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**John Rivera**  
Power Management Analyst

## Wonderware Solution Helps Specialty Sugar Producer Retain Cost-Competitive Edge

**Puunene, Hawaii** — Sucrose, or table sugar, has been pleasing the human species for as long as 12,000 years. One historical theory holds that its first known source, sugarcane, was discovered in Papua New Guinea; in the nearby Solomon Islands, a myth about humanity's origin even sprang up around this tropical grass that can grow as tall as 20 feet.

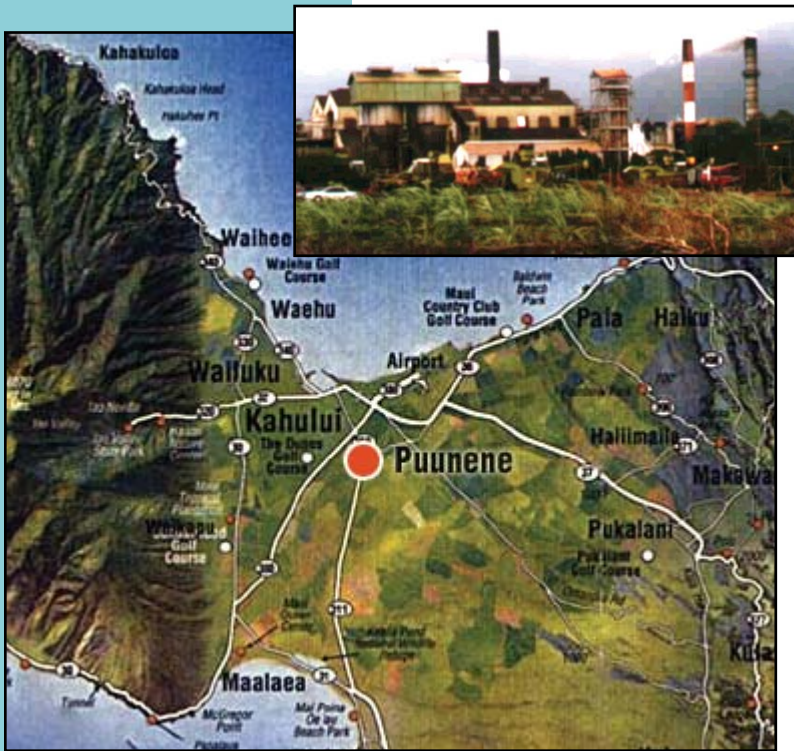
The hot, humid South Pacific remains an ideal place to cultivate the sweet foodstuff, and that's where Hawaiian Commercial & Sugar Company grows and processes sugarcane - more specifically, on a 37,000-acre plantation and adjacent factory at Puunene, Maui. In business since the late 19th century, HC&S has grown into the Aloha State's largest provider of raw sugar, producing about 200,000 tons annually.

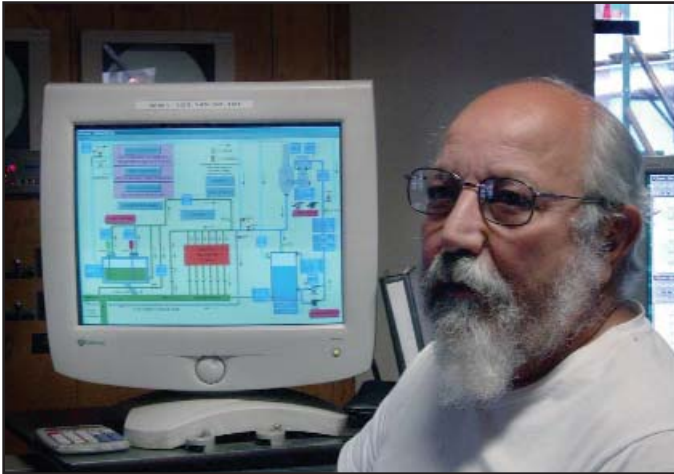
For as much sugar as it produces, though, HC&S competes with much larger mainland sugar companies and makers of artificial sweeteners, which have been taking large bites out of the mature sugar market in recent years. To maintain its share of that market, HC&S offers its own specialty sugar brands, which cost more to produce. Therefore, efficiency becomes doubly important to achieve HC&S's necessary cost-competitiveness.

HC&S also makes something else, a "product" that it not only sells, but also uses to increase its efficiency. Molasses and rum are well-known

by-products of processed sugarcane, but a less glamorous offshoot - a fibrous residue called bagasse - is used at HC&S as fuel to generate steam and electricity. Most of the steam is used to generate electricity, while the exhaust steam is funneled back into the sugar-production process. Electricity produced at the plant is also recycled back into sugar processing, with the excess power being sold to the local electric utility.

Looking for a way to further optimize its operations, HC&S took notice of InTouch human-machine interface software from Wonderware, a business unit of Invensys Systems, Inc., for its ease of use, flexibility and ability to integrate with the Puunene plant's DCS system and electrical relays, according to John Rivera, a power management analyst at HC&S.





