

1. Company, Factory Profile:

1.1 Factory Profile

Bright Dairy & Food Co., Ltd started operations in 1911, and the company's core business is the development, production, and sales of dairy products. During its development and growth for over a century, Bright Dairy & Food has become the leader in China's high-end dairy industry. The company has a world-class R&D center, and utilizes advanced equipment and processes to produce fresh milk, fresh yogurt, lactic acid bacteria, room temperature milk, long shelf-life drinking yogurt, milk powder, cheese, butter, etc. Established in April 1993, Shanghai Yong'an Dairy Co., Ltd is a production subsidiary of Bright Dairy & Foods. Located in Fengxian District, Shanghai, the plant covers an area of 29,000 square meters. Currently we have 234 employees. Main equipment includes one TBA22 filling line, two TBA19 filling lines, two TT filling lines, two gable-top filling lines, one pouch filling line, one PET filling line, three cheese stick filling lines, one cheese cup filling line, and one cheese slice filling line. In 2022, our plant's total production was 37,000 tonnes.

1.2 Product and Management Organization

Our production process includes pretreatment, filling and packaging. There are five types of products: long shelf-life milk, fresh beverages, fresh milk, fresh yogurt, and cheese. Our main products are long shelf-life milk and fresh drinks. The technology for long shelf-life milk production involves the UHT sterilization of raw milk (or with other auxiliary materials added as required). It is then directly filled and stored at room temperature. For fresh beverages, raw milk (or with other auxiliary materials added as required) is pasteurized, filled, and stored refrigerated. The management structure of the plant is illustrated as follows: we have one general manager and one deputy general manager; There are six departments such as Production, Quality, Equipment, Comprehensive Management, Finance, and HR working together to ensure orderly production and high-quality product delivery.

2. Milestone on the Journey of Manufacturing Excellence

Yong'an plant's production arrangements are made according to the production orders issued by Bright Dairy & Food. Bright Dairy & Food allocates production orders to each plant based on their quality, cost, and productivity performance, with the demand for milk sources and products in each region taken into account. To improve the competitiveness and profitability of the plant, we must improve our overall performance, including quality, cost, productivity, safety and employee capability. Through SWOT analysis, we have established a comprehensive vision for the plant, which is the commitment to safety, efficiency and trustworthiness, and formulated five core strategies of: full participation, improve equipment efficiency, productivity, and delivery rate; increase improvement efforts, reduce costs, and improve profits; improve product quality, reduce complaint rates, and meet customer needs; eliminate safety accidents, and create a pleasant and safe working environment; increase training, improve work skills, and cultivate high-skilled talents. The implementation of TPM will help us realize these strategies.

Since the introduction of TPM, we have first established a TPM management committee, identified the project coordinator and the leader for each pillar, established

and implemented the six pillars of FI, AM, PM, QM, E&T, and SHE, and determined the operation mechanism of our TPM activities. TPM activities first start at the production site, which is divided into several areas, where employees in Quality, Equipment and Production departments in each area are recognized as a team. They review the performance of their respective areas together on a daily basis and take actions accordingly. Leaders for each area work together weekly with supervisors and managers to review the whole plant's performance. More and more ordinary workers are starting to care about plant performance, which facilitates performance improvements.

The Management Committee develops activity strategies, monitors activity progress, and tracks accomplishment of objectives. Through TPM activities, we have upgraded the plant management system, reduced manufacturing costs, improved competitiveness, enhanced profitability, and decided to apply for the 2024 Award for TPM Excellence.

3. Benefits Achieved

3.1 Tangible Business Results

In the past 4 years, we have established 104 improvement teams with 200 people participating in team activities. We have collected more than 490 suggestions, more than 4,600 efu tags, and benefits from improvements amounted to 16.22 million yuan. The continuous improvement in the cost has reduced our manufacturing cost by 18%. While the manufacturing cost of the products has been decreasing, the equipment efficiency has also been improving continuously. The OEE has increased from 58% to 72%, zero-failure equipment has increased from 0 to 50, and the MTBF of our equipment has increased from 19.8 to 42.1 hours. The improvement of product quality is also our constant pursuit. By reducing nonconforming products, process defects have dropped from 6539ppm to 1291ppm, and the customer complaint rate has dropped from 1.81ppm to 1.42 ppm.

3.2 Intangible Improvements

Employee capabilities and self-management skills are constantly improving. At first, all improvement team leaders were managers, whereas currently, ordinary workers on the shop floor are able to become team leaders. Through safety and environment improvement activities, the safety awareness of all employees has been enhanced, and there have been 0 safety accidents, creating an environmentally friendly and healthy working environment, improving employee satisfaction, and enhancing employee cohesion and enthusiasm.

4. Key of our Manufacturing Excellence

We have created a Loss-Cost Matrix according to the plant strategy, then broken it down into KPIs. The management committee supervises the plant's TPM activities and establishes pillars for their implementation. Employees in different departments form those pillars, where each pillar manages its relevant KPI. The goals of each department are realized by achieving those KPIs. TPM activities are then truly integrated into the daily work of each employee and closely linked to employee performance. Full employee participation is the secret to success. Through participating in various activation activities organized by the plant every year, employees attain a

sense of happiness in TPM. And by implementing internal assessment and incentive mechanisms, employees develop passion for progressing along with the plant. For activities in the future, we will focus on improving our ability to continuously respond to environmental change, enhance competitiveness, and improve the profitability of the plant. We will then continue to improve based on the TPM methodology, and eventually become a world-class dairy processing plant.

5. Achievement Record

Category	Index	Unit	BM (2020)	Actual Status (2023)	Target (2024)
S	Number of work-related accidents requiring days off work	Cases/ year	0	0	0
S	Number of work-related accidents not requiring days off work	Cases/ year	0	0	0
S	Accidents	events	0	0	0
P	Productivity for main products	Tons/person/day	0.42	0.49	0.50
P	OEE(or Overall Plant Efficiency)	%	58	71.44	72
P	O Breakdown lines	Line	15	50	55
P	MTBF	Hour	19.8	42.1	45
P	MTTR	min	40.5	22.5	21
Q	Defect rate	PPM	6539	1291	1000
Q	Customer complain rate	PPM	1.81	1.42	1.38
C	Maintenance cost	RMB/ton	233	109	105
C	Package utilization	%	98.43	98.88	98.9
C	Manufacturing costs	RMB/ton	1121	849	830
D	On time delivery	%	100	100	100
M	Employee satisfactory	Score	75	83.5	85
M	Improvement suggestions	numbers	32	196	220
E	carbon dioxide emissions	KG/ton	261.9	237.9	230