Revolutionizing raw materials with pineapple-waste

Mexico-based

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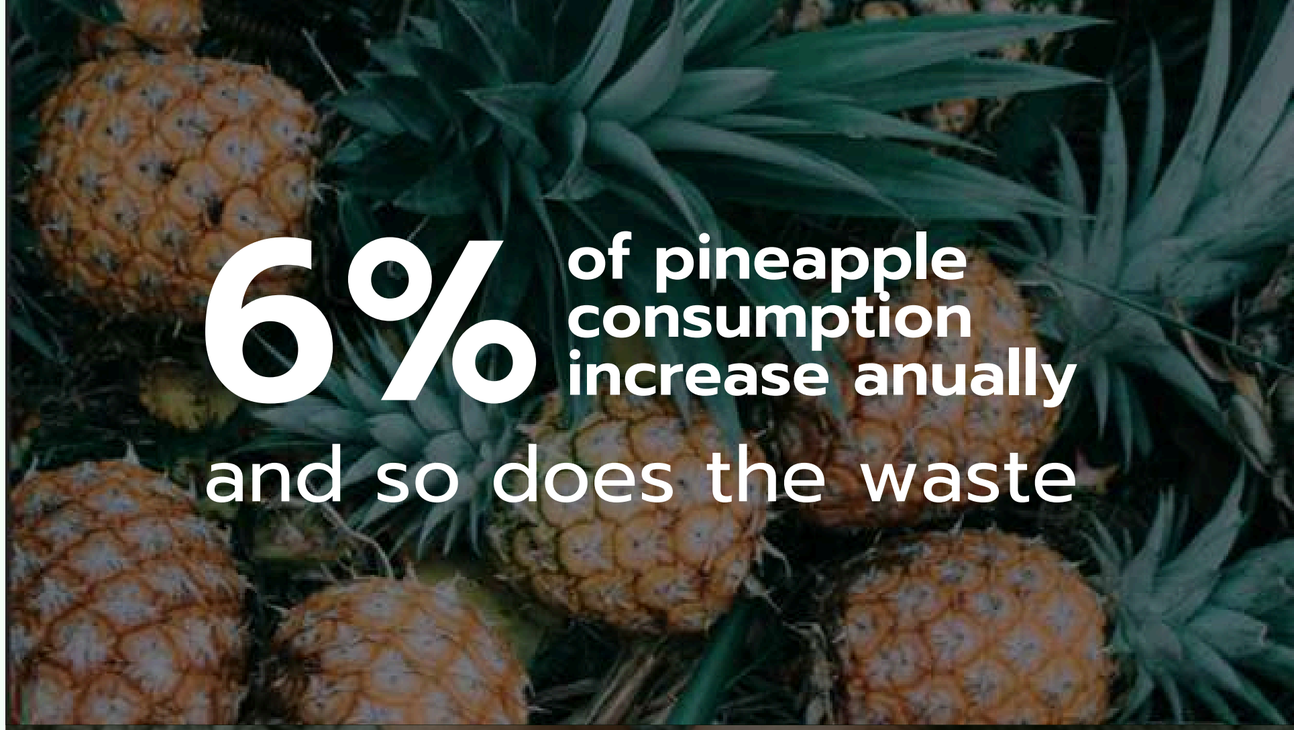
The problem

