Farming Activities and Regional Variations in Our Country

I. Introduction

Our country is one of the countries with the longest agricultural history in the world, with a land area of about 9.6 million square kilometers, of which arable land accounts for about 13% (2024, China Water Resources Bulletin). Due to the diversity of natural conditions, population distribution, economic level and cultural traditions, our country's farming methods show significant regional differences. This diversity is not only a reflection of the geographical environment, but also the crystallisation of human wisdom in adapting to nature.

II. Types of Farming

Farming types refer to the sum of various technical measures and production methods adopted by humans to obtain agricultural products. According to different classification standards, farming can be divided into different types.

A. Classification by production purpose

- *Subsistence agriculture*
  The main purpose is to meet one's own consumption, with a small production scale and a low commodity rate.
- *Commercial agriculture*
  The main purpose is to sell agricultural products, with a large production scale and a high commercialisation rate.

B. Classification by investment level

- *Intensive farming Vs Extensive farming*

	Intensive farming	Extensive farming
Availability of arable land	limited	abundant
Population density	high	low
Input and output per unit of land	higher	lower
Labour input	high	low
Resource e.g. fertilisers, capital and technology inputs	Related to production purposes: Intensive commercial cultivation e.g. hydroponics at Zhujiang Delta: Advanced technology with high input of resources and capital.	Related to production purposes: Extensive commercial cultivation e.g. irrigation farming in Xinjiang: Advanced technology with high input of resources and capital.

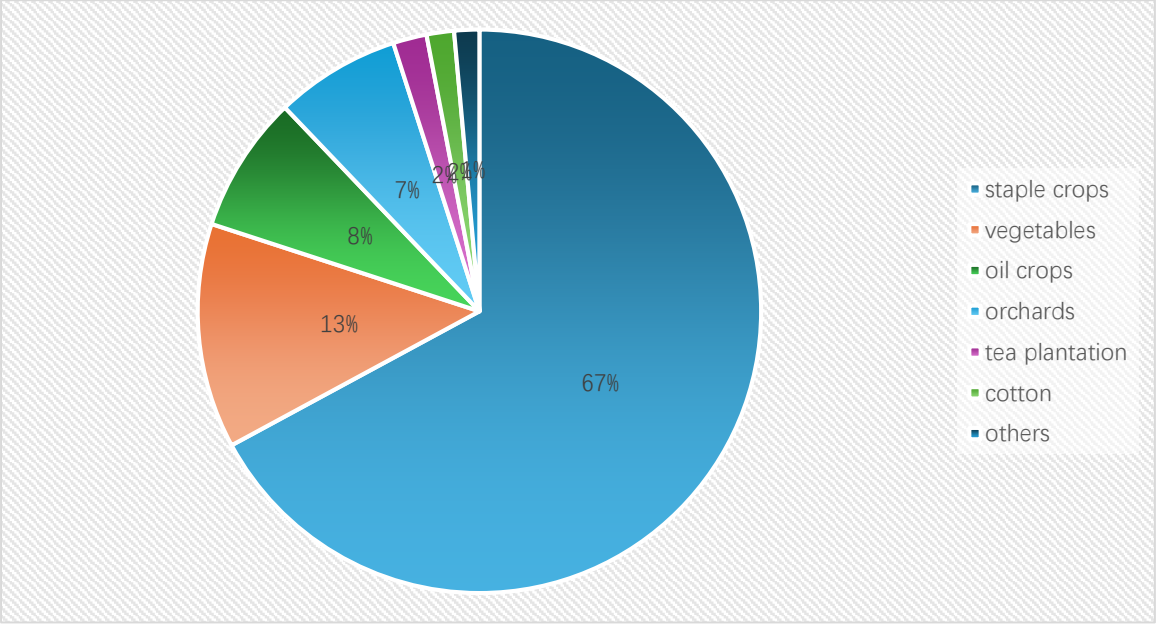
	Intensive subsistence cultivation e.g. paddy cultivation in Yunnan: Traditional technology with low input of resources and capital.	Extensive subsistence cultivation e.g. pastoral herding in Nei Mongol Zizhiqu: Traditional technology with low input of resources and capital.

C. By cropping system:

- *Monoculture*
  Continuous cultivation of the same crop on the same piece of land e.g. tea plantation.
- *Mixed farming*
  Cultivation of crops and raising of livestock on the same field.
- *Crop rotation*
  Planting a series of crops on the same land across a sequence of growing seasons.
- *Intercropping*
  Planting two or more crops with similar growth periods on the same land at the same time.
- *Relay intercropping*
  Sowing or transplanting the next season crop on the same land at the late growth stage of the previous season crop.

