



## MASCOMA

Developing Low-Carbon Renewable Fuels through Advanced Biotechnology



Introduction to Mascoma  
October 2007

### Mascoma Corporation



#### *Our Mission*

To become the leading producer of cellulosic ethanol through advanced biotechnology

- Low-carbon; environmentally sustainable
- Multi-feedstock; multi-state and international
- Low cost of production

#### Overview of Firm:

- 2 years old; venture-backed by Khosla Ventures, Kleiner Perkins, Flagship Ventures, and others
- 85 employees in Cambridge HQ and New Hampshire laboratory; growing to ~100 year-end '07
- Management team experience across ethanol, biotech, and chemical industries
- Strongest Scientific Advisory Board in cellulosic industry
- Active R&D program developing one-step enzymatic pathway for cellulosic ethanol

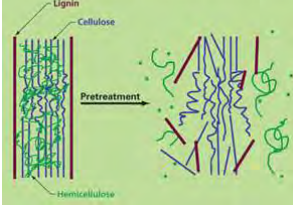


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# Ethanol from Cellulose?

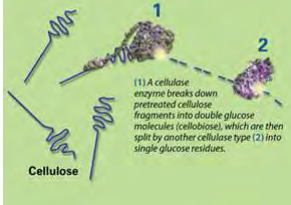
## Pretreatment

Goal: Make cellulose more accessible to enzymatic breakdown (hydrolysis) and solubilize hemicellulose sugars



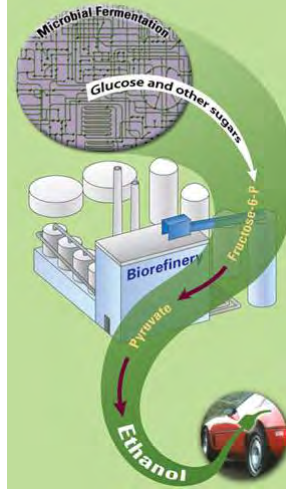
## Hydrolysis

Goal: Break down cellulose into its component sugars using enzyme preparations



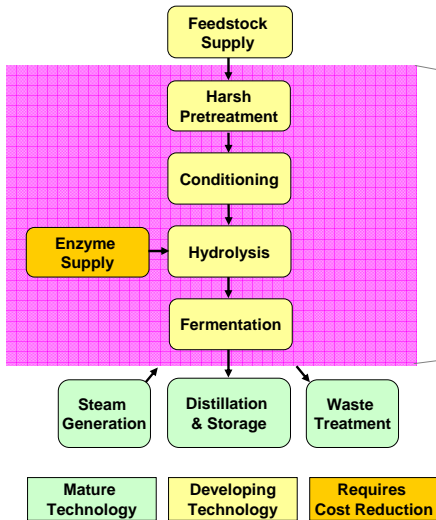
## Fermentation to Ethanol

Goal: Convert sugars to ethanol using microbes

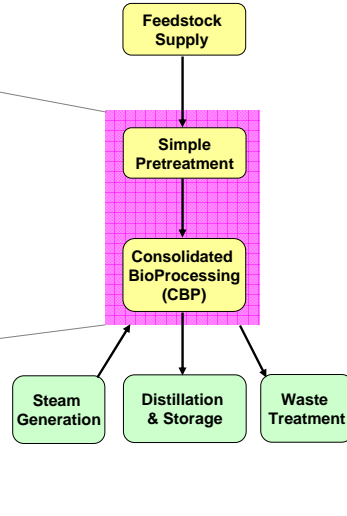


# Simpler Ethanol Production through Advanced Biotechnology

## Standard Approach

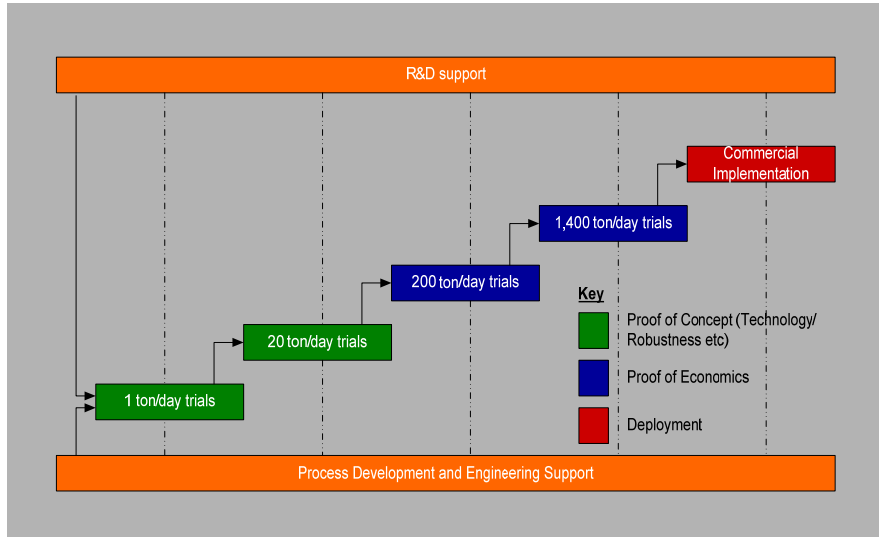


## Mascoma Approach (In Development)



Mature Technology    Developing Technology    Requires Cost Reduction

# The Mascoma Technology Staircase



# Working Plant Design (Site-Independent)



## Experienced Management Team



Executive	Role	Prior Experience
<b>Bruce Jamerson</b>	CEO & Director	VeraSun Energy, U.S. Natural Resources (KKR affiliate), Credit Suisse (First Boston)
<b>Colin South, PhD</b>	President	ViaLactia Biosciences, Fonterra Cooperative Group
<b>Ginja Collins</b>	Senior VP Finance	VeraSun Energy, U.S. Bancorp
<b>Jim Flatt, PhD</b>	Senior VP R&D	Martek Biosciences, Monsanto, Procter & Gamble
<b>David Hogsett, PhD</b>	VP R&D	Advanced Bioconversion Technologies, Inc., Bioenergy, Inc.
<b>Tim Linkkila</b>	VP IP & Chief Patent Counsel	Biogen Idec
<b>Susan Nedell</b>	VP & CAO	NASA, SETI, U.S. Geological Survey
<b>Andrew Richard, PhD</b>	CTO	SunOpta, Procter & Gamble
<b>Jim Schumacher</b>	VP Business Dev.	DLA Piper (formerly Gray Cary)
<b>Siva Sivasubramanian, PhD</b>	VP Engineering	Aspen Technology, Inc.
<b>Vineet Rajgarhia, PhD</b>	Dir. Organism Development	Cargill Dow, Eastman Chemical
<b>Kevin Wenger, PhD</b>	Dir. Bioprocess Research	Novozymes



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## Well-Respected Scientific Advisory Board



Member	Affiliation
<b>Professor Charles Wyman</b> <i>SAB Chairman</i>	University of California, Riverside; Dartmouth College
<b>Professor Frances Arnold</b>	California Institute of Technology
<b>Professor Bruce Dale</b>	Michigan State University
<b>Dr. Don Johnson</b>	Formerly VP R&D, Grain Processing Corporation
<b>Professor Lee Lynd</b>	Dartmouth College
<b>Professor Jack Saddler</b>	University of British Columbia
<b>Dr. Philippe Soucaille</b>	Metabolic Explorer; INSA of Toulouse



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## Partnerships



Functional Area	# of Partners	Representative Partnerships
Research and Development	10	
Feedstock	3	Proprietary State Relationships
Process Technology	5	
Grants and Non-equity Funding	3	
Site Development	3	

## Questions?

