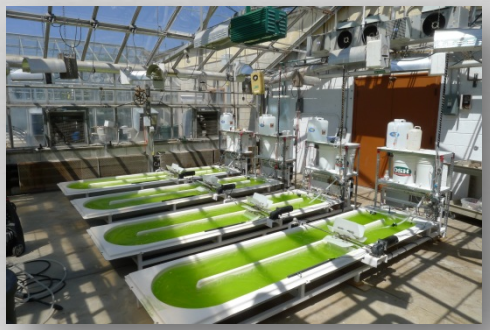
BioEnergy Center
Utah State University

UtahStateUniversity

BioEnergy Center



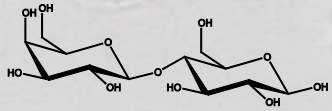
fuels

fats

soaps

O=C=O

Microalgae Platforms



-Waste carbon
-Cheese
-Biomass sugars

Yeast Platforms

Bioproducts

protein

USTAR
Turning innovation into industry.

Leadership

BioEnergy Center

Byard Wood
-Mechanical and Aerospace Engineering.
-Department Head.
-Governor' Medal for Science and Technology.
-Solar energy.

Byard.wood@usu.edu

Jason Quinn
-Mechanical and Aerospace Engineering.
-Systems modeling for:
Lifecycle Assessment
Technoeconomics

Jason.quinn@usu.edu

UtahStateUniversity
SYNTHETIC BIOMANUFACTURING INSTITUTE

Foster Agblevor
-Biological Engineering.
-USTAR Professor.
-Pyrolysis.

Foster.agblevor@usu.edu

Bruce Bugbee
-Crop Physiology.
-Director Crop Physiology Laboratory.
-Governor' Medal for Science and Technology.
-Plant/algae nutrition.

Bruce.bugbee@usu.edu

Lance Seefeldt
-Chemistry and Biochemistry.
-D. Wynne Thorne Research Award.
-Fellow, Am. Assoc. Advan. Science.
-Microbes and energy.