D. By major crops

Figure 1: Percentage shares of various crops among total arable area in our country (2023)

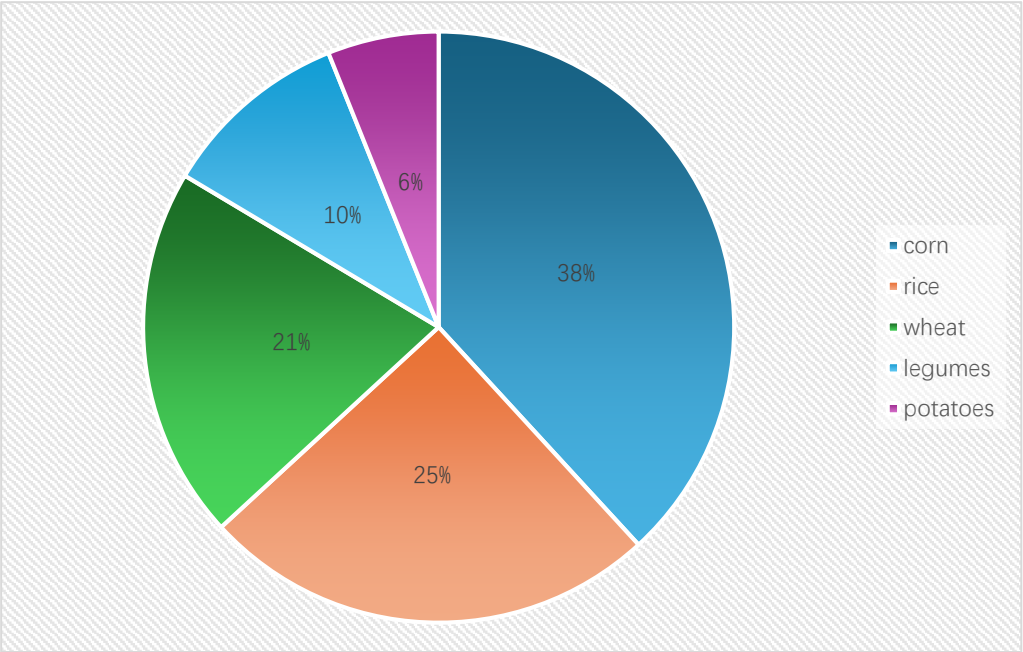


Source: China Statistical Year Book 2024, National Bureau of Statistics

In 2023, the total area of arable land in our country was 1.71 billion hectares. 1.18 billion ha was used for growing staple crops, 2.28 billion ha was for growing vegetables, 1.39 billion ha was for growing oil crops while orchards accounted for 1.27 billion ha.

- *Cultivation of staple crops*

Figure 2: Percentage shares of various staple crops (2023)

