

Production of Starch Sugar in China 2018–2022

The Fourth Edition

October 2023

Researched & Prepared by:

Kcomber Inc.

Copyright by Kcomber Inc.

Any publication, distribution or copying of the content in this report is prohibited.

Contents

Executive summary	1
Introduction and methodology	2
1 Overview	4
2 Hot spots of starch sugar industry in China, 2020–2022.....	5
3 Maltose syrup	9
3.1 Capacity and output of maltose syrup in China, 2018–2022.....	9
3.2 Major producers of maltose syrup in China, 2018–2022.....	9
3.3 Monthly ex-works price of maltose syrup in China, 2018–2022.....	12
4 Glucose syrup.....	14
4.1 Capacity and output of glucose syrup in China, 2018–2022.....	14
4.2 Major producers of glucose syrup in China, 2018–2022.....	14
5 High fructose corn syrup (HFCS)	18
5.1 Capacity and output of HFCS in China, 2018–2022.....	18
5.2 Major producers of HFCS in China, 2018–2022.....	18
5.3 Monthly ex-works price of HFCS in China, 2018–2022.....	22
6 Maltodextrin	23
6.1 Capacity and output of maltodextrin in China, 2018–2022.....	23
6.2 Major producers of maltodextrin in China, 2018–2022.....	23
6.3 Monthly ex-works price of maltodextrin in China, 2018–2022.....	27

LIST OF TABLES

Table 3.2-1 Production of major producers of maltose syrup in China, 2018–2022
Table 4.2-1 Production of major producers of glucose syrup in China, 2018–2022
Table 5.2-1 Production of major producers of high fructose corn syrup in China, 2018–2022
Table 6.2-1 Production of major producers of maltodextrin in China, 2018–2022

LIST OF FIGURES

Figure 3.1-1 Capacity and output of maltose syrup in China, 2018–2022
Figure 3.2-1 Share of maltose syrup capacity in China by region, 2022
Figure 3.3-1 Monthly ex-works price of 75% maltose syrup in China, 2018–2022
Figure 4.1-1 Capacity and output of glucose syrup in China, 2018–2022
Figure 5.1-1 Capacity and output of high fructose corn syrup in China, 2018–2022
Figure 5.3-1 Monthly ex-works price of high fructose corn syrup (F42 HFCS) in China, 2018–2022
Figure 6.1-1 Capacity and output of maltodextrin in China, 2018–2022
Figure 6.2-1 Share of maltodextrin capacity in China by region, 2022
Figure 6.3-1 Monthly ex-works price of maltodextrin in China, 2018–2022

Executive summary

China's starch sugar industry has seen stable growth in recent years. The capacity and output of liquid starch sugar has increased steadily during 2018–2022. In 2022, the total capacity was added up to 17,242,600 t/a from 13,398,000 t/a in 2018, seeing a CAGR of 6.51%; and the total output reached 9,374,000 tonnes, from 8,144,600 tonnes in 2018, seeing at a CAGR of 3.58%.

Growth highlights:

- China's capacity of maltose syrup increased by 23.89 % from 3,390,000 tonnes in 2018 to 4,200,000 tonnes in 2019.
- In 2018–2022, the domestic capacity of glucose syrup sustained steady growth, and rose at a CAGR of 8.91%; the output of glucose syrup jumped by 49.09% year on year to 1,731,100 tonnes in 2020.
- The capacity of high fructose corn syrup (HFCS) in China increased at a CAGR of 5.71% in 2018–2022, reaching 7,281,600 t/a in 2022.
- Slight growth in the capacity of maltodextrin in China was seen from 2018 to 2022, with a CAGR of 1.55%.

In 2020, the overall price of most starch sugar rose sharply, due to the prices of corn and other raw materials kept rising amid the COVID-19 pandemic. In 2021, relevant industries resumed production, but the overall prices of starch sugar increased from the previous year as the prices of raw materials were still at a high level. In 2022, the prices declined slightly as the downstream demand was weak.

Introduction and methodology

Introduction

This report presents the development of the starch sugar industry in China from 2018 to 2022, together with the production situation of maltose syrup, glucose syrup, high fructose corn syrup (HFCS) and maltodextrin, which are the main starch sugars across the market. It attaches importance to the following parts:

- Review of hot spots in China's starch sugar industry, 2020–2022
- Capacity and output of major starch sugars in China, 2018–2022
- Major producers and distribution of major starch sugars in China, 2018–2022
- Monthly ex-works price of major starch sugars in China, 2018–2022

Methodology and source

The report is based on data sourced by diverse methods, which are listed as follows:

- Desk research

Desk research includes access to published magazines, journals, government statistics, industry statistics, customs statistics, association seminars as well as information on the Internet. Much work has gone into the compilation and analysis of the information obtained. When necessary, information has been checked and discussed internally related to market structure and performance characteristics, such as key producers, key end users, production levels, and demand from end users.

- Telephone interview

CCM has conducted extensive telephone interviews with major participants in the industry in order to research the starch sugar market in China.

The interviewees include the following groups:

- Key producers
- Key traders
- Associations involved
- Industry experts

- Network search

CCM employs a network to contact industry participants by using B2B websites and software.

- Data processing and presentation

The data collected and compiled was variously sourced from:

- CCM's database
- Published articles from periodicals, magazines, journals and third-party databases
- Statistics from governments and international institutes
- Telephone interviews with domestic producers, joint ventures, service suppliers and government agencies
- Third-party data providers
- Customs statistics

The data has been combined and cross-checked to ensure that this report is as accurate and methodologically sound as possible. Throughout the process, a series of discussions were held within CCM to systematically analyze the data and draw appropriate conclusions.

- Unit and abbreviation

RMB: currency unit in China, also called Yuan

USD: currency unit in the US, also called US dollar

tonne: equals to metric ton in this report

t/a: tonne/annual or tonne/year

/t: per tonne

CAGR: compound annual growth rate

Table USD/CNY exchange rate, 2018–2022

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly average
2018	6.5079	6.3045	6.3352	6.2764	6.3670	6.4078	6.6157	6.8293	6.8347	6.8957	6.9670	6.9431	6.6070
2019	6.8482	6.7081	6.6957	6.7193	6.7344	6.8896	6.8716	6.8938	7.0883	7.0726	7.0437	7.0262	6.8826
2020	6.9614	6.9249	6.9811	7.0771	7.0690	7.1315	7.0710	6.9980	6.8498	6.7796	6.7050	6.5921	6.9284
2021	6.5408	6.4623	6.4754	6.5584	6.4895	6.3572	6.4709	6.4660	6.4680	6.4604	6.4192	6.3693	6.4615
2022	6.3794	6.3580	6.3014	6.3509	6.5672	6.6651	6.6863	6.7467	6.8821	7.0992	7.2081	7.1225	6.6972

Source: The People's Bank of China

1 Overview

As high-quality sweeteners, starch sugars are more widely used than the traditional sweet additive white sugar. They can be used in the food industry, and in the pharmaceutical and chemical industries, too. Starch sugars, mainly including maltose syrup, glucose syrup, high fructose corn syrup (HFCS) and maltodextrin, have seen their consumption fields expand and played an increasingly important role in the domestic market in recent years.

Starch sugar, as a strong competitor of white sugar, has the advantages of low sweetness, no side effects and low price. The largest downstream field of glucose syrup is the food industry, which accounts for about 60% of the total domestic consumption. Major downstream fields of maltose syrup and HFCS are beer and sugary beverages. Yet with people paying more attention to health, the consumption of sugar continues to decrease. Thus affected, starch sugars saw unimproved demand from downstream sectors (sugary food industry, pharmaceutical industry, etc.) in recent years, and oversupply ensued.

The starch sugar industry in China has seemingly nearly reached a plateau, developing at a relatively slow speed, which is mainly due to the policy impact (environmental protection for the corn deep processing industry, etc.), overcapacity and saturated consumption. In the past five years, some small and weak companies left the industry, but some others saw a future here and joined the competition.

But still, the challenges may push forward the development and innovation of the production and process technology, which would improve the quality, enrich the varieties, and enlarge the application of starch sugar products.

2 Hot spots of starch sugar industry in China, 2020–2022

Governmental Direction

On 17 Feb., 2020, the Customs Tariff Commission of The State Council issued a notice on the exclusion of goods under market-oriented procurement from additional tariffs against the US. Chinese enterprises can apply to the exclusion declaration system for exemption from additional tariffs on certain imported goods that are procured from the US under the market-oriented and commercial principle. Imports that are eligible for this policy include corn, wheat, soybeans, sorghum, DDGS, modified ethanol, etc.

On 22 May, 2020, the safeguard duties on the imports of sugar expired. Chinese import tariffs on out-of-quota sugar were reduced to 50%. As the costs for sugar imports dropped and were lower than the costs for domestically-made sugar, sugar imports increased significantly again. According to China Customs, China's sugar imports in 2021 were approximately 5.67 million tonnes, increasing by 7.6% year on year. In addition, the price spread between sugar and starch sugar further narrowed, as a result of the oversupply of sugar at home and abroad, as well as the rise in the prices of corn and other raw materials of starch sugar.

