Beverage Producer Optimizes Scheduling to Reduce Inventory by 30%

A bottling company transformed its production with a data-driven batch optimization methodology, lowering inventory and operating hours.

Challenge

With more than 750 SKUs across 80 bottle types running on six production lines, a major bottling company was facing mounting operational complexity driven by frequent changeovers and uneven production cycles. Some products were bottled every two weeks while others only once a year, leading to unpredictable downtime and fluctuating inventory levels. Changing batch sizes and frequencies also impacted upstream blending and inventory holding costs, but just how much was unquantified.

While the plant had sufficient capacity to absorb additional line changes, the company knew that it needed a better method of scheduling. It had tried conventional optimization methods, but these failed to accurately account for production and inventory costs. Without a clear, unified methodology, management was uncertain how to adjust batch sizes or recalibrate operating hours to reduce costs and improve throughput.

Discovery

We took an analytically rigorous look at production scheduling. Using our proprietary Optimal Batch Size Equation, we incorporated multiple cost drivers—demand, setup time, blending

dynamics, inventory holding costs, and available operating hours—into a single integrated model. This allowed each SKU's optimal batch size and frequency to be calculated relative to all other products running on the line.

Our analysis evaluated production and inventory costs across a range of operating-hour scenarios, revealing where costs were minimized and how scheduling changes would affect upstream blending and downstream inventory. A detailed review of bottling operations and financial performance helped build an accurate picture of SKU-level economics. Within three weeks, the team produced a robust, data-backed view of which products to run, how often, and at what operating cadence to achieve minimum total system cost.

Impact

The company gained a clear and actionable scheduling strategy grounded in true cost trade-offs. Our recommendations established optimal batch sizes and run frequencies for each SKU and bottle type, defined target operating hours for each production line, and extended the planning horizon from six to 48 weeks, enabling more stable scheduling and fewer reactive adjustments. A dynamic in-house model now allows planners to continually refine decisions as conditions change.

The results were transformative: the company identified opportunities to reduce inventory by 30% while lowering operating hours by 20–30%, freeing capacity that could be redeployed to expand production or ease labor constraints. With a more precise, forward-looking scheduling system, the organization is now equipped to meet demand reliably while operating at significantly lower cost.

Contact Our Experts

Andrei Perumal is a Managing Director at Innosight, based in Dallas.
aperumal@innosight.com

Stephen Wilson is a Managing Director at Innosight, based in Dallas.
stwilson@innosight.com

Ernie Spence is a Managing Director at Innosight, based in the Washington, DC area.
espence@innosight.com

About Innosight

Innosight helps enterprise leaders turn uncertainty into opportunity and thrive in a changing world. With unmatched expertise in navigating disruption, we partner closely with clients to address their most complex strategic challenges, building resilience in today's business while shaping the organization of tomorrow. Together with our colleagues across Huron, we align strategy, operating models, and people to drive transformation and deliver sustainable growth. www.innosight.com.

Contact Us