

ALGAE STAKEHOLDERS IN THE EU AND WORLD-WIDE (WHO'S DOING WHAT?)

BUILDING UP A COMPREHENSIVE DATABASE OF STAKEHOLDERS AND RELATED ACTIVITIES

EBB – Raffaello Garofalo

EBB – Pierre-Antoine Vernon

THE QUESTIONNAIRE

The European Biodiesel Board (EBB), as coordinator of AquaFUELS as well as the European Algae Biomass Association (EABA), sent a questionnaire to the algae stakeholders all around the world, in order to establish the status quo of development of algae biomass and algae based biofuels at international level.

The aim of this questionnaire is to create a **Who's Who Directory** and **Survey on algae stakeholders** at European and international level.

This Directory aims to provide accurate and up-to-date **information about the status quo of public and private initiatives in the field of algae biomass** and their actual level of development.

It will include EU and global industrial and academic initiatives (in separate sections), as well as individuals and companies with activities and/or simple interest in this field (i.e. commercial airlines, engineering companies, etc.).

This survey aims to be an extremely useful tool for all algae stakeholders worldwide.

RECIPIENTS

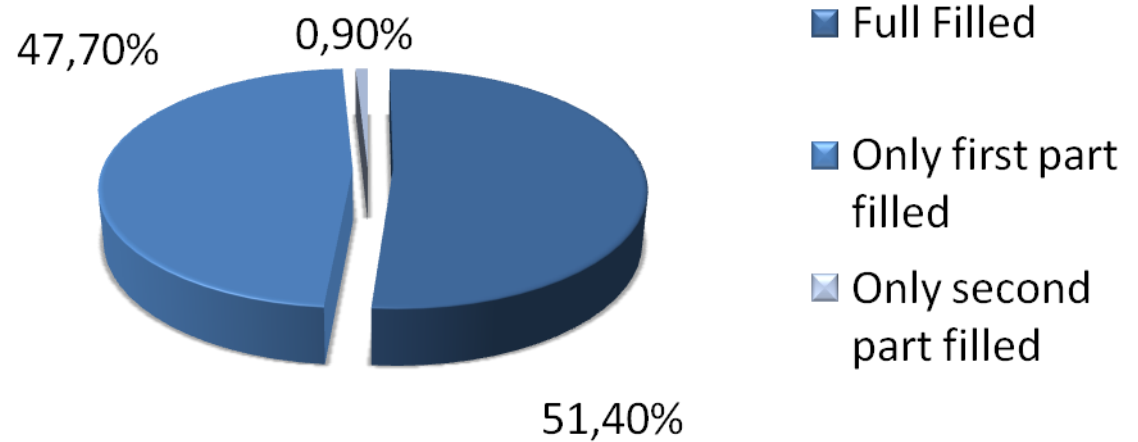
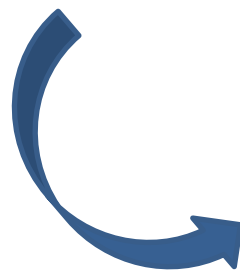
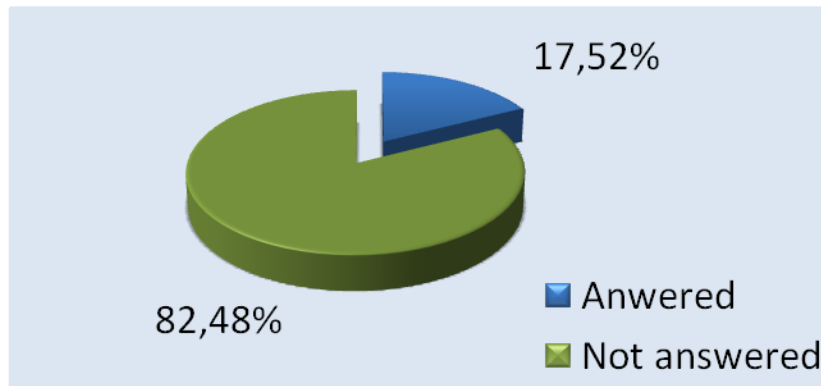
The questionnaire was received to all known algae stakeholders all around the world, although mainly the EU and the US are represented - a total number of **622 contacts**.