The Ministry of Commerce of the People's Republic of China issued the *Regulations of the People's Republic of China on Safeguard Measures* on 22 May, 2017. The safeguard measures adopted the method of imposing the safeguard tariff on the imported sugar beyond the tariff quota, and the implementation period was 3 years.

- From 22 May, 2017 to 21 May, 2018, the safeguard tariff rate was 45% (45% within the quota and 95% beyond the quota);
- From 22 May, 2018 to 21 May, 2019, the safeguard tariff rate was 40% (40% within the quota and 90% beyond the quota);
- From 22 May, 2019 to 21 May, 2020, the safeguard tariff rate was 35% (35% within the quota and 85% beyond the quota).

On 1 July, 2022, 4 national standards for starch sugars were officially effective. The standards provide a strong basis for guiding the production and sales activities of enterprises and government supervision. The 4 national standards are as follows:

- GB/T 20882.2–2021 "*Quality Requirements for Starch Sugar—Part 2: Starch Slurry (Powder)*"
- GB/T 20882.3–2021 "*Quality Requirements for Starch Sugar—Part 3: Crystalline Fructose and Solid Fructose-Glucose*"
- GB/T 20882.4–2021 "*Quality Requirements for Starch Sugar—Part 4: Fructose*"
- GB/T 20882.6–2021 "*Quality Requirements for Starch Sugar—Part 6: Maltodextrin*"

Market Dynamics

On 29 May, 2020, Global Sweeteners Holdings Limited issued a statement to update the status of production suspension for its subsidiaries.

According to the announcement,

- For upstream business, the company decided to suspend the production of Jinzhou Yuancheng Biochemical Technology Co., Ltd. (Jinzhou Yuancheng), due to significantly decreasing prices of upstream products caused by COVID-19 and the government's intention to increase food reserves.
- For downstream business, the suspension of upstream operations of Changchun Dacheng Biotechnology Development Co., Ltd. and Jinzhou Yuancheng led to the interruption of corn starch supply, resulting in a shortage of raw materials for downstream production. Besides, northeastern China's sweetener market continued to be depressed from Q1 2020. In order to be cost-effective, the company decided to continue to suspend downstream operations of Changchun Dihao Foodstuff Development Co., Ltd. and Jinzhou Dacheng Food Development Co., Ltd.

As of 31 Dec., 2022, the facilities of these companies have not resumed operations.

On 12 June, 2020, Cargill Bio-Chemical Co., Ltd. announced that its 2 million t/a corn intensive-processing project was put into trial operation. With a total investment of USD288.67 million (RMB2 billion), this project started construction in April 2018 and was planned to develop an ability to produce 300,000 t/a corn starch, 300,000 t/a high fructose corn syrup (HFCS), 200,000 t/a high-maltose syrup, 200,000 t/a sugar alcohol and 60,000 t/a spray-dried products.

On 17 June, 2021, the environmental impact (EI) report of the Henan Jinyufeng Biotechnology Co., Ltd. (Henan Jinyufeng)'s "Big Health Bio-Industrial Park Project (Phase I)" was approved by the local department. The project has an estimated investment of USD284.77 million (RMB1.84 billion) and takes up an area of 436,192 m². Once completed, it will have the capacity to process 1.8 million t/a of corn and produce 920,000 t/a of corn starch, 100,000 t/a of corn germ oil, 200,000 t/a of HFCS and 200,000 t/a of maltose syrup. As of Dec. 2022, the project was still under construction and it is expected to be completed and put into production in H2 2023.

Henan Jinyufeng, established in Nov. 2019, is a subsidiary of Yufeng Industry Group Co., Ltd. It mainly produces and sells corn deep-processing products such as corn starch, corn oil, starch sugar, sorbitol, amino acids, etc.

On 22 April, 2021, COFCO Biochemical (Ma'anshan) Co., Ltd. (Ma'anshan COFCO) announced that its 480 t/d F55 HFCS project was completed and passed the environmental inspection. Ma'anshan COFCO used USD19.31 million (RMB124.77 million) to build a new 144,000 t/a HFCS production line, covering an area of 118,000 m². The construction started in June 2020. Then in July 2021, the production line was put into operation.

On 28 Aug., 2021, COFCO Biochemical Energy (Hengshui) Co., Ltd. (Hengshui COFCO)'s 480 t/d HFCS expansion project passed the environmental inspection. This USD45.53 million (RMB294.21 million) project added new capacities of 144,000 t/a of HFCS and 24,000 t/a of maltose syrup. The construction started in March 2020 and the commissioning of equipment began in May 2021.

Both Ma'anshan COFCO and Hengshui COFCO are subsidiaries of COFCO Limited (COFCO), and they were established in Sept. 1999 and July 2006, respectively.

On 3 Nov., 2021, Shandong Dazecheng Biotechnology Co., Ltd.'s 1 million t/a corn deep processing project (Phase I) entered production. The total investment of the project is USD309.5 million (RMB2.0 billion), of which USD10.75 million (RMB69.48 million) is invested in environmental protection. The main construction contents are: build a 705,000 t/a corn starch production line, a 200,000 t/a high maltose syrup production line, an 80,000 t/a HFCS production line and supporting facilities.

On 5 Sept., 2022, Zhejiang Huakang Pharmaceutical Co., Ltd. (Zhejiang Huakang, stock code: 605077.SH) announced that it planned to raise no more than USD147.82 million (RMB990 million) through the public issuance of convertible bonds, which will be used to invest in its 1 million t/a corn deep-processing health food ingredients project. The total investment of this project is USD370.30 million (RMB2.48 billion).

According to the announcement, the project mainly uses corn as the raw material. While expanding the company's existing production capacity, it will gradually build new production lines for maltose syrup, glucose syrup, mannitol, polydextrose, food-use modified starch, etc., to produce a wide range of health food ingredient products covering functional sugar alcohols,

starch sugar and dietary fiber.

Zhejiang Huakang, mainly engaged in R&D, production and sale of functional sugar alcohols and starch sugar products, is one of the world's leading manufacturers of xylitol, crystalline sorbitol and crystalline maltitol.

On 20 Dec., 2022, Guangzhou Shuangqiao Co., Ltd.'s 1 million t/a starch sugar products project (Phase I) started trial production. According to the EI report, the project is intended to be built over two phases with a total investment of USD134.38 million (RMB900 million). The production capacity of the project is as below:

- Phase I: starch sugar capacity will reach 600,000 t/a (100,000 t/a maltose syrup for beer, 200,000 t/a glucose syrup and 300,000 t/a HFCS);
- Phase II: starch sugar capacity will reach 1 million t/a (100,000 t/a maltose syrup for beer, 200,000 t/a glucose syrup and 700,000 t/a HFCS).

Company Development

On 25 Aug., 2020, the EI report of Inner Mongolia Jinhe Starch Co., Ltd. (Jinhe Starch)'s 150,000 t/a liquid sugar production line technology upgrading project was approved by the Hohhot Municipal Ecology and Environment Bureau. The total investment of the project is USD5.83 million (RMB40.39 million), 31.31% of which, about USD1.83 million (RMB12.65 million), is for environmental protection purposes. This project is planned to build a production line with a capacity of 150,000 t/a of liquid glucose.

Jinhe Starch, a wholly-owned subsidiary of Jinhe Biotechnology Co., Ltd. (Jinhe Biotechnology Stock code: 002688.SZ), was established in Feb. 2003 with a registered capital of RMB190 million. The business of Jinhe Biotechnology includes animal health products, environmental sewage treatment and corn processing; and Jinhe Starch is mainly engaged in the corn processing business.

On 29 Dec., 2020, Weifang Shengtai Medicine Co., Ltd. (Weifang Shengtai)'s technical renovation project of corn starch production line was publicized for environmental protection acceptance. With an investment of USD12.12 million (RMB83.95 million), the project started trial production in Sept. 2020. After technical renovation, the final production capacity of the whole project would reach 500,000 t/a of starch (including 450,000 t/a edible corn starch, 25,000 t/a medical corn starch, 25,000 t/a medical dextrin) and 183,400 t/a of by-products.

Weifang Shengtai was founded in Feb. 2004 by the American company Shengtai Holding Inc., with a registered capital of USD15 million. The business scope of the company covers active pharmaceutical ingredients (glucose, anhydrous glucose, oral glucose), pharmaceutical excipients (corn starch, dextrin, soluble starch); starch sugar (glucose, glucose syrup, dextrose monohydrate, edible solid glucose), by-products (corn germ, corn gluten meal, corn germ meal), etc.

