Digitizing sugar: Guillermo Medina Llarena on new economics of agrobiodiversity and trade

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Agrospectrum presents an exclusive interview with Guillermo JosÃ© Medina Llarena, Chief Digital & Analytics Officer at Pantaleon (PSH) and Lead at Stomata Labs, a division of Findability Sciences. In this wide-ranging conversation, he explains how Pantaleon is navigating tightening U.S. tariff-rate quotas by doubling down on customer relationships and quality-driven value addition rather than reactive market shifts.

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Medina outlines why proximity to the U.S. premium market remains an advantage even as the company expands strategically into Africa and the Middle East, aiming for 20 per cent export share in emerging demand centers by 2030. He delves into Pantaleonâ??s transformation into a tech-powered sugar majorâ??moving beyond commodity pricing through AI-enabled diversification, green chemistry, and precision fermentationâ??while strengthening digital traceability and logistics intelligence amid Panama Canal constraints and freight volatility. Looking ahead to 2030, he envisions Pantaleon as a resilient, low-cost regional champion that leverages sugarcaneâ??s carbon-capture efficiency and deep data insights to thrive in a future of declining sugar consumption but rising trade and climate complexity.

A. Trade Strategy & Geopolitical Balancing

From a portfolio perspective, how is Pantaleon re-optimizing market exposure as the U.S. tightens tariff-rate quotas and renegotiates regional preferences?

From a portfolio perspective, Pantaleon views sugar as a foundational commodity where clear, equitable trade rules are essential for all participants. Rather than reactive re-optimization amid U.S. tariff-rate quota tightenings â?? we emphasize enduring strategies like deepening customer relationships and enhancing product quality through value-added offerings. This ensures resilience without necessitating major shifts, allowing us to sustain exposure while exploring complementary markets.

Does the industry need to hedge against structural over-dependence on the United States â?? or is proximity to a premium market still a net advantage?

The sugar industry operates at the intersection of local efficiencies and global dynamics, where hedging against over-dependence on any single market, including the United States, must be weighed against its advantages. Proximity to this premium marketâ??yielding prices around $500+ per ton versus the global average of $400â??remains a net positive for swift delivery and higher margins. Our strategy focuses on low-cost production, superior quality, and composure during periods of turbulence, avoiding drastic directional changes that could disrupt established efficiencies.

Which emerging demand centers â?? Asia, the Middle East, Africa â?? are realistic diversification targets for Central American supply chains?

Emerging demand centers in Africa and the Middle East represent viable diversification targets for Central American supply chains, driven by above-average consumption growth and a preference for high-quality products. These regions, with urbanization fueling demand at 4-5 per cent annually, align well with our capabilities; Pantaleon is already active there and plans measured expansion to capture 20 per cent of our export share by 2030, leveraging reliable logistics and certifications to build long-term partnerships.

B. Competitive Edge & Supply Chain Intelligence

Pantaleon operates one of the most advanced export supply chains in the region. Is digital traceability now a cost of compliance â?? or a market differentiator capable of commanding premiums?

Digital traceability is transitioning from a mere compliance requirement to an industry norm, potentially evolving toward on-chain transactions for enhanced security and collaborative efficiency. While it may not yield sustained premiums or act as a long-term differentiator, we plan to integrate it seamlessly at minimal cost to support operational smoothness, ensuring it complements rather than burdens our processes.

How do port infrastructure risks, Panama Canal constraints, and rising freight volatility reshape your contracting strategy ?

Port infrastructure risks, Panama Canal constraints (e.g., transits reduced to 33 per day in 2025 due to droughts), and freight volatility (up 20 per cent year-over-year) underscore the need for data-driven agility in contracting. Greater visibility into logistics variables enables superior competitiveness; our approach prioritizes optimizing known factors over predicting unpredictable geopolitical or climatic events, fostering consistent, assertive decisions with a long-term mindset to outperform peers.

C. Market Power & Pricing Architecture

The global sugar trade is still largely commodity-priced. What is Pantaleonâ??s strategy to escape the commodity trap through segmentation â?? such as low-carbon sugar, specialty sweeteners, or identity-preserved lots?

To escape the commodity trap, we recognize sugarcane's potential as an efficient energy crop and are advancing diversification through AI-enabled innovations, green chemicals, materials & supplies, and precision fermentation. This positions us to command premiums for segmented products, transforming traditional trade into value-driven opportunities.

With volatility accelerating, do you foresee greater mill-consolidation and regional champions emerging to counterbalance Brazilâ??s dominance?

Accelerating volatility is likely to spur greater mill consolidation, as seen in past agricultural trends, while emerging technologies could balance this with tokenization for broader investor alignment. Regional champions may emerge to counterbalance Brazil's 44 million ton dominance, fostering more inclusive and scalable structures in the industry.

D. Digital Transformation as Trade Armor

Where does AI-driven risk management make the strongest business case today â?? crop yields, mill efficiency, or market intelligence?

AI-driven risk management delivers the strongest business case through holistic value chain optimizationâ??from enhancing crop yields and mill efficiency to securing marginsâ??ensuring comprehensive risk mitigation in volatile environments.

E. Security of Supply & Climate Risk

The Gulf of Mexico and Central American corridor is increasingly disaster-prone. Could water scarcity force a regional pivot in planting zones â?? shifting the competitive map of cane production by 2035?

In disaster-prone regions like the Gulf of Mexico and Central America, water scarcity (projected to rise by 2050) could necessitate pivots in planting zones by 2035. Enhanced anticipation capabilities will reveal optimal decisions, determining sustained competitiveness in a shifting production landscape. Climate is a non-controllable aspect of farming; thus we focus more in making the best optimization decisions with the given climatic conditions.

Closing Vision

What does Pantaleon 2030 look like in a world where sugar consumption is falling but trade complexity and technology intensity are rising?

Pantaleon in 2030 envisions a resilient leader preserving core competencies in cane production, harvesting, sugar recovery, and logistics while embracing technology-driven diversification into AI, new chemistry, materials, and food innovations. In a world of declining sugar consumption but rising trade complexity, sugarcane's inherent carbon-capture efficiency will remain a planetary advantage, enabling harmony and efficacy in sustainable operations.

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