The list includes researchers and research institutes, algae producers and users, technology providers, biofuels producers, oil companies, airlines, car and aerospace industry, national public authorities, international organizations including the FAO, EU institutions, NGOs and industry associations.

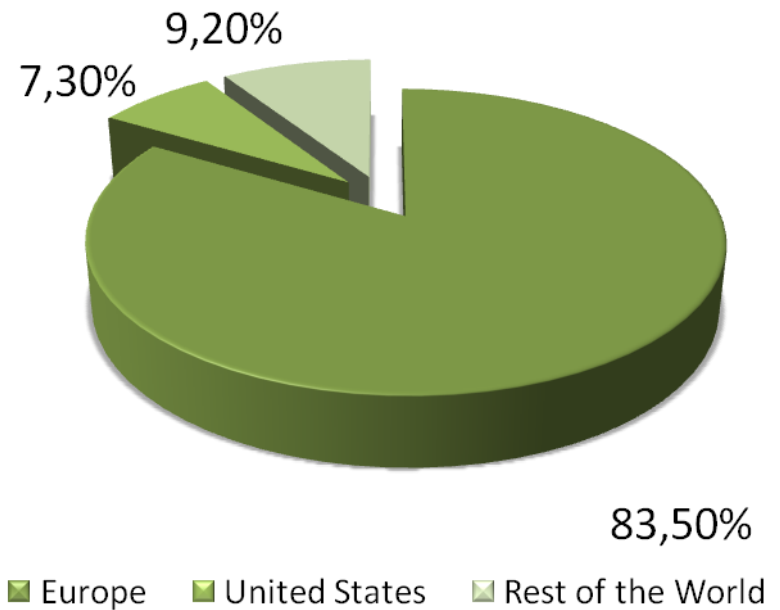
The EBB mailing list includes the AquaFUELS consortium and Expert Group, the EABA members and a mailing list specifically covering algae stakeholders, developed and regularly updated since in mid-2008 on the basis of databases from different networks in the algae community.

In addition, the AquaFUELS partners forwarded the questionnaire to their own network, which implies that the questionnaire effectively reached many more algae stakeholders than the intended mailing list.

