GranBio



Introduction to GranBio

Leading in cellulosic SAF

May 2026

Our company at-a-glance

GranBio

Making an IMPACT since 2011



Dual heritage

GranBio was founded in Brazil in 2011 by the Gradin family, as part of the Gran Group. In 2019**, GranBio** acquired **AVAPCO**, along with its Thomaston, GA refinery

Timeless Mission

Create positive impact through innovative biochemicals that help **reduce carbon** and improve **local communities**

Trusted by the DOE

$110MM of federal grants awarded to AVAPCO, a GranBio company, by the U.S. Department of Energy and the U.S. Forest Service demonstrate trust in our technology and business model

Leader in Innovation

GranBio has **over 400 patents**, granted and pending, in the bioeconomy field, with licensing **value of $2 billion***

**Valuation by Peak Value IP*

Booming Markets

We have the infrastructure & technology to be a key player in the biofuels, biochemicals & biomaterials markets, expected to reach a **$1.5 trillion** valuation by 2050

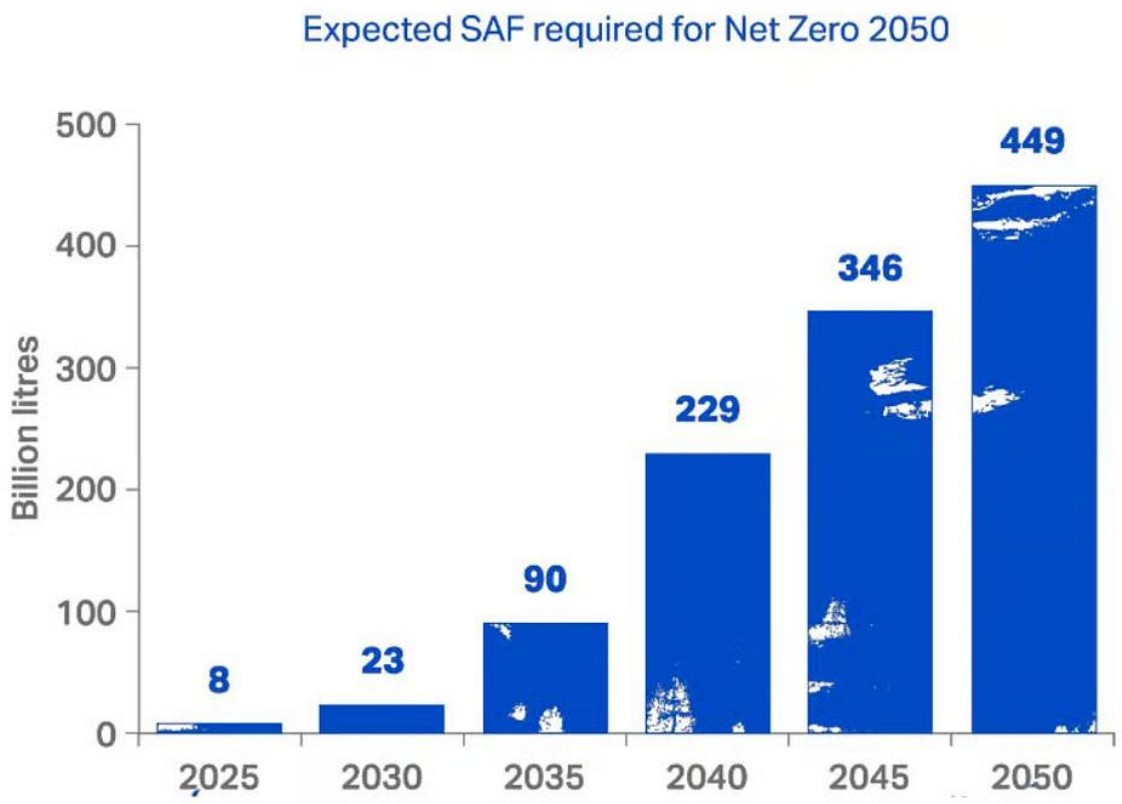
Investing in the Future

$150MM investment made over 14 years in cellulosic biofuels, biochemicals and biomaterials by AVAPCO, a GranBio company.

