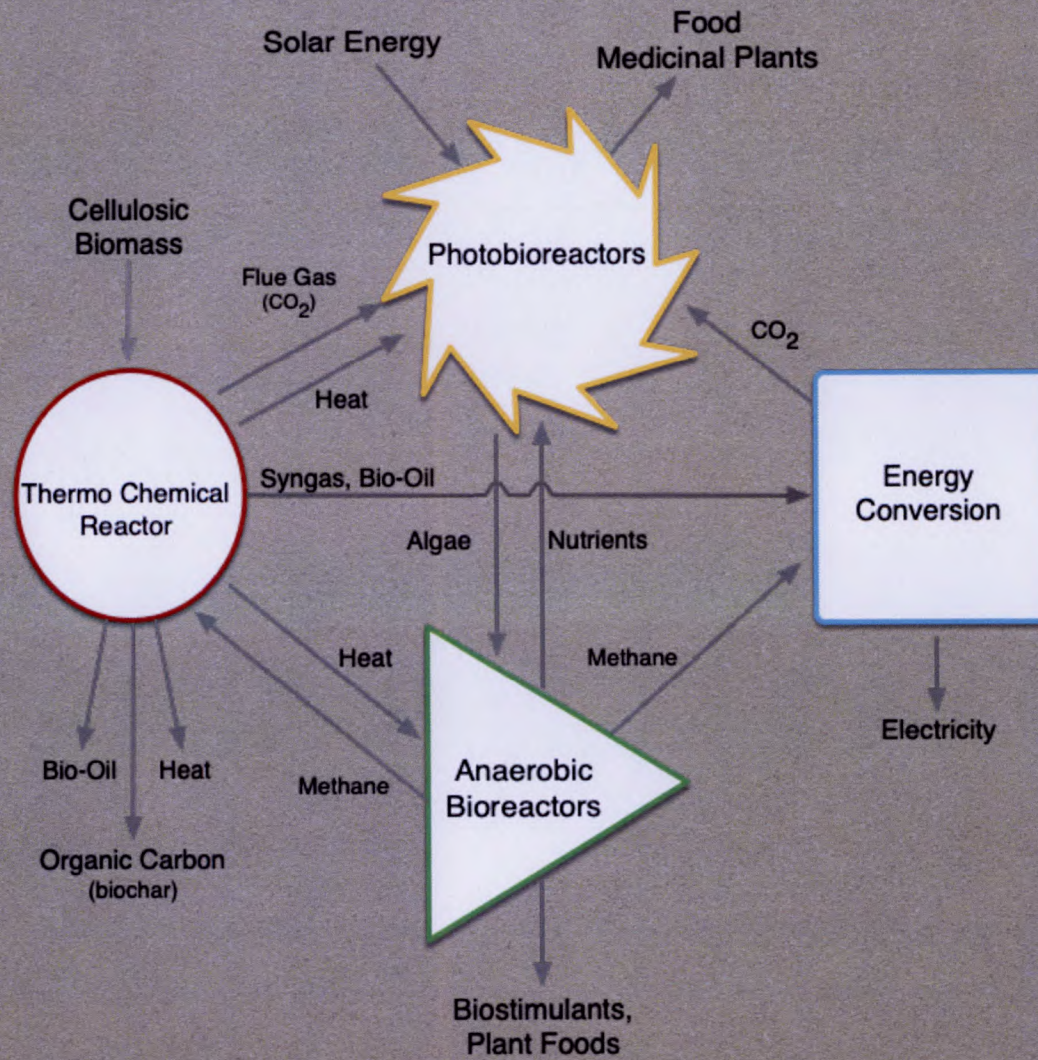


# REGENITECH

THE FUTURE IS REGENERATION

From Michael Smith RECEIVED AT CAR MEETING ON 2/25/20

# EARTH POWER LODGE (EPL)



Closed Loop Biorefinery

# THERMOCHEMICAL REACTOR



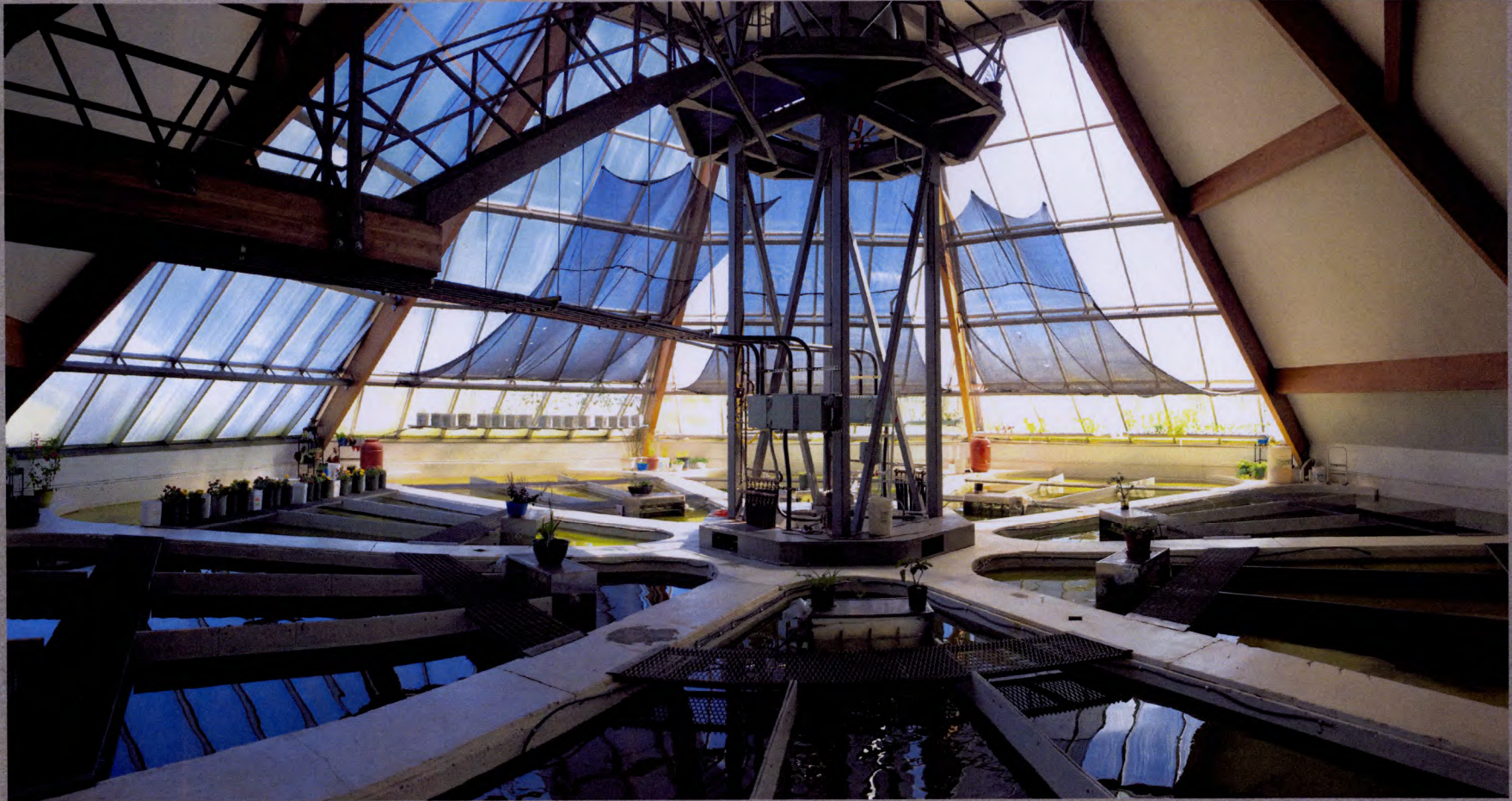
Closed Loop Biorefinery

# ANAEROBIC BIOREACTOR



Closed Loop Biorefinery

# PHOTOBIOREACTOR



Closed Loop Biorefinery

# PHOTOBIOREACTOR



Closed Loop Biorefinery

# COLUMBIA FALLS GPH-1



Closed Loop Biorefinery

# ALGAE

AN AMAZING ORGANISM THAT SITS AT THE FOUNDATION OF THE WEB OF LIFE.