On 11 June, 2021, Luzhou Bio-chem Technology (Shaanxi) Co., Ltd., a subsidiary of Luzhou Bio-chem Technology Co., Ltd. (Luzhou Bio-chem), completed the acceptance of the project that was designed to upgrade the starch and fructose workshops to increase production capacity and energy efficiency. The construction of the project began in Dec. 2020. In May 2021, it was completed and entered the trial run phase. The total investment of the project is USD2.02 million (RMB13.06 million). After the completion of the project, the starch capacity increased by 80,000 t/a to 200,000 t/a and the fructose capacity was up by 100,000 t/a to 180,000 t/a.

In Aug. 2021, Shandong Fukuan Biological Engineering Co., Ltd. completed the acceptance of corn deep processing and matching industrial upgrading project. This project used the

existing plant to upgrade and transform the two production lines for starch and starch sugar and the sewage treatment station. The total investment of the project is USD14.32 million (RMB92.5 million). Workshops planned to be retrofitted totals an area of 16,876 m². After the completion of the transformation, the corn processing capacity reached 900,000 t/a; and the production capacity of corn starch and F55 HFCS reached 581,600 t/a and 138,600 t/a, respectively.

On 31 Dec., 2021, Zhaoqing Huanfa Bio-technology Co., Ltd.'s 50,000 t/a liquid sorbitol, 20,000 t/a modified starch, and 10,000 t/a HFCS (sucrose hydrolysis), 10,000 t/a crystalline mannitol, 20,000 t/a crystalline sorbitol and 100,000 t/a rice starch slurry expansion project completed environmental inspection.

On 4 Nov., 2022, the EI report of Mengzhou Golden Corn Co., Ltd.'s 200,000 t/a starch sugar (including functional starch sugar) production line expansion project was approved by the Jiaozuo Municipal Ecology and Environment Bureau. According to the EI report, the project investment is USD158.27 million (RMB1.06 billion) and the main construction is as follows:

- Build a production line for 30,000 t/a glucose syrup and 30,000 t/a high maltose syrup;
- Build a production line for 50,000 t/a functional oligosaccharides and differentiated syrups (ultra-high maltose syrup);
- Build a production line for 50,000 t/a functional fermented products (including trehalose, erythritol, crystalline maltose and dietary fiber);
- Build a production line for 40,000 t/a fat powder.

Import and Export Hindrance

On 9 Sept., 2020, Indonesia imposed a three-year safeguard tax on imports of fructose syrup starting from 17 Sept., 2020, as follows: 24% from 17 Sept., 2020 to 16 Sept., 2021; 22% from 17 Sept., 2021 to 16 Sept., 2022; 20% from 17 Sept., 2022 to 16 Sept., 2023. The Indonesian tax number of the products involved in the case is 1702.60.20. However, not all imported fructose syrup is subject to this measure. HFCS imports from the Chinese mainland are affected; while products imported from the special administrative regions of China, Hong Kong and Macao, are not subject to the above safeguard measures.

In 2020, Indonesia was China's second-largest export destination for HFCS, but in 2021 and 2022, its ranking dropped to the fourth and the fifth. In 2020–2022, the export volumes of HFCS (HS code: 17026000, fructose and fructose syrup, fructose > 50%) from China to Indonesia were 49,459 tonnes, 3,745 tonnes and 4,697 tonnes, accounting for 26.14%, 7.45% and 2.94% of the total, respectively.

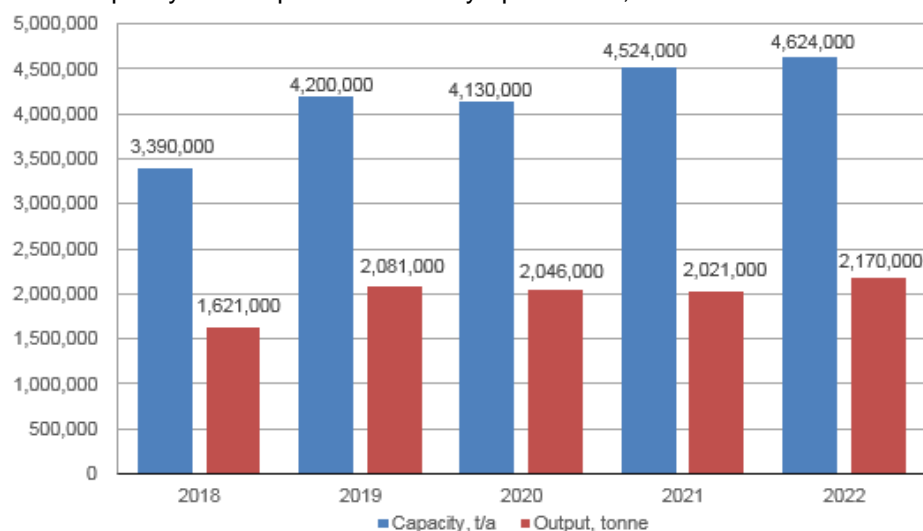
3 Maltose syrup

3.1 Capacity and output of maltose syrup in China, 2018–2022

With the completion of expansion projects of manufacturers and the joining of new players, the capacity of maltose syrup in China jumped by 23.89% year on year to 4,200,000 t/a in 2019. From 2020 to 2022, the overall domestic capacity continued to increase. It is worth noting that the capacity in 2021 increased by 9.54% year on year to 4,524,000 t/a, mainly due to two new players Shandong Dazecheng Biotechnology Co., Ltd. (Shandong Dazecheng) and Yufeng Industry Group Co., Ltd. (Yufeng Industry Group) entered this industry; and in 2022, the maltose syrup capacity increased by 2.21% year on year to 4,624,000 t/a.

Demand for maltose syrup has been increasing since 2017 due to the huge price spread between white sugar and starch sugar. From 2017 to 2019, the compound annual growth rate (CAGR) of maltose syrup output was 18.70% and the output in 2019 increased rapidly to 2,081,000 tonnes. However, after a period of substitution, the overall prices of starch sugar increased, and the demand growth for starch sugar also slowed down. In 2020–2021, the output of maltose syrup in China saw a slight decline, mainly linked to COVID-19; but in 2022, the output increased to 2,170,000 tonnes, driven by the growth in downstream demand.

Figure 3.1-1 Capacity and output of maltose syrup in China, 2018–2022



Source: CCM

3.2 Major producers of maltose syrup in China, 2018–2022

In 2022, there were over 20 active producers of maltose syrup in China, and the overall operating rate of maltose syrup increased from 44.67% in 2021 to 46.93% due to the recovery in demand.

Shandong Zhonggu Starch Sugar Co., Ltd. was the largest maltose syrup producer in 2022 with a capacity of 650,000 t/a. The second largest producer was Zhucheng Xingmao Corn Developing Co., Ltd. (Zhucheng Xingmao), whose total capacity of maltose syrup reached 490,000 t/a; Zhucheng Xingmao's subsidiaries, Yishui Dadi Corn Development Co., Ltd., Heilongjiang Haotian Corn Development Co., Ltd. and Tongliao Zhongyuan Biological Development Co., Ltd., are engaged in the maltose syrup production.

Shandong Bigtree Dreyfus Special Meals Food Co., Ltd., a new but major player (in terms of capacity), had set up 250,000 t/a new production lines of maltose syrup and put them into production in 2019. Another newcomer, Shandong Hengren Industry and Trade Co., Ltd., put

its 200,000 t/a maltose syrup facilities into commercial use in 2019.

Cargill Bio-Chemical Co., Ltd. (Cargill Bio-Chemical)'s 2 million t/a corn intensive-processing project began commissioning in June 2020, adding a maltose syrup capacity of 200,000 t/a.

Shandong Dazecheng's 1 million t/a corn processing project was completed and put into operation in Nov. 2021, adding a new capacity of 200,000 t/a of maltose syrup. Also in 2021, Yufeng Industry Group's 100,000 t/a maltose syrup production line was finished.

In Dec. 2022, Guangzhou Shuangqiao Co., Ltd. (Guangzhou Shuangqiao) completed its new construction of 100,000 t/a maltose syrup, raising its total capacity of maltose syrup to 200,000 t/a.

