

## **R&D topics on biofuel feedstocks: Algae**

### **Key messages from the SRA update**

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## R&D recommendations: biofuels from micro and macro algae (1)

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- **As for other biofuels value chains, it is necessary to take a complete chain/biorefining approach with an integrated appreciation of economic, social, technical and environmental issues.**
- **R&D (Short/mid-term applied and long-term fundamental research) efforts should target efficient, sustainable and integrated growing, harvesting, logistics, conversion and by-product utilisation (similar biorefining approach to other biofuel value chains)**
- **Fundamental R&D on identification and optimisation of algae strains is needed. Optimisation does not only refer to yield rates, but also to increased tolerance of contaminants.**
- **Applied R&D on conversion processes, leveraging on existing biofuels conversion technologies where possible.**

## R&D recommendations: biofuels from micro and macro algae (2)

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- **Work on sustainable industrial scale algae production techniques and best practices is required. Main challenges: ensure cost-competitiveness with fossil fuels, improve energy balance, manage large quantities of water, prove scalability.**
- **LCA and energy balance of algae-to-biofuel production chains, with compatible approach to other biofuel value chains.**
- **Identification and management of environmental externalities of large-scale algae cultures**
- **Evaluate advantages and disadvantages of open pond systems versus closed loop bioreactors.**
- **Evaluate benefits and risks of GMO, including public awareness as well as potential impact on biodiversity.**