THE SPIRULINA SHOWN HERE IS GROWN YEAR ROUND IN OUR UNIQUE PHOTO BIOREACTOR IN COLUMBIA FALLS, MONTANA

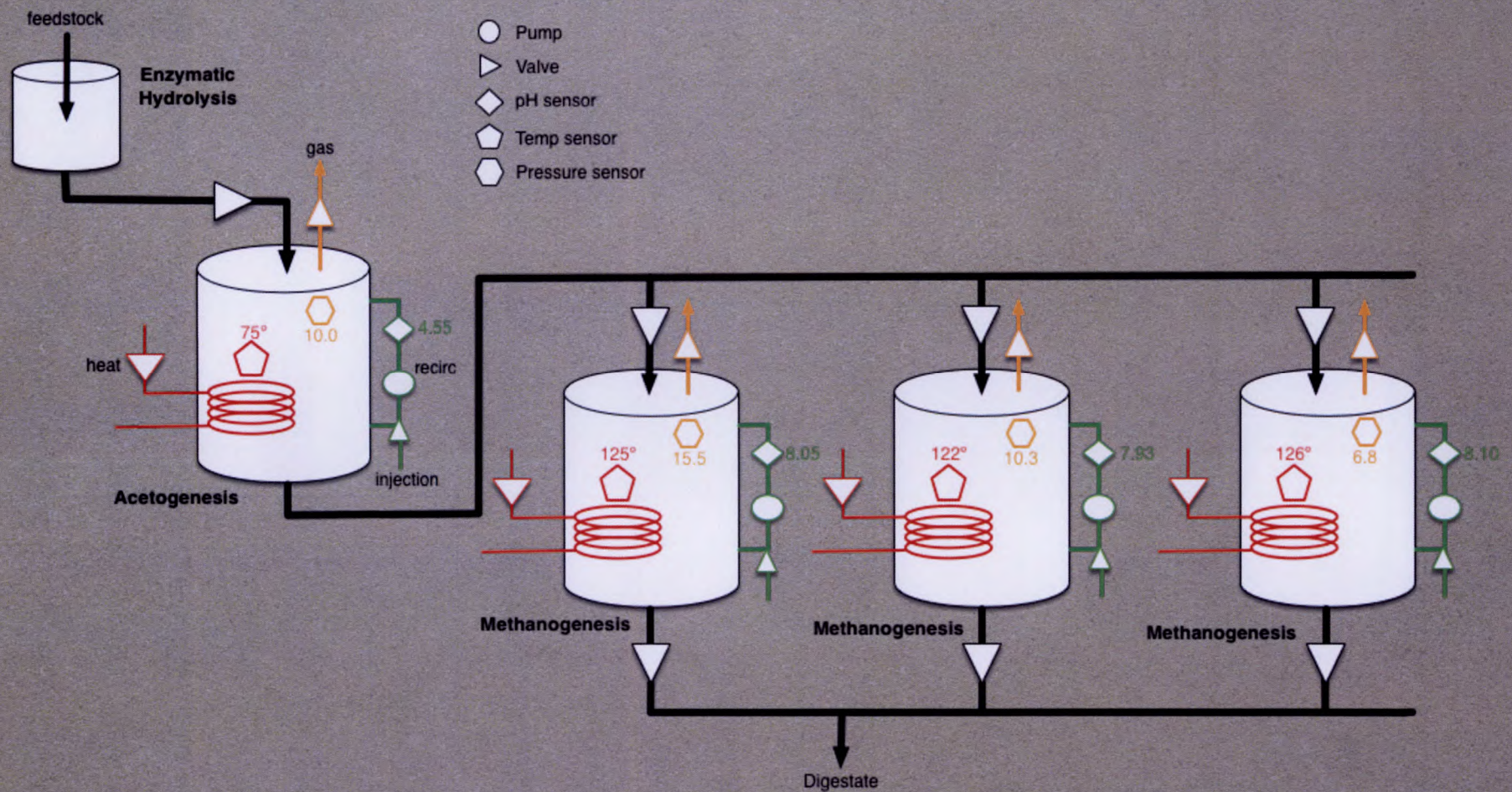


# **WE KNOW SPIRULINA IS AN AMAZING SUPERFOOD FOR HUMANS**

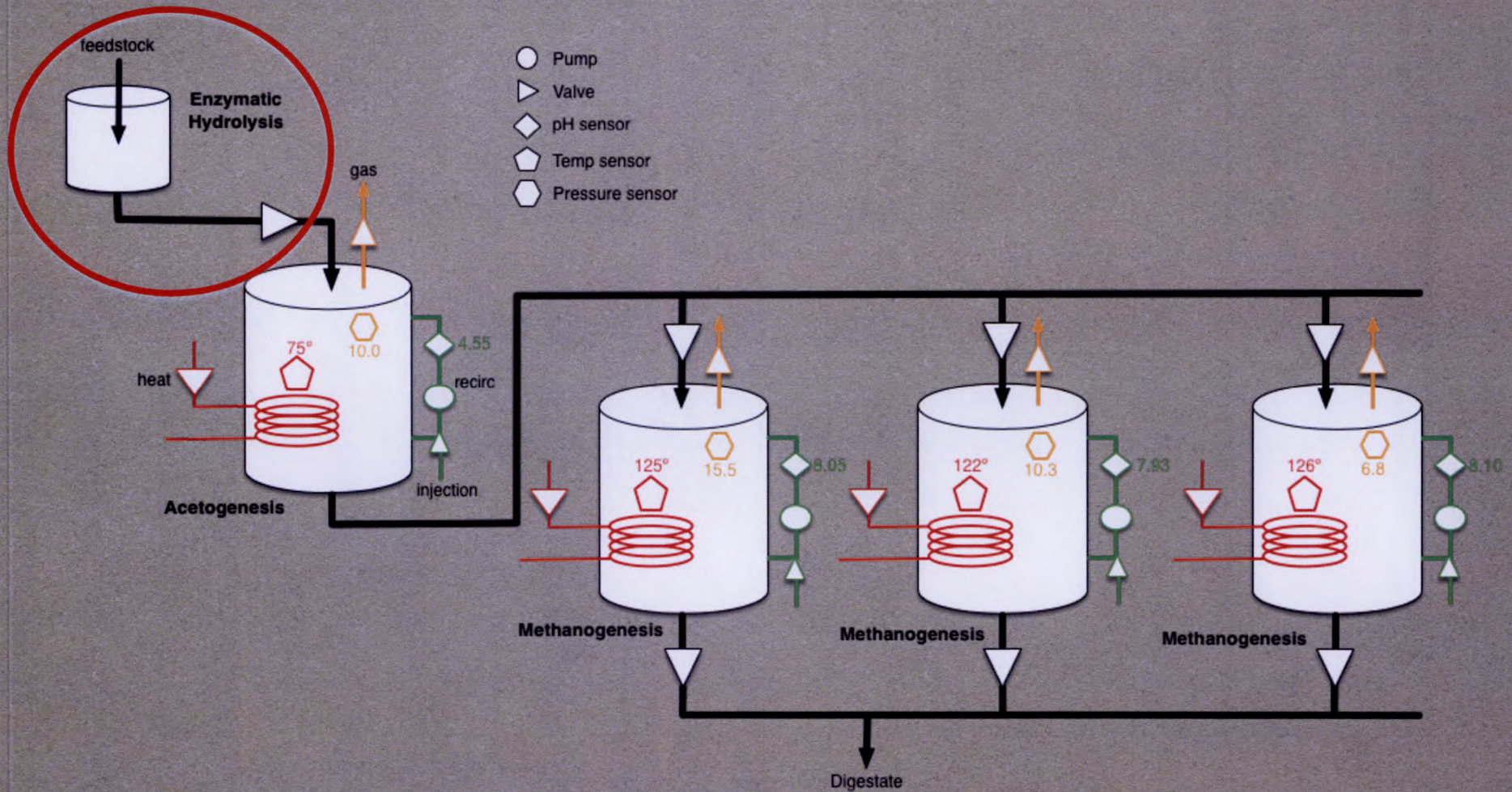
ACCORDING TO THE FDA, SPIRULINA CONTAINS SIGNIFICANT AMOUNTS OF **CALCIUM, NIACIN, POTASSIUM, MAGNESIUM, B VITAMINS AND IRON**. IT ALSO HAS **ESSENTIAL AMINO ACIDS** (COMPOUNDS THAT ARE THE BUILDING BLOCKS OF PROTEINS). IN FACT, PROTEIN MAKES UP ABOUT 60 TO 70 PERCENT OF SPIRULINA'S DRY WEIGHT.