Table 3.2-1 Production of major producers of maltose syrup in China, 2018–2022

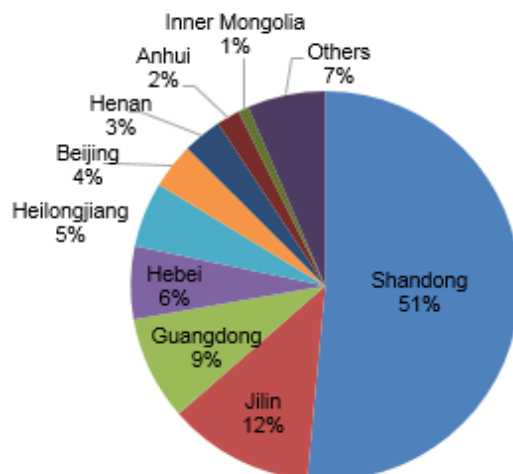
No.	Producer	Abbreviation	Location	Status, 2022	Capacity, t/a					Output, tonne				
					2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
1	Shandong Zhonggu Starch Sugar Co., Ltd.	Shandong Zhonggu	Shandong	Active	650,000	650,000	650,000	650,000	650,000	405,000	398,000	406,000	392,000	256,000
2	Zhucheng Xingmao Corn Developing Co., Ltd.	Zhucheng Xingmao	Heilongjiang /Shandong/ Inner Mongolia	Active	490,000	490,000	420,000	420,000	320,000	200,000	184,000	188,000	192,000	166,000
3	Global Sweeteners Holdings Limited	Global Sweeteners	Jilin	Active	360,000	360,000	360,000	360,000	360,000	20,000	52,000	23,000	35,000	60,000
4	Luzhou Bio-chem Technology Co., Ltd.	Luzhou Bio-chem	Shandong	Active	250,000	250,000	250,000	250,000	330,000	164,000	155,000	172,000	175,000	165,000
5	Weifang Shengtai Medicine Co., Ltd.	Weifang Shengtai	Shandong	Active	250,000	250,000	250,000	250,000	250,000	82,000	98,000	120,000	120,000	130,000
6	Shandong Bigtree Dreyfus Special Meals Food Co., Ltd.	Shandong Bigtree	Shandong	Active	250,000	250,000	250,000	250,000	/	80,000	82,000	95,000	60,000	/
7	Guangzhou Shuangqiao Co., Ltd.	Guangzhou Shuangqiao	Guangdong	Active	200,000	100,000	100,000	100,000	100,000	132,000	75,000	83,000	82,000	75,000
8	Zhaoqing Huanfa Bio-technology Co., Ltd.	Zhaoqing Huanfa	Guangdong	Active	200,000	200,000	200,000	200,000	200,000	110,000	100,000	120,000	120,000	120,000
9	Shandong Hengren Industry and Trade Co., Ltd.	Shandong Hengren	Shandong	Active	200,000	200,000	200,000	200,000	/	95,000	108,000	129,000	85,000	/
10	Cargill Bio-Chemical Co., Ltd.	Cargill Bio-Chemical	Jilin	Active	200,000	200,000	200,000	/	/	85,000	80,000	50,000	/	/
11	Shandong Dazecheng Biotechnology Co., Ltd.	Dazecheng Biotech	Shandong	Active	200,000	200,000	/	/	/	55,000	20,000	/	/	/
12	Hebei Derui Starch Co., Ltd.	Hebei Derui	Hebei	Active	180,000	180,000	180,000	180,000	60,000	93,000	75,000	80,000	100,000	30,000
13	China Agri-Industries Holdings Limited	China Agri-Industries	Beijing	Active	174,000	174,000	150,000	150,000	100,000	106,000	95,000	80,000	75,000	55,000
14	Zhucheng Dongxiao Biotechnology Co., Ltd.	Zhucheng Dongxiao	Shandong	Active	170,000	170,000	170,000	170,000	100,000	88,000	75,000	85,000	85,000	60,000
15	Qingyuan Foods Co., Ltd.	Qingyuan Foodstuff	Shandong	Active	150,000	150,000	150,000	150,000	150,000	72,000	74,000	90,000	90,000	80,000
16	Henan Feitian Agricultural Development Co., Ltd.	Henan Feitian	Henan	Active	100,000	100,000	100,000	100,000	100,000	45,000	43,000	55,000	55,000	60,000
17	Yufeng Industry Group Co., Ltd.	Yufeng Industry Group	Hebei	Active	100,000	100,000	/	/	/	75,000	50,000	/	/	/
18	Hefei Jintai Sugar Co., Ltd.	Hefei Jintai	Anhui	Active	90,000	90,000	90,000	90,000	90,000	40,000	42,000	45,000	45,000	45,000
19	Qingzhou Huakang Biotechnology Co., Ltd.	Huakang Biotechnology	Shandong	Active	60,000	60,000	60,000	60,000	60,000	31,000	30,000	33,000	32,000	35,000
20	Mengzhou Golden Corn Co., Ltd.	Mengzhou Golden Corn	Henan	Active	50,000	50,000	50,000	50,000	50,000	42,000	35,000	42,000	45,000	38,000
Others					300,000	300,000	300,000	570,000	470,000	150,000	150,000	150,000	293,000	246,000
Total					4,624,000	4,524,000	4,130,000	4,200,000	3,390,000	2,170,000	2,021,000	2,046,000	2,081,000	1,621,000

Note: The capacity of Global Sweeteners contains the capacity of glucose syrup and maltose syrup, but the output only refers to maltose syrup.

Source: CCM

In 2022, Shandong is the leading province in maltose syrup production, whose capacity accounted for 51% of the total in China; this is mainly because producers in Shandong Province can save on transportation costs of the raw material corn as Shandong is a main corn-producing area in China. The capacity of maltose syrup in Jilin Province accounted for 12% of the total, for Global Sweeteners Holdings Limited (Global Sweeteners) and Cargill Bio-Chemical are located there.

Figure 3.2-1 Share of maltose syrup capacity in China by region, 2022



Source: CCM

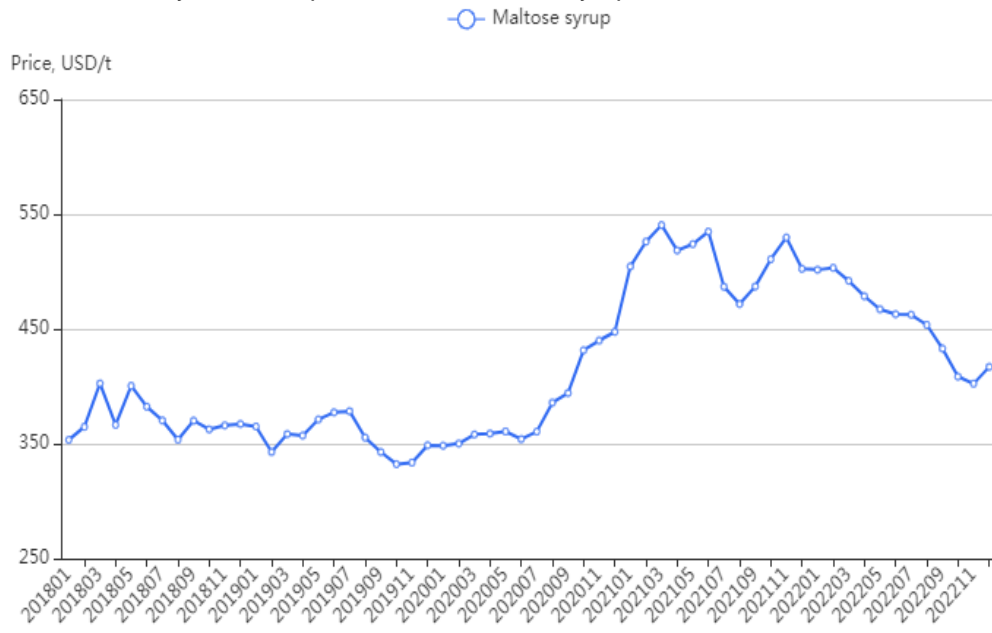
3.3 Monthly ex-works price of maltose syrup in China, 2018–2022

In Q1 2018, the price of maltose syrup in China kept growing due to increased demand, rising to USD402.51/t in March 2018. From April 2018 to June 2020, the price hovered between USD332/t and USD401/t.

From July 2020 to March 2021, affected by the continuous rise in the price of the raw material corn, the price of maltose syrup had been on the rise, peaking at USD540.51/t in March 2021. In Aug. 2021, the price fell to USD471.70/t as the corn harvest season started and supply increased.

Supported by high raw material costs, the maltose syrup price in Q1 2022 was maintained at about USD500/t. But as corn prices began to fall, the price of maltose syrup gradually declined, falling to USD402.33/t in Nov. 2022.