Sustainable Aviation Fuels (SAF)

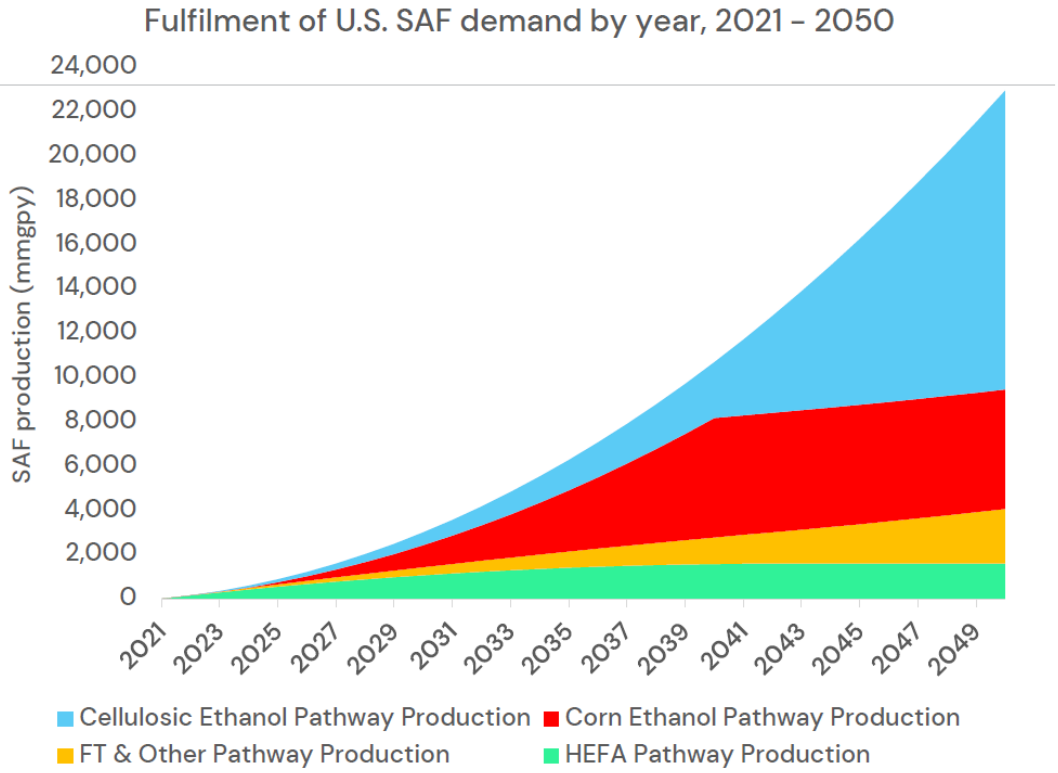
The opportunity and….

IATA estimates a 56x increase in SAF demand



Source: IATA

Cellulosic ETJ pathway to lead U.S. SAF production



Source: ICF, US SAF Price Support Mechanisms and Forecasts

Sustainable Aviation Fuels (SAF)

…the challenge

Not enough supply
- Large demand and supply gap that HEFA alone can't tackle
- Greenfields projects take years to develop & build

Few alternative routes to HEFA
- Low technology readiness level
- Scaling-up presents challenges
- More expensive

Parity to Jet Fuel is challenging
- High CAPEX
- High OPEX

OUR VALUE PROPOSITION

More SAF, faster
- Cellulosic ETJ is a scalable, sustainable alternative to HEFA, with lower carbon footprint
- Synergies with Pulp&Paper allow for brownfields builds, trimming timelines

Derisking strategies
- Proven technology: 10,000+ hours runtime at GranBio's integrated pilot plant in Georgia
- Robust plan to scale-up with confidence: same equipment and infrastructure as Pulp & Paper; competitive with HEFA pricing

Smart business model, with path to parity
- Tech & infrastructure synergies = lower CAPEX
- Waste as feedstock (abundant & cheap); lower energy requirements; higher yields = lower OPEX
- Leverage Incentives today. Existing bolt-on technologies ensure parity in the future

We will build a world-class, net-zero SAF commercial plant

Introducing our AVAP® technology

Proven. Scalable. Ready.

