approach but do not succeed in ensuring safety and benefits.
- **Soil quality** to be considered
- The **Cartagena Protocol** seems rather focused on **the transboundary movements** of LMOs and does not seem to refer to a required level of quality for these. It offers to set up regulation policies on biosafety in countries. **A standard cannot replace the safety assessment** performed by an expert panel in the registration country.
- The RSB can still highlight **parameters (less water, less synthetic inputs, etc...)** as aspirations.

Secretariat: There should be different levels of sustainability, with **room for improvement** and a red line under which one cannot consider a channel sustainable at all, but unacceptable. **Aspirational parameters are an incentive for a producer to progress.**

- The **benefit due to the introduction of technologies** is a core notion, which is currently missing.
- Regarding the Biosafety Protocol and its ramifications, we have to consider that these are **things under development** and it’s important to be realistic.

Secretariat: Similarly to what has been done for Conservation, a **synthesis table** has been set and will be sent to the members of this panel.

Criterion	Content	Remarks
Utilisation of Biotechnologies and other technologies in upstream and downstream stages of biofuel production	Compliance with all the environmental criteria	
UPSTREAM USE OF BIOTECHNOLOGIES		
Water	GM crops should not be used if a non GM crop exists that requests a lower amount of	

	water per useful energy per ha.	
Chemical fertilisers	Ditto	
Pesticide	Ditto	
Precautionary approach	<ul style="list-style-type: none"> - A year of scientific research in a greenhouse (cf: Kowalchuk + productivity and gene flow). - Four years of scientific study in target environments - Continuous monitoring for gene flows, persistence, and soil ecosystem 	Could be replaced by a reference to the Cartagena Protocol? Not a red line, but criteria to follow for improving performance.
Prevention of Gene flow	Allow sterile (terminator) crops?	Which other means do we have to avoid genetic dissemination?
Annual farmers' incomes	It should be maintained or improved as compared to the use of a non-GM crop.	To be compared to a reference case
DOWNSTREAM USE OF BIOTECHNOLOGIES		
Type of usage	Biomass should be processed contained systems to avoid dissemination of biological agents	

- **Prevention of gene flow.** Some promising technologies (elimination of transgene in the reproductive tissues) are on their way.
- **The Expert Panel is not in favor of a requirement regarding sterility,** because socio-economic aspects are controversial, and such a criterion would be too specific at this level.
- **Contained genetic material.** Does the Cartagena Protocol include it? Members want to check, but such a requirement is likely to be limited to transboundary movements of LMOs.

[Each participant can give comments on the table within the next 2 weeks]

4. Principle on Biotechnologies:

Could **the biotechnologies criteria be integrated under the other existing principles instead of a separate one?**

Two suggestions were made to reword the principle:

1) *Any technology used in the production of biofuels should seek to increase the efficiency of crop or feedstock productivity and/ or contribute to gains in production process efficiency and output. Incorporated technology should align with all the principles outlined above.*

2) *Biotechnology, or any technology used in the production of biofuels should improve the environmental safety and performance of biofuel crops, and always be consistent with national laws and international protocols.*

- - Some of the participants are in favor of having a separate principle on biotechnologies, where some other consider there that the **principle n°11 could be maintained, but just to specify the benefit increase of technologies** in general.
- Whereas it seems impossible to avoid using technologies, there is still a choice to use biotechnologies or not.
- The **RSB Steering Board originally** set a principle about GMOs.

Secretariat: If the working groups give the good arguments to change the principle, the SB could accept it after analysis.

- **Biotechnologies have a particular role** to make biofuels sustainable, thus deserving a clear mentioning.
- Meanwhile, technologies should all follow the same principle to improve a certain process.
- Possible option: **A statement on technologies, and then mention that implicitly include biotechnologies.**
- **After reading the whole set of principles, the only thing missing is the scientific justification to use biotechnologies.**

***THE NEXT MEETING OF THE WORKING GROUP ON ENVIRONMENT
WILL BE HELD ON THE 1st OF FEBRUARY.***

THANKS TO ALL THE PARTICIPANTS!

Please keep on sending your views, comments and opinion to sebastien.haye@epfl.ch or upload them on the **Bioenergy Wiki** ([http://www.bioenergywiki.net/index.php/RSB Working Group on Environment](http://www.bioenergywiki.net/index.php/RSB_Working_Group_on_Environment)) for an interactive debate!