Figure 3.3-1 Monthly ex-works price of 75% maltose syrup in China, 2018–2022



Source: CCM

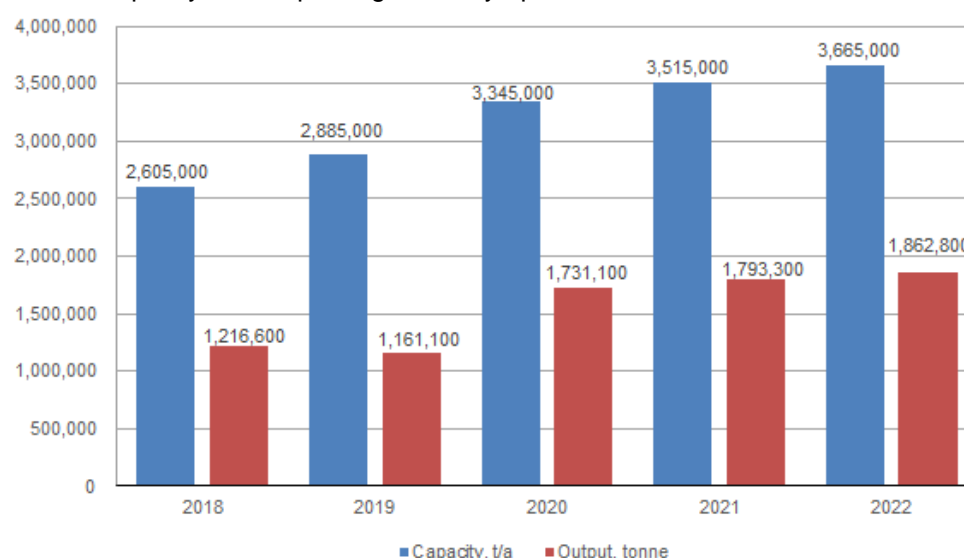
4 Glucose syrup

4.1 Capacity and output of glucose syrup in China, 2018–2022

From 2018 to 2022, China's glucose syrup capacity was on the rise, increasing from 2,605,000 t/a in 2018 to 3,665,000 t/a in 2022, with a CAGR of 8.91%. In 2021–2022, the average operating rate was maintained between 50% and 52%. During this period, the increase in both capacity and output of glucose syrup was relatively stable.

The output of glucose syrup in 2018–2019 was around 1.2 million tonnes. But then the figure increased significantly to 1,731,100 tonnes in 2020, up 49.09% year on year, mainly driven by the growth in downstream demand. From 2021 to 2022, the output of glucose syrup grew steadily, increasing by 3.59% and 3.88%, respectively.

Figure 4.1-1 Capacity and output of glucose syrup in China, 2018–2022



Source: CCM

4.2 Major producers of glucose syrup in China, 2018–2022

In 2022, there were over 16 active producers of glucose syrup in China, and the top three manufacturers were Guangzhou Shuangqiao, Xiwang Group Co., Ltd. and Global Sweeteners, with a capacity of 1,000,000 t/a, 800,000 t/a and 360,000 t/a, respectively.

Hebei Derui Starch Co., Ltd.'s 180,000 t/a glucose syrup project and Zhucheng Xingmao's 100,000 t/a glucose syrup production project in Heilongjiang Province passed environmental inspection in June 2019 and Nov. 2019, respectively. Zhucheng Dongxiao Biotechnology Co., Ltd. (Dongxiao Biotechnology) completed the starch sugar technology upgrading and transformation project in Nov. 2019, increasing its capacity of glucose syrup to 220,000 t/a.

Guangzhou Shuangqiao has 4 production bases located in Guangdong, Hubei, Chongqing and Fujian. In 2020–2022, Guangzhou Shuangqiao's factories in Fujian, Chongqing and Guangdong successively added new glucose syrup production capacity, bringing the total capacity to 1,000,000 t/a in 2022.

In addition, Yufeng Industry Group completed its 50,000 t/a and 20,000 t/a glucose syrup production lines in 2021 and 2022, respectively. In 2022, four manufacturers, Guangzhou Shuangqiao, Cargill Food Technology Co., Ltd.

(Cargill Food Technology), Zhaoqing Huanfa Bio-technology Co., Ltd. and Luzhou Bio-chem Technology Co., Ltd. (Luzhou Bio-chem), had glucose syrup operating rates of more than 65%.

Table 4.2-1 Production of major producers of glucose syrup in China, 2018–2022

No.	Producer	Abbreviation	Location	Status, 2022	Capacity, t/a					Output, tonne				
					2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
1	Guangzhou Shuangqiao Co., Ltd.	Guangzhou Shuangqiao	Guangdong /Hubei/Chongqing /Fujian	Active	1,000,000	870,000	750,000	450,000	450,000	690,000	620,000	530,000	300,000	300,000
2	Xiwang Group Co., Ltd.	Xiwang Group	Shandong	Active	800,000	800,000	800,000	800,000	800,000	320,000	300,000	390,000	270,000	312,800
3	Global Sweeteners Holdings Limited	Global Sweeteners	Jilin	Active	360,000	360,000	360,000	360,000	360,000	18,000	34,000	28,000	43,000	71,000
4	Cargill Food Technology Co., Ltd.	Cargill Food Technology	Henan/Zhejiang/Jilin	Active	300,000	300,000	300,000	300,000	300,000	219,000	229,000	225,000	185,000	200,000
5	Zhucheng Dongxiao Biotechnology Co., Ltd.	Zhucheng Dongxiao	Shandong	Active	220,000	220,000	220,000	/	/	115,000	110,000	74,000	/	/
6	Hebei Derui Starch Co., Ltd.	Hebei Derui	Hebei	Active	180,000	180,000	180,000	180,000	/	75,000	69,000	52,000	22,000	/
7	Zhucheng Xingmao Corn Developing Co., Ltd.	Zhucheng Xingmao	Heilongjiang/Inner Mongolia	Active	140,000	140,000	140,000	140,000	40,000	52,000	49,000	44,000	14,000	12,000
8	Zhaoqing Huanfa Biotechnology Co., Ltd.	Zhaoqing Huanfa	Guangdong	Active	100,000	100,000	100,000	100,000	100,000	84,000	88,000	85,000	50,000	50,000
9	Qingyuan Foods Co., Ltd.	Qingyuan Foodstuff	Shandong	Active	100,000	100,000	100,000	100,000	100,000	33,000	34,000	36,000	30,000	22,000
10	Luzhou Bio-chem Technology Co., Ltd.	Luzhou Bio-chem	Shandong	Active	90,000	90,000	90,000	90,000	90,000	74,000	75,000	78,000	80,000	85,000
11	COFCO Bio-chemical Energy (Yushu) Co., Ltd.	COFCO Bio-chemical Energy (Yushu)	Jilin	Active	90,000	90,000	90,000	90,000	90,000	42,000	40,000	39,000	32,000	24,000
12	Yufeng Industry Group Co., Ltd.	Yufeng Industry Group	Hebei	Active	70,000	50,000	/	/	/	32,000	20,000	/	/	/
13	Weifang Shengtai Medicine Co., Ltd.	Weifang Shengtai	Shandong	Active	60,000	60,000	60,000	60,000	60,000	34,000	39,000	50,000	35,000	30,000
14	Qinhuangdao Pengyuan Starch Co., Ltd.	Qinhuangdao Pengyuan	Hebei	Active	50,000	50,000	50,000	50,000	50,000	20,000	21,000	24,000	19,000	16,000

15	Hefei Jintai Sugar Co., Ltd.	Hefei Jintai	Anhui	Active	50,000	50,000	50,000	50,000	50,000	25,000	27,000	35,000	25,100	25,000
16	Shijiazhuang Huiyuan Starch Co., Ltd.	Shijiazhuang Huiyuan	Hebei	Active	40,000	40,000	40,000	40,000	40,000	19,000	24,000	29,000	20,000	20,000
Others					15,000	15,000	15,000	75,000	75,000	10,800	14,300	12,100	36,000	48,800
Total					3,665,000	3,515,000	3,345,000	2,885,000	2,605,000	1,862,800	1,793,300	1,731,100	1,161,100	1,216,600

*Note: The capacity of Global Sweeteners contains the capacity of glucose syrup and maltose syrup, but the output only refers to glucose syrup.
Source: CCM*

5 High fructose corn syrup (HFCS)

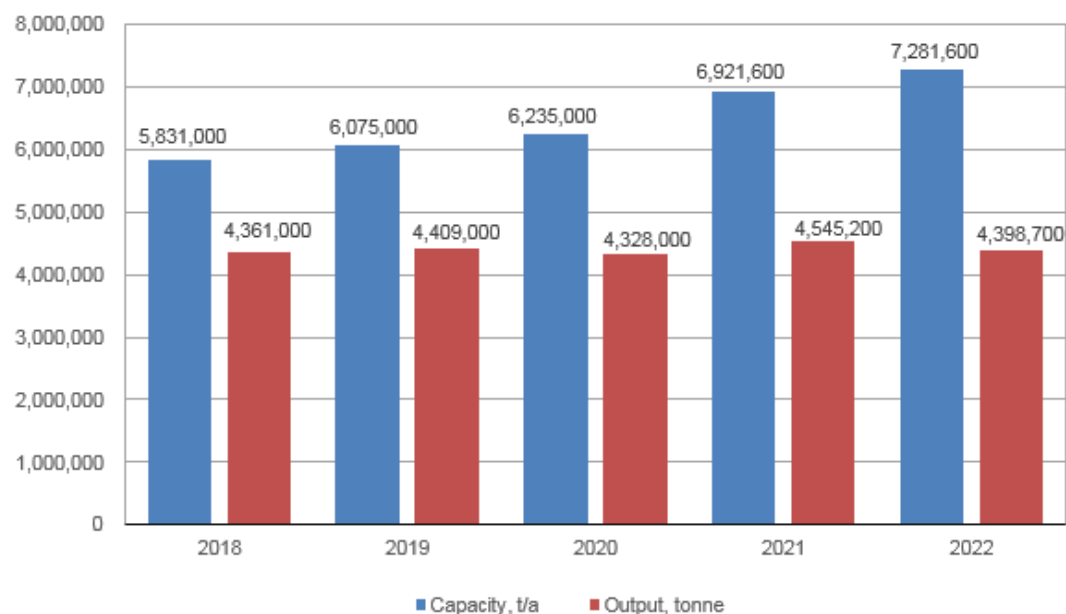
5.1 Capacity and output of HFCS in China, 2018–2022

From 2018 to 2022, China's high fructose corn syrup (HFCS) capacity grew steadily at a CAGR of 5.71%, reaching 7,281,600 t/a in 2022. In 2021, China's HFCS production capacity rose by about 11% year on year, mainly due to the increased HFCS capacities of COFCO Limited (COFCO), Guangzhou Shuangqiao, Luzhou Bio-chem and Yihai Kerry Group Co., Ltd. (Yihai Kerry). In 2021–2022, some small companies withdrew from the HFCS industry amid the economic downturn and fierce market competition, leading to a further increase in the industry concentration.

