

COFFEE PRODUCTION IN THE FACE OF CLIMATE CHANGE: MEXICO

KEY PRODUCTION AREAS IN MEXICO



The majority of coffee is produced in the southern Sierra Madre mountains. About 90% of national production comes from Chiapas, Oaxaca, Veracruz and Puebla.⁽¹⁷⁾ Roughly 1,600 ha in Chiapas and 2,000 ha in Veracruz have been converted from Arabica coffee to Robusta for the production of soluble coffee.⁽²⁾

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



Rising Temperatures

- Temperatures are projected to increase by 2.1-2.2°C in the Sierra Madre de Chiapas and Veracruz by 2050.



Changing Seasonality

- Increased frequency or duration of the El Niño with dry weather
- The maximum number of dry months is expected to increase from 5 to 6 months in Veracruz



Changing Rainfall

- Rainfall in the Sierra Madre is forecasted to decrease by 4-5% by 2050.



Extreme Weather Events

- The Chiapas coastal region will likely be affected by increasing frequency and intensity of hurricanes.

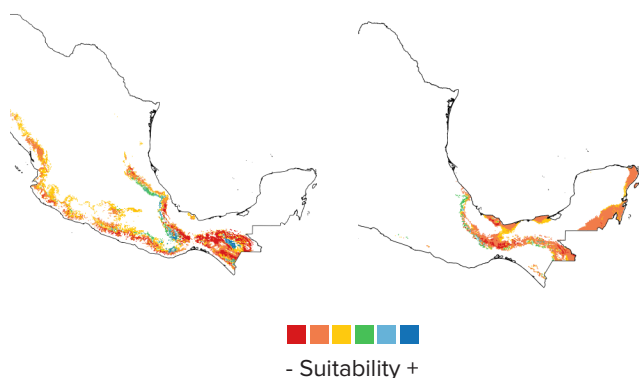
LIKELY IMPACTS OF CLIMATE CHANGE ON COFFEE PRODUCTION

Predicted changes in coffee producing areas:

- Rising temperatures will have negative impacts on coffee production at lower elevations, potentially causing a shift of the coffee growing areas to higher elevations.^(7,11)
- The estimated loss of areas suitable for Arabica coffee production by 2050 varies from 29% - 53.2%.^(9,10) Farmers growing Arabica below 900 m will most likely have to shift to other crops, including Robusta coffee.⁽⁷⁾
- Veracruz is projected to experience a 32% decrease in land suitable for high (high acidity/quality) coffee production.⁽⁸⁾
- The conditions for Arabica coffee above 1,700 m will likely improve. However, the actual room for expansion of coffee to higher altitudes is limited by other land uses, incl. forests and protected areas.⁽⁷⁾
- The potential area for growing Robusta may be reduced by up to 80% in 2050.⁽⁶⁾

Arabica

Robusta



Changes in suitability between today and 2050 ⁽¹⁵⁾

THE IMPORTANCE OF COFFEE IN THE MEXICAN AGRICULTURAL SECTOR ^(1,2,3,4,5,6,14,17)

Coffee production and export in 2017/2018

- Arabica: 240,000 tons,
- Robusta: < 10,000 tons
- Imports coffee products: > 50,000 tons
- Internal consumption and export are roughly equal