Our AVAP® technology was specifically developed as an improvement to industrial sulfite pulping chemistry - widely used since the 1940s for both pulp and cellulosic ethanol production - to overcome its low sugar yield and therefore maximize cellulosic ethanol – and cellulosic SAF – yield.

10,000+ hours runtime at GranBio's integrated pilot plant in Georgia

High Sugar Yield

Nearly perfect sugar yield from biomass by preservation of cellulose and hemicellulose

Conventional Unit Operations & Equipment

We use proven unit operations and equipment trusted by sulfite mills for over a century

Low CAPEX

Closed P&P mills have all the infrastruture needed for our technology, yielding significant CAPEX benefits over a greenfield plant

Compatible w/ Bolt-On Conversion Technologies

Bolt-on technologies can be installed for biochemical and biomaterial co-production

AVAP

Feedstock Flexibility

A wide range of biomass - including forest, agricultural, construction, and sugarcane residues – can be used

Cost Competitive

With the right technology and infrastructure, Cellulosic SAF is cost-competitive with alternative technologies

Net Zero Carbon Footprint

Cellulosic SAF can help hard-to-abate sectors reach their net zero targets as it has the potential to **reduce carbon emissions by up to 100%**

C. SAF

Waste2SAF

Biomass is the new crude



SAF Technologies

GranBio's Cellulosic ETJ leads the tech stack

SAF Pathways Comparison

	GranBio Cellulosic ETJ	Gasification FT	Hydrothermal Liquefaction	PTL (e-SAF)	HEFA
Key Takeaways	Most competitive balance of OPEX, CAPEX, and carbon footprint. Near term implementation	Low technology readiness level- decades from realization. High CAPEX.	High CAPEX & energy demand, smaller capacity plants.	Low technology readiness level- decades from realization. High CAPEX & OPEX.	Limited feedstock with escalating price. Low CAPEX.*
Feedstock	Lignocellulosic biomass (e.g. agricultural & forest residues)	Lignocellulosic biomass; Municipal Solid Waste	Lignocellulosic biomass	CO2	Vegetable oils, animal fats, waste greases
ASTM approval	✓	✓	✗	✗	✓
Technology Readiness Level 1-9	6	4	5	3-4	9
CAPEX, $/gal (1st commercial)	"X"	2X+	2X	6X	X/3
Production Cost, $/gal (1st commercial)	"Y"	~Y	~Y	2.5Y	~Y+