Driven by the downstream demand for HFCS from industries including beverages, liquid nutrition, dairy products, honey and canned products, the output of HFCS rose to 4,361,000 tonnes in 2018. In 2019, the demand growth slowed down and the output only edged up by 1.10% year on year to 4,409,000 tonnes.

In 2020, the downstream demand weakened due to the COVID-19 pandemic, resulting in a decline in HFCS production. This situation improved in 2021, leading to an increase in production. In 2022, affected by the pandemic and the global economic downturn, domestic downstream demand was weak. Although export demand improved, the domestic production of HFCS still showed a downward trend. In addition, due to the incomplete release of new capacity, the average operating rate in 2022 dropped from 69% in 2020 to about 60%.

Figure 5.1-1 Capacity and output of high fructose corn syrup in China, 2018–2022



Source: CCM

5.2 Major producers of HFCS in China, 2018–2022

In 2022, there were 17 major active producers of HFCS with a capacity of over 100,000 t/a in China, and the top five HFCS producers accounted for nearly 60% of the market share in China.

COFCO kept its position as the biggest HFCS manufacturer in China during 2021–2022. COFCO's capacity expansions in Hubei, Hebei and Anhui provinces were completed and put

into operation in April 2019, May 2021 and July 2021, respectively.

Guangzhou Shuangqiao completed its 80,000 t/a HFCS expansion project in Chongqing Municipality in 2021. Its 200,000 t/a HFCS expansion project in Hubei Province finished the construction work in 2021 and completed environmental acceptance in 2022. Moreover, its 1 million t/a sugar starch products project (phase I, including 300,000 t/a HFCS) in Guangdong Province was completed in late 2022, making it the second-largest HFCS manufacturer in China.

In addition, Luzhou Bio-chem's 100,000 t/a HFCS expansion project in Shaanxi Province was put into operation in May 2021; Yihai Kerry also finished the 150,000 t/a HFCS project in Liaoning in 2021. In 2020, Cargill Bio-Chemical, a subsidiary of Cargill Food Technology, expanded its capacity of HFCS from 120,000 t/a to 300,000 t/a in July 2020, increasing Cargill Food Technology's total HFCS capacity from 761,000 t/a to 941,000 t/a.

To gain more market shares, Baolingbao Biology Co., Ltd. finished the 100,000 t/a HFCS project in Dec. 2019, expanding its capacity from 300,000 t/a to 400,000 t/a. Yufeng Industry Group set up 400,000 t/a new production lines of HFCS in 2018.

Table 5.2-1 Production of major producers of high fructose corn syrup in China, 2018–2022

No.	Producer	Abbreviation	Location	Specification	Status, 2022	Capacity, t/a					Output, tonne				
						2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
1	COFCO Limited	COFCO	Hebei/Hubei /Shanghai/Jilin /Sichuan/Anhui	F42, F55	Active	1,132,000	1,132,000	844,000	844,000	700,000	738,000	808,000	692,000	634,000	576,000
2	Guangzhou Shuangqiao Co., Ltd.	Guangzhou Shuangqiao	Guangdong /Hubei/hongqing /Fujian	F42, F55	Active	1,000,000	600,000	520,000	520,000	520,000	696,000	439,000	446,000	390,000	389,000
3	Cargill Food Technology Co., Ltd.	Cargill Food Technology	Henan/Tianjing /Jilin/Zhejiang	F42, F55	Active	941,000	941,000	941,000	761,000	761,000	539,000	561,000	525,000	576,000	591,000
4	Scents Holdings Company Limited	Scents Limited	Shandong	F55	Active	450,000	450,000	450,000	450,000	450,000	420,000	445,000	440,000	430,000	445,000
5	Yufeng Industry Group Co., Ltd.	Yufeng Industry Group	Hebei	F42, F55	Active	400,000	400,000	400,000	400,000	400,000	355,000	360,000	367,000	290,000	254,000
6	Baolingbao Biology Co., Ltd.	Baolingbao	Shandong	F42, F55	Active	400,000	400,000	400,000	300,000	300,000	195,000	235,000	210,000	204,000	229,000
7	Luzhou Bio-chem Technology Co., Ltd.	Luzhou Bio-chem	Shandong	F55	Active	400,000	400,000	300,000	300,000	300,000	232,000	238,000	189,000	185,000	203,000
8	Yihai Kerry Group Co., Ltd.	Yihai Kerry	Guangdong /Liaoning	F42, F55	Active	390,000	390,000	240,000	240,000	240,000	271,000	270,000	187,000	175,000	178,000
9	Pinqing Biotechnology Co., Ltd.	Pinqing Biotechnology	Jiangsu/Anhui	F42, F55	Active	300,000	300,000	300,000	300,000	300,000	98,000	149,000	200,000	216,000	222,000
10	Zhaoqing Huanfa Bio-technology Co., Ltd.	Zhaoqing Huanfa	Guangdong/Anhui	F42, F55	Active	230,000	220,000	220,000	220,000	220,000	74,000	85,000	114,000	174,000	166,000
11	Global Sweeteners Holdings Limited	Global Sweeteners	Jilin	F42, F55	Active	220,000	220,000	220,000	220,000	220,000	36,000	73,000	85,000	108,000	120,000
12	Zhejiang Tianzi Co., Ltd.	Zhejiang Tianzi	Zhejiang	F55	Active	200,000	200,000	200,000	200,000	200,000	122,000	147,000	145,000	145,000	147,000
13	Anhui Yuansen Biotechnology Co., Ltd.	Anhui Yuansen	Anhui	F55	Active	150,000	150,000	150,000	150,000	150,000	80,000	112,000	109,000	112,000	115,000
14	Shandong Fukuan Biological Engineering Co., Ltd.	Shandong Fukuan	Shandong	F55	Active	138,600	138,600	150,000	150,000	50,000	68,000	42,000	80,000	112,000	46,000

15	Hubei Deanfu Sugar Co., Ltd.	Hubei Deanfu	Hubei	F42	Active	100,000	100,000	100,000	100,000	100,000	52,000	50,000	55,000	74,000	61,000
16	Samyang Genex Food (Qinhuangdao) Co., Ltd.	Qinhuangdao Samyang	Hebei	F55	Idle	100,000	100,000	100,000	100,000	100,000	0	18,000	65,000	74,000	77,000
17	Zhejiang Huakang Pharmaceutical Co., Ltd.	Zhejiang Huakang	Zhejiang	F55	Active	100,000	100,000	100,000	100,000	100,000	87,700	88,200	70,000	95,000	97,000
18	Henan Feitian Agricultural Development Co., Ltd.	Henan Feitian	Henan	F42, F55	Active	100,000	100,000	100,000	100,000	100,000	93,000	82,000	70,000	67,000	69,000
Others						530,000	580,000	500,000	620,000	620,000	242,000	343,000	279,000	348,000	376,000
Total						7,281,600	6,921,600	6,235,000	6,075,000	5,831,000	4,398,700	4,545,200	4,328,000	4,409,000	4,361,000