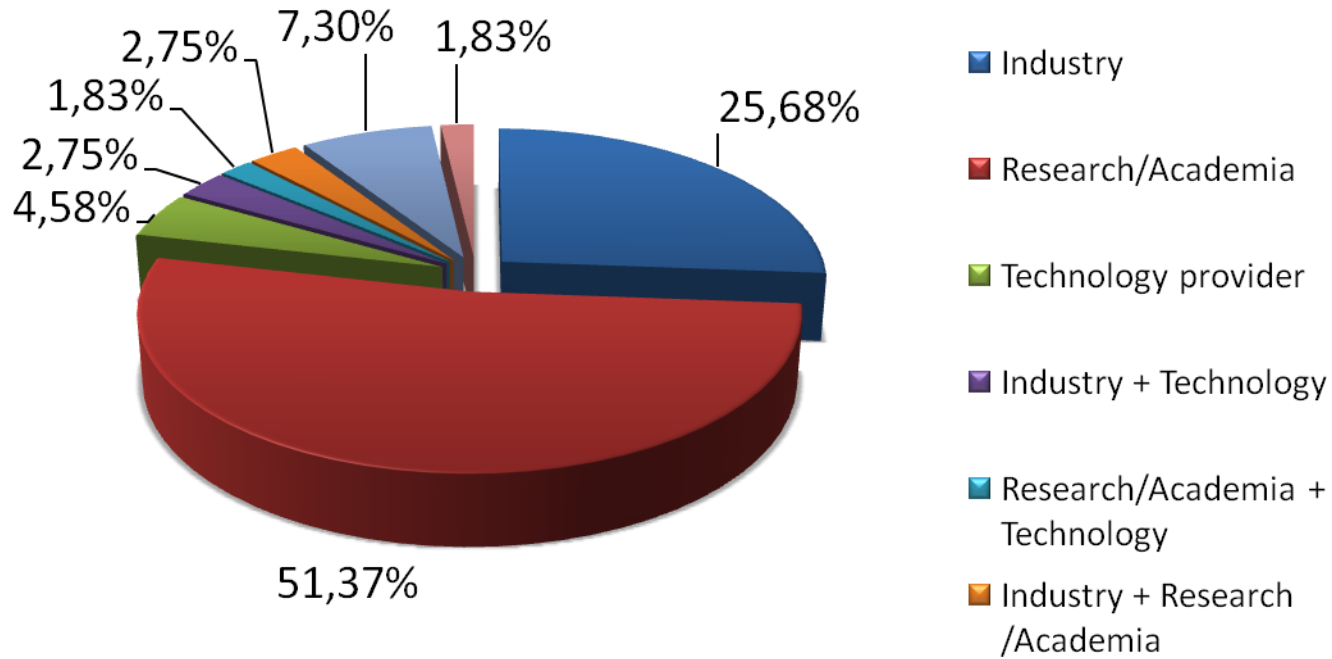
COMPLETENESS of the ANSWERS