Lance.seefeldt@usu.edu

23 total scientists

UtahStateUniversity
SYNTHETIC BIOMANUFACTURING INSTITUTE

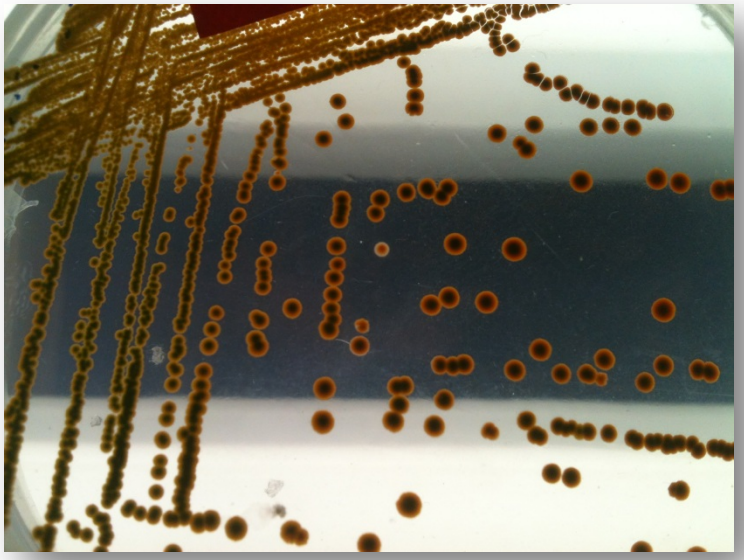
Microbial Platforms

BioEnergy Center

Microalgae Platforms

- Many varieties
- High lipid
- Fresh and salt water
- Variety of lipids

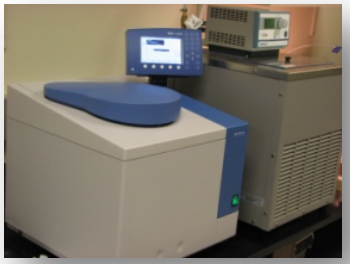
Yeast Platforms

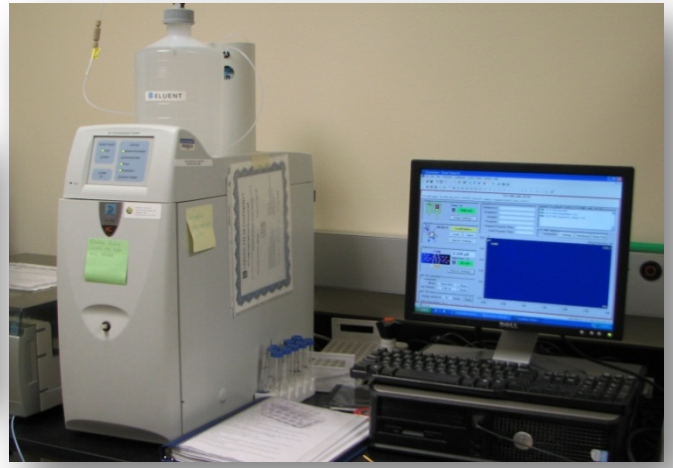


- Oleaginous strains
- High lipid/protein
- High density
- Variety of carbon
- Genetics