**RPL BIOREACTOR PROCESSES UNLOCK ALGAE'S  
POTENTIAL TO SUPPORT THE GROWTH OF OTHER  
PLANTS**

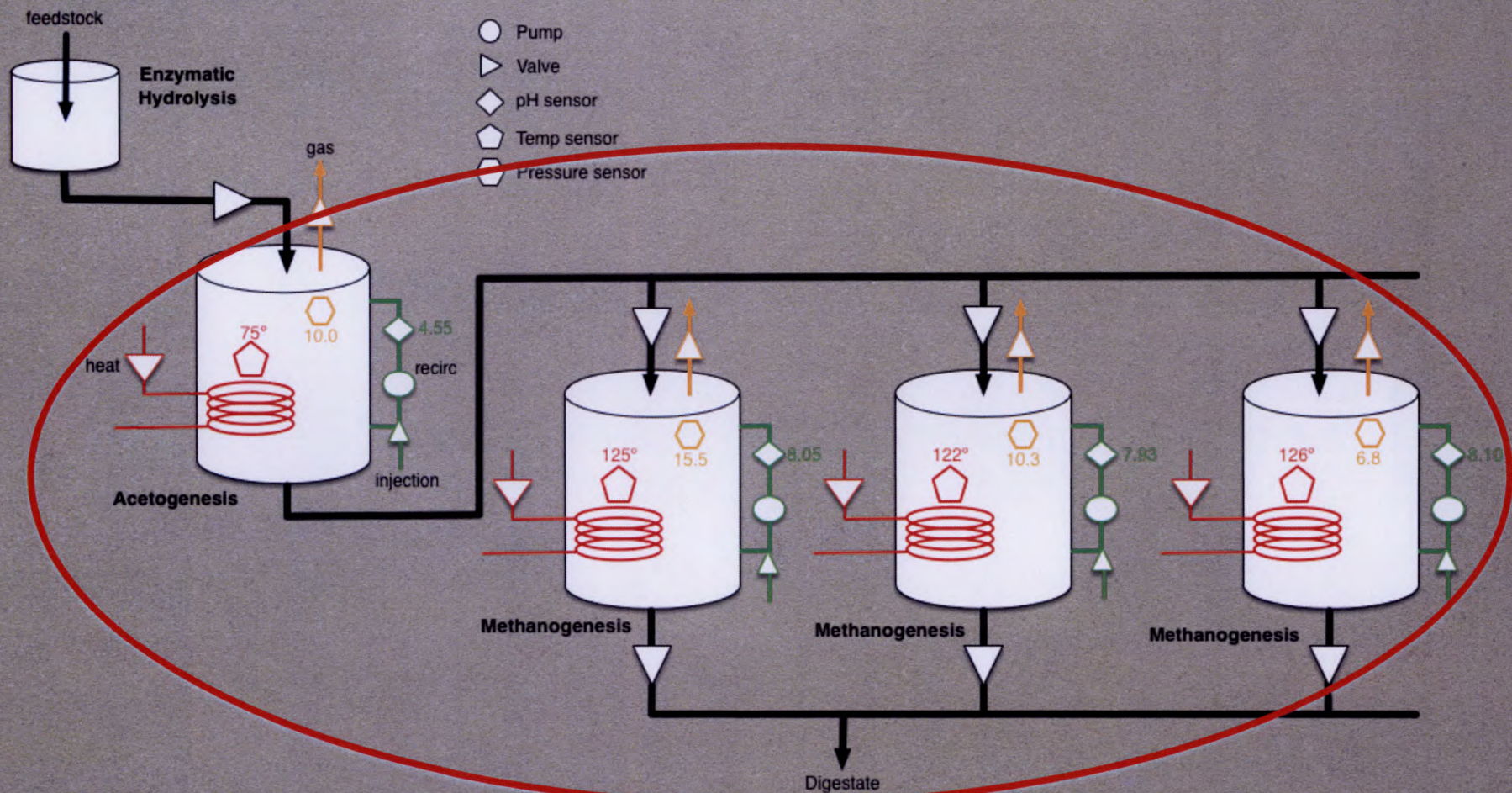
Concentrated algae is combined with microfine particles of biochar and processed through a series of bioreactors.



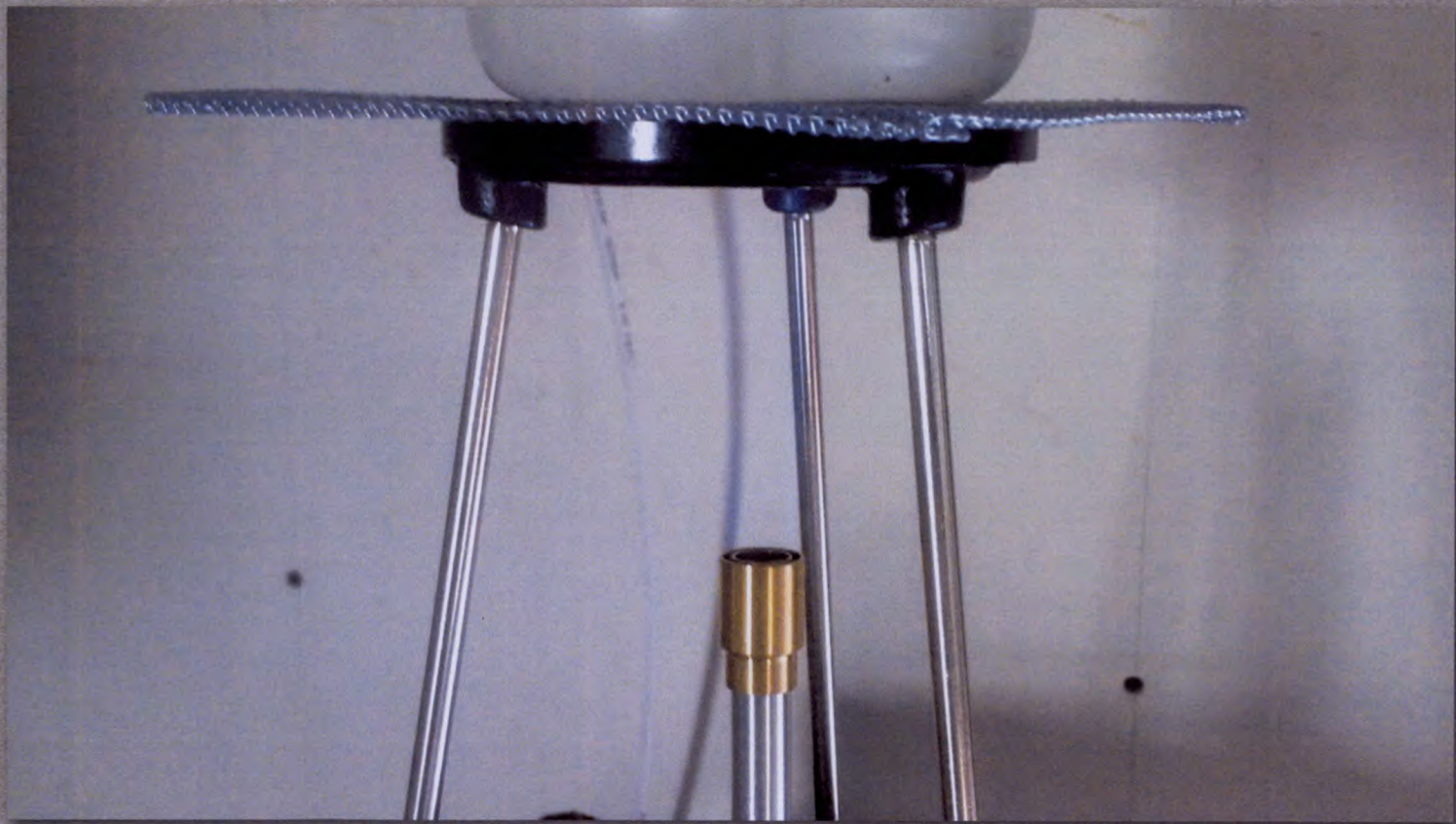
Beginning with **Enzymatic Hydrolysis** where naturally occurring enzymes convert proteins into the 'L' form of amino acids.