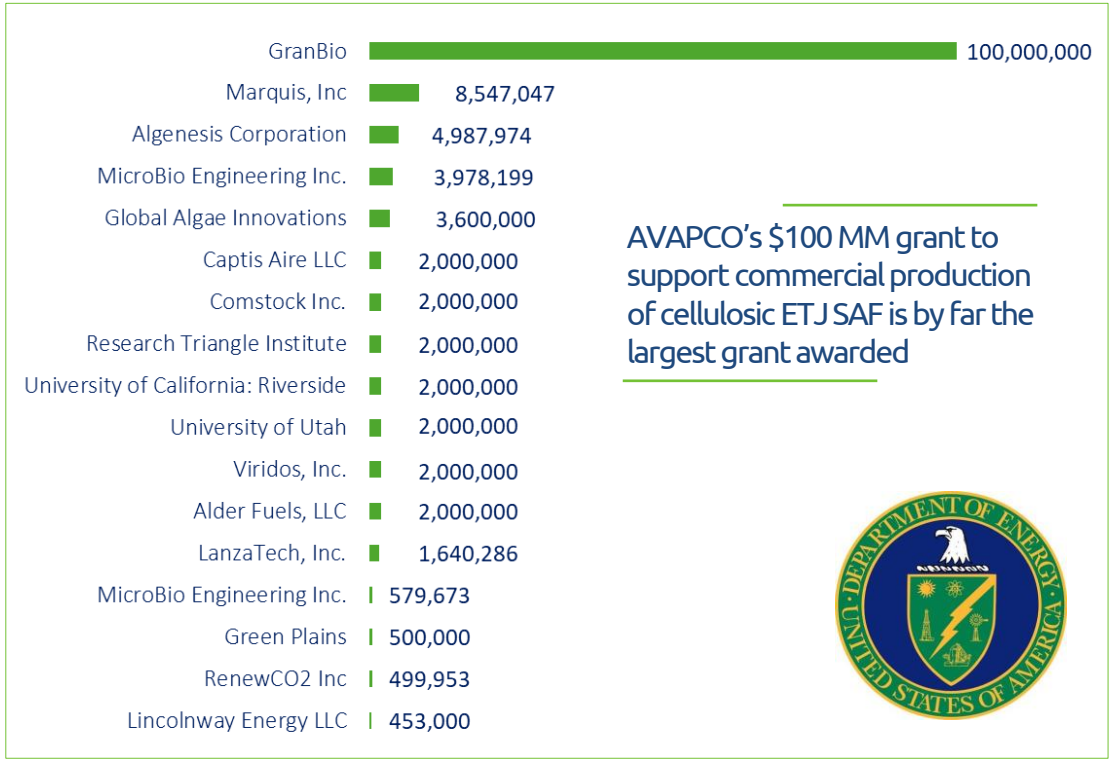
Source: Various public industry and government reports, available upon request.

*Price of HEFA feedstocks have more than doubled over the past few years due to rising demand for renewable diesel and SAF production and limited availability (DOE); Limited availability of HEFA feedstocks will constrain these facilities to 6-8% of total SAF production by 2050 (ICF).

Best-in-class technology
Performance validated by the DOE

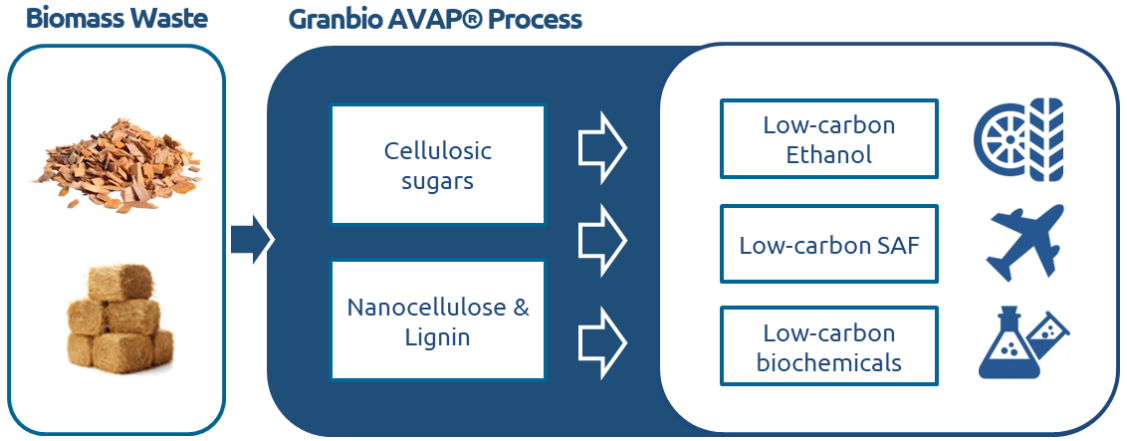
The Department of Energy and it's Independent Engineers at ICF, a global consulting and technology services company, have validated AVAP's performance. Since 2015, the DOE has awarded 4 grants totaling more than $110 MM in support of the AVAP development and scale-up across fuels, including SAF, biochemicals, and biomaterials.