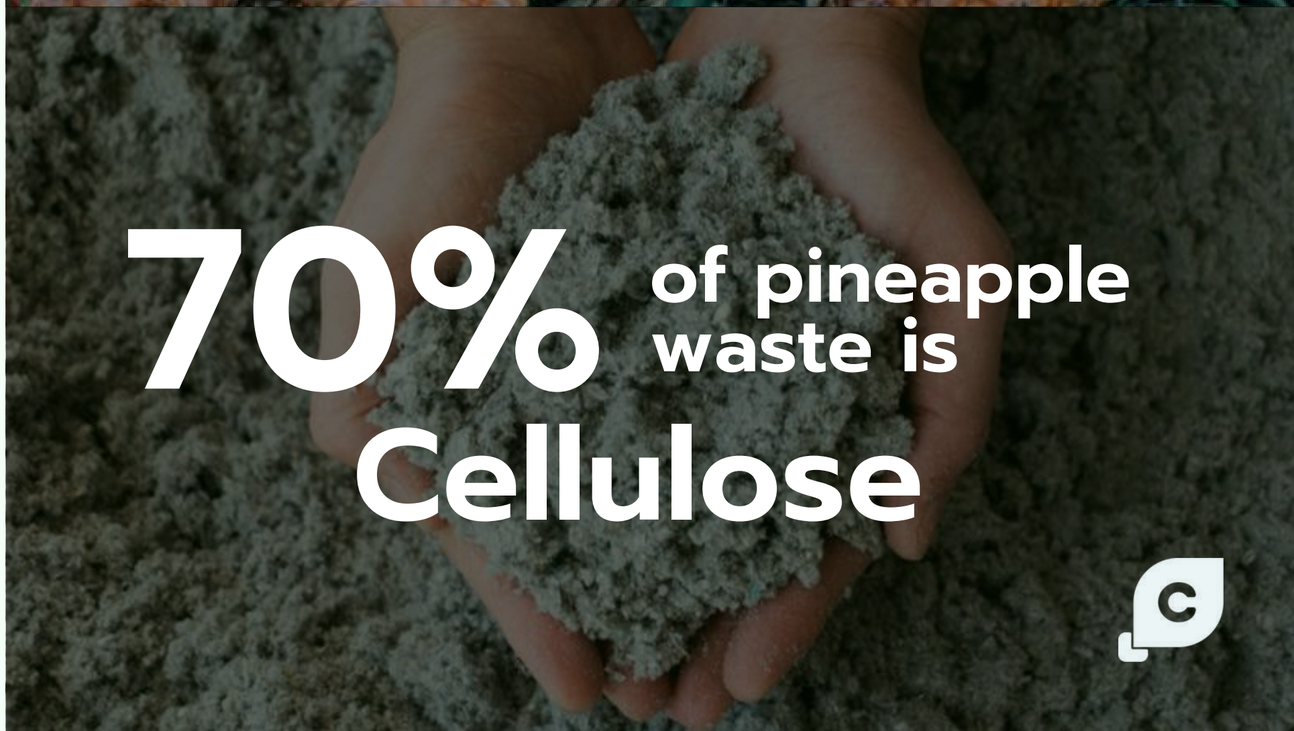
Pineapple waste

The World generates **88 million tons** of pineapple waste annualy, enough to cover **56 times Mexico City,** causing massive fires that:

- Emit **carbon monoxide**, **CO2**, and **methane**, which intensify the **climate crisis**.

Source: Tanipichai,S, et al 2019





Solution

Celal-Mex is a biotech startup that develops the new generation of sustainable raw materials from pineapple waste.

We process pineapple waste into **cellulose** *for* **diapers**.

Cellulose is the absorbent core of diapers, making up 60% of their weight. Its lignin content, derived from trees, hinders diaper biodegradation

1 We collect agro-waste

(Pineapple leaves)

2 We process pineapple leaves

3 We produce cellulose to create:

1st disposable diaper made from **pineapple waste** in the world


Imagine diapers made with pineapples, gentle on the planet and easy on your wallet