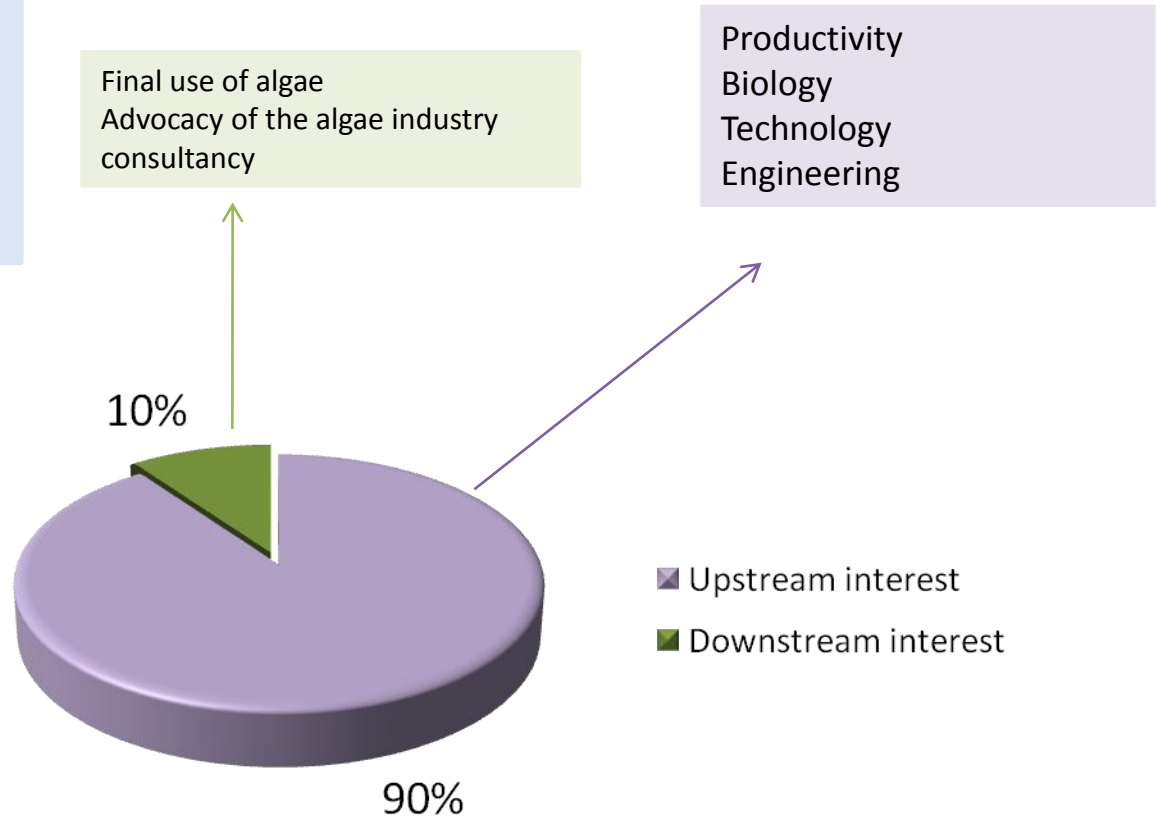
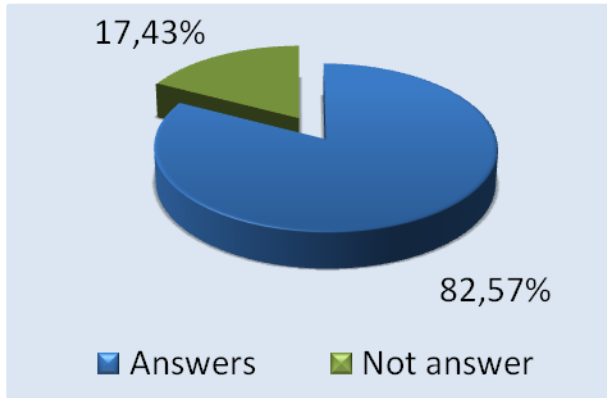
LOCATION of the RESPONDENTS