Equipment and Experience

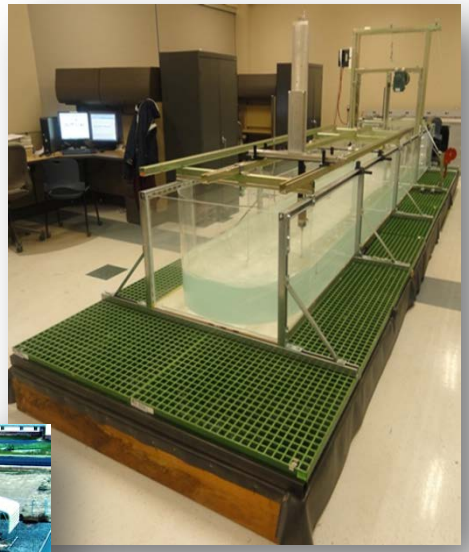
BioEnergy Center

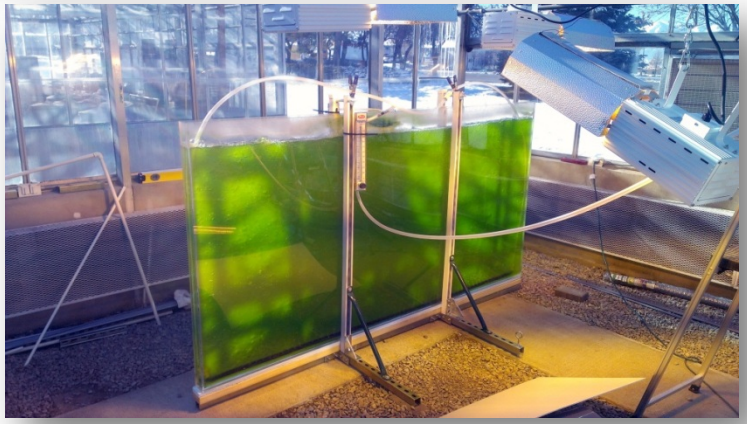


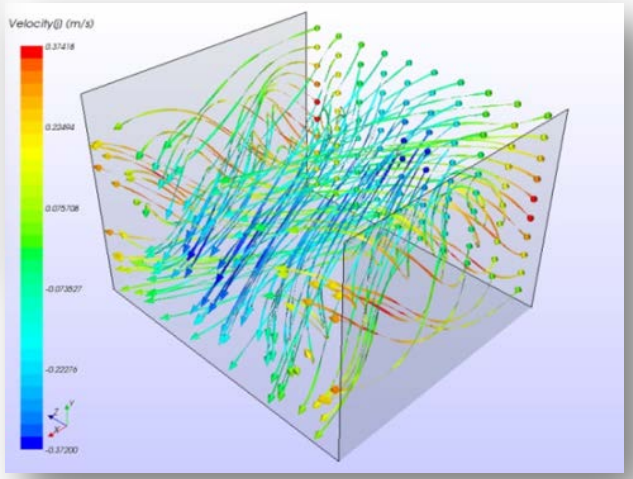


World-Class Facilities

BioEnergy Center







Publications

Bioresource Technology 131 (2013) 188–194

Contents lists available at SciVerse ScienceDirect

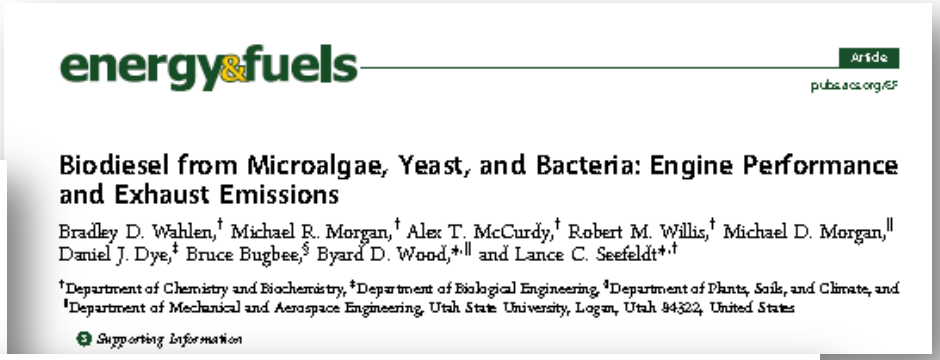
Bioresource Technology

journal homepage: www.elsevier.com/locate/biortech

Understanding precision nitrogen stress to optimize the growth and lipid content tradeoff in oleaginous green microalgae

Curtis Adams [a,*], Valerie Godfrey [b], Brad Wahlen [b], Lance Seefeldt [b], Bruce Bugbee [a]

[a] Department of Plants, Soils, and Climate, Utah State University, 4820 Old Main Hill, Logan, UT 84322, USA
[b] Department of Chemistry and Biochemistry, Utah State University, 0300 Old Main Hill, Logan, UT 84322, USA



energy&fuels

Article

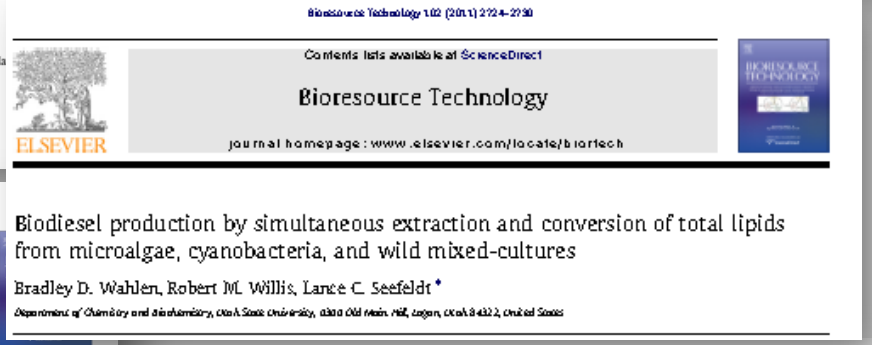
pubs.acs.org/EF

Biodiesel from Microalgae, Yeast, and Bacteria: Engine Performance and Exhaust Emissions

Bradley D. Wahlen,[†] Michael R. Morgan,[†] Alex T. McCurdy,[†] Robert M. Willis,[†] Michael D. Morgan,[∥] Daniel J. Dye,[‡] Bruce Bugbee,[§] Byard D. Wood,[*,∥] and Lance C. Seefeldt[*,†]

[†]Department of Chemistry and Biochemistry, [‡]Department of Biological Engineering, [§]Department of Plants, Soils, and Climate, and [∥]Department of Mechanical and Aerospace Engineering, Utah State University, Logan, Utah 84322, United States