Hydrolyzed carbohydrates and fats are reduced to simpler organic compounds that are converted to **Humic Substances** in subsequent bioreactor stages.



**Biofuels** extracted from the process are used to generate heat and electricity to support the process.



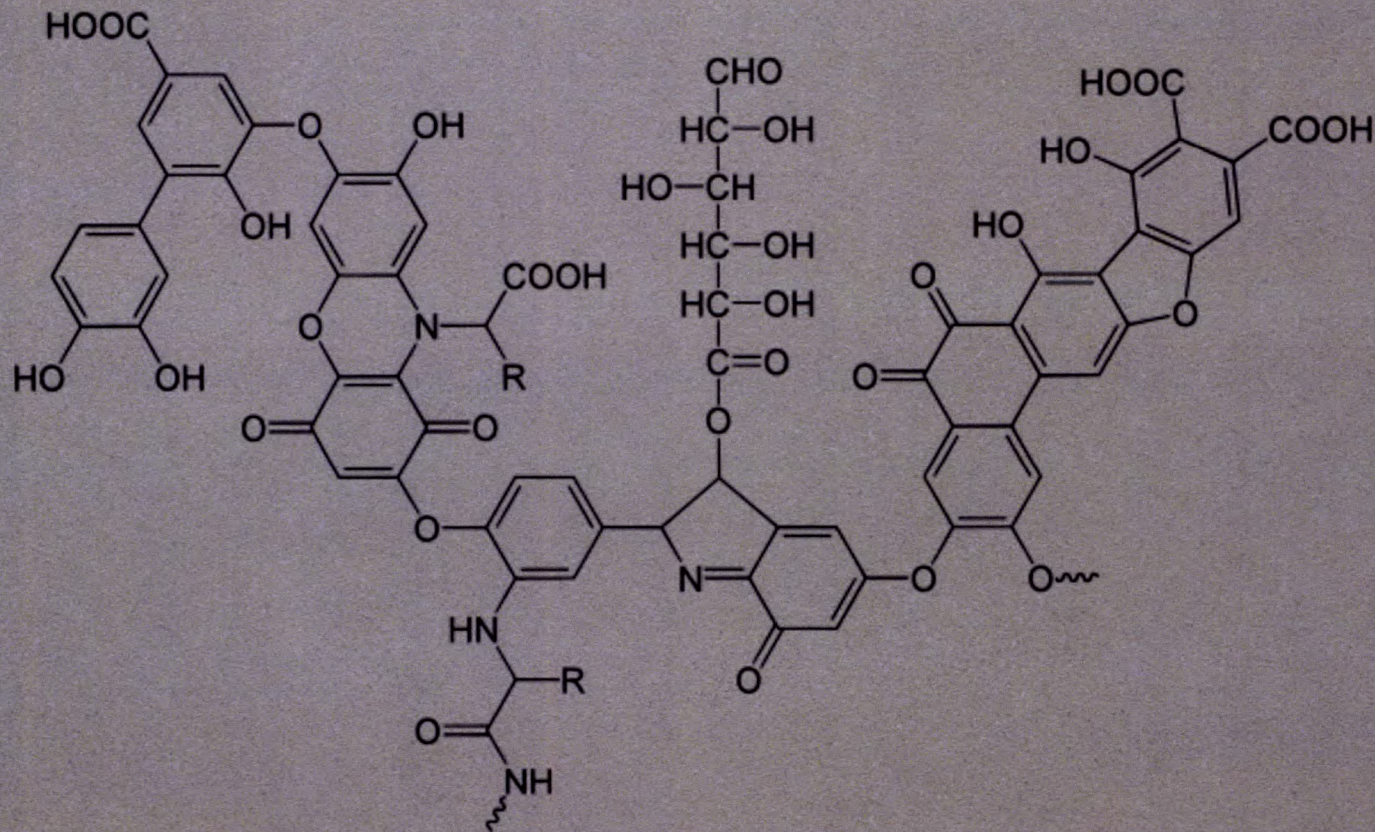
Liquid REGENiSYS<sup>®</sup> contains amino acids that transport minerals, such as calcium and potassium which are critical for plant respiration and metabolism.

Analysis	Level Found		Units	Reporting		Analyst-Date	Verified-Date
	As Received	Dry Weight		Limit	Method		
<b>Sample ID: DIGESTED ALGAE SUPER022015</b>		Lab Number: 12415651 (con't)					
Arginine	0.74	0.80	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Aspartic acid	1.46	1.58	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Cystine	0.44	0.48	%	0.01	AOAC 994.12 (Alt. I) *	tjp8-2015/03/24	tjp8-2015/03/24
Glutamic acid	1.56	1.69	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Glycine	0.98	1.06	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Histidine	0.30	0.32	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Isoleucine	0.58	0.63	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Leucine	0.90	0.97	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Lysine (total)	0.75	0.81	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Methionine	0.51	0.55	%	0.01	AOAC 994.12 (Alt. I) *	tjp8-2015/03/24	tjp8-2015/03/24
Phenylalanine	0.78	0.84	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Proline	0.85	0.92	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Serine	0.86	0.93	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Threonine	0.98	1.06	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Tyrosine	0.59	0.64	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Tryptophan	0.17	0.18	%	0.01	AOAC 988.15 (mod) *	aln9-2015/03/18	slg7-2015/03/19
Valine	0.55	0.59	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Butyric (C4:0)	n.d.		g/100g	0.01	AOAC 996.06 *	amw7-2015/03/18	slg7-2015/03/20
Caproic (C6:0)	n.d.		g/100g	0.01	AOAC 996.06 *	amw7-2015/03/18	slg7-2015/03/20

Amino acids such as proline increase a plant's tolerance to abiotic stress, which include salinity, water deficit, temperature extremes, toxic metal ion concentrations and damaging UV radiation.