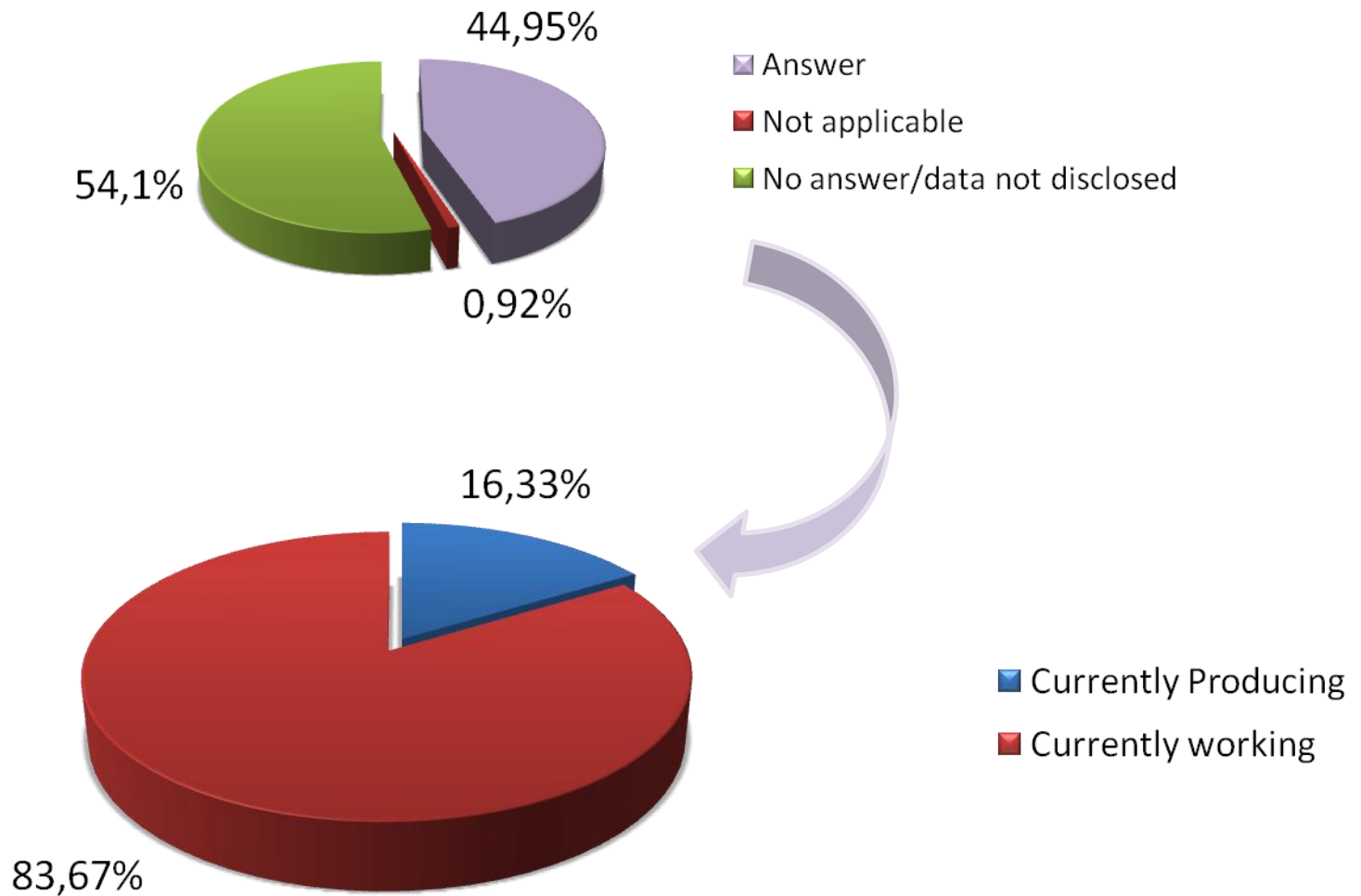
SECTORS



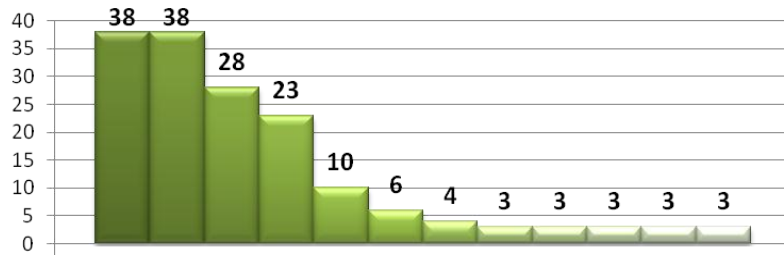
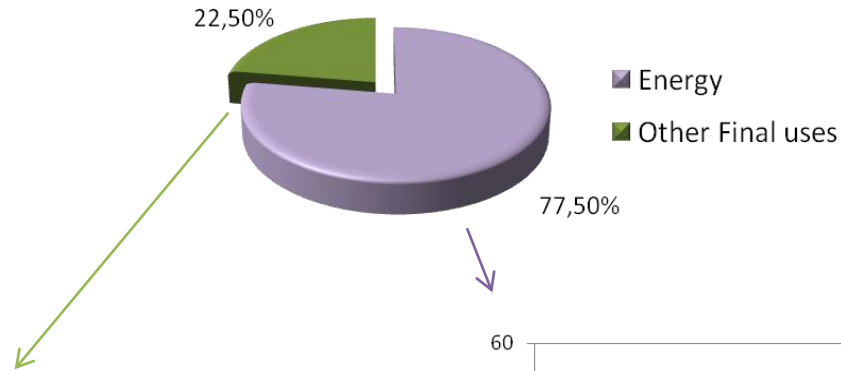
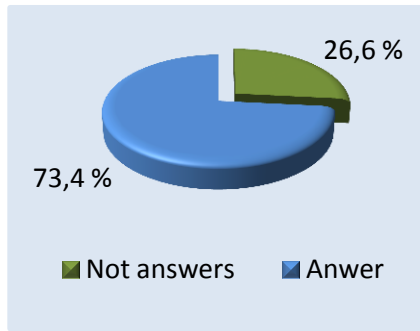
MAIN INTEREST



