

COFFEE PRODUCTION IN THE FACE OF CLIMATE CHANGE: CHINA

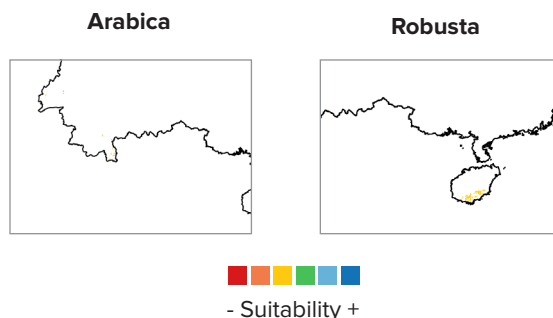
KEY PRODUCTION AREAS IN CHINA

Arabica ■ Robusta ■



Over 95% of coffee is grown in Yunnan province. Pu'er is the most important prefecture for the production of Arabica coffee. Small amounts of Robusta are grown on the Hainan Island in South China and in Fujian province. Robusta production is estimated to be less than 5% of China's total coffee production.

Changes in suitability between today and 2050 ⁽¹⁴⁾



OBSERVED AND PREDICTED EFFECTS OF CLIMATE CHANGE IN COFFEE PRODUCING AREAS ^(6,7,8,13)



Rising Temperatures

- In Southeast China, temperatures are projected to increase by about 3°C by 2100.
- Observed decrease in cool nights and increase in warm nights since 1960.



Changing Seasonality

- Observed changes in seasonal precipitation:
- Increase in summer rain since 1990s
- Spring and autumn rains decreased significantly at rates of > 3 mm/decade.



Changing Rainfall

- Moderate increase of rainfall (0-10%) in south and south-east China by 2100
- Variability of rainfall is expected to increase.



Extreme Weather Events

- Drought frequency and severity has increased in mainland China.
- Increased average number of heavy rainy days in the South.
- Cold weather incidences linked to weaker jet-streams may become more likely.

LIKELY IMPACTS OF CLIMATE CHANGE ON COFFEE PRODUCTION

Predicted changes in coffee producing areas:

- Detailed forecasts of the effect of climate change on land suitability for coffee are not available.
- The majority of Arabica growing areas are located at altitudes above 1,000m, making them less susceptible to global warm.
- Extreme weather - drought and frost - are expected to cause production losses.

THE IMPORTANCE OF COFFEE IN THE CHINESE AGRICULTURAL SECTOR ^(1,2,3,11,12)

Coffee production and export in 2017/2018

- Arabica: estimated between 80,000-120,000 tons
- Robusta: minor production
- (Rising) internal consumption figures make China a net-importer of coffee. Internal consumption is rising fast.
- About 50% of exports are in processed form

Area under coffee production

Arabica
> 120,000 ha

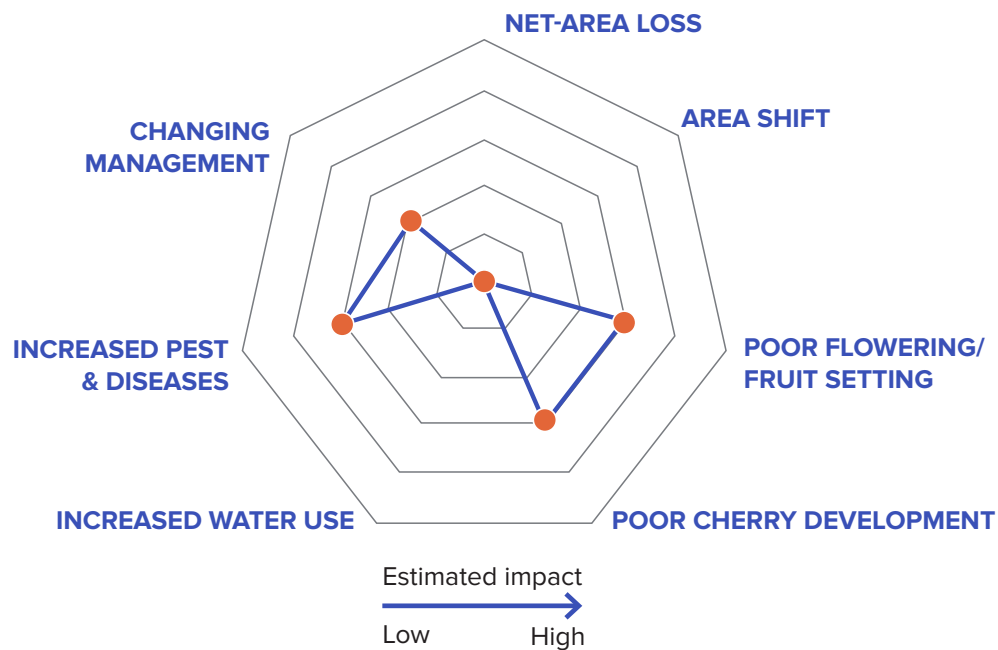
Farms

- Production is dominated by > 200,000 smallholders.
- Few large estates exist.

Importance in the national economy

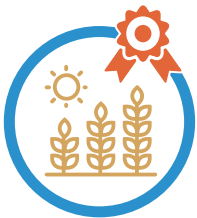
- No data available.

LIKELY IMPACTS OF CLIMATE CHANGE ON COFFEE PRODUCTION



- The fast expansion of coffee area can be considered a problem, but is not related to climate change.
 - Cold spells can significantly reduce or even destroy the seasonal crop entirely.
 - Diversification with cold and drought resistant crops can increase resilience of farmers.
- Pests and disease are a serious threat to coffee growers in China. Coffee Leaf Rust and Anthracnose are widespread.⁽²⁾ Increasing temperature will create more favorable conditions for these diseases and pests like the Coffee Berry Borer.^(9,10)

PRODUCTION STANDARDS AND PRACTICES



CERTIFIED PRODUCTION

- About 20,000 tons of coffee were certified with the 4C standard.
- Other, less common standards are UTZ, CAFE Practices and Organic.



FARM PRACTICES

- Most Arabica coffee is the Coffee Leaf Rust resistant Catimor variety.^(4,5)
 - Other varieties such as Typica and Bourbon are planted with the expectation to access the specialty coffee segment.⁽⁴⁾
 - About 70% of coffee farms are monoculture. The remainder is intercropped with fruit trees.⁽¹²⁾



FARM ECONOMY

- Average productivity is above 1 ton/ha.⁽¹²⁾
 - Coffee production is subsidized, stimulating the expansion of coffee growing areas.⁽¹¹⁾
- Farmers are to some extent able to hold coffee waiting for better prices.⁽¹²⁾

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