

# **Chongqing Tianyou Dairy Co.,Ltd.**

## **Plant 1**

### **Plant Profile**



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**Chongqing**  
**Zip Code: 401120**

## CONTENTS

Chapter 1 Company & Plant Profile .....	1
1.1 Company Profile .....	1
1.2 Plant Profile.....	1
1.2.1 A Brief History of the Plant.....	1
1.2.2 Manufacturing Processes .....	2
1.2.3 Plant Equipment & Products.....	3
1.2.4 Plant Organization Structure .....	4
1.2.5 Employee Overview.....	5
Chapter 2 Milestone on the Journey of Manufacturing Excellence .....	6
2.1 Plant Vision and Strategy .....	6
2.2 Plant TPM Introduction Process .....	6
Chapter 3 Benefits Achieved.....	7
3.1 Tangible Improvements in Business Results.....	7
3.2 Employee Involvement, Motivation and Other Intangible Improvements.....	7
Chapter 4 Key of our Manufacturing Excellence.....	9
Chapter 5 Business Results .....	9

## Chapter 1 Company & Plant Profile

### 1.1 Company Profile

Founded in 1931, boasts a history of **93** years, Chongqing Tianyou Dairy Co., Ltd. is a whole-industry-chain enterprise specialized in dairy products. The company is mainly involved in the processing of dairy products and dairy-related businesses. It has **four** large-scale dairy processing plants, Tianyou Animal Husbandry, sales branches, Youshenghuo Cold Chain Logistics, a city-level technology center, and a four-star hotel "Galaxy Hotel" listed as its subsidiaries. In **2022**, the operating revenue was **2,518 million yuan**, and the profit was **91.07 million yuan**.

1931: Chongqing Dairy Farm was established

1994: "Tianyou" trademark, as well as "Tianyou" brand officially launched

2002: Formed a joint venture with New Hope, reorganized, and became a joint-stock enterprise

2003: Plant 2 was completed and put into operation

2006: Plant 1 was completed and put into operation

2017: Certified by "China Quality Dairy Project"

2018: Awarded the "Most Influential Brands"

2022: Awarded the title of "Exemplary & innovative smart low-temperature dairy factory" of Chongqing City.

**2023: Won the second prize of Chongqing Science and Technology Award**

**2023: Proposed to build a new "exemplary & innovative smart dairy factory"**

### 1.2 Plant Profile

#### 1.2.1 A Brief History of the Plant

Chongqing Tianyou Dairy Co., Ltd Plant 1 is the subject of this application. Our brief history is illustrated below:

In July 2006, Plant 1 was completed and put into operation.

In May 2007, we obtained the ISO22000 certification.

In December 2009, we obtained the HACCP certification.

In December 2012, we are certified by the Environmental/Occupational Health and Safety Management System.

In April 2017, we are certified by the China Quality Dairy Project.

In June 2019, TPM was introduced.

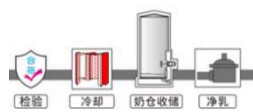
In February 2021, we are awarded the title of "Healthy Enterprise" and "National Green Factory"

**In 2023, we are applying for the Award for TPM Excellence**

### 1.2.2 Manufacturing Processes

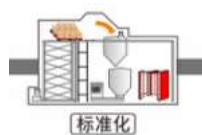
There are two main types of production lines in the plant. One is for fresh milk: processes include raw milk reception → membrane filtration → cooling & storage → preheating & homogenization → pasteurization → cooling → filling → cartoning → testing. The other one is for yogurt: processes include raw milk reception & storage → standardization → preheating, homogenization → sterilization → cooling → inoculation → fermentation → filling → cartoning → testing.

#### ■ Raw milk reception and storage



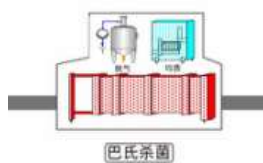
Raw milk is transported from the pastures to the plant. After the milk passed its testing, it is then filtered, cooled and stored.

#### ■ Standardization



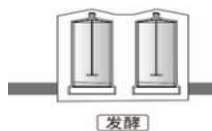
Standardize stored fresh milk as required

#### ■ Pasteurization



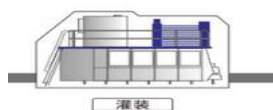
Pathogens and harmful bacteria in the raw milk are effectively killed during pasteurization,

■ Fermentation



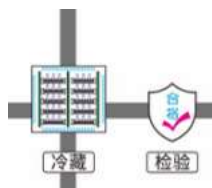
Beneficial bacteria are inoculated in fresh milk. After the lactic acid fermentation process, the substance produced is more easily absorbed by the body.