ALGAE BIOMASS PRODUCTION AND/OR RESEARCH

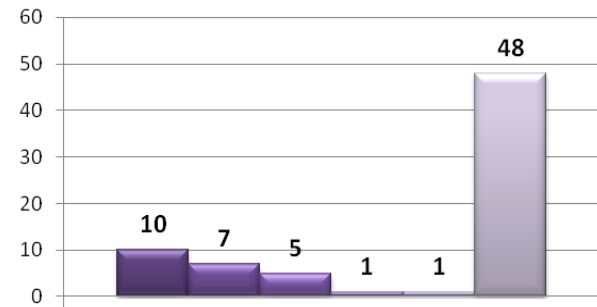


FINAL USE OF THE PRODUCT



Others final uses

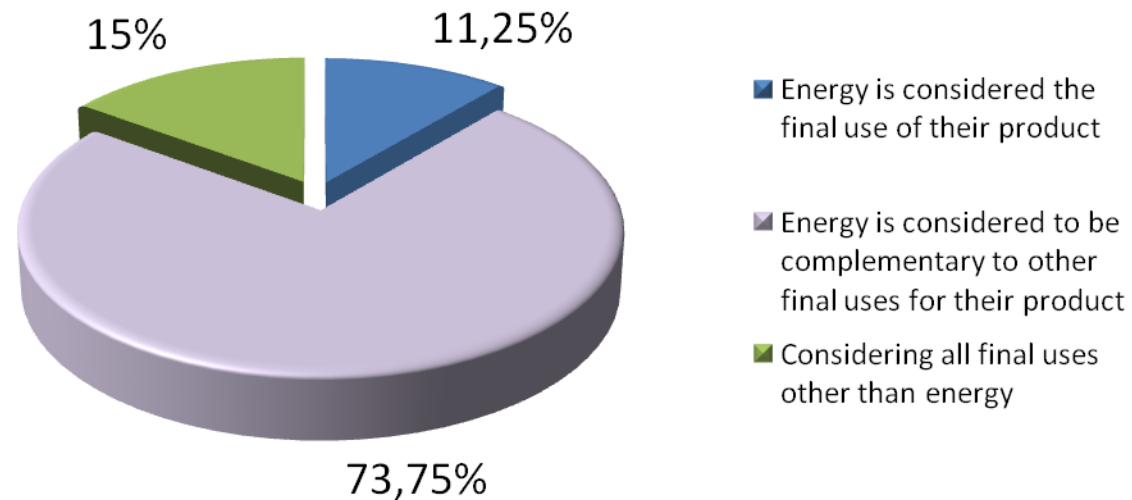
- Feed and Food
- Aquaculture
- Fine chemicals
- Waste water treatment
- Enviroment remediation application
- Fertilizer
- Nutraceuticals
- Cosmetics
- Pharmaceuticals
- Pigments and colorants
- CO2Mitigation/storage
- Materials