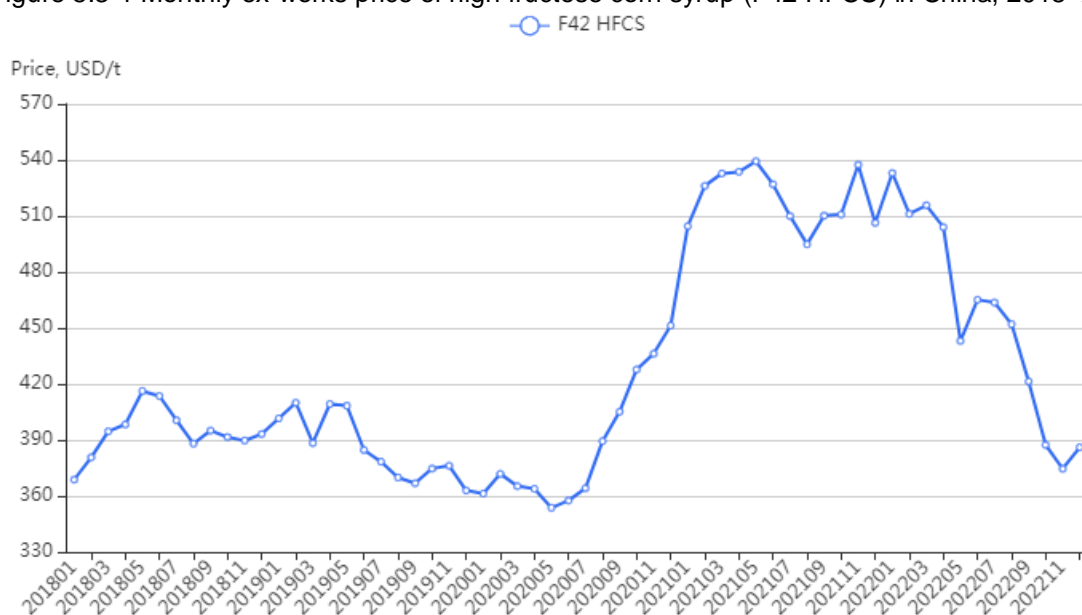
Source: CCM

5.3 Monthly ex-works price of HFCS in China, 2018–2022

On the back of strong demand and rising corn prices, the ex-works price of HFCS came to a small peak of USD416.21/t in May 2018. After that, the price fluctuated between USD388/t–USD414/t from June 2018 to May 2019. However, the price saw a general downward trend in H2 2019, even during the peak season (July to Sept.), as a result of the declined downstream demand and oversupply in the market.

From July 2020 to May 2021, the price of HFCS rebounded on soaring corn prices and reached a new high of USD539.33/t in May 2021. In June 2021–April 2022, the price hovered between USD494/t and USD537/t. Then the price went into a sharp decline from May to Dec. 2022, primarily explained by the weak demand.

Figure 5.3-1 Monthly ex-works price of high fructose corn syrup (F42 HFCS) in China, 2018–2022



Source: CCM

6 Maltodextrin

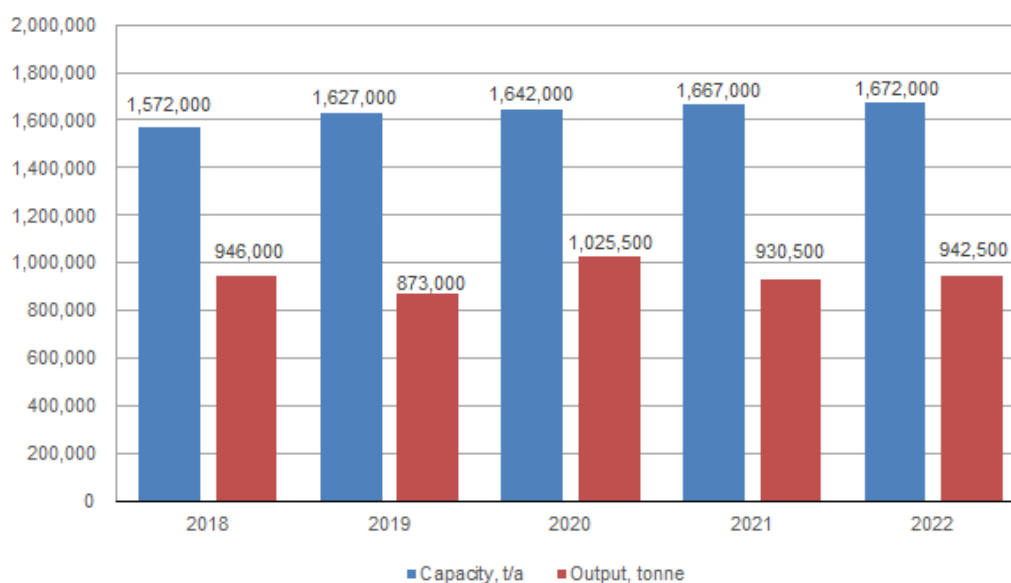
6.1 Capacity and output of maltodextrin in China, 2018–2022

The capacity of maltodextrin in China increased steadily in 2018–2022 and reached 1,672,000 tonnes in 2022, at a CAGR of 1.55%. During this period, Yufeng Industry Group entered this industry, and several producers also expanded their capacity of maltodextrin. However, because of overcapacity in the market, some small producers that were less competitive had been forced out of the industry.

The demand for maltodextrin is mainly from downstream products such as solid drinks, cold drinks and condiments. In 2019, a combination of the relatively weak demand, intensifying competition among enterprises and declined product profits caused by the low-price competition affected maltodextrin production. Nevertheless, in 2020, the output of maltodextrin in China increased by 17.47% year on year to 1,025,500 tonnes. Compared with 2019, the maltodextrin exports improved in 2020, and the rising prices of the raw material corn pushed up the maltodextrin price, bringing in good profitability, and thus driving up the operating rate. The operating rate of maltodextrin increased from 53.66% in 2019 to 62.45% in 2020.

In 2021, Chinese maltodextrin was mainly consumed domestically as China's maltodextrin exports were suppressed by the further spread of Covid abroad and the rise in sea freight. Consequently, the output decreased by 9.26% year on year to 930,500 tonnes. In 2022, the output came in at 942,500 tonnes and the operating rate was around 56% since the downstream demand didn't improve.

Figure 6.1-1 Capacity and output of maltodextrin in China, 2018–2022



Source: CCM

6.2 Major producers of maltodextrin in China, 2018–2022

In 2022, there were over 18 major maltodextrin producers in China.

Zhucheng Xingmao, Qinhuangdao Lihua Starch Co., Ltd. and Mengzhou Golden Corn Co., Ltd., were the top three maltodextrin manufacturers in 2018–2022, with a capacity of 200,000 t/a, 200,000 t/a and 165,000 t/a, respectively in 2022.

Yufeng Industry Group's 120,000 t/a maltodextrin production line was put into operation in Aug. 2021. As a result, there were 8 companies that could produce 100,000 t/a of maltodextrin or above.

Table 6.2-1 Production of major producers of maltodextrin in China, 2018–2022

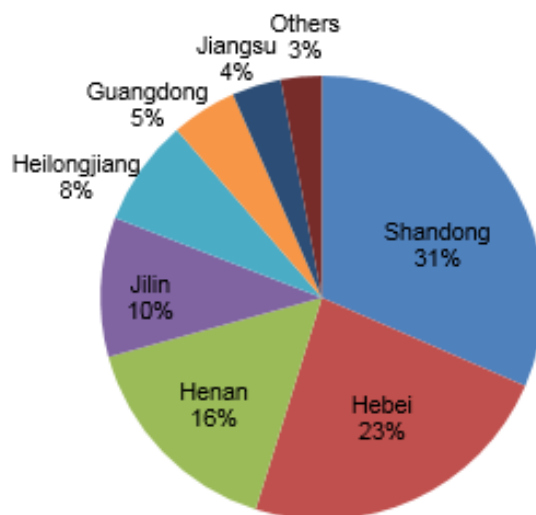
No.	Producer	Abbreviation	Location	Status, 2022	Capacity, t/a					Output, tonne				
					2022	2021	2020	2019	2018	2022	2021	2020	2019	2018
1	Zhucheng Xingmao Corn Developing Co., Ltd.	Zhucheng Xingmao	Heilongjiang /Shandong	Active	200,000	200,000	200,000	170,000	150,000	128,000	121,000	128,000	100,000	100,000
2	Qinhuangdao Lihua Starch Co., Ltd.	Qinhuangdao Lihua	Hebei	Active	200,000	200,000	200,000	200,000	200,000	102,000	115,000	130,000	124,000	118,000
3	Mengzhou Golden Corn Co., Ltd.	Mengzhou Golden Corn	Henan	Active	165,000	165,000	165,000	165,000	165,000	87,000	88,000	106,000	102,000	109,000
4	Zhucheng Dongxiao Biotechnology Co., Ltd.	Dongxiao Biotechnology	Shandong	Active	160,000	160,000	160,000	160,000	50,000	86,000	92,000	108,000	74,000	48,800
5	Xiwang Pharmaceutical Co., Ltd.	Xiwang Pharmaceutical	Shandong	Active	120,000	120,000	120,000	120,000	120,000	55,000	58,000	65,000	65,000	85,000
6	Yufeng Industry Group Co., Ltd.	Yufeng Industry Group	Hebei	Active	120,000	120,000	/	/	/	58,000	30,000	/	/	/
7	Luzhou Bio-chem Technology Co., Ltd.	Luzhou Bio-chem	Shandong	Active	100,000	100,000	100,000	100,000	100,000	61,000	58,000	55,000	45,000	50,000
8	Henan Feitian Agricultural Development Co., Ltd.	Henan Feitian	Henan	Active	100,000	100,000	100,000	100,000	100,000	73,000	68,000	75,000	60,000	50,000
9	Cargill Bio-Chemical Co., Ltd.	Cargill Bio-Chemical	Jilin	Active	90,000	90,000	90,000	90,000	90,000	62,000	61,000	63,000	60,000	60,000
10	Zhaoqing Huanfa Bio-technology Co., Ltd.	Zhaoqing Huanfa	Guangdong	Active	80,000	80,000	80,000	80,000	80,000	60,000	56,000	55,000	45,000	50,000
11	Roquette China Co., Ltd.	Roquette China	Jiangsu	Active	60,000	60,000	60,000	60,000	60,000	27,500	30,500	35,000	32,000	28,200
12	COFCO Bio-Chemical Energy (Gongzhuling) Co., Ltd.	COFCO Bio-Chemical Energy	Jilin	Active	50,000	50,000	50,000	50,000	50,000	29,000	34,000	35,000	30,000	35,000
13	Qinhuangdao Pengyuan Starch Co., Ltd.	Qinhuangdao Pengyuan	Hebei	Active	50,000	50,000	50,000	50,000	50,000	28,000	29,000	30,000	25,000	25,000
14	Baolingbao Biology Co., Ltd.	Baolingbao	Shandong	Active	35,000	35,000	35,000	35,000	30,000	18,000	19,000	25,000	25,000	20,000
15	Global Sweeteners Holdings Limited	Global Sweeteners	Jilin	Active	30,000	30,000	30,000	30,000	30,000	12,000	29,000	38,000	22,000	25,000
16	Shandong Tianjiao Biotech Co., Ltd.	Shandong Tianjiao	Shandong	Active	20,000	20,000	20,000	20,000	20,000	7,000	9,000	12,000	12,000	12,000
17	Shijiazhuang Zhongcheng Sugar Industry Co., Ltd.	Shijiazhuang Zhongcheng	Hebei	Active	20,000	20,000	20,000	20,000	20,000	9,000	8,000	12,000	12,000	12,000