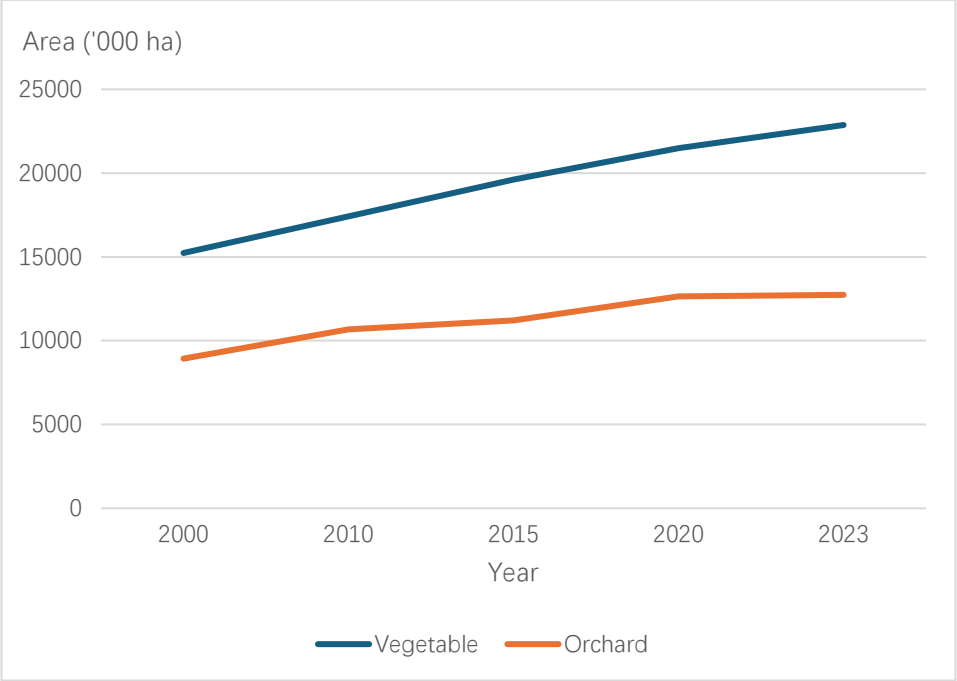


Source: China Statistical Year Book 2024, National Bureau of Statistics

- In 2023, 1.72 billion mu of land, 67% of total farmland area, was used for cultivation of staple crops. It included corn, rice, wheat, legumes, potatoes and sweet potatoes (Figure 1). Rice cultivation is practiced in warm and wet environments and growing of wheat is in temperate regions with moderate rainfall.
- In southern China, especially in provinces/autonomous region like Guangdong, Hunan, Jiangxi, and Guangxi, rice farming is dominant due to the warm climate and abundant rainfall.
- In northern China, particularly in the North China Plain, including provinces like Henan, Shandong, Hebei, and Shaanxi, wheat is a major crop.

- *Market gardening*
  - Market gardening adopts both traditional farming methods and advanced farming techniques e.g. vertical farming and hydroponic farming. The main farm produces are vegetables, fruit and flowers which are for sale.
  - In 2023, 2.3 billion ha of farmland, 13% of total farmland area in our country, was used for growing of vegetables. 1.27 billion ha of farmland, 7% of total farmland area in our country, was orchards. There is an increasing trend in farmland area for vegetable and fruit cultivation from 2000 to 2023.

Figure 3: Area of arable land for vegetable and fruit cultivation (2000-2023)



Source: China Statistical Year Book 2024, National Bureau of Statistics

- *Pastoral Farming*
  - A type of agriculture centered on the raising of livestock such as cattle, sheep, or goats, often practiced in areas unsuitable for crop cultivation.
  - In Nei Mongol Zizhiqu, Xinjiang Uygur Zizhiqu, and Qinghai Province, vast grasslands are used for grazing sheep, goats and cattle as part of traditional pastoral practices.

III. Physical factors affecting farming activities

1) Climate

Climatic conditions are one of the most important natural factors affecting farming practices. Climatic conditions such as temperature, precipitation, and duration of sunlight directly affect crop types, growing seasons, number of crop cycles and planting methods.

a) Temperature

Different crops have different temperature requirements. For example, rice prefers warmth while wheat is cold-resistant. Temperature and precipitation affect the time and length of growing season. Thus, the number of crop cycles is more in southern regions than in northern regions. For instance, farmers in southern China grow two crops of rice every year while farmers in northern China only harvest one crop of wheat per annum.

b) Precipitation

The amount and seasonal distribution of precipitation affect crop types and irrigation methods. For example, the southern region has abundant precipitation, which is suitable for a great variety of crops e.g. rice, vegetable, flowers. The northern region has less

precipitation, so dry farming is practised.

c) Duration of sunlight

The duration of sunlight affects the time of photosynthesis which in turn controls the growth of crops, such as long-day crops and short-day crops.

2) Topography

Topographic conditions affect land use patterns and the degree of mechanisation.

- Plain: The terrain is flat and the soil is deep. It is suitable for the development of large-scale mechanised production.
- Mountains and hills: The terrain is undulating and the soil layer is thin. It is suitable for the development of terraced fields, forestry and orchards, etc.

3) Soil

Soil type, fertility and other conditions affect crop yield and quality.

- Northeast black soil is fertile and suitable for growing crops such as soybeans and corn.
- Southern red soil is highly acidic and needs to be improved before crops can be grown.

4) Water resources

The availability and distribution of water resources significantly influence agricultural development and farming methods in different regions of our country.

- Chang Jiang Basin and South China (e.g. Jiangsu, Hunan, Guangdong)

  These areas benefit from a dense river networks, high annual total rainfall, and plentiful surface water, making them ideal for the development of irrigation farming, especially paddy cultivation.
- North China Plain and Northwest China (e.g. Hebei, Henan, Shanxi, Gansu)

  These regions experience lower annual precipitation and limited surface water availability. As a result, agriculture relies more on groundwater and requires the adoption of water-saving irrigation techniques such as drip-tip and sprinkler systems to improve water use efficiency and sustain crop production.