Area under coffee production

Arabica
500,000 ha
Robusta
80,000 ha

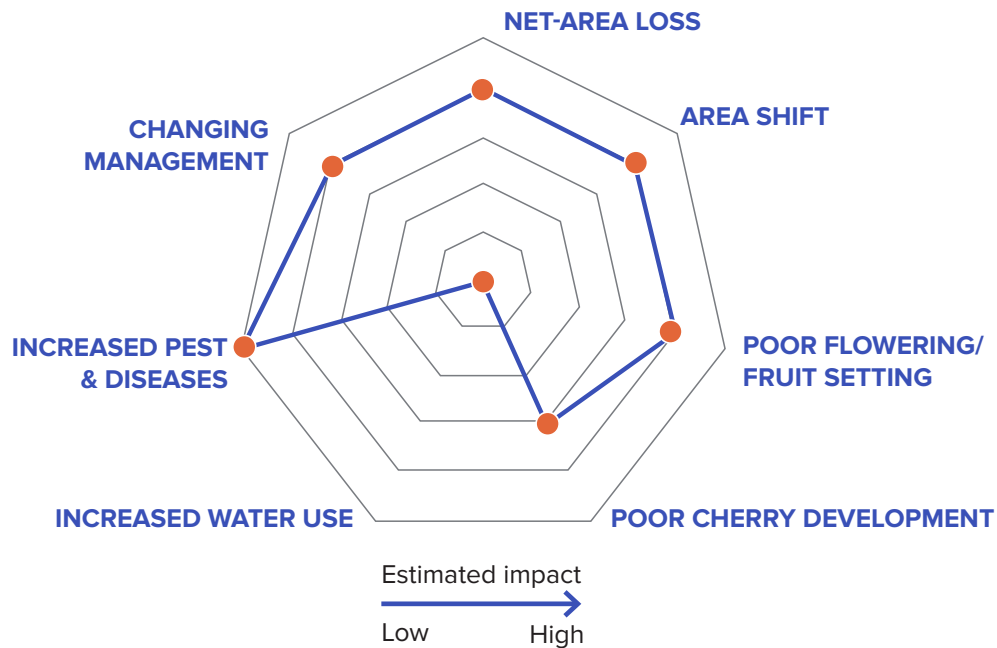
Farms

- More than 500,000 smallholders (0.5-1.5 ha) cultivate about 60% of the total area and produce about 40% of coffee.

Importance in the national economy Coffee generates:

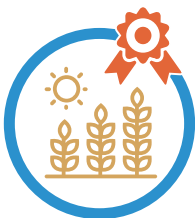
- 0.1% of export revenues in 2015
- 0.07% of gross domestic product

LIKELY IMPACTS OF CLIMATE CHANGE ON COFFEE PRODUCTION



- Bee species are projected to decline in Central and Southern America because of the warming climate by 2050⁽¹⁰⁾, potentially reducing pollination.
- If rainfall events in the onset of the rainy season decrease or are too heavy, the coffee plant may drop its flowers and fruit, producing beans of smaller size and lower quality.⁽⁷⁾
- Coffee Leaf Rust has caused significant production losses.⁽²⁾ Higher temperatures are expected to increase the spreading of coffee pathogens, especially at higher altitudes.⁽¹²⁾
 - Droughts will increase the risk of wildfires in coffee growing regions.⁽⁷⁾
- Adaptation measures include the planting of coffee varieties resistant to high temperatures and drought, and processing technologies which require less water.⁽⁷⁾

PRODUCTION STANDARDS AND PRACTICES



CERTIFIED PRODUCTION

- Certified coffee is produced by about 7-8% of growers.⁽²⁾
- About 10% of coffee exported is certified as organic.⁽¹²⁾



FARM PRACTICES

- Coffee is largely grown under forest shade and partly in agroforestry systems with fruit trees.^(2,13)
- In recent years, Coffee Leaf Rust caused substantial losses. On many coffee farms, trees are old, good practices are not implemented, and fertilizer use is low/incorrect.⁽²⁾
- Coffee is traded washed or semi-washed. Wet-processing on-farm is common.⁽⁷⁾



FARM ECONOMY

- The average yield of smallholders is very low with 0.2-0.4 tons/ha.^(2,17)
- Most smallholders rely exclusively on coffee for income.⁽⁵⁾ Producers reported higher production costs than income in 2018.⁽³⁾
 - Farm labor accounts for > 80% of production costs.⁽²⁾
- Farmers receive an estimated 70% of export prices.⁽¹⁷⁾

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