■ Filling



The sterilized milk is packed and sealed using a filling machine

■ Cartoning



Products are packed into boxes according to respective specifications and then stocked into the warehouse

### 1.2.3 Plant Equipment & Products

Chongqing Tianyou Dairy Co., Ltd. has a total of 27 production lines, with a daily production capacity of 465 tonnes. Our product type falls under low-temperature milk, which is mainly packaged in gable top cartons, paper cups, PET and glass bottles, with a total of 87 SKUs.



天友乳业——厂产品概览

鲜奶										
淳源娟姗有机鲜牛奶	淳源有机鲜牛奶	百特有机鲜牛奶	百特0脂肪鲜牛奶	家里养头奶牛鲜牛奶	天友鲜牛奶	天友高山鲜高优质牛乳	天友七天鲜牛奶	天友鲜牛奶	天友风味鲜奶(炭烧+草莓+菠萝+香芋)	
低温酸奶										
淳源有机酸牛奶	天友享味主义风味酸牛乳	天友醇糟酸奶	天友享味主义酸奶(奥利奥+谷物)	天友双果粒酸牛奶	天友老酸奶	天友燃酸奶	天友双果粒酸牛奶	天友大红枣酸牛奶	天友基础功能型酸奶	天友活性乳酸菌饮品
天友冰淇淋酸奶+浓缩发酵乳	天友芦荟酸牛奶	天友娟姗皇酸牛奶	天友嗨畅酸奶饮品	天友草莓味酸牛奶(板酸8连杯)	天友原味酸牛奶(板酸8连杯)	天友原味酸牛奶(板酸16连杯)	天友大红枣酸牛奶(板酸8连杯)	天友七种益生菌酸牛奶(板酸8连杯)		
天友到家										
淳源有机鲜牛奶	家里养头奶牛鲜牛奶	百特鲜牛奶	天友营养强化奶	天友低脂零蔗糖酸牛奶	天友鲜牛奶	天友鲜牛奶	天友鲜牛奶	天友鲜牛奶	天友鲜牛奶	天友原味酸奶

### 1.2.4 Plant Organization Structure

The plant has 8 departments including Workshop No.1, Workshop No. 2, QC Department, Equipment & Safety Department, etc..

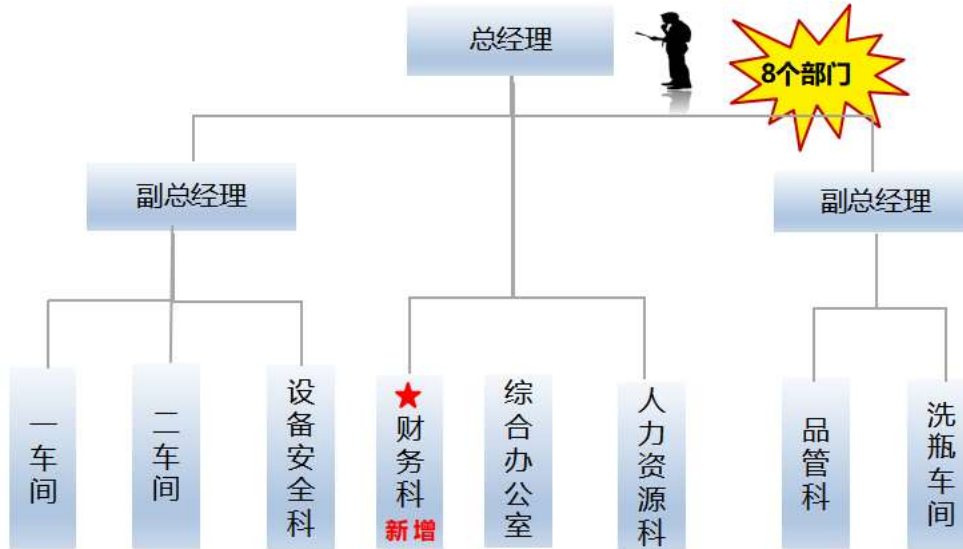


Figure: Plant Organization Structure

### 1.2.5 Employee Overview

Plant 1 has a total of **245 employees**. **56%** of which are front-line production personnels, **60%** hold a college degree or above, **85%** have more than 5 years on the job, and 54% are under the age of 40. We implement a **three-shift production model**, where one shift lasts for **8 or 12 hours**

