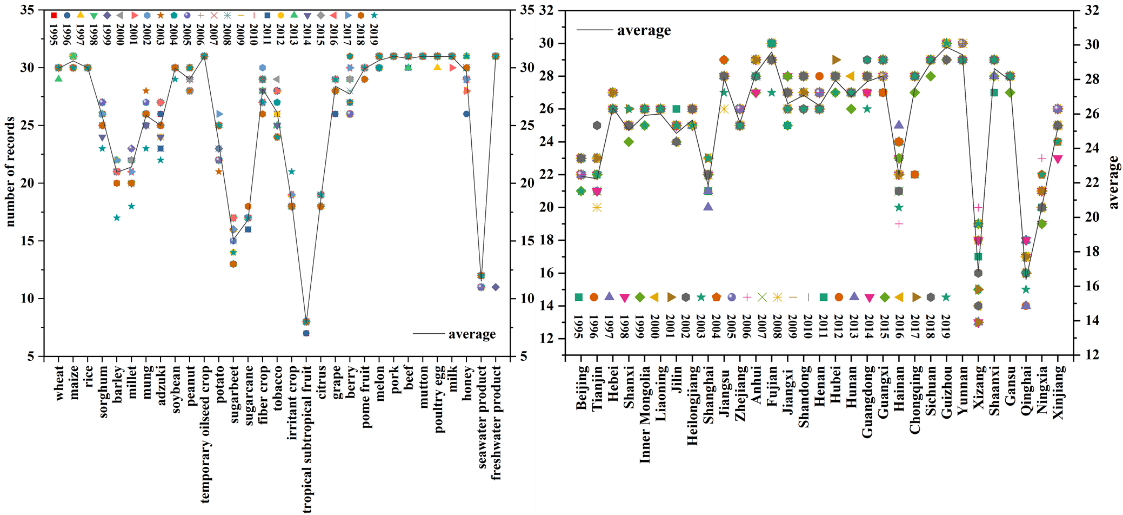
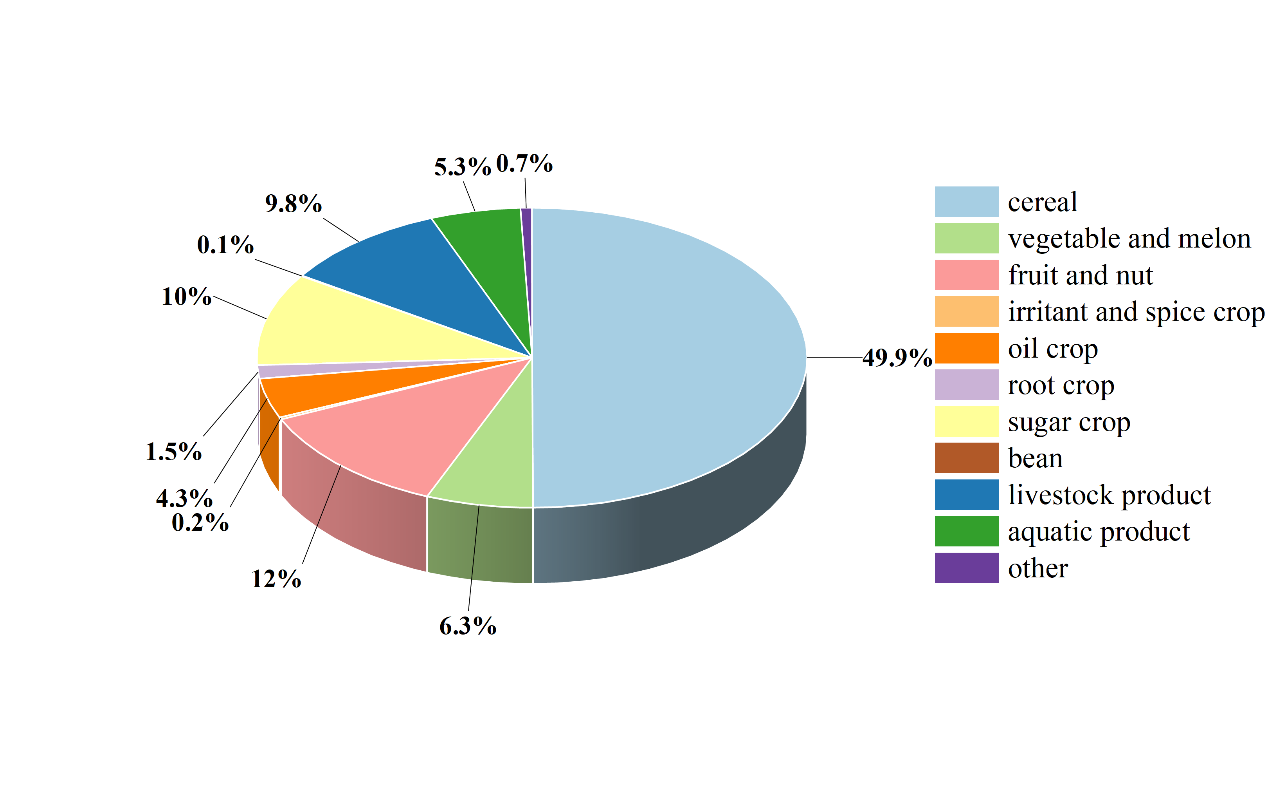
**Supplement materials**

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**Fig. S1.** **Number of records of each agricultural products and province from 1995 to 2019.**

*Data sources*: National Bureau of Statistics (<https://data.stats.gov.cn/easyquery.htm?cn=E0103>)