Analysis	Level Found		Units	Reporting		Analyst- Date	Verified- Date
	As Received	Dry Weight		Limit	Method		
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Valine	0.55	0.59	%	0.01	AOAC 994.12 (Alt. III) *	jjd8-2015/03/20	slg7-2015/03/24
Butyric (C4:0)	n.d.		g/100g	0.01	AOAC 996.06 *	amw7-2015/03/18	slg7-2015/03/20
Caproic (C6:0)	n.d.		g/100g	0.01	AOAC 996.06 *	amw7-2015/03/18	slg7-2015/03/20

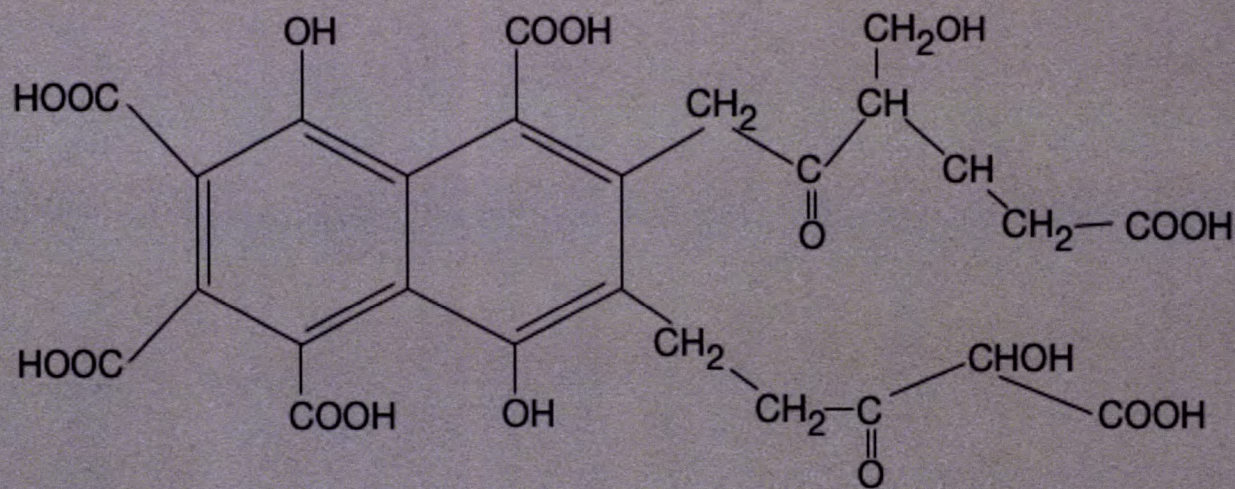
REGENiSYS<sup>®</sup> contains significant amounts of Humic and Fulvic Acids that also transport nutrients and minerals into the plant cells through the roots, stems and leaves.



*Model Structure of Humic Acid*

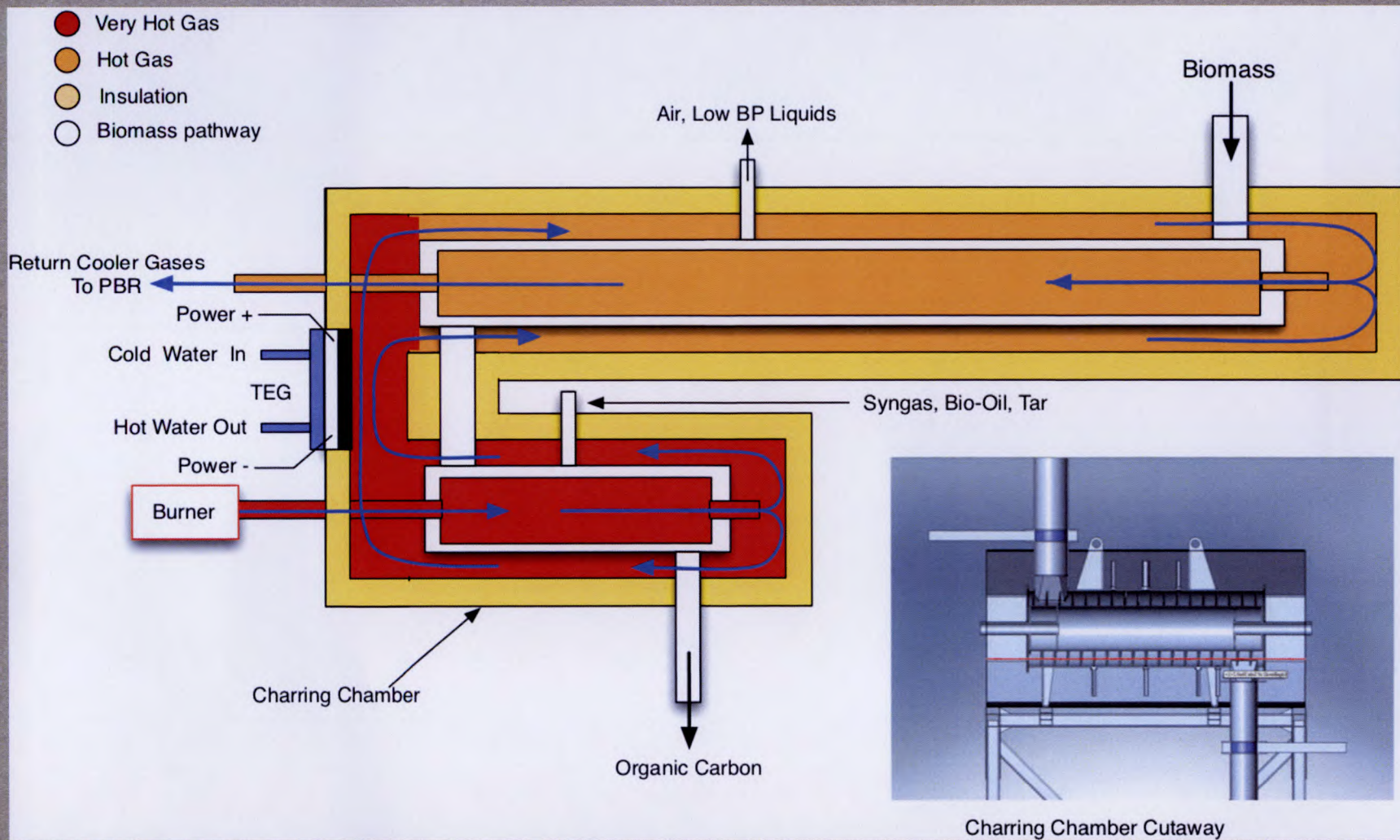


REGENiSYS® contains significant amounts of Humic and Fulvic Acids that also transport nutrients and minerals into the plant cells through the roots, stems and leaves.