Supporting Information



Bioresource Technology 102 (2011) 2924–2930

Contents lists available at ScienceDirect

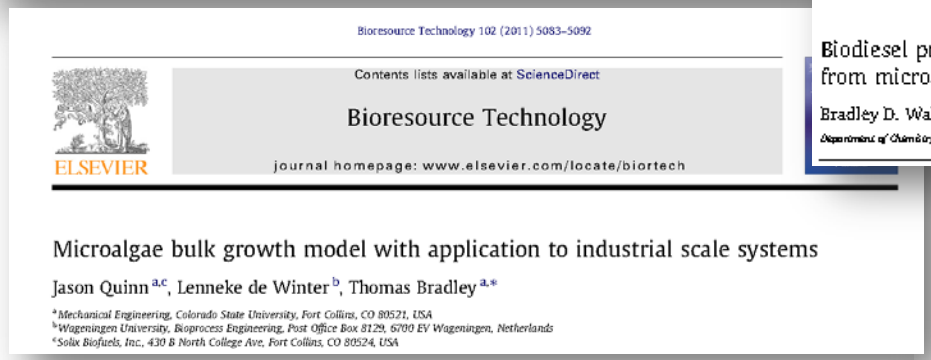
Bioresource Technology

journal homepage: www.elsevier.com/locate/biortech

Biodiesel production by simultaneous extraction and conversion of total lipids from microalgae, cyanobacteria, and wild mixed-cultures

Bradley D. Wahlen, Robert M. Willis, Lance C. Seefeldt *

Department of Chemistry and Biochemistry, Utah State University, 0300 Old Main Hill, Logan, Utah 84322, United States



Bioresource Technology 102 (2011) 5083–5092

Contents lists available at ScienceDirect

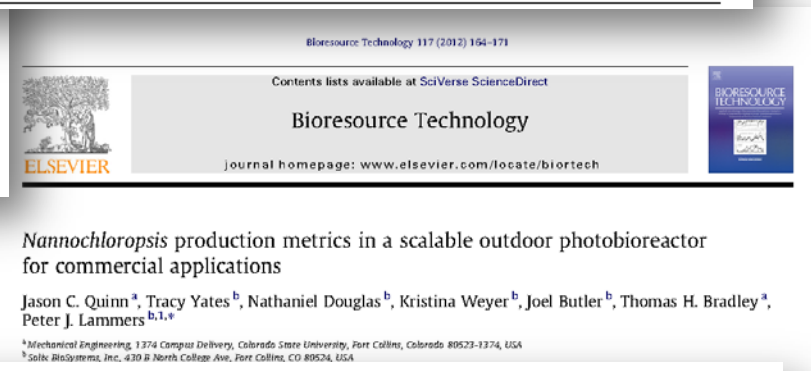
Bioresource Technology

journal homepage: www.elsevier.com/locate/biortech

Microalgae bulk growth model with application to industrial scale systems

Jason Quinn [a,c], Lenneke de Winter [b], Thomas Bradley [a,*]

[a] Mechanical Engineering, Colorado State University, Fort Collins, CO 80521, USA
[b] Wageningen University, Bioprocess Engineering, Post Office Box 8129, 6700 EV Wageningen, Netherlands
[c] Solix Biofuels, Inc., 430 B North College Ave, Fort Collins, CO 80524, USA



Bioresource Technology 117 (2012) 164–171

Contents lists available at SciVerse ScienceDirect

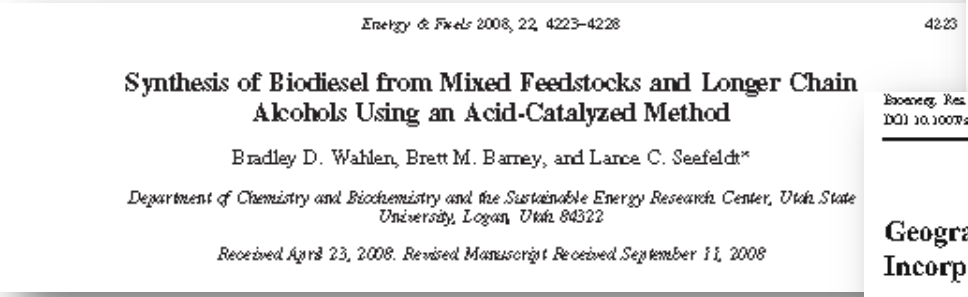
Bioresource Technology

journal homepage: www.elsevier.com/locate/biortech

Nannochloropsis production metrics in a scalable outdoor photobioreactor for commercial applications