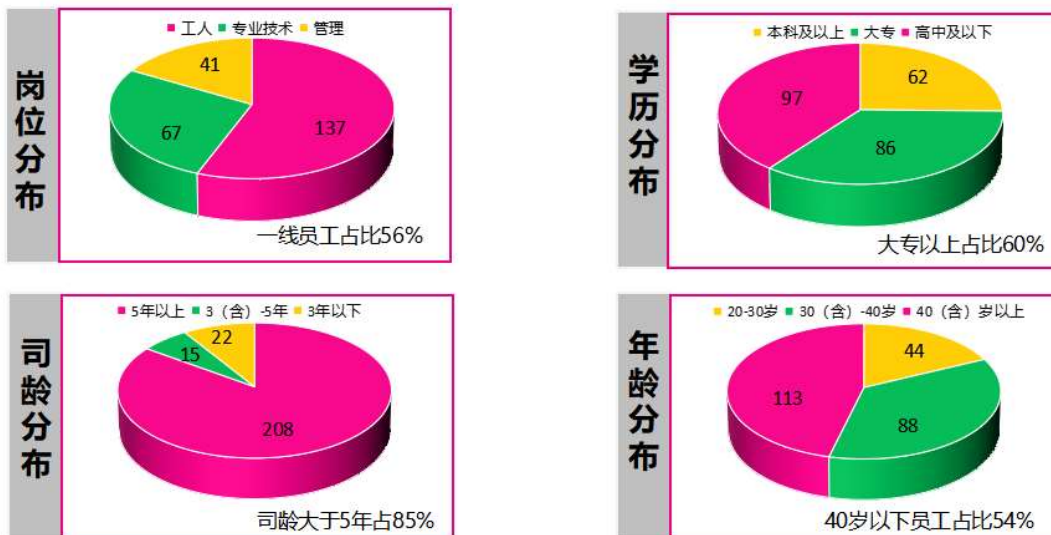


Figure: Employee Overview

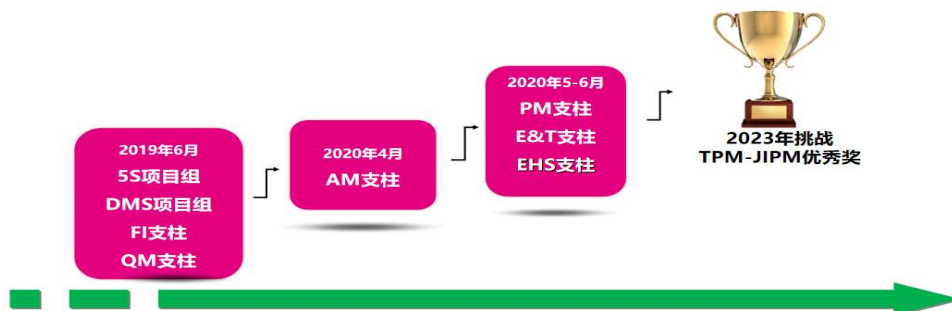
## Chapter 2 Milestone on the Journey of Manufacturing Excellence

### 2.1 Plant Vision and Strategy

According to the company's vision of "become a leading dairy enterprise that is most trustworthy and favored by consumers", we put forward the plant vision of "be the leader amongst low-temperature dairy processing plants". Based on the analysis of our current status, we formulated the four major strategies for 2019~2023, namely "high quality, solid safety, low cost and high efficiency".

### 2.2 Plant TPM Introduction Process

In 2018, we introduced some of the TPM tools and concepts, and mainly implemented team improvement activities to lay the foundation for full TPM introduction. In 2019, we officially introduced TPM, and first established the 5S and DMS project teams, and the two pillars of Focused Improvement (FI) and Quality Maintenance (QM). In 2020, we launched Planned Maintenance (PM), Autonomous Maintenance (AM), Education and Training (ET), and Environment, Health, and Safety (EHS) pillars. We planned our application for the Award for TPM Excellence (Category B) in 2023 and decided to continue challenging ourselves to JIPM awards at all levels in the future.