*Model Structure of Fulvic Acid*

# THERMO CHEMICAL REACTOR (TCR) SCHEMATIC



COUNTER CURRENT FLOW REACTOR

# TCR FEEDSTOCKS



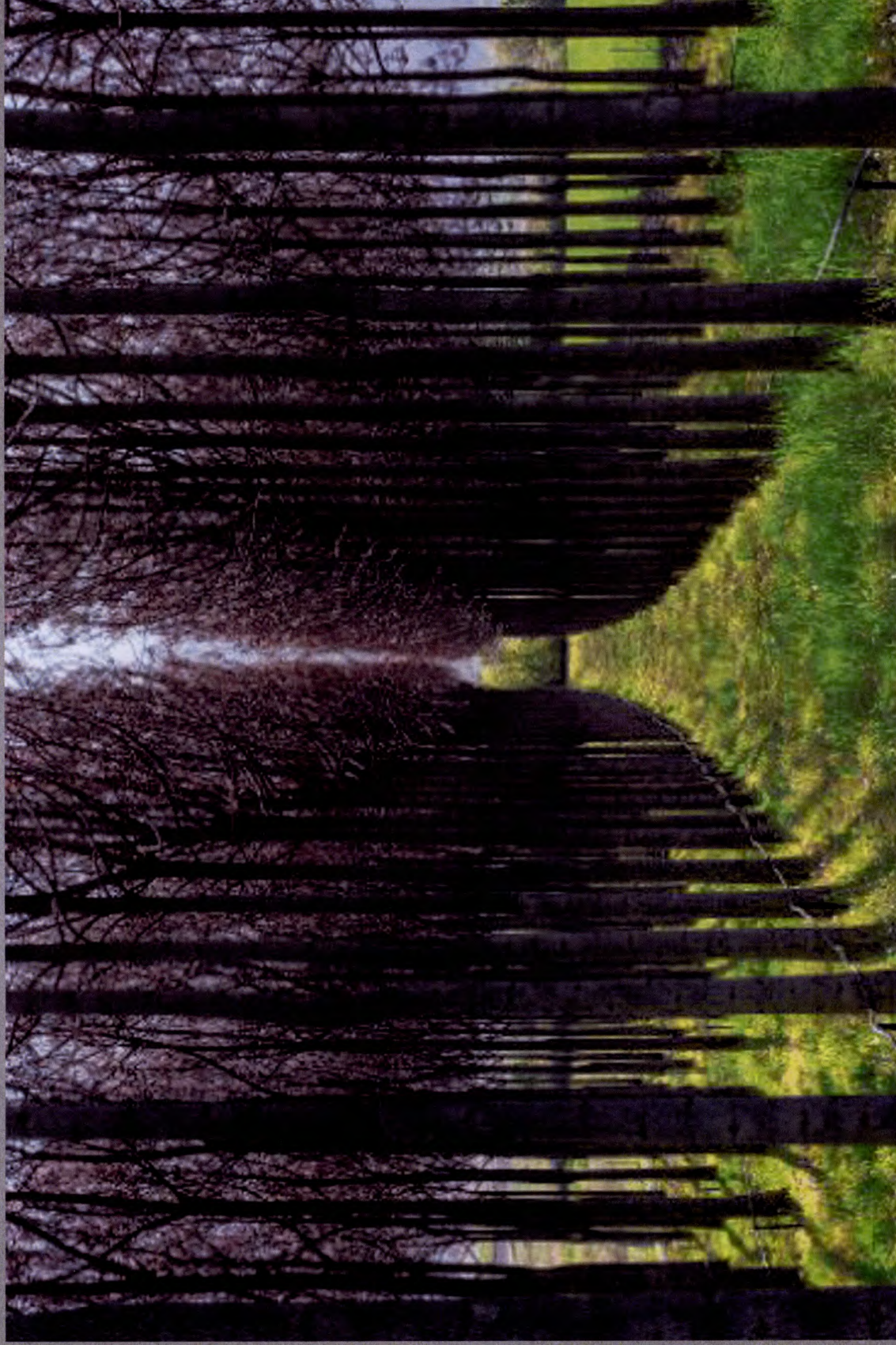
Slash

# TCR FEEDSTOCKS



Eucalyptus

# TCR FEEDSTOCKS



Paulownia

# TCR FEEDSTOCKS



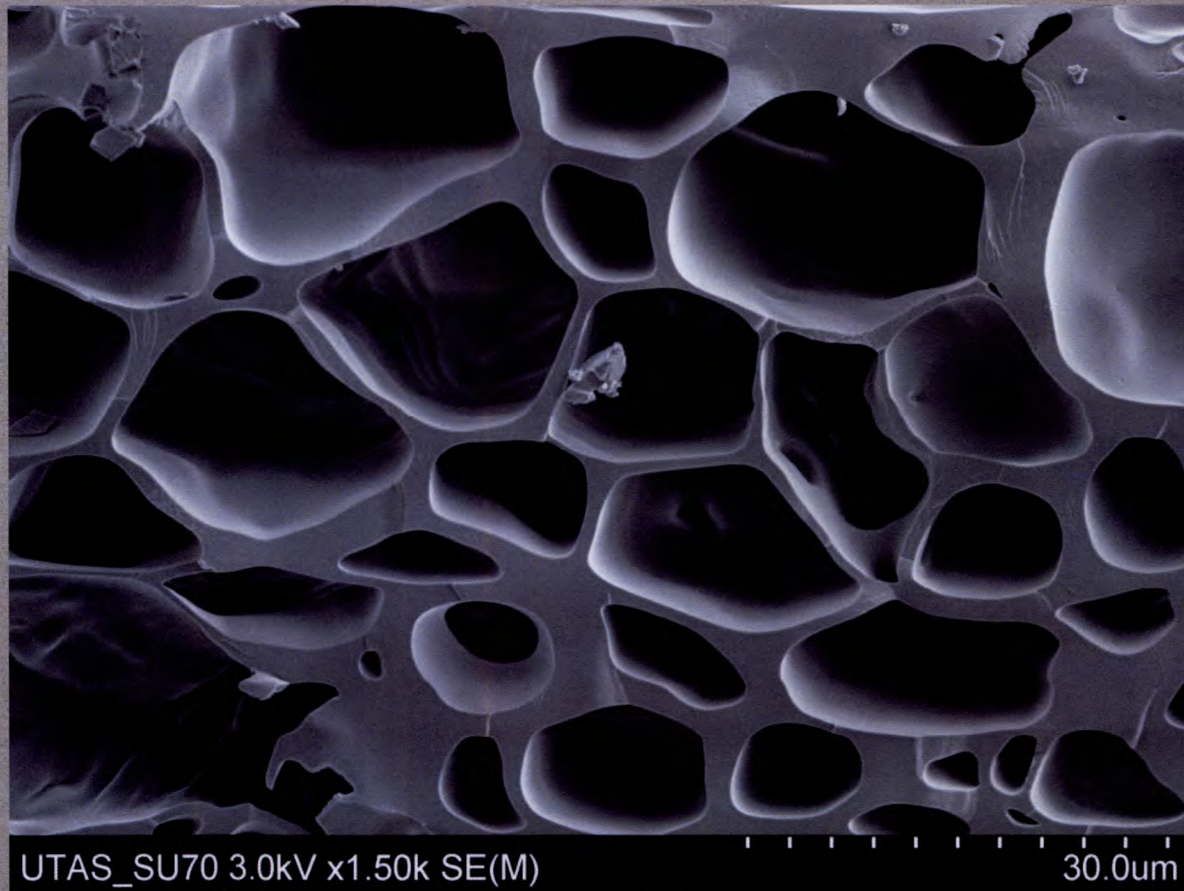
Cane Grass

# TCR FEEDSTOCKS



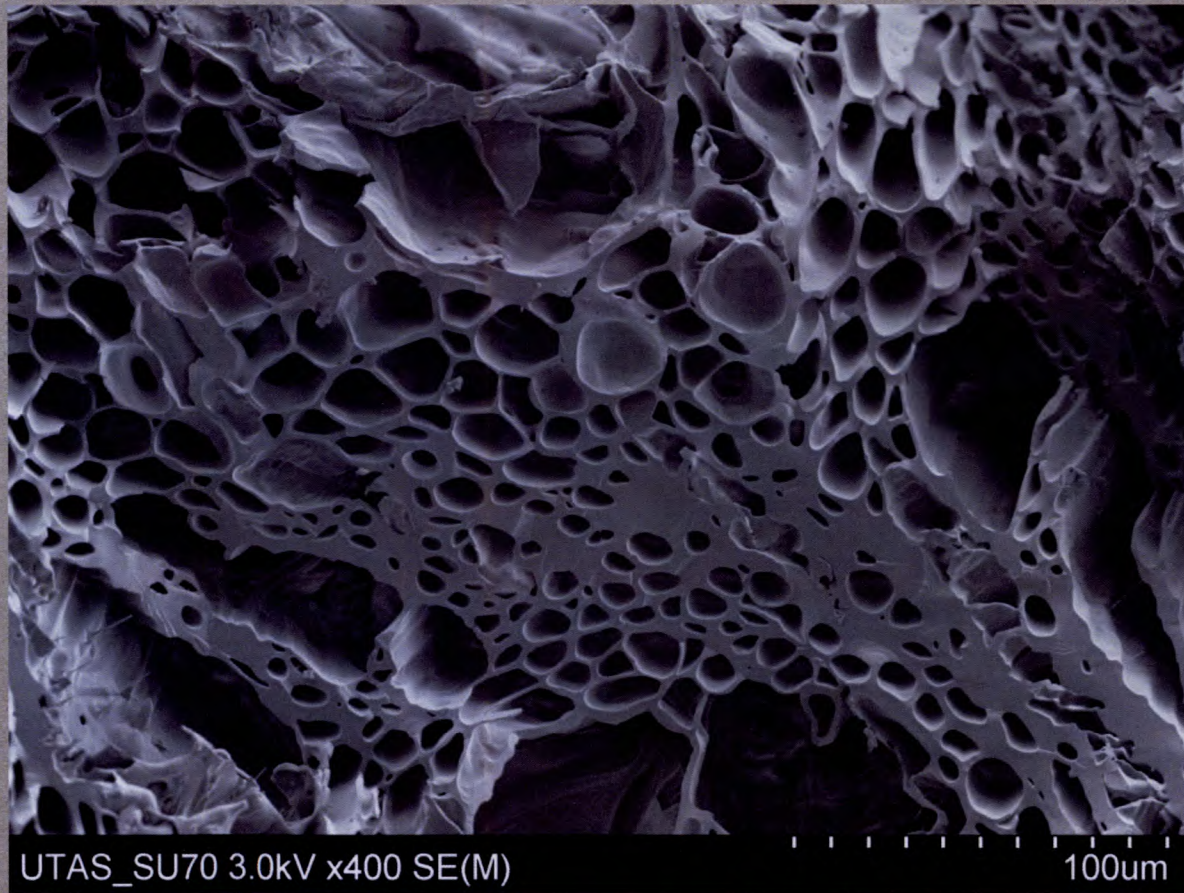
Macadamia Nut Shells

Microfine particles of **Biochar** are integrated into other EPL bioreactor processes. This electron microscope photograph shows biochar's structure and the amazing amount of surface area it has.