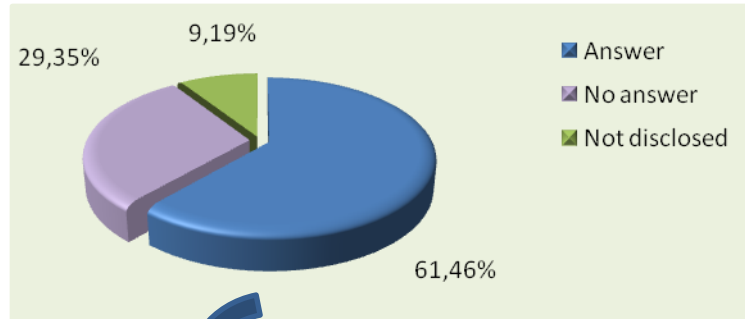
Energy

- Biodiesel
- Bioethanol
- Biogas
- SVO
- Methanol
- Not specify

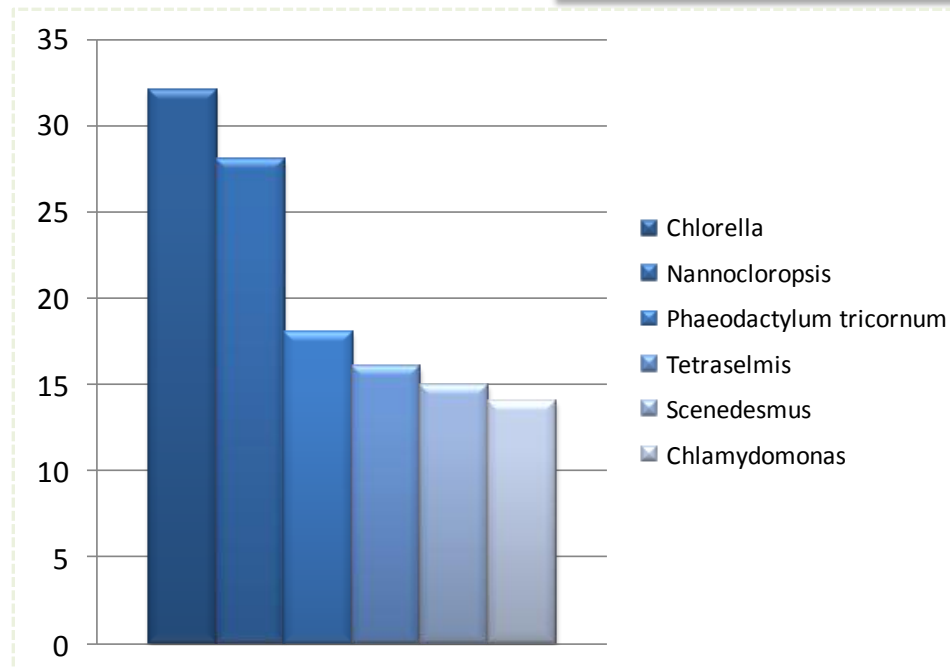
ENERGY VS OTHER FINAL USES



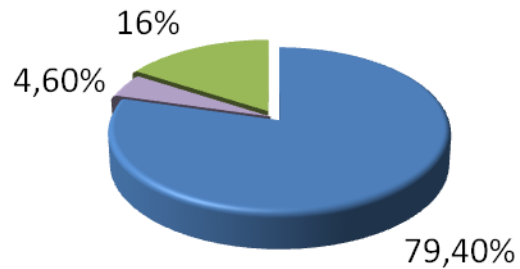
ALGAE STRAINS



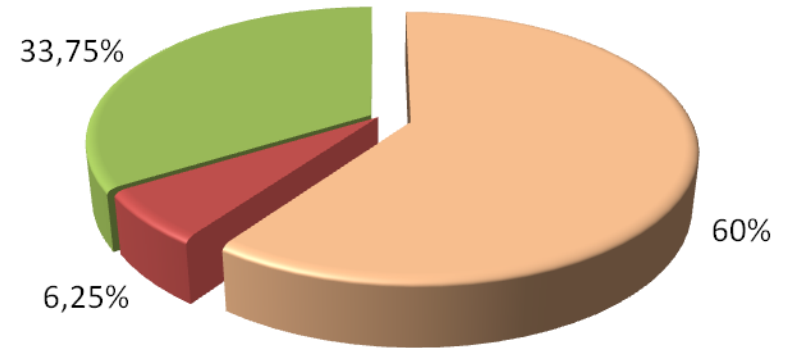
Total respondents: 67



TECHNOLOGY



■ Answer ■ Not applicable ■ No answer



■ Bioreactors ■ Open ponds ■ Both Bioreactors and Open ponds

Other technologies in use:

- Batch scale in Erlenmeyers
- Lyophilisation
- Diaforce technology
- High and Low Pressure extraction vessels
- Classical and molecular genetics methods
- Own design

- Harvesting and monitoring control system
- Laboratory cultures
- Biosensor for algae cultivation
- Flat panel airlift reactors
- Green wall
- Cultivation platforms

SUMMARY of the KEY FINDINGS

Most respondents provided information on the intended final use of their activities, but a limited number of respondents the algae strains that they regards as of interest for algae biomass.

The key findings are that:

- the Who's Who reflects the situation in Europe: **84%** of the respondents are **based in Europe**
- half of the respondents are researchers and **25% are industrial**
- **90% are involved in cultivation and/or production** of biofuels, only 10% are potential users
- algae production remains marginal in Europe: only 8 respondents produce algae and their production never exceeds 5 tons/year (less than 50% respondents provided information for this section)
- 80% produce algae for bioenergy, 50% produce for food/feed/neutraceuticals, 35% for aquaculture and the vast majority of respondents (75%) regards bioenergy is complementary with other final uses
- **50%** of algae produced is *chlorella* (food, animal, feed), **40% is *nannocloropsis*** (aquaculture), **27% *phaedodactylum*** (lab cultivation, potential hydrogen source) – however, these figures cannot reflect the actual situation since only half of the respondents indicated the algae strains of interest.