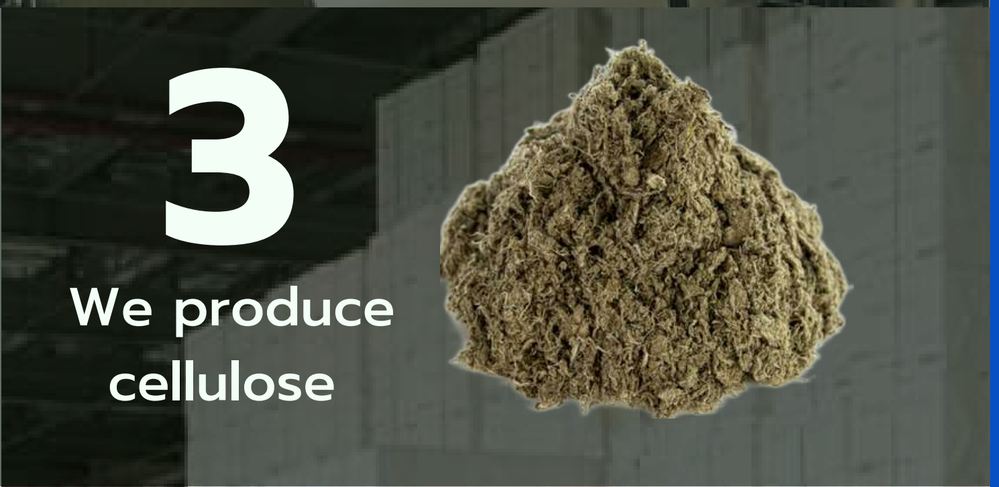
1

We collect agro-waste

(Pineapple leaves)

2

We process agro-waste



3

We produce cellulose

Solution

Through green chemistry , we've developed a unique process for the degradation of pineapple waste into sustainable cellulose.

Our cellulose:

Eliminates 100% of the tree logging caused by traditional cellulose production

Uses 66% less water and chemicals than traditional cellulose production

Contains 0% lignin.

Lignin is the component in traditional tree-based cellulose that prevents it from biodegrading. When used in diapers, this same effect occurs, hindering biodegradation. With our cellulose , this will no longer be a problem.

Opportunity

Mexican pineapple waste

"Piñera Carmelitas" generates around **200,000 tons** of pineapple waste per year.

Cellulose production

This can be transformed into **30,000 tons of cellulose = $27 M USD**

In Mexico (+1.4 M tons of cellulose)
Value in **+1.3B USD**

"Piñera Carmelitas" is our supplier & strategic partner. They are one of Mexico's biggest pineapple producers.