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**Fig. S2.** **Percentage of each agricultural products in Level 1.**

*Data sources*: National Bureau of Statistics (<https://data.stats.gov.cn/easyquery.htm?cn=E0103>)

**Table S1**

**Indexes and characteristics of China’s agricultural natural zones and subzones.**

|  |  |
| --- | --- |
| **province** | **Main products** |
| **Shanxi** | Maize, pome fruit, wheat, poultry egg, milk, pork, potato, melon, millet, grape, sorghum, soybean, temporary oilseed crop |
| **Jilin** | Maize, rice, melon, poultry egg, pork, peanut, soybean, sorghum, beef, milk, potato, freshwater product, millet, pome fruit |
| **Hebei** | Maize, wheat, pome fruit, milk, poultry egg, melon, pork, grape, potato, peanut, seawater product, sugarbeet, beef, rice, millet, mutton, freshwater product, berry, soybean, temporary oilseed crop, fiber crop |
| **Inner Mongolia** | Maize, sugarbeet, milk, soybean, melon, temporary oilseed crop, wheat, potato, rice, mutton, sorghum, millet, beef, pork, poultry egg, pome fruit, mung, freshwater product, peanut |
| **Liaoning** | Maize, rice, pome fruit, seawater product, poultry egg, pork, melon, milk, peanut, freshwater product, grape, berry, beef, sorghum, millet, potato, soybean, sugarbeet |
| **Heilongjiang** | Maize, rice, soybean, milk, pork, melon, poultry egg, freshwater product, potato, beef, sugarbeet, sorghum, wheat, pome fruit, mutton, fiber crop |
| **Henan** | Wheat, maize, melon, pome fruit, peanut, rice, poultry egg, pork, milk, freshwater product, soybean, grape, temporary oilseed crop, beef, mutton, tobacco, berry, millet, sugarcane |
| **Shandong** | Wheat, maize, pome fruit, melon, seawater product, poultry egg, peanut, pork, milk, freshwater product, grape, rice, beef, berry, soybean, mutton, fiber crop, millet |



**Fig. S3.** Rice, wheat, maize distribution and their proportion of grain sowing area

*Data sources*: National ecosystem Science Data Center (<http://www.nesdc.org.cn/>) and National Bureau of Statistics (<https://data.stats.gov.cn/easyquery.htm?cn=E0103>)

**Table S2**

Indexes and characteristics of China’s agricultural natural zones and subzones.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Natural region** | **Natural zone and subzone** | **Temperature index (℃)** | | | **Main vegetation and soil** | **Agricultural characteristics** |
| **Eastern region** |  | ≥10℃ accumulated temperature | Coldest month temperature | Annual mean extreme minimum temperature |  |  |
| **Temperate zone** | **<4500** | **<0** | **<-10** |  |  |
| Cold temperate zone | <1700 | <-30 | <-45 | Coniferous forest, fuller ash soil | A very early season crop |
| Middle temperate zone | 1700-3500 | -30 - -10 | -45 - -25 | Coniferous and broad-leaved mixed forest, dark brown soil | One crop a year, mainly spring wheat |
| Warm temperate zone | 3500-4500 | -10-0 | -25 - -10 | deciduous broad-leaved forest, brown soil | Two years for three crops, mainly winter wheat, apples and pears |
| **Sub-tropical zone** | **4500-8000** | **0-15** | **-10 - -5** |  | **Growing cooler crops in winter and warmer crops in the hot season** |
| North subtropical zone | 4500-5300 | 0-5 | -10 - -5 | Evergreen deciduous broad-leaved forest, yellow-brown soil | Rice and wheat, tea, bamboo |
| Mid-subtropical zone | 5300-6500 | 5-10 | -5 -0 | Evergreen broad-leaved forest, yellow and red soil | Double cropping rice for two years and three crops, citrus, camellia |
| South subtropical zone | 6500-8000 | 10-15 | 0-5 | Monsoon evergreen broad-leaved forest, red soil | Double-cropping rice crops three times a year, longan and lychee |
| **Tropical zone** | **>8000** | **>15** | **>5** |  | **Temperature-loving crops grow all year round** |
| Borderline tropical zone | 8000-8500 | 15-18 | 5-8 | Semi-evergreen monsoon forest, brick red loam soil | Temperature-loving crops are cropped three times a year, coffee |
| Mid-tropical zone | >8500 | >18 | >8 | Monsoon forest, brick red soil | Mainly woody plants, rubber |
| Equatorial Tropical zone | >9000 | >25 | >20 | Coral island evergreen forest, red soil | Tropical crops |
| **Inner Mongolia and Xinjiang region** | Arid temperate zone | <4000 | <-10 | >-20 | Grassland and desert, brown calcium soil | One crop a year, winter wheat and cotton |
| Arid warm temperate zone | >4000 | >-10 | >-20 | Thicket and desert, brown desert soil | Three crops in two years or two crops in one year |
| **Qinghai- Xizang Region** |  | **>0 ℃** | **Warmest monthly temperature** | |  |  |
| Plateau temperate zone | 1500-3000 | 10-18 | | Mountain coniferous forest, mountain forest soil | Farming and forestry |
| Plateau subarctic zone | 500-1500 | 6-10 | | Alpine grassland, alpine steppe soil | Only animal husbandry |
| Plateau cold zone | <500 | <6 | | Plateau desert, alpine desert soil | No-man's land |

***Sources*:** Resource and environment science and data center (<https://www.resdc.cn/data>)