

# Fairtrade and Climate Change: Analyzing Impacts on Cocoa Producers in Ghana

## Introduction

Climate change is expected to severely affect agricultural production in the future. Identifying future climate change impacts on certified agricultural producers remains a challenging task. There is numerous case-study evidence on past climate change impacts for different regions and crops. Such knowledge is however not always transferrable to other regions. Additionally, global studies on potential climate change impacts on main agricultural products present an overview of potential future impacts, while neglecting regional economic, cultural, and biophysical contexts. The aim of this study was to understand climate change impacts on farmers and cooperatives and how well climate change projects are addressing farmers and the cooperatives' needs, in this case among cocoa producers in Ghana.

## Methodology

- A systematic review of documentation, surveys, and a hotspot analysis was conducted to understand the impacts of climate change on Fairtrade cocoa producers in Ghana.
- Agroclimatic indicators commonly applied to describe plant-climate interactions were used (Nobakht et al. 2019).
- The latest Representative Concentration Pathways (RCP) scenarios were used when looking at future climate change. Two scenarios were studied: RCP4.5 and RCP8.5.
- In the RCP4.5 scenario, greenhouse gas emissions and consequent radiative forcing stabilizes in the year 2100 and is thus a mitigation scenario (Thomson et al. 2011).
- In the RCP8.5 scenario, greenhouse gas emissions remain high due to absence of climate change mitigation policies (Riahi et al. 2011).

## Results

- Under a high-emission scenario, all cocoa producing locations will experience considerably more heat stress.
- Fairtrade production regions seem to be less affected by climate change indicators (consecutive dry days, warm spell duration index, extreme rainfall events) compared to other, non-Fairtrade production regions for the same crops.