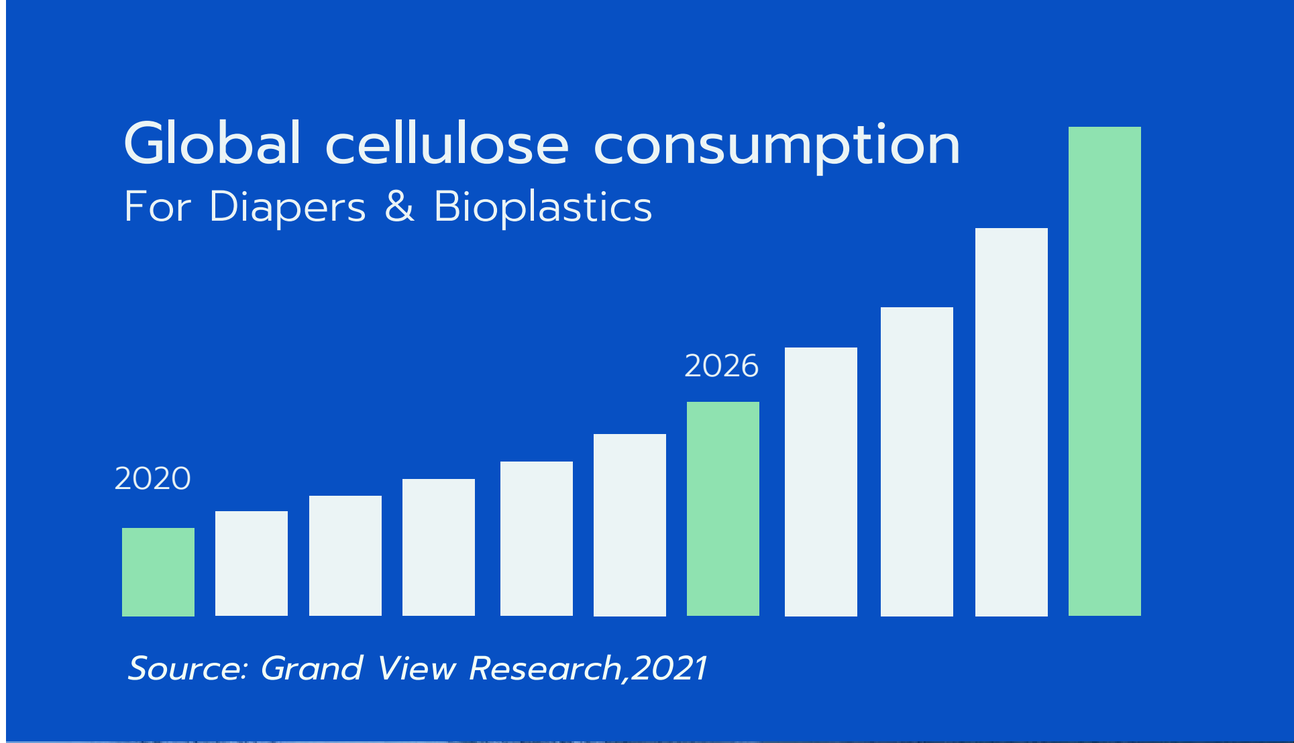
Market size

Why now?

Since 2021, there has been a global cellulose shortage, intensifying 4.2% annually causing:

- Higher product costs in the 50% of global industry that uses it.
- Delivery times of over 2 months for cellulose.
- Rising diaper prices & production halts due to cellulose shortage

Affected Industries: *paper,* ***disposable diapers****, textiles,* ***bioplastics*** *and construction.*



Market size

We are focused on selling cellulose to **diapers producers seeking eco-friendly** solutions using a **B2B model**

CAGR: 4.2%

Source: Fortune Business Insigths,2023

Market size

Global Opportunity

EU's new deforestation regulation

- Derived products from **deforestation banned**, included **cellulose**.
- USA,Brazil &Asia's **cellulose imports** banned.

*Effective since **December,2024***

Cellulose in Europe

- Market valued in **+76B USD**
- **$1200 USD** per ton of cellulose

Source: Statista,2024

Market competition

	Celal-Mex	Ecofilter	WestRock	International Paper
Price per ton	**$900 USD***	**$1100 USD**	**$900 USD**	**$900 USD**
Net margin	**40%***	**N/A**	**8%**	**1.21%**
Sustainable origin	✓			
Scalability	✓	●	●	●
Less use of Chemicals	✓	●		●
Lower water usage	✓	●		

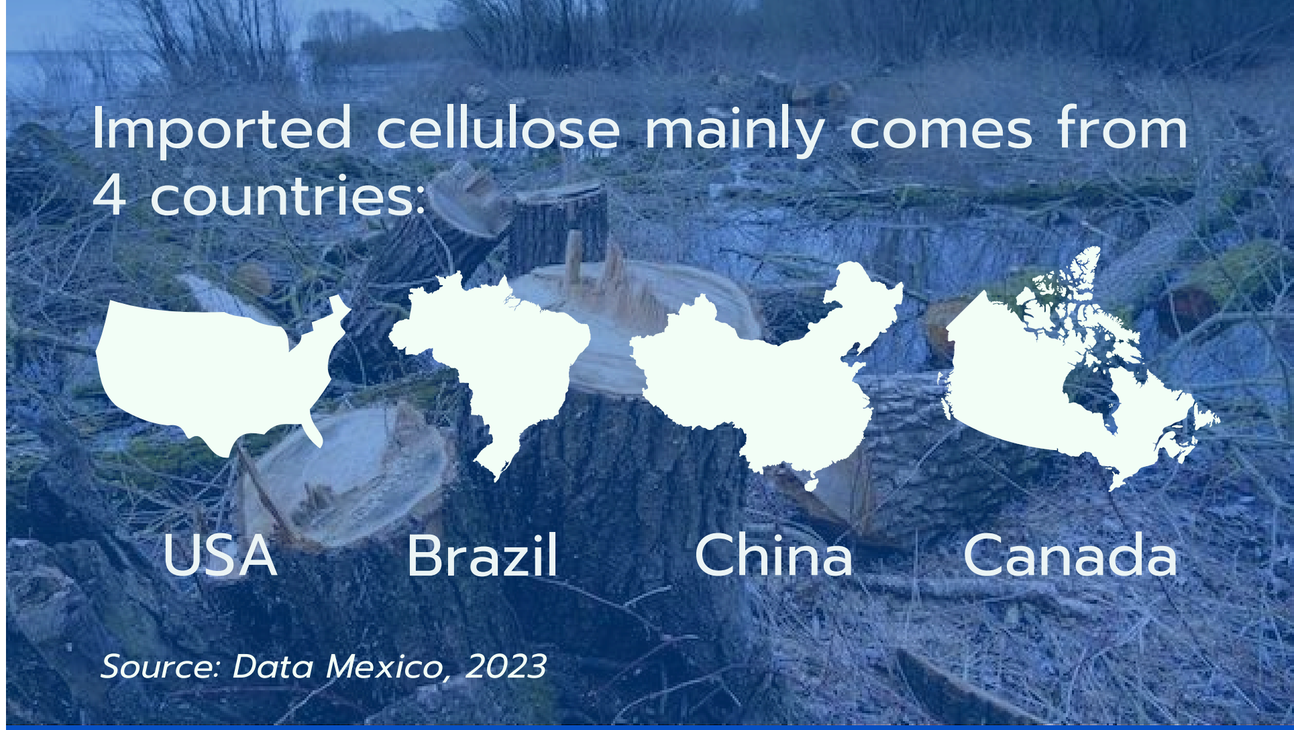
**Expected price & net margin of Celal-Mex's cellulose*

