

The Hebei pilot FTZ covers parts of Xiongan, Zhengding, Caofeidian and the area where the Beijing Daxing International Airport is located. The Xiongan section will focus on industries including new generation information technology, modern life science and biotechnology, and high-end modern service. It will build a leading area for high-tech industries, digital commerce and financial innovation.

The Jiangsu pilot FTZ is composed of three sections. Among them, the Nanjing section will focus on building an independent innovation pilot area; the Suzhou section will promote opening up and innovation; and the Lianyungang section will work to build a Eurasian international transportation hub and a platform for exchanges and cooperation among Belt and Road countries.

China started piloting FTZs in Shanghai in 2013. The country had established 11 more in its coastal regions including Guangdong and Fujian and inland provinces such as Shaanxi and Sichuan. With the new zones, China's pilot FTZs now covers all the country's coastal provincial-level regions. It is also the first time that the country has set up pilot FTZs in border regions.¹³⁴²

8.7 Specific Areas of R&D

8.7.1 Agriculture

Chapter 20 “Improve Technology and Equipment and Increase Information Technology Application in Agriculture” under Part IV “Agriculture Modernization” of the 13th Five-Year Plan for Economic and Social Development of The People’s Republic of China (2016–2020):

With the aim of raising agricultural productivity, we will improve systems for promoting innovation in and the application of modern agricultural science and technology, accelerate agricultural mechanization, strengthen the integration of information technology into agriculture, and develop intelligent agriculture.

8.7.1.1 Section 1 Agricultural Technology and Equipment

We will strengthen innovation in agricultural science and technology and accelerate work on developing bio-breeding, agricultural machinery and equipment, and eco-friendly methods for increasing production. We will promote the use of high yield, high-quality crop breeds suited to mechanized agriculture as well as standardized and localized models of high-yield and high-performance cultivation, and we will improve the conditions for making innovations in major agricultural laboratories. We will develop the modern seed industry, tackle key scientific and technological issues to make progress in the development of superior seed varieties, implement a new action plan for upgrading crop varieties, develop national seed breeding and production centers, and help the growth of leading seed enterprises using integrated cultivation breeding-promotion operations. We will promote complete mechanization of the production process of major crops as well as the integration of agricultural machinery and methods. We will improve

¹³⁴² Xinhua Agency News item updated on Aug 30, 2019 titled “China's new FTZs inaugurated to push forward opening-up” available online at URL:

http://english.www.gov.cn/news/topnews/201908/30/content_WS5d68e0c2c6d0c6695ff7f88f.html

and invigorate networks for the promotion of agricultural technology at the community level.

8.7.1.2 Section 2 Information Technology Adoption in Agriculture

We will promote the integration of information technology into agricultural production management, operations management, market distribution, and fields related to resources and the environment. We will help spread the Internet of Things into agriculture by carrying out an experimental project to promote its use in certain regions, thereby promoting the development of intelligent agriculture and precision agriculture. We will promote the use of big data in agriculture and strengthen the overall capabilities of agricultural information services. We will encourage internet enterprises to establish agricultural service platforms that bring together the processes of production and marketing, and accelerate the development of agriculture-related ecommerce.¹³⁴³

Table: Merchandise exports by product group and destination - annual (Million US Dollar)

Recording Economy	Product/Sector	Partner Economy	2013	2014	2015	2016	2017	2018
China	SI3_AGG - AG - Agricultural products	World	70159	74476	72678	75476	78438	82793

Source: WTO DATA

URL: <https://timeseries.wto.org/>

Xinhua News dated **March 21, 2018** titled **“Technology reshaping agriculture in China”** reported that in Nong'an, a major grain-producing county in northeast China's Jilin Province, a drone flies above the crop fields, spraying a white mist of chemicals. "Drone spraying is five times more efficient than tractor sprayers, let alone manual spraying," said Wen Yesheng, head of Zhongyi agricultural machinery cooperative. "That's the power of modern agriculture." Wen's greenhouse is even more high-tech. In the past, he had to roll up the curtains to lower the temperature, or burn coal for heating. Now an automated exhaust system and solar energy equipment are in place. The increased use of large machinery and high-tech equipment has also helped Chinese farmers reduce grain losses in harvesting. A cooperative in Minyue Village, Songyuan City, started using an advanced corn harvester this year, which can cut the plant and separate the seeds from the cob while processing and spreading the corn Stover over the field. "The traditional harvester collected corn and transported them to a storage house for further separation work. Around 1 percent of seeds was lost during the process," said Zhang Zhifeng, Party chief of the village.

"The new machine has higher efficiency and can greatly reduce the losses of harvest," Zhang said. The agriculture mechanization rate of main crops in Jilin is more than 80 percent. The province owns around 600,000 large and medium-sized tractors. The country had 1.14 million combine harvesters and 14.31 million items of irrigation and

¹³⁴³ Chapter 20 “Improve Technology and Equipment and Increase Information Technology Application in Agriculture” under Part IV “Agriculture Modernization”, Section 1-2, Pg 54-55 of the 13th Five-Year Plan For Economic And Social Development of The People’s Republic Of China (2016–2020) available online at URL: https://en.ndrc.gov.cn/policyrelease_8233/201612/P020191101482242850325.pdf

drainage equipment by the end of 2016, up 105.3 percent and 6.1 percent respectively compared with a decade ago, according to results of the country's third national agricultural survey. Li Weiguo, an official with the Ministry of Agriculture and Rural Affairs, said that China would advance the scientific and technological innovation of agricultural machines, providing efficient equipment and technical support for the upgrading of its agricultural mechanization. The big market has attracted foreign brands. World famous equipment manufacturers such as John Deere and AGCO from the United States and Italy's SDF Group are frequent visitors of machinery exhibitions and agricultural fairs held in China. Accompanying the increasing use of machinery is the growth of scale farming.