Grants awarded under FY22 Scale-Up of Integrated Biorefineries Funding Opportunity



Beyond SAF – A Scalable Platform for Bio-Based Market Leadership

The versatility of our technology enables us to seize growth opportunities across a broad spectrum – from biofuels to biochemicals and advanced biomaterials.



A cost effective, high yield biomass fractionation process for the production of renewable fuels, chemicals, and materials.

Smart Scale-Up
1-billion-gallon SAF capacity over the next decade

GranBio

Strategies for Success

Optimizing Cost for Scalable, Low-Carbon Solutions

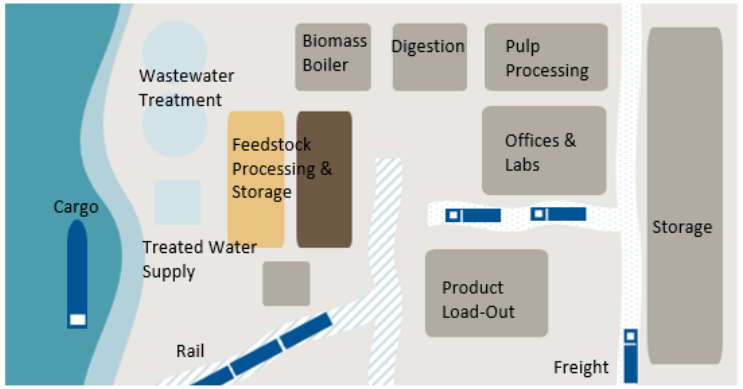
Leveraging a range of low-cost feedstocks, low-energy processes, and proven operations expertise to keep costs and emissions low.

Strategic Partnerships Across the Value Chain to Accelerate Market Access

Strategic alliances across the SAF value chain — from feedstock to offtake — including aviation, pulp&paper, technology providers and public-sector stakeholders.

Disciplined Scale-Up to De-Risk Commercialization and Maximize ROI

Progressive scale-up approach proves performance and reliability, reducing risk and optimizing ROI.



1bn GPY by 2040 from biomass residues by repurposing 10 shuttered P&P mill plants

Capital Cost

Up to $1billion savings from existing infrastructure and equipment depending on plant size

Feedstock Availability

Existing feedstock harvesting and delivery industry

Location

Located within established, managed forest baskets with developed local logistics infrastructure

Community Support

Mills have been the economic engines for these rural communities across multiple generations

Time-to-Market

Accelerated construction, raw material procurement and permitting timelines

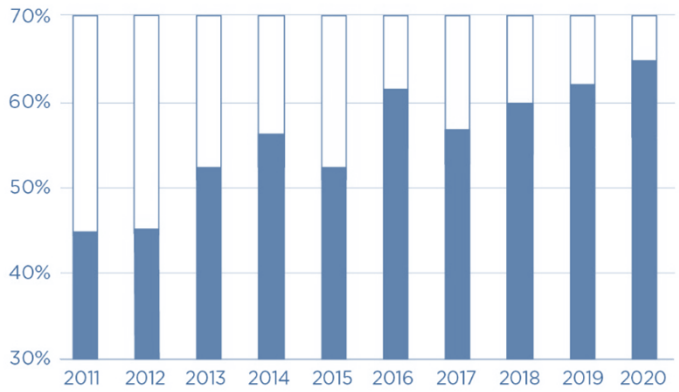
All major infrastructure and logistics advantages are in place