Why Celal-Mex?

There are no cellulose producers in Mexico & Central America

- **Minimum orders** to Mexico are **20 tons**, leaving small businesses without access.
- The diaper industry often **switch suppliers** based on who **can deliver fastest** to avoid production delays.

At Celal-Mex, we estimate we can deliver cellulose in **15 days**. We don't rely on scarce raw materials (trees), are based in Mexico. And we will provide access for small businesses to acquire eco-friendly cellulose.



Value of cellulose imports in Mexico

$1,375

Million USD

Source: Passport Euromonitor, 2022

Impact per TON of Celal-Mex´s cellulose

Pineapple cellulose can end a global crisis forever.

17
trees saved

-5.5 TONS
of C02 ,methane & carbon monoxide

+income
For farmers

7 TONS
of pineapple waste

2
Years to biodegrade

Replicable In
SANITARY PADS

Cheaper
diapers

Source: Grupo ICE,2015 & Aalto University,2021

Celal-Mex | Traction

50

kg of cellulose

(produced)

3

Companies

(interested)

For bioplastics and diaper testing porpuses.

Traction for testing purposes

Producers of diapers, beer rings, blocks, and plates have requested our cellulose in the last month.

Positive feedback

- **Bioplastic companies** requested cellulose in powder for further testing.
- **Diaper** companies requested more to develop the **world's first disposable diaper made from pineapple waste** cellulose.

Next step: **pilot production of cellulose** in collaboration with **Piñera Carmelitas** to **generate our 1st sales**.

BIO solutions Natural fiber bioplastics

LENOMEX®

Softys®

Our cellulose works in Bioplastics!

But we are still conducting tests to confirm 100% effectiveness in diapers

Celal-Mex | Strategy

Go-To-Market 5 year plan

2024-2029

PHASE 1

Pilot Production

Duration: 18 months

Location: Ciudad Isla, Veracruz, Mexico

Objective:
100- 500 kgs production

Complete diaper & bioplastic testing and obtain a letters of intent

PHASE 2

Pilot plant

Date: 2026

Location: Ciudad Isla, Veracruz, Mexico

Objective: 20 tons/monthly production for achieving profitability

Expected sales: $18k -$43k USD/month

Expected net margin: 13%

Development of a new cellulose extraction process

PHASE 3

Factory

Duration: 2026-2030

Location: Ciudad Isla, Veracruz, Mexico

Objective: Establishment of Celal-Mex as the main supplier of ecological cellulose in Mexico