China: Agriculture production Basic conditions and sown area of Farm Crops

Item	2000	2010	2015	2017	2018
Total Agricultural Machinery Power (10 000 kw)	52573.6	92780.5	111728.1	98783.3	100371.7
Number of Large and Medium-sized Agricultural Tractors (10 000 units)	97.5	392.2	607.3	670.1	422.0
Number of Small Tractors (10 000 units)	1264.4	1785.8	1703.0	1634.2	1818.3
Number of Large and Medium-sized Tractor Towing Farm Machinery (10 000 units)	140.0	612.9	962.0	1070.0	422.6
Small Tractor Towing Farm Machinery (10 000 units)	1788.8	2992.5	3041.5	2931.4	
Number of Diesel Engines (10 000 units)	688.1	946.3	939.9	930.2	
Irrigated Area of Cultivated Land (1 000 hectares)	53820	60348	65873	67816	68272
Consumption of Chemical Fertilizers (10 000 tons)	4146.4	5561.7	6022.6	5859.4	5653.4
Electricity Consumed in Rural Areas (100 million kwh)	2421.3	6632.3	9026.9	9524.4	9358.5
Total Sown Area (1 000 hectares)	156300	157350	166829	166332	165902
Grain Crops	108463	111695	118963	117989	117038
Cereal	85264	92621	103225	100765	99671
Rice	29962	30097	30784	30747	30189
Wheat	26653	24459	24596	24508	24266
Corn	23056	34977	44968	42399	42130
Beans	12660	11053	8433	10051	10186
Tubers	10538	8021	7305	7173	7180
Oil-bearing Crops	15400	13695	13314	13223	12872
Cotton	4041	4366	3775	3195	3354
Fiber Crops	262	91	54	58	57
Sugar Crops	1514	1809	1573	1546	1623
Tobacco	1437	1309	1254	1131	1058
Vegetables	15237	16201	19613	19981	20439
Area of Tea Plantations (1 000 hectares)	1089	1932	2641	2849	2986
Area of Orchards (1 000 hectares)	8932	10681	11212	11136	11875

Source: 12-1: Agriculture production Basic conditions and sown area of Farm Crops, China Statistical Yearbook 2019, available online at URL: <http://www.stats.gov.cn/tjsj/ndsj/2019/indexeh.htm>

- a) Since 2016, total agricultural machinery power does not include power of three wheeled vehicles and low-speed trucks.

- b) In 2018, Ministry of agriculture revised the system, the classification standard of large and medium sized tractors and small tractors is changed from engine power 14.7 kW to 22.1 kW; the coverage of large and medium sized tractor towing farm machinery is changed to “matching with 58.8 kW and above tractors”. At the same time the small tractors towing farm machinery was cancelled. The same applies to the tables following.

Around 2 million specialized farmer's cooperatives were registered in China by the end of November, 76 times the number a decade ago, according to the ministry. Currently, the cooperatives have over 100 million rural households participating, which account for 46.8 percent of the country's total. Through specialized cooperatives, farmers engaged in the same kind of agricultural production are able to pool resources and increase productivity. “The development of farmers' cooperatives in China will accelerate its land circulation, heralding greater demands for agricultural machinery and fierce competition among equipment manufacturers home and abroad,” said Liu Xiaoran, an expert with the China National Association of Grain Sector.¹³⁴⁴

8.7.2 Aquaculture and fishing

8.7.2.1 13th Five-Year Plan

Excerpts of the 13th Five-Year Plan for Economic and Social Development of the People's Republic of China (2016–2020) on Aquaculture and Fishing:

Part IX Development Coordinated Between Regions, Chapter 41, Widen Space for the Blue Economy.

Section 1 Strengthening the Marine Economy

We will improve the marine industry structure, develop high seas fishing, promote the scaled-up use of desalinated sea water, support the development of industries such as marine biological medicine and marine equipment manufacturing, and accelerate the development of marine service industries. We will develop marine science and technology, focusing on achieving breakthroughs in advanced marine technology which allows deep- sea operations and is eco-friendly and secure. We will move ahead with development of smart marine projects. We will make innovations in market- based allocation methods for ocean and island resources. We will develop national marine economic development experimental zones in Shandong, Zhejiang, Guangdong, Fujian, and Tianjin, support Hainan in using South China Sea resources to develop a distinctive marine economy, and develop Qingdao's Blue Silicon Valley as well as other marine economic development demonstration zones.

Section 2 Strengthening Protection of Marine Resources and Environments

We will deepen comprehensive management of marine ecosystems, promote the development of marine functional areas, improve the spatial layout of offshore areas, and ensure that development intensity is appropriate. We will strictly control the scale of land

¹³⁴⁴ Xinhua News Item dated March 21, 2018 titled “Technology reshaping agriculture in China”, available online at URL: http://www.xinhuanet.com/english/2018-03/21/c_137054369.htm