Community Impact

P&P Industry: an opportunity to rekindle tradition and boost local communities

Spend in forest management & wildfire prevention has been steadily increasing

Share of Forest Service Wildfire Spending

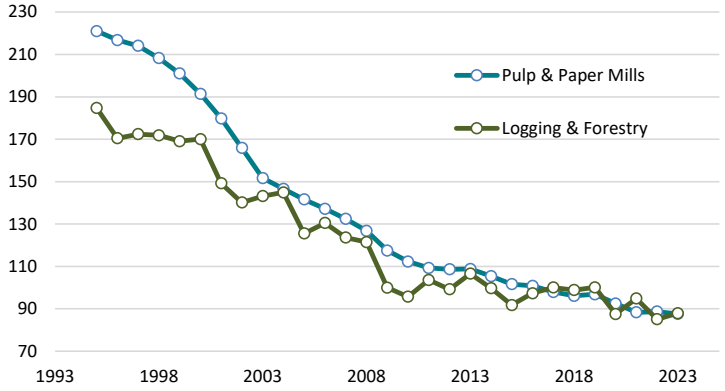


Approx. **6.5 million acres** burn annually in the U.S.A, a 125% increase compared to mid-1990's

With cellulosic ethanol, forest residues will be taken out of the forests and given a purpose in the circular economy.

Mills' closure have severe impacts in local communities – over 220K jobs lost in the US

U.S. Employment (thousands)



For every **100 direct jobs lost** in the P&P sector, **686 indirect jobs are lost**

Recent closures impacted over 2500 direct and indirect jobs. Revitalizing old mills will bring jobs back.

Source: PERC; Economic Policy Institute

Cellulosic ETJ

Path to Prosperity

Monetize Forest Residue

Lower feedstock cost and decreased fire risks

Bring Jobs Back

By using decommissioned P&P mills

Attract Investment

States where plants are located can become SAF HUBs, bringing millions of $$ in investment and revenues

Our Executive Team
Leadership You Can Trust

Proven Leadership. Decades of Impact.



Bernardo Gradin
Founder & CEO GranBio

Penn · Braskem · GranInvestimentos



Luiz Oliveira
CEO GranBio LLC

Michigan · Linde · White Martins · Praxair



Adam Mathis
CFO GranBio

Auburn · BT Bennett Thrasher



Dr. Kim Nelson
CTO

MWV MeadWestvaco · Georgia Institute of Technology



Linda Moore
VP Bus. Dev.

Illinois · Linde · Praxair



Dr. Ryan O'Connor
Chief IP Officer

Notre Dame · Cargill · NatureWorks



Ryan Zebroski
Dir. Techn. & Engineering

Michigan · Cargill · Corbion

Our elite team has a successful track record in the chemical and petrochemical industries

- Growing multibillion-dollar businesses globally
- Developing multi-year commercial partnerships
- Deployment of new technologies and commercial roll-out
- Top performing plant operations
- Global pioneers in cellulosic ethanol
- Leading expertise in lignocellulose and biofuels
- Managing strategic and valuable IP portfolio

Key Takeaways

Most Competitive SAF technology

Net-zero SAF offer
Industry-leading technology able to convert any type of biomass into SAF

Cost-parity by 2040 excl. incentives
with the addition of bolt-on technologies that will double SAF yield from biomass

Up to 50% CAPEX advantage
by revitalizing and repurposing shuttered pulp and paper mills and related value chains

Let food be food
AVAP® technology will use abundant, local residual biomass with no competition with food production

De-Risk | Well managed Scale-Up

Small commercial plant
to mitigate commercial-scale engineering and construction risks. Plant will combine AVAP with leading ETJ technology

Proven technology
with over 10,000+ hours of operation at GranBio's integrated pilot plant in GA, U.S.

Performance validated by 3rd parties
AVAP® technology performance has been validated by the U.S. Department of Energy and leading ETJ technology providers

World-Class EPC
Additional engineering work to be performed by a leading EPC company to mitigate technology and engineering integration, as well as cost and schedule risks



GranBio

From Biomass to Breakthroughs.