TAUBER INSTITUTE
FOR GLOBAL OPERATIONS
UNIVERSITY OF MICHIGAN

From Seed to Sip: Anheuser-Busch Inbev Barley Valorization

Based in Leuven, Belgium with roots going back to 1852, Anheuser-Busch InBev SA/NV (AB InBev), is the world's largest brewing company. It produces around 630 beer brands in 150 countries. The company, which has approximately 170,000 employees, generated $52.33 billion in revenue in 2019.

AB InBev depends on a consistent supply of high-quality barley to brew beer, working with more than 16,000 direct farmers across 13 countries and five continents. The company is committed to source a majority of malt barley directly from its growers around the world, dedicating its 2025 sustainability goals towards making all of AB InBev's contracted growers skilled, connected, and financially empowered.

Established growing regions supply high-grade barley with realized contract acceptance rates greater than 85%. Animal feed markets purchase the rejected material at or near the cost of production, enabling a sustainable and profitable model for all parties.

However, a challenge has arisen in areas lacking development in grower practices, technology availability, feed markets, and supply chain conditions. AB InBev needed a solution to be able to accept all the contracted barley without compromising beer quality or company profitability.

In order to deal with this problem, the company brought in a student team from the Tauber Institute for Global Operations at the University of Michigan, consisting of **Marcos Coppa** and **Murat Johnson**, both seeking Master of Business Administration (MBA) degrees; and **Michelle Pawlow**, a member of the Engineering Global Leadership Honors (EGL) program, which leads to BSE in Environmental Engineering and MSE in Industrial and Operations Engineering degrees.

The Tauber team was tasked with developing a plan to increase the value of the portion of barley historically rejected in order to create a more sustainable business model for both growers and AB InBev.

The team focused its analysis on three global malting facilities as the basis for its case study, representing the extremes of AB InBev malt houses around the world. They were Moorhead, Minnesota in the United States, Passo Fundo in Brazil, and Jinja in Uganda.

Above: A barley field near Munich, Germany.

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> *Michelle Pawlow*

For each of these facilities, the Tauber team assessed the current main quality issues that lead to rejections, as well as issues during the malting process and the market potential for barley by-products via separation efforts.

The Tauber team proposed new technologies to increase barley acceptance, creating a global roadmap to determine profit opportunities for malt-graded barley and by-products through new revenue sources and cost improvements.

"We were on the cutting edge, due to a lack of research on possible solutions, which led to discovering scalable technologies for key quality issues," said Johnson. "We found that a more homogenous barley produces a more consistent malt. We used innovative equipment and technologies to scale sorting,

Dr. John Branch
Ross School of Business

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improved operational metrics, explored by-product solutions to maximize barley value, and centralized disparate ideas to create production models."

The Tauber team developed implementation guidelines based on four main factors to generate value from barley grains that can now be accepted without being malted. They are separation, sorting out individual kernels based on quality; processing, treating kernels to reduce quality issues and recover the grain; fractionization, converting the barley into its subcomponent parts to sell as by-products; and barley homogeneity, malting barley with a reduced standard deviation in protein levels.

"We planned the next steps for multiple facilities worldwide for later this year and beginning next year," said Coppa. "New equipment will be tested in Germany and Brazil, and AB InBev will test the new tiered pricing."

By implementing the technological changes proposed by the Tauber team, AB InBev will be able to accept an additional 380,000 metric tons of barley from its contracted growers annually, increasing the worldwide acceptance rate from 88% to 97%. These changes have the potential to save the company $17.9 million and provide an additional $13.3 million in revenue to growers annually.

"This project was a key enabler of high visibility 2025 sustainability goals, which involved senior stakeholders and had a global scope," said Pawlow. "It directly benefits small-scale growers in Uganda and Brazil, as well as large-scale farmers in Minnesota. We introduced new sorting and processing technologies, and there is now the potential to expand AB InBev's product offerings with barley by-products."

The Anheuser Busch InBev project team enjoys a Zoom happy hour.

Student Team:
Marcos Coppa – Master of Business Administration

Murat Johnson – Master of Business Administration

Michelle Pawlow – EGL (BSE Environmental Engineering/MSE Industrial and Operations Engineering)

Project Sponsors:
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Faculty Advisors:
John Branch – Ross School of Business

William Schultz – College of Engineering

About Tauber Team Projects

The 2020 Tauber Team Projects resulted in $433.8 million in savings according to sponsoring company calculations, an average of $31 million per project over three years.

Each two to three person Tauber Team consists of graduate engineering and/or graduate business students. Along with receiving high-level corporate support from the sponsoring company, each team is advised by a College of Engineering and a Ross School of Business faculty member and overseen by a Tauber Institute Co-Director. The projects begin on-site in May and continue for 14 weeks. Students present the results of their projects and compete for over $40,000 in scholarships at the U-M Tauber Institute's annual Spotlight! Team Project Showcase and Scholarship event, held each September in Ann Arbor, Michigan. Spotlight! provides outstanding opportunities for students and corporate partners to establish relationships while exploring innovations in operations and manufacturing.

To learn more about the Tauber Institute for Global Operations, visit tauber.umich.edu or contact us at 734-647-1333.

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