Expected sales: $495k -$3.2M USD/month

Expected net margin: 40%

Development & Production of new biotech products

Celal-Mex | Strategy

Go-To-Market 5 year plan

In Phase 2 (2026)

NEW PATENTABLE TECHNOLOGY TO BE DEVELOPED

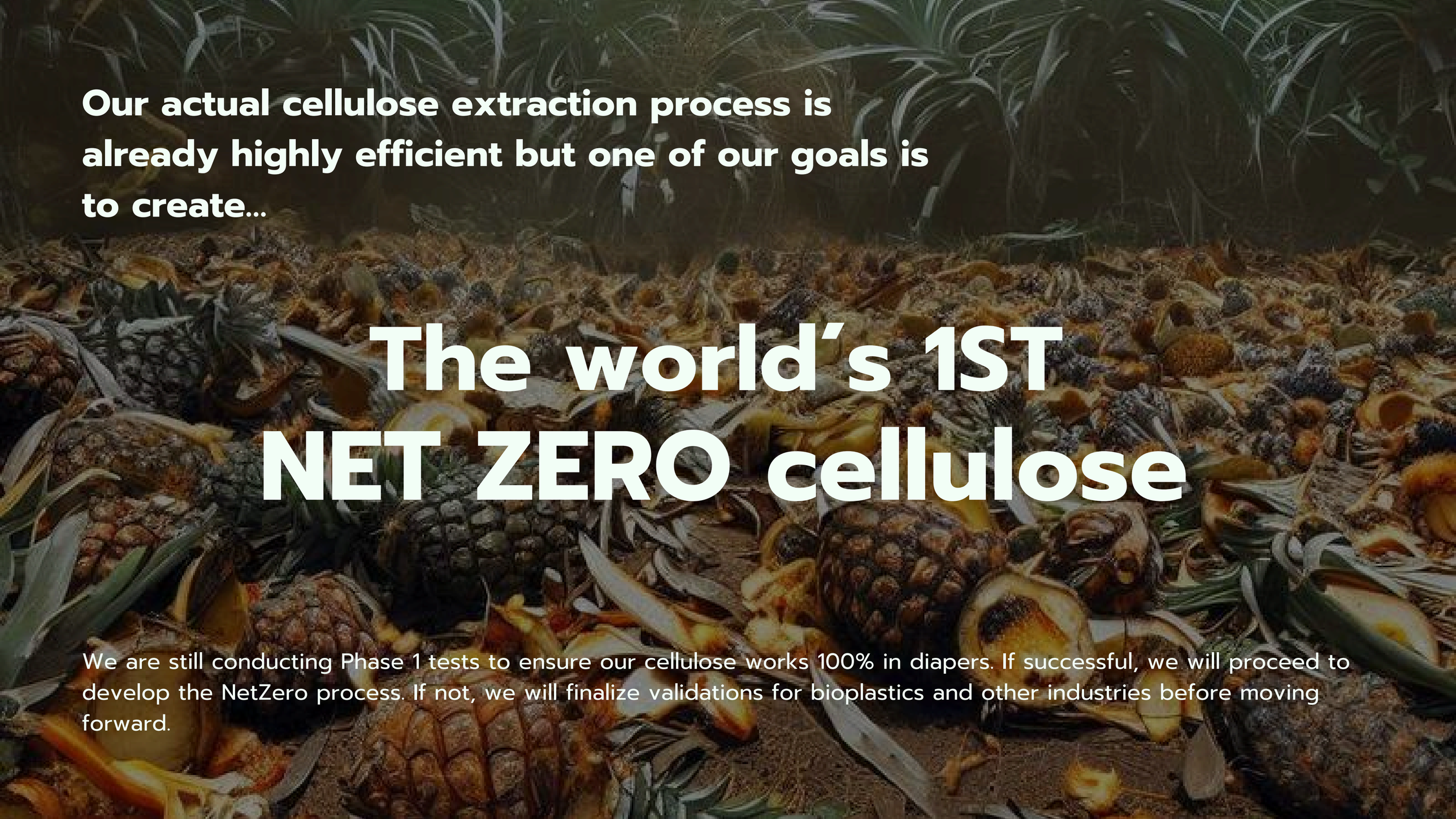
Enzymatic hydrolysis combined with **genetic modification** for more **efficient degradation** of pineappple leaves **to obtain cellulose**