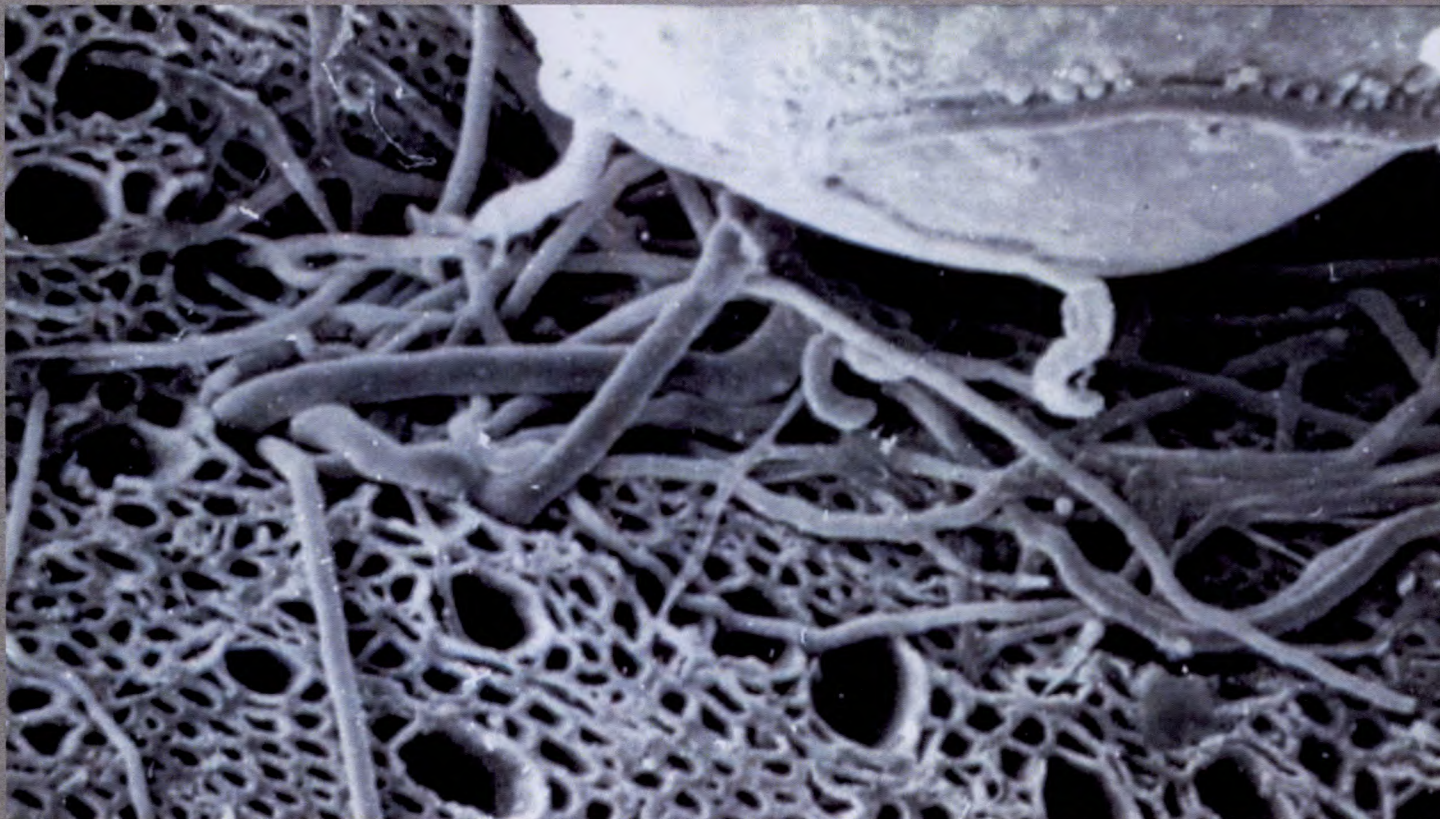




The large surface area is one of the reason for biochar's extremely high **Cation Exchange Capacity (CEC)**. The pores become home to bacteria that work in unison with the plant's root system to provide macro and micro-nutrients to the plant.



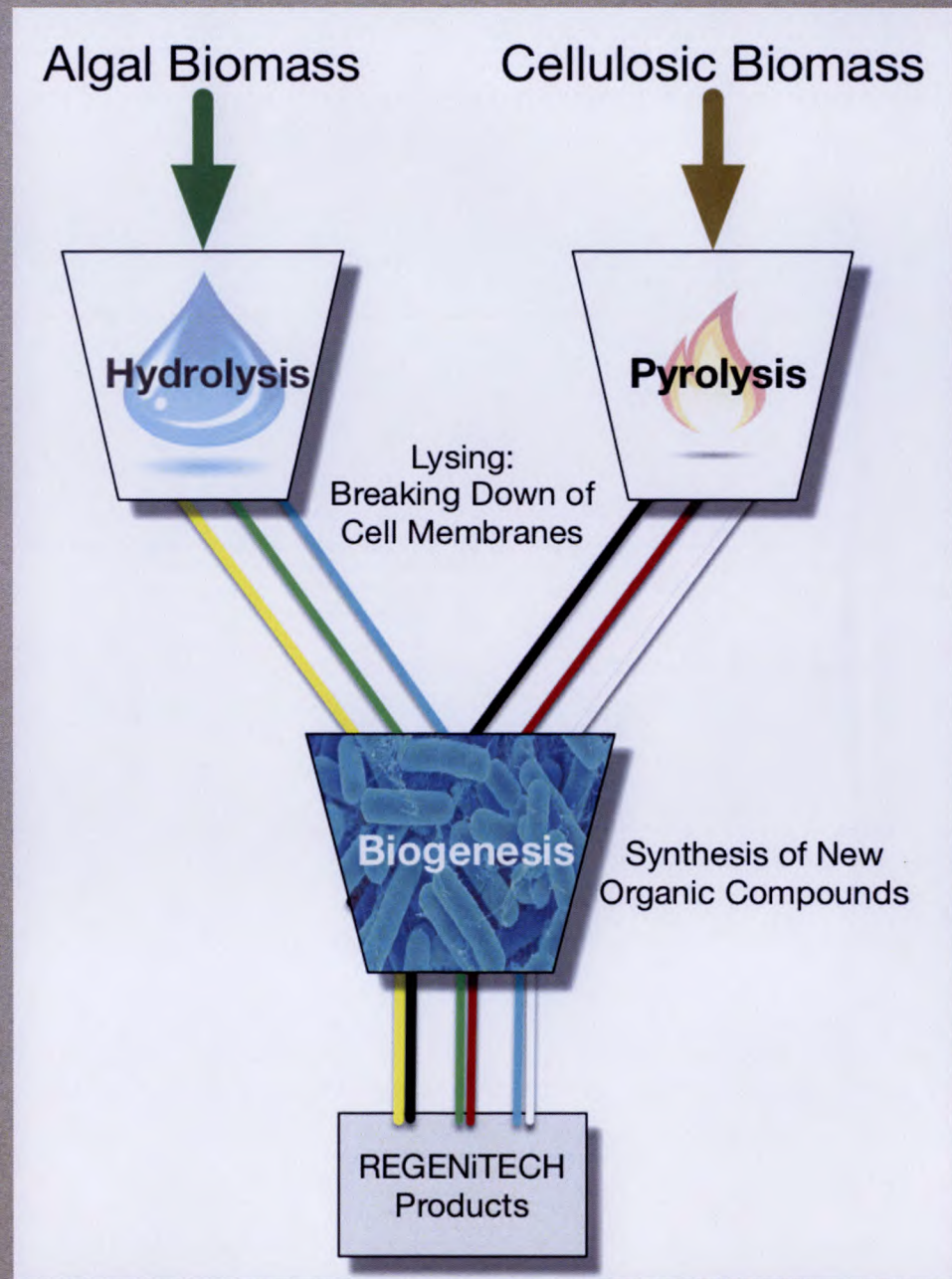
Biochar is an excellent habitat for **Arbuscular Mycorrhizal Fungi (AMF)**. This image shows **Hyphae** from a Mycorrhizal Spore penetrating biochar pores. AMF works in symbiosis with plant roots to supply nutrients to plants.