IV. Socio-economic factors affecting farming activities

1) Population

Population size, density, and distribution significantly influence land use patterns and the labor supply for agriculture.

- Densely populated areas

  In regions such as the Chang Jiang Delta (e.g., Jiangsu and Zhejiang provinces and Shanghai), high population density results in limited per capita arable land, requiring intensive and efficient agricultural practices to maximise productivity. In Jiangsu and Zhejiang, intensive agriculture focuses on high-yield rice and vegetable production, supplemented by advanced irrigation systems and mechanised harvesting to optimise land

use. In contrast, Shanghai is a highly urbanised municipality that mainly practices urban agriculture to meet the city's diverse needs, including the production of high-value crops (e.g., vegetables, fruits, and flowers), lifestyle benefits (e.g., community gardens), and ecological functions (e.g., green spaces).

- Sparsely populated areas

  In regions like Xinjiang Uygur Zizhiqu and Zizang Zizhiqu, where population density is low, there is more arable land available per capita. These areas are more suitable for extensive agriculture, such as large-scale orchards, wheat and cotton farming in Xinjiang.

2) *Technology*

The level of agricultural technology directly influences farming methods and productivity.

- Traditional agriculture

  In remote regions like Guizhou and Yunnan, where farming is often subsistence-based, traditional methods, such as manual labor and animal power, are still prevalent. These areas typically have lower production efficiency due to limited access to modern agricultural technologies.

- Modern agriculture

  In economically advanced regions like Shandong and Hebei, modern farming technologies are widely adopted, including use of greenhouse, advanced machinery for planting and harvesting, high-quality fertilisers, and pesticides. These regions benefit from high agricultural efficiency, with large-scale operations such as mechanised wheat and corn farming. With the government investment in research and development projects, new varieties of crops and farming techniques are invented to boost the farming productivity. It also helps increase the income of farmers and secure food security in our country.

3) *Economic factors*

The level of economic development, market demand and transportation conditions are crucial in shaping agricultural practices and production methods.

- Economically developed areas

  In areas like Beijing and Tianjin, the high level of economic development has enabled the adoption of urban agriculture. Urban agriculture refers to a modern agricultural form that relies on large cities, serves the multifunctional needs of cities, and is integrated into urban development strategies. It is centered on production, living, and ecological functions. It not only provides agricultural and sideline products, but also undertakes comprehensive services such as leisure and sightseeing, ecological protection, and educational experience. It is a high-level, multifunctional agricultural model. Advanced farming techniques, including greenhouse farming, hydroponics, and organic farming, are common in these

areas due to strong market demand for high-value agricultural products.

- Economically underdeveloped areas

  In poorer regions like Gansu, agricultural technology remains less advanced. These areas rely on traditional subsistence agriculture, focusing on staple crops such as wheat, corn, and potatoes.

  In the remote areas, the poor accessibility to market due to limited transport infrastructure and storage facilities makes it difficult for the farmers to sell the farm produces in fair prices and gain reasonable profit. The commercialization rate of agricultural products is low.

4) Government Policy

Agricultural policy, land system, and government initiatives shape farming practices and land use.

- Modernisation of agricultural technologies and rural areas

  In the "Outline of the 14th Five-Year Plan (2021-25) for National Economic and Social Development and Vision 2035", the government proposed the stabilization of arable land areas for staple crops, diversification of crops, and modernization of farming technologies, rural infrastructure and marketing channels. To boost the agricultural productivity, scientific farming methods based on the special ecological environment of the agricultural regions are introduced.

- Returning farmland to forest and grassland

  In areas like Sichuan and Qinghai, government policies such as the "Grain for Green" program have encouraged the conversion of arable land back to forest or grassland. This initiative aims to reduce soil erosion, improve ecological environments, and promote sustainable agricultural practices. While it has reduced the available farmland in some areas, it has improved long-term agricultural sustainability.

V. <u>Regional differences in farming activities in our country</u>

Based on natural conditions and socio-economic factors, our country can be divided into the following major agricultural areas:

A. Eastern Monsoon Region:

- Southern Paddy Agricultural Region

  It includes the Middle and Lower Yangtze Valley Plain, Sichuan Basin, Zhujiang Delta, and Yunnan. The climate is warm and humid, with abundant rainfall, dense river networks and fertile soil, which is suitable for growing rice. The farming system is mainly based on two or three crops a year, and the main crops grown are rice, rapeseed, sugarcane and vegetables. Tea plantation is common in the hilly areas of Yunnan.