Genetically modified microorganisms

That eats just pineapples leaves and waste

This process leaves behind pure virgin cellulose

We will genetically modify a tiny microorganism (cellulose enzyme) to break down pineapple leaves to create cellulose, using less energy, resources and no chemicals.



Our actual cellulose extraction process is already highly efficient but one of our goals is to create...

The world's 1ST NET ZERO cellulose

We are still conducting Phase 1 tests to ensure our cellulose works 100% in diapers. If successful, we will proceed to develop the NetZero process. If not, we will finalize validations for bioplastics and other industries before moving forward.

Celal-Mex´s future biotech products

From pineappple and cellulose waste production (Phases 2 & 3)

Starch

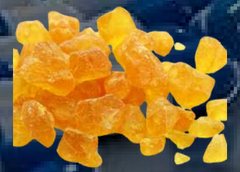
Furfural

Nanocellulose

Phytochemicals

Pharmaceuticals

Lignine



Access to new market & higher net margins

2

We can replicate this from agave, banana and papaya waste

Future business model

Cellulose, starch, hemicellulose, lignin, polyphenols, nanocellulose, biogas, bromelain, bioethanol, pectin....

Celal-Mex´s potential

AGRO-WASTE

2 trillion tons per year

Expected future production points

Replicable in agave, banana and papaya waste and more

Celal-Mex´s vision

1st Mexican Biotech **Unicorn**

6.3 M Tons pineapple waste

4.9 M Tons banana waste

1.9 M Tons agave waste

This can be transformed into

1.96 M Tons of cellulose

with a value of

= 1.7 B USD

The right mix of passion & experience

Adolfo Vidal
Founder | CEO

Top 6 World's Best Student Entrepreneurs by GSEA
Biotech engineer

Eduardo Mendez
Founder | COO

Researcher and bioprocess expert
Biotech engineer

Jose Contreras
CFO

YNG/YPO Director at Mexico
3x founder

Diego Elizondo
CLO

Balboa y Elizondo, S.C., Director
Researcher at Colegio Nacional de Abogados, A.C.
2x founder

+3 years of biotech, sustainability & bioprocess experience

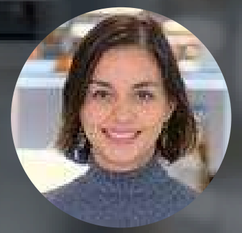
+5 years of startups & PI

Startup School · Halcyon · Santander · Entrepreneurs' Organization · YNG YPO NEXT GENERATION · BEVISIONEERS THE MERCEDES-BENZ FELLOWSHIP

ADVISORS

SCIENCE

PhD Janet A. Gutiérez Uribe
+180 scientific articles
7 patents



PhD Celeste C. Ibarra
Director of the Biotechnology Engineering Program in Mexico at ITESM

PhD Pabel Cervantes
Research Professor in Sustainable Water Use Technologies

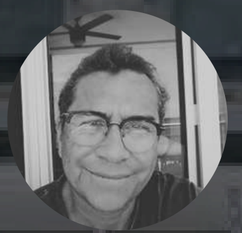
PINEAPPLE INDUSTRY

Juan Marcelo Parizot Murillo
Mexican pineapple producer

BUSINESS STRATEGY

PhD Luis Miguel Beristain Hernández
Mexican business man

CELLULOSE INDUSTRY



Marco Chavarría
CEO Intercontinental Leading Distributor and Importer of Cellulose in Mexico

FINANCE

Humberto Aliseda
Scotiabank's private banking director in Mexico

Carmelita BRAND

Intercontinental Celulosa de México

Tecnológico de Monterrey

Institute for Obesity Research

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