REGENiCHAR™ is biochar enhanced with REGENiSYS® Biostimulants. Biochar pores are charged and ready to support microbial and mycorrhizal activity



By combining  
**Hydrolysis** and  
**Pyrolysis**  
processes we are  
accelerating the  
breakdown  
of waste into  
Organically  
Certified  
Biological  
Compounds



## REGENiSYS® Foliar Application - 1 Day Response



# Lawn – Moab Utah REGENiSYS® Two foliar treatments



## Soybeans - Hydroponic + Foliar Application



Iron Chlorosis, sometimes misdiagnosed as insufficient nitrogen. 4 foliar treatments with REGENiSYS® over two weeks





## Strengthened Immune System



Golden Oregano

# Rooting



Coleus

# Rooting



Stevia

# Commercial Allure of the **Earth Power Lodge**

## **Electricity**

6MWH - \$0.40 / KWH  
\$2400 / day

## **Carbon Sequestration**

6 Tons - \$15 / Ton  
\$90 / day

## **Raw Biochar**

1.2 ton- \$0.50 / lb  
\$1,200 / day

## **Biostimulant**

1000 US Quarts - \$10 / Quart  
\$10000 / day

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**\$13,690 / day**

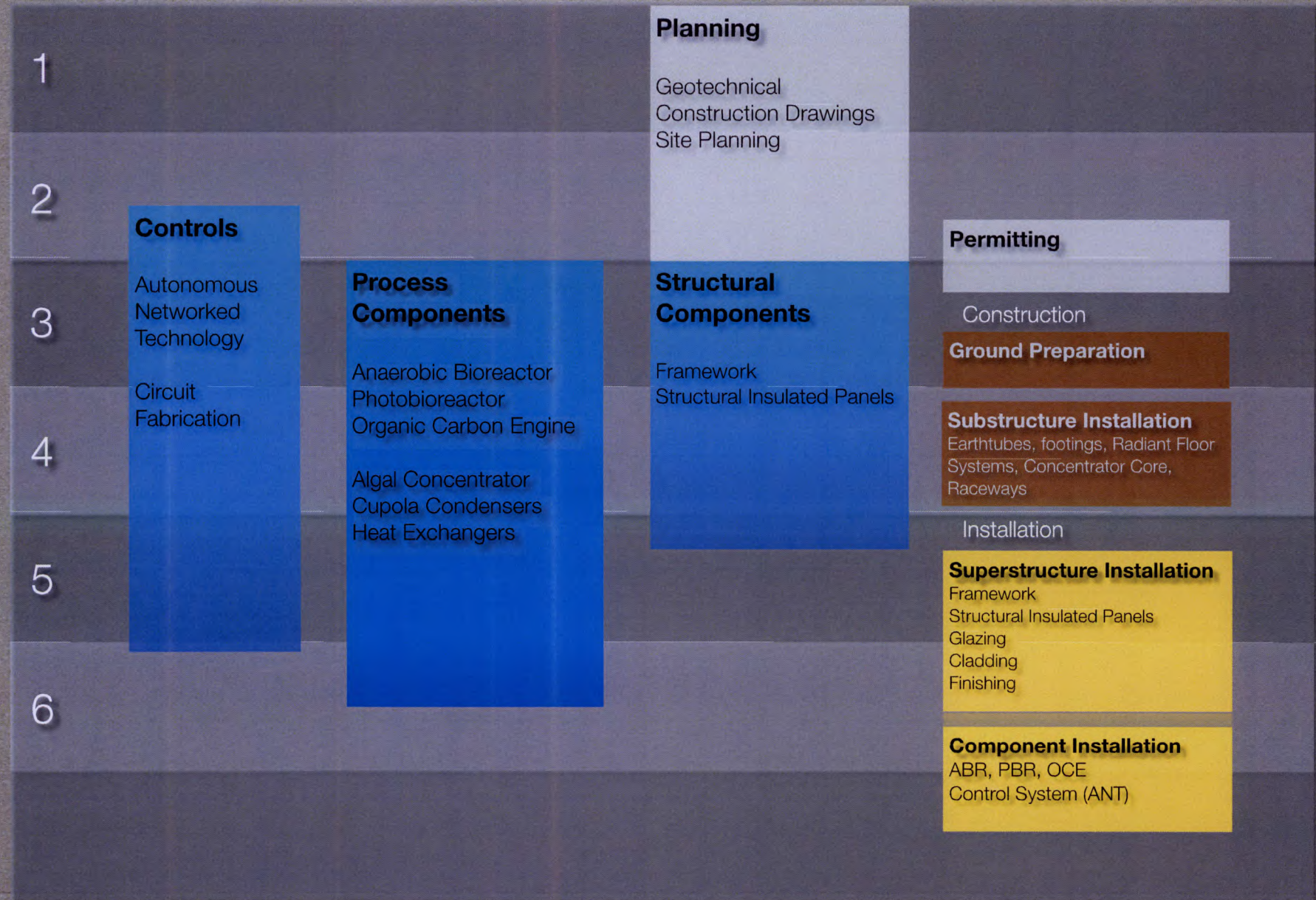
**> \$4.5 Million Annual  
gross revenue**



Based on 6 Ton/Day System

# Project Execution

Month



# PROPOSAL

Build a Demonstration Model EPL Biorefinery in cooperation with organic local farmers, soil regeneration and educational projects.

What is needed:

- 1) **Land** : approximately 1 acre
- 2) **Biomass** : between 2 and 6 tons daily
- 3) **Finance** : estimated \$4 million USD

A scenic landscape featuring a vibrant green field in the foreground, a calm river in the middle ground, and a dense forest of evergreen trees in the background. The scene is reflected in the still water of the river. Several dark-colored animals, possibly cows or sheep, are grazing in the field. The overall atmosphere is peaceful and natural.

THE FUTURE IS REGENERATION

REGENITECH