

SIEMENS

Ingenuity for life

Consumer products and retail

Natural One

Using Opcenter APS to reduce production planning process from three days to two hours with greater reliability

Product

Opcenter

Business challenges

Schedule production to meet demand while managing inventory levels

Improve performance of the filling line

Plan production to guarantee availability of the appropriate product mix

Keys to success

Use Opcenter Planning to assist in preparing weekly master production schedule

Identify scenarios that provide the optimal operating result and meet demand

Use Opcenter Scheduling for sequencing and scheduling production

Results

Reduced production planning from three days to two hours with greater reliability

Improved production and product quality

Extended planning horizon from 30 days to 12 months

Reduced stockouts from 13 percent in 2018 to 2 percent in 2020

Siemens solutions enable Natural One to improve production and product quality

Generating accelerated demand

Natural One is a Brazilian company that offers a unique, 100 percent natural real-juice product that preserves the flavor of each ingredient, which is produced from fresh fruits and vegetables. This required years of collaboration with technology partners from Germany, the United States, France, Netherlands, Japan and Sweden, who helped Natural One design and

implement a cold aseptic filling plant, which ensures all the characteristics of the fruits and vegetables are maintained.

The company offers the market more than 60 items divided into two product lines: refrigerated chain and shelf-stable chain. The refrigerated chain is made with ingredients that need refrigeration to maintain all its freshness, flavor and nutrients, and the shelf-stable chain is made with less sensitive fruits and vegetables that maintain their nutritional characteristics without refrigeration. The products are offered in 300-milliliter (ml) bottles up to two-liter (L) bottles.



Once it has been decided which plan that was generated by Opcenter Planning should be adopted for the coming weeks, production volumes are loaded and production orders are generated in Opcenter Scheduling, respecting batch size and the product's technical list.



Natural One's product quality has generated accelerated demand growth in recent years and has enabled the company to reach international markets. In addition to Brazil, where they can be found at around 40,000 points of sale, its products can also be found in 12 countries, including Chile, Singapore, the Philippines, Colombia and China.

A complex equation

Year after year the demand for Natural One quality products grew more than expected. Serving this growth by using only one filling line became a huge challenge. The first issue was to improve the performance of the line, which was being used at about 60

percent of its capacity. A large part of the installed production capacity was lost due to carrying out the setup, especially those necessary for changing the type of packaging, which requires the line to remain idle for six to 10 hours.

As the packaging is aseptic, it would have been ideal to maintain the production of the same packaging size, varying only the flavors, but this had limitations. With demand outpacing capacity, the biggest difficulty was to schedule production to meet demand while managing inventory levels to face typical business seasonality, ensure the product had an adequate shelf life and also not to exceed storage capacity. The stockout reached 16 percent in certain months.

“Just after implementing Opcenter APS the first improvement we identified was the time needed for short-term production planning went from two days to three hours with greater reliability.”

Jéssica Nogueira
Head of Production Planning and Scheduling
Natural One



Opcenter Planning was implemented to assist in preparing the weekly master production schedule (MPS), taking into account inventory policies and providing agility to simulate scenarios to identify the ones that provide the highest operating result and meet demand.

In addition, the planning and scheduling tools used, which were limited to spreadsheets, did not offer conditions to create and simulate scenarios. Also, all the business and operational restrictions that should be considered were in the domain of a few people and were not incorporated into the spreadsheets.

In other words, the equation that needed to be solved was quite complex: planning the production to guarantee availability of product mix to serve the market, reducing setup by exchanging packaging and avoiding stockouts. It was quite a challenge, especially relying only on spreadsheets.

Seeking a comprehensive solution

Facing this reality, the supply chain director at Natural One went to the market in search of alternatives that could guarantee a better use of the installed production capacity while increasing productivity. He identified TECMARAN, which has been working with advanced production planning and scheduling solutions for over 20 years and is a smart expert partner of Siemens Digital Industries Software, and Siemens' Opcenter™ APS software.

To formulate a solution for Natural One, it was necessary for TECMARAN and Siemens Digital Industries Software to understand the production planning process, know the operational restrictions of the industrial plant and impositions related to products and packaging and the limitations of storage capacity.

After assessing the situation by interviewing people from all departments it became evident Natural One would need a comprehensive solution to include planning and



production scheduling. The solution was designed using Opcenter Planning and Opcenter Scheduling, which are part of the Xcelerator™ portfolio, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software.

Opcenter Planning was implemented to assist in preparing the weekly master production schedule (MPS), taking into account inventory policies and providing agility to simulate scenarios to identify the ones that provide the optimal operating result and meet demand. The planning horizon is now 56 weeks and the planning department is able to create different production plans and find the one that provides the minimum loss of sales due to lack of product in stock. In addition, for each scenario created, it is also possible to evaluate the warehouse occupancy.

Opcenter Scheduling, on the other hand, was for sequencing and scheduling production in order to adequately meet the demands for products by better use of production capacity and minimizing the total



time spent on setups.

Once it has been decided which plan that was generated by Opcenter Planning should be adopted for the coming weeks, production volumes are loaded and production orders are generated in Opcenter Scheduling, respecting batch size and the product's technical list. This is done automatically and transparently using native integration between the two systems.

In Opcenter Scheduling, production is scheduled using a rule that aims to minimize setup, improve productivity and the utilization level of the filling line. The algorithm seeks to group packages and flavors

In Opcenter Scheduling, production is scheduled using a rule that aims to minimize setup, improve productivity and the utilization level of the filling line.

Solutions/Services

Opcenter APS
[siemens.com/opcenter-aps](https://www.siemens.com/opcenter-aps)

Customer's primary business

Natural One is a Brazilian company that offers a unique, 100 percent natural real-juice product that preserves the flavor of each ingredient, which is produced from fresh fruits and vegetables.
www.natone.com.br

Customer location

Sao Paulo
Brazil

Solution Provider Partner

TECMARAN
www.tecmaran.com.br

according to a preferred sequence, which is defined by the user. It can be easily parameterized to generate alternative production scenarios to make comparisons and improve decision-making.

In addition, to avoid production stops at peak production, using Opcenter Scheduling enables Natural One to better define planned stops, making production as stable as possible.

Consolidating production planning

The results obtained by Natural One with Opcenter APS are reflected in the words of Jéssica Nogueira, who is head of production planning and scheduling at Natural One:

"Just after implementing Opcenter APS the first improvement we identified was the time needed for short-term production planning went from two days to three hours with greater reliability."

In addition to operational agility, Natural One was able to create alternative scenarios for discussions in order to improve company results. It also extended the planning horizon from 30 days to up to 12 months. With this medium-term vision, it was possible to accurately predict raw material planning-based production capacity, as previously it was carried out by sales volume only.

In 2018, the stockout key performance indicator (KPI) was reduced to 13 percent while in 2019, with the tool in use, it was reduced to 6 percent. It went down to 2 percent in 2020, generating higher revenue for the company with less quantity of stock. Better combinations of flavors based on rules created by Opcenter APS are resulting in better productivity and product quality.

Siemens Digital Industries Software

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