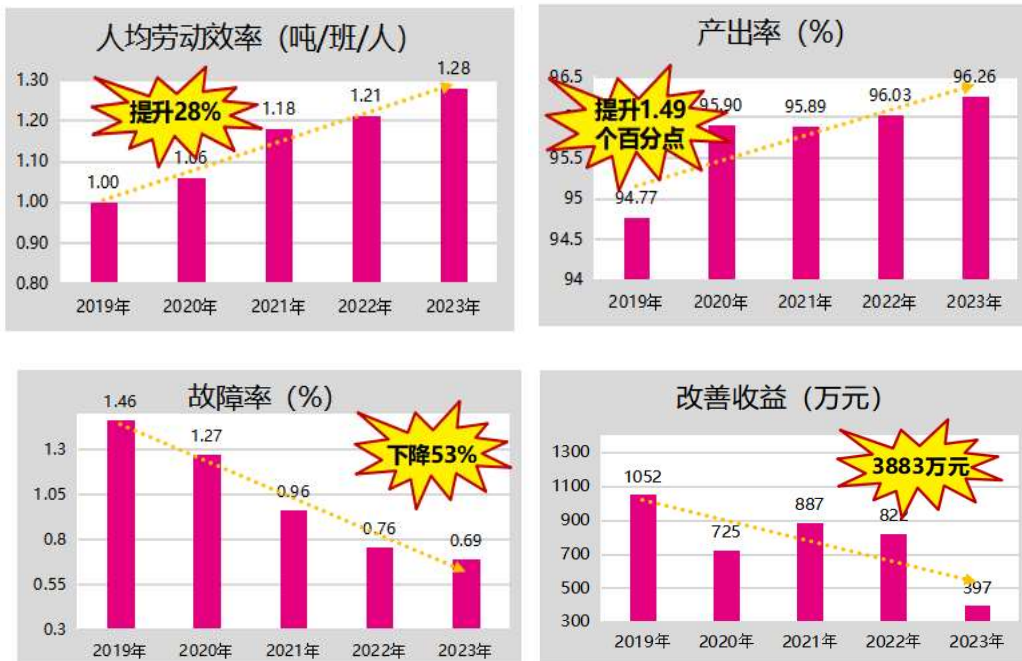




## Chapter 3 Benefits Achieved

### 3.1 Tangible Improvements in Business Results

- Labor efficiency per capita: 1.28 tonnes/shift/person in 2023, an 28% increase since 2019;
- Yield rate: 96.26% in 2023, a 1.49% increase since 2019;
- Failure rate: 0.69% in 2023, a 53% decrease since 2019;
- Benefits achieved from improvements: The total benefits since the launch of improvement activities amounts to 38.83 million yuan.



### 3.2 Employee Involvement, Motivation and Other Intangible Improvements

In the second year, we began to achieve full participation. During 2019~2023, we have implemented a total of 162 improvement teams. Through those team activities, loss was eliminated, whereas quality, equipment efficiency, and worker skills, and employee working environment were improved.



### Intangible results:

- TPM activity methodologies focus on the education and training of people. As we utilize those approaches, employees' approach to work and ability to use management tools have been improved. We have nurtured talents through those activities, and employees have also grown rapidly.
- The pillar system emphasizes a spirit of solidarity and collaboration. Facing prominent problems, we replaced our original vertical management system to the cross-departmental pillar management, greatly improving efficiency.
- Our pillars are managed through multi-departmental cooperation, where the management is oriented towards problem-solving, deepening interdepartmental communication and collaboration, and enabling better integration of resources, and better realization of full participation.
- The atmosphere formed by TPM activities is prominent, and ideas such as quality, cost, efficiency, and safety have penetrated into the subconscious minds of our employees. They have become better at discovering improvement points in the production process, thus achieving continuous improvements.
- We have effectively utilized internal resources to train all employees and helped them improve their work and performance, thus realizing the sharing and inheritance of knowledge within the plant.

## Chapter 4 Key of our Manufacturing Excellence

- TPM is valued by plant management and supported by institutionalized incentives.
- The pillar management formed by departmental cooperation has broken down barriers between departments, deepened communication, understanding and collaboration between departments, and better integrated resources to achieve full participation.
- We have been progressing our TPM activities steadily, where managers and employees have all been able to remain committed.
- systematically utilize a variety of approaches and management tools to continuously improve on all kinds of fronts and fix problems.

## Chapter 5 Business Results

### 2023 Award for TPM Excellence - Achievement Sheet

Company Name	Chongqing Tianyou Dairy Co., Ltd.
Plant Name	Chongqing Tianyou Dairy Co.,Ltd. Plant 1
Slogan/Goal	Be the leader amongst low-temperature dairy processing plants
TPM Kickoff Year	2019
Benchmark Year	2019

Category	Item (Formula)	Unit	Kickoff event/TPM Kickoff (or last awarded): 2019	Actual performance results 2023
S	Work-related accidents requiring days off work	cases/year	7	0

S	Work-related accidents not requiring days off work	cases/year	2	0
P	Productivity of main products	Total production volume/total working hours(tonne/hour )	0.125	0.16
P	OEE	%	58.76	71.41
P	Operating ratio based on time (Availiability)	%	62.02	74.19
P	Performance Rate	%	95.21	96.29
P	Quality Products Rate	%	99.51	99.9666
P	Number of breakdowns	Number of breakdowns/year	859	443
P	MTBF	h	87	93
P	MTTR	h	1.2	0.99
Q	Number of complaints (due to processes within the plant)	cases/year	310	64
Q	In-line defect rate (causing scrap)	%	0.28	0.03
Q	In-line defect rate (causing rework)	%	0.21	0.0034
C	Cost index	Tonne/yuan	7224	7009
D	Production Lead time	Day	0.81	0.64
D	Delivery performance	%	100	100
S	Safety index	Accidents per 100,000 hours	0	0
M	Number of Employee Suggestions	cases/year	81	297