18	Qingyuan Foods Co., Ltd.	Qingyuan Foods	Shandong	Active	12,000	12,000	12,000	12,000	12,000	5,000	5,000	6,500	6,000	6,000
19	Shandong Fullsail Biotechnology Co., Ltd.	Shandong Fullsail	Shandong	Idle	10,000	10,000	10,000	10,000	10,000	0	0	0	0	0
Others					50,000	45,000	140,000	155,000	235,000	35,000	20,000	47,000	34,000	112,000
Total					1,672,000	1,667,000	1,642,000	1,627,000	1,572,000	942,500	930,500	1,025,500	873,000	946,000

Source: CCM

Shandong Province took up the largest share of maltodextrin capacity in China, as major domestic manufacturers were based here, such as Zhucheng Xingmao, Dongxiao Biotechnology, Xiwang Pharmaceutical Co., Ltd. and Luzhou Bio-chem. The capacity in Shandong, Hebei and Henan provinces respectively accounted for about 31%, 23% and 16% of the country's total in 2022.

Figure 6.2-1 Share of maltodextrin capacity in China by region, 2022



Source: CCM

6.3 Monthly ex-works price of maltodextrin in China, 2018–2022

As the prices of raw materials corn and corn starch were high, which supported the production costs of starch sugar, the average price of maltodextrin in 2018 was USD514.84/t, up by 15.0% over the 2017 average. However, the monthly price plummeted continuously after April due to oversupply. From Sept., the maltodextrin price rose again as its export volume increased and the price of corn rose.

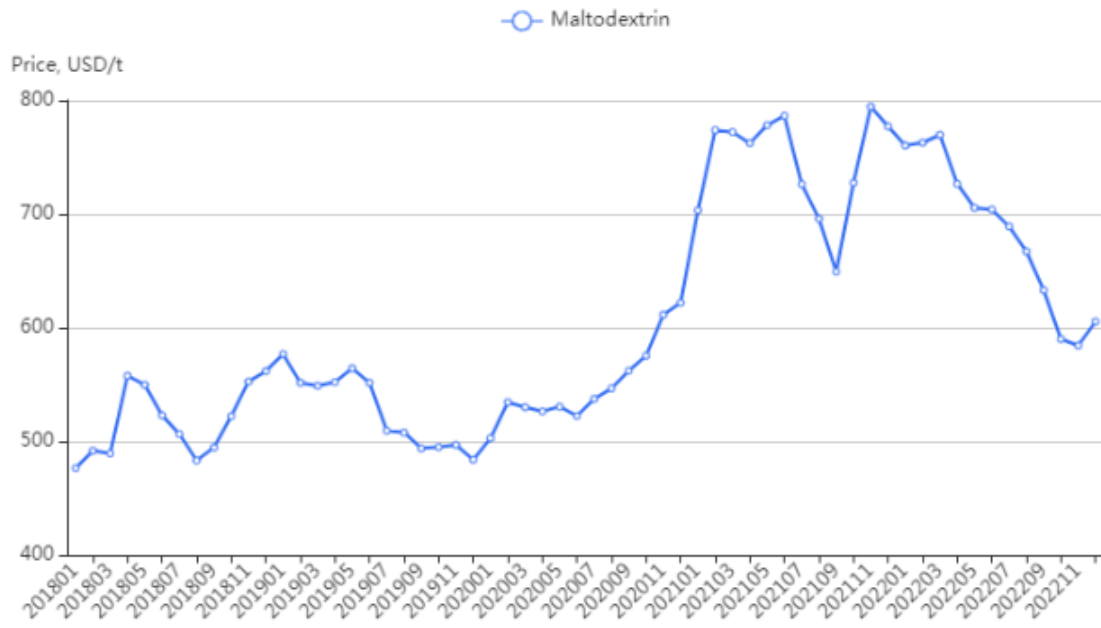
In 2019, the prices decreased on unimproved downstream demand; the annual average price was USD527.64/t. Although some producers had cut production since Sept. due to the mounting inventory pressure, no significant change in price was seen.

In 2020, the price of maltodextrin was in an overall uptrend, reaching USD621.96/t in Dec., up by 28.53% year on year. Sales of maltodextrin maintained a good condition despite continuous price increases of corn. And in the case of high profits, the supply of large manufacturers in China tightened, driving up the price.

In H1 2021, the maltodextrin price experienced a drastic increase in the first two months, hitting USD786.51/t in June, the highest since 2018, which was fueled by the elevated corn price. But as corn prices fell, as well as in the off-season, the price continued to decrease in Q3, falling to USD649.35/t in Sept.

From Q4 2021 to Q1 2022, as demand recovered, the price rebounded. Later in April–Oct., affected by logistical challenges and weak domestic demand, most manufacturers' inventories of maltodextrin were high, so they had to reduce prices, resulting in further compressed profit margins. In Dec. 2022, the price bounced back to USD605.38/t on rising demand for stocking in the run-up to the Spring Festival.

Figure 6.3-1 Monthly ex-works price of maltodextrin in China, 2018–2022



Source: CCM

Kcomber's legal disclaimers

1. Kcomber guarantees that the information in the report is accurate and reliable to the best of its knowledge and experience. Kcomber defines the report as a consulting product providing information and does not guarantee its information is completely in accordance with the fact. Kcomber shall not have any obligations to assume any possible damage or consequences caused by subscribers' any corporate decisions based upon subscribers' own understanding and utilization of the report.

2. The complete copyright of the report is and will be held by Kcomber. Subscribers shall not acquire, or be deemed to acquire the copyright of the report.

3. The report provided by Kcomber shall be only used as source of subscriber's internal business decisions and shall not be used for any other purposes without Kcomber's prior written consent, unless stated and approved in license contract signed by both parties. Subscribers shall not distribute, resell and disclose the whole report or any part of the report to third parties and shall not publish any article or report by largely or directly copying or citing the information or data based on Kcomber's report without the prior written consent of Kcomber.

4. "Single User License" means that there shall be only ONE person to receive access and utilize the report. Subscriber can present the content of the report that marked the source from Kcomber to their internal colleagues for their internal communication and utilization, but cannot share the whole report to other individuals. Any citation, distribution, reselling and disclosure of the report as well as its partial content to any third party are prohibited, including but not limited to their parent companies or subsidiaries.

5. "Corporate License" means that subscriber shall not cite, distribute, resell the report or disclose information of the report to any third party without Kcomber's prior written consent, except subscribers' affiliates controlled with ownership of more than 50% of shares.

17th Floor, Huihua Commercial & Trade Building, No. 80 Xianlie Zhong Road Guangzhou,
510070, P.R.China

Website: <http://www.cnchemicals.com>

Tel: +86-20-37616606

Fax: +86-20-37616968

Email: econtact@cnchemicals.com