Jason C. Quinn [a], Tracy Yates [b], Nathaniel Douglas [b], Kristina Weyer [b], Joel Butler [b], Thomas H. Bradley [a], Peter J. Lammers [b,1,*]

[a] Mechanical Engineering, 1374 Campus Delivery, Colorado State University, Fort Collins, Colorado 80523-1374, USA
[b] Solix BioSystems, Inc., 430 B North College Ave, Fort Collins, CO 80524, USA



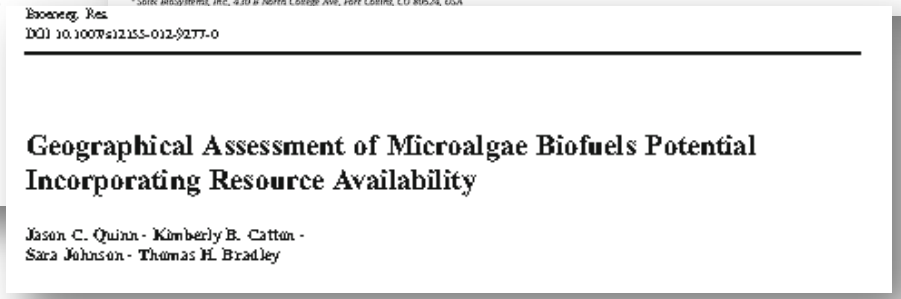
Energy & Fuels 2008, 22, 4223–4228 4223

Synthesis of Biodiesel from Mixed Feedstocks and Longer Chain Alcohols Using an Acid-Catalyzed Method

Bradley D. Wahlen, Brett M. Barney, and Lance C. Seefeldt*

Department of Chemistry and Biochemistry and the Sustainable Energy Research Center, Utah State University, Logan, Utah 84322

Received April 23, 2008. Revised Manuscript Received September 11, 2008



Bioenerg. Res.
DOI 10.1007/s12155-012-9277-0

Geographical Assessment of Microalgae Biofuels Potential Incorporating Resource Availability

Jason C. Quinn · Kimberly B. Catton · Sara Johnson · Thomas H. Bradley

Aggie A-Salt
Diesel Streamliner 2012

Class: I/DS
Engine: 1 L V-twin diesel
Horsepower: ~22
Fuel: Diesel or
USU Renewable Biofuel

UtahStateUniversity

Land speed record Sept 10, 2012:
64.4 mph, Bonneville Utah

Mechanical & Aerospace Engineering: Prof. Byard Wood
Chemistry and Biochemistry: Prof. Lance Seefeldt
Agriculture: Prof. Bruce Bugbee
Student Prototype Laboratory: Michael D. Morgan
Driver: Michael R. Morgan
Biofuel: Alex McCurdy
Contact: byard.wood@usu.edu; lance.seefeldt@usu.edu

Utah Chassis & Machine
Mott Motorsports
Organ Donor Awareness
Provincial Powertrain
H&R Services (Amsoil)
Sunrise Designs
IPACO

BioEnergy Research Expenditures

2007-2012

$8,148,089

- Arizona Public Service Company
- City of Logan – Environmental Division
- Exxon-Mobil
- General Atomics (DARPA)
- Oak Ridge National Laboratory
- US Department of Energy
- USDA Natural Conservation Services
- Utah Department of Environmental Quality
- Utah Science, Technology and Research (USTAR)
- Utah State University