Figure 4: Paddy Terraces in Yunnan

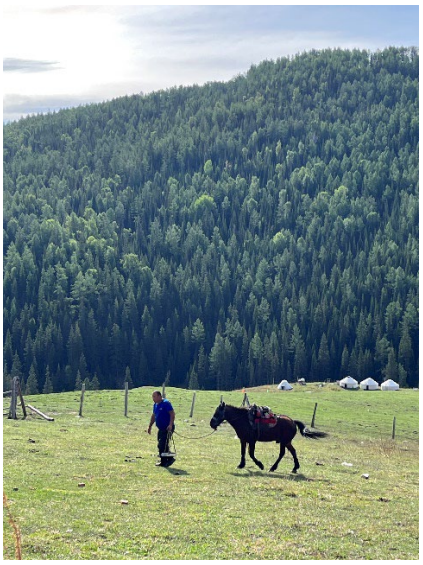
- Northern Dryland Agricultural Region
  It includes the North China Plain, Loess Plateau, Northeast Plain, etc. The climate is warm and semi-humid, with precipitation concentrated in the summer and dry winter, which is suitable for the growth of dry crops such as wheat and corn. The farming system is mainly one crop a year or three crops in two years, and the main crops grown are wheat, corn and soybeans.

B. The Northwestern Arid Agricultural Region:

- Irrigated agricultural areas
  They are mainly distributed in the Hetao Plain, Ningxia Plain, Hexi Corridor, etc. The climate is dry and rainy, and agriculture relies on irrigation from Huang He and other rivers, with wheat, corn and cotton being the main crops grown.

- Grassland pastoral area
  They are mainly distributed in the Inner Mongolian Plateau and the area north of Tianshan Mountains in Xinjiang. The climate is dry and the grasslands are vast, which is suitable for the development of animal husbandry, mainly raising cattle, sheep and horses.

Figure 5: Grassland pastoral farming in Xinjiang



C. The Qinghai-Tibet Plateau Agricultural Region

- Alpine pastoral areas

  Alpine pastoral areas are in most areas of the Qinghai-Tibet Plateau. The climate is cold, and the air is thin, which is suitable for the development of high-altitude animal husbandry, mainly raising livestock such as yaks and Tibetan sheep.

- River valley agricultural areas

  These agricultural areas are found in the Yarlung Zangbo River Valley, Huangshui River Valley, etc. The climate is relatively warm and water resources are abundant, which is suitable for the development of river valley agriculture. The main crops grown are barley, wheat and rapeseed.

VI. Sustainability Challenges and Responses

A. Environmental issues

- Over-cultivation in the northwest China, particularly in regions like the Hexi Corridor in Gansu, the Loess Plateau in northern Shaanxi, and parts of Nei Mongol Zizhiqu, has caused severe environmental issues, including desertification and wind erosion.
- Methane emissions from paddy fields in the south exacerbate the greenhouse effect, and excessive use of fertilisers pollutes water bodies.

B. Regional response

- Promote water-saving technologies such as drip irrigation in the northwest, and return farmland to forest and grassland.
- Develop organic agriculture in the south, reduce the use of chemical fertilisers, and promote ecological farming in rice fields. For instance, in the paddy fields in Yunnan terraces,

ducks are reared to provide organic fertilizer to the paddy fields. Fishes eat the algae and insects of the fields and provide additional protein to the farmers.

C. Future Trends

- Climate change may cause farming areas to move northward. The farmers in the south have to cope with floods while the farmers in the north have to enhance their ability to resist drought.
- Technological advancements, such as precision agriculture, smart irrigation systems, and genetically improved crop varieties, will play a vital role in enhancing productivity and resilience in climatic hazards.
- Sustainable agricultural practices, including conservation tillage, crop rotation, organic farming, and soil restoration projects, will be crucial for maintaining long-term soil fertility, reducing carbon emissions, and adapting to environmental changes.

VII. Conclusion

Regional differences in our country's farming methods result from the combined effects of natural conditions and socio-economic factors. The diversity reflects human adaptation and innovation to the geographical environment. However, challenges such as over-cultivation, pollution and climate change threaten the sustainability of agriculture and need to be addressed through measures such as water-saving technologies and organic farming to ensure future development. The government strives to modernize agricultural technologies, rural infrastructures and marketing channels so as to maintain national food security.

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