WP1 - TASK 1.2 MAJOR STAKEHOLDERS AND MAIN R&D ACTIVITIES

Partners: European Biodiesel Board / Necton

Project's technical Annex WP1:

- Drawing up a list of profile of 250+ stakeholders
- Scope: Scientific, Industrial, Political, Civil Society stakeholders
- List to be “revised, updated and widened”

WP1 - TASK 1.2 MAJOR STAKEHOLDERS AND MAIN R&D ACTIVITIES

From the questionnaire to deliverable 1.3

AquaFUELS 2nd meeting in June 2010: assessment that some important stakeholders were missing

Inclusion of additional stakeholders (August 2010)

Circulation for input (September 2010)

Suggestion of specific profiles for important stakeholders (October 2010)

WP1 - TASK 1.2 MAJOR STAKEHOLDERS AND MAIN R&D ACTIVITIES

Deliverable 1.3

Basis for document:

- Necton/Algafuel's lists of Scientific stakeholders and producers
- EBB and EABA database and work on lists of micro-algae producers 2010-11
- Questionnaire contacts

The merging and streamlining of all three lists and addition of new stakeholders was carried out by EBB/ EABA after the Montecatini meeting (June 2010)

SAMPLE ENTRY

ISRAEL

Algatech




Algatech is a rapidly expanding international biotechnology company based at Kibbutz Ketura, in the heart of Israel's Arava desert. A worldwide leader in the production and supply of natural astaxanthin since the start of active production in January 2003, Algatech has grown from a small Israeli start-up to become the major worldwide player producing natural astaxanthin for human applications.

Algatech's mission is to maintain its worldwide leadership in microalgae technology by developing and commercializing high added-value products for the nutraceuticals* and cosmeceuticals industry.

Contacts: Algatech

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website: <http://www.algatech.com>

WP1 - TASK 1.2 MAJOR STAKEHOLDERS AND MAIN R&D ACTIVITIES

Further steps:

Input from all AquaFUELS partners on additional entries

Input from all AquaFUELS partners on the need for specific entries for prominent stakeholders

Inclusion of new submissions since closure of questionnaire

Transfer to EABA for “revising, updating and widening”

EABA WHO'S WHO OF ALGAE STAKEHOLDERS

- AquaFUELS report on main stakeholders: 419 stakeholders
- first addition to the AquaFUELS list: 300 stakeholders (December 2010)
- second addition: 234 stakeholders (February 2011)
- third addition: 89 stakeholders (March 2011)
- further input expected from AquaFUELS 2nd half, e.g. ongoing R&D projects (53 relevant projects in the field of algae biomass identified)

TOTAL: 1042 stakeholders

- 67% Scientific stakeholders
- 43% Industrial

Full detail will be presented at the EABA Conference in November 2011

SAMPLE PAGE

Academia and Research

NEWCASTLE UNIVERSITY – SCHOOL OF MARINE SCIENCE AND TECHNOLOGY

United Kingdom

Professor Dr. Gary Caldwell

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gary.caldwell@ncl.ac.uk

www.ncl.ac.uk



Professor Gary Caldwell has a keen and active interest in the continued development of algae (both micro- and macroalgae) as potential sources of marine biofuels. Professor Gary Caldwell leads an active and growing research group addressing a diverse range of marine bioenergy topics, and currently has programmes funded by research councils, industry and local and national government. He is leading programmes in seaweed anaerobic digestion; microalgae culture management for biodiesel production; microalgae biofloculation and harvesting; and energy production from marine biomass wastes.

Main interest

Microalgal chemical ecology; manipulation of algal physiology and culture performance;
Anaerobic digestion using algae as feedstock

Production or Research

Pilot1 Carbon Trust Algal Biofuels Challenge project

ITI Energy Seaweed Anaerobic Digestion

Several algal biofuel related PhD programmes

THANK YOU FOR YOUR ATTENTION

For more information please contact:

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Email: eaba@eaba-association.eu

Or visit our web-site: www.eaba-association.eu