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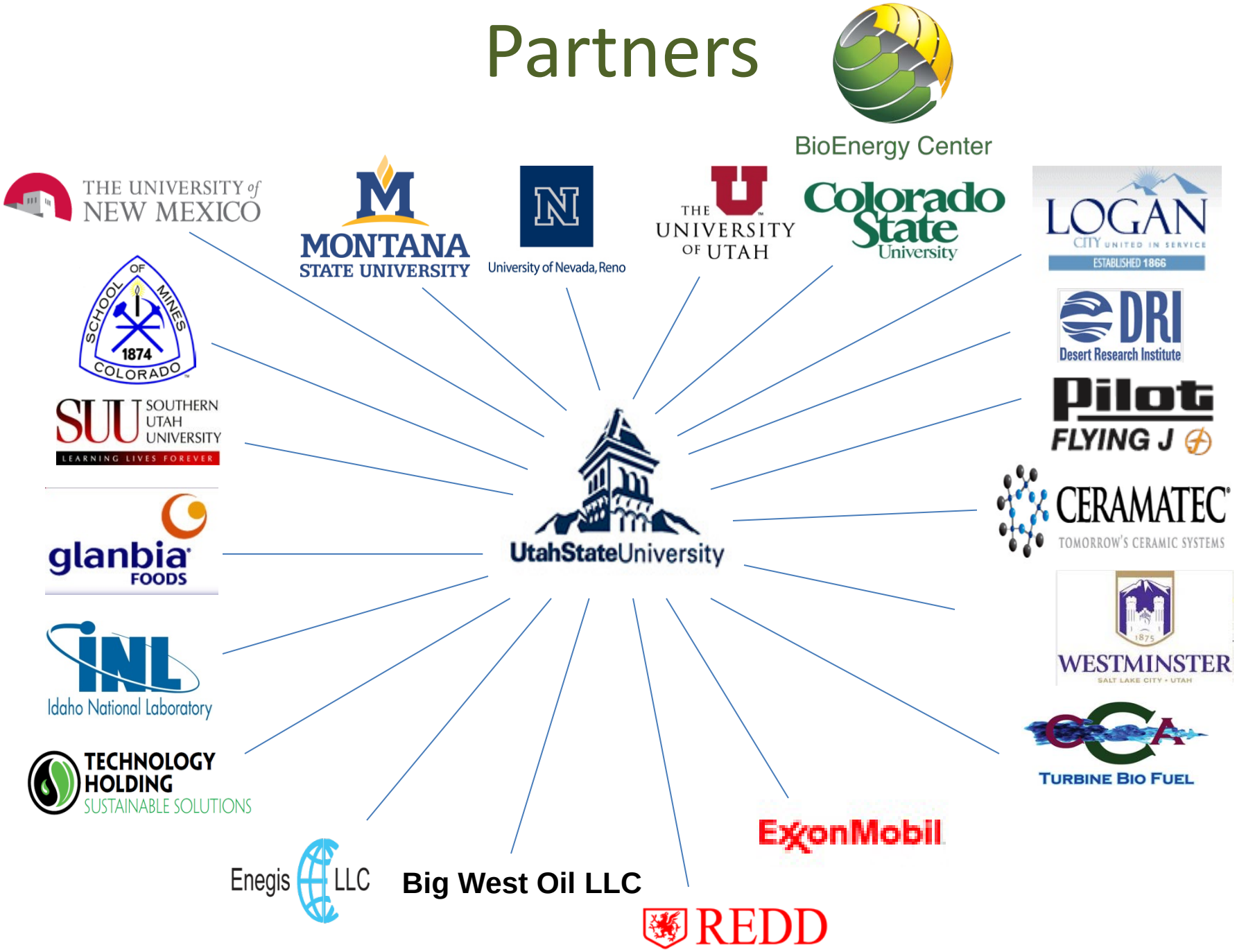
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THE UNIVERSITY of NEW MEXICO
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DRI Desert Research Institute
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TECHNOLOGY HOLDING SUSTAINABLE SOLUTIONS
TURBINE BIO FUEL
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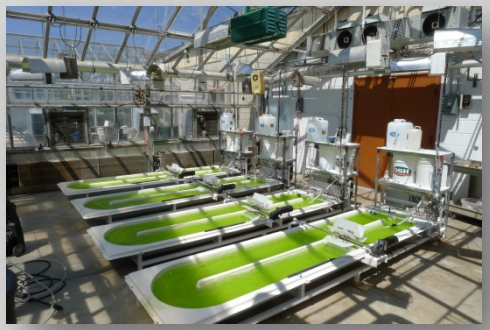
Microalgae Platforms

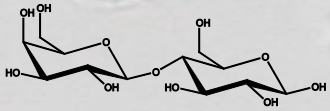


Lipids

fuels

fats

soaps



-Waste carbon
-Cheese
-Biomass sugars

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Bioproducts

protein

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