**Joseph Arrojo, lead power plant operator.**

HC&S's Production & Performance Management (P&PM) system started out with three separate InTouch HMI client applications - feeding their Wonderware IndustrialSQL Server historian for sugar-plant operations, steam-plant operations and power monitoring - with access to a combined 17,000 tags in a two-tier client/server topology.

"We then saw the benefit of integrating all of our InTouch HMI client applications into one large system that could be used to gain plant intelligence information," Rivera said.

The company's P&PM system since has grown from two tiers (database and client program) into a three-tier topology (database, client program and application server); the single InTouch HMI client application has access to 30,000 tags - nearly double that of its three predecessor applications - enabling employees to access data from throughout the production process from any workstation in the plant or any remote workstation around the world.

Several plant operators who are frequent, day-to-day users of the InTouch HMI have the application installed at their workstations. Other staff members, such as upper management, who use InTouch software less often log onto Wonderware's SuiteVoyager real-time plant portal software to launch InTouch HMI for Terminal Services when they need to access the HMI.

Similarly, heavy users, such as the plant manager and engineers, have Wonderware's ActiveFactory reporting and analysis clients loaded and running locally to extract operational data from the Wonderware IndustrialSQL Server real-time plant historian. More casual users can log onto the SuiteVoyager portal to view ActiveFactory data trends and reports via a link to the company's internal and external websites.

"The whole idea of SuiteVoyager is to enable people who don't know Internet coding requirements, such as HTML, XML or ASP, to get Internet work done," said Ray Norman, a senior applications engineer for Wonderware.

The single InTouch HMI and IndustrialSQL Server client application linking the plant's various operations resolves a common concern with a large automated enterprise: the inability to easily share manufacturing data at all points of the operation and on the company internet.

"Prior to the total manufacturing integration, each Wonderware system stood alone and could not be viewed by management - only by the operator," Rivera said. "By having a total integration package, all areas can now view each other's operating data, and management can view the entire operation from a PC using Wonderware's SuiteVoyager real-time plant portal."

He added: "The system has changed our way of thinking and the way we operate. It has opened up more interdepartmental communication."

The comprehensive view of the production process that its Wonderware P&PM solution has provided it has empowered HC&S to re-evaluate many aspects of its operations, such as its water consumption and the pressure with which the plant's rollers crush the sugarcane.

"If you press the sugarcane too hard, you don't get all the juices," said Brian Slocum, president of Waialua, Oahu-based Pacific Industrial Corp., HC&S's Wonderware Distributor. "If you don't press it hard enough, you also don't get all the juices. There are a lot of precise adjustments like that that they need to be able to make."

Norman noted that HC&S's Wonderware P&PM solution had enabled the sugar producer to increase profits in an industry with thin margins. "It's one of our classic stories: better, more timely information yields more profits," he said.

The increased profitability hasn't gone unnoticed within HC&S: the firm awarded Rivera and a colleague, Bob Garrett, its Company President Award in 2003 for their work on the enterprise manufacturing information system.

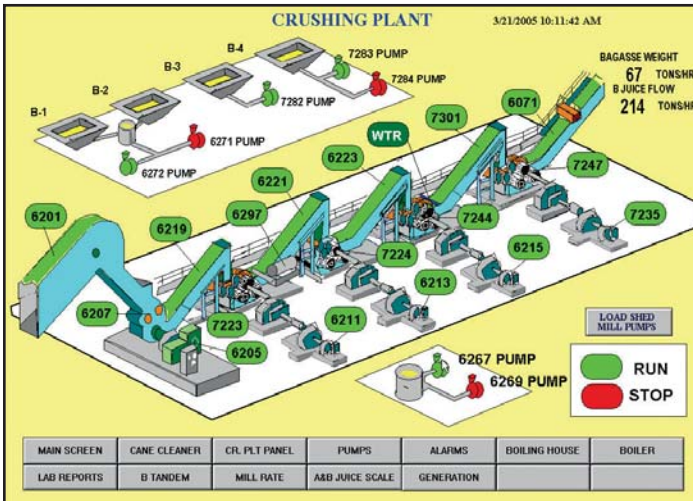
And their work continues, as they foresee expanding their solution to include the Wonderware Industrial Application Server, whose powerful equipment model can facilitate the remodeling of the plant and help HC&S to continue to drive its operational standards.

## Solution Overview

**Industry:** Food & Beverage

**Software:**

ActiveFactory reporting and analysis clients  
 IndustrialSQL Server real-time plant historian  
 InTouch human-machine interface software  
 SuiteVoyager real-time plant portal software



InTouch screen monitoring the Crushing Plant.

For one thing, Rivera predicts that HC&S will begin using Wonderware's Industrial Application Server to support the ease of integrating equipment, also important for efficiency. In this way, HC&S will be able to upgrade its plant's automation system without having to cast off prior investment in earlier machines, an exciting prospect for HC&S in a long list of benefits from Industrial Application Server.

"The most immediate benefit of the Wonderware Industrial Application Server will be in the propagation of system changes," Rivera said.

And as HC&S continues sharpening its efficiency, it will be even better poised to produce the tasty substance that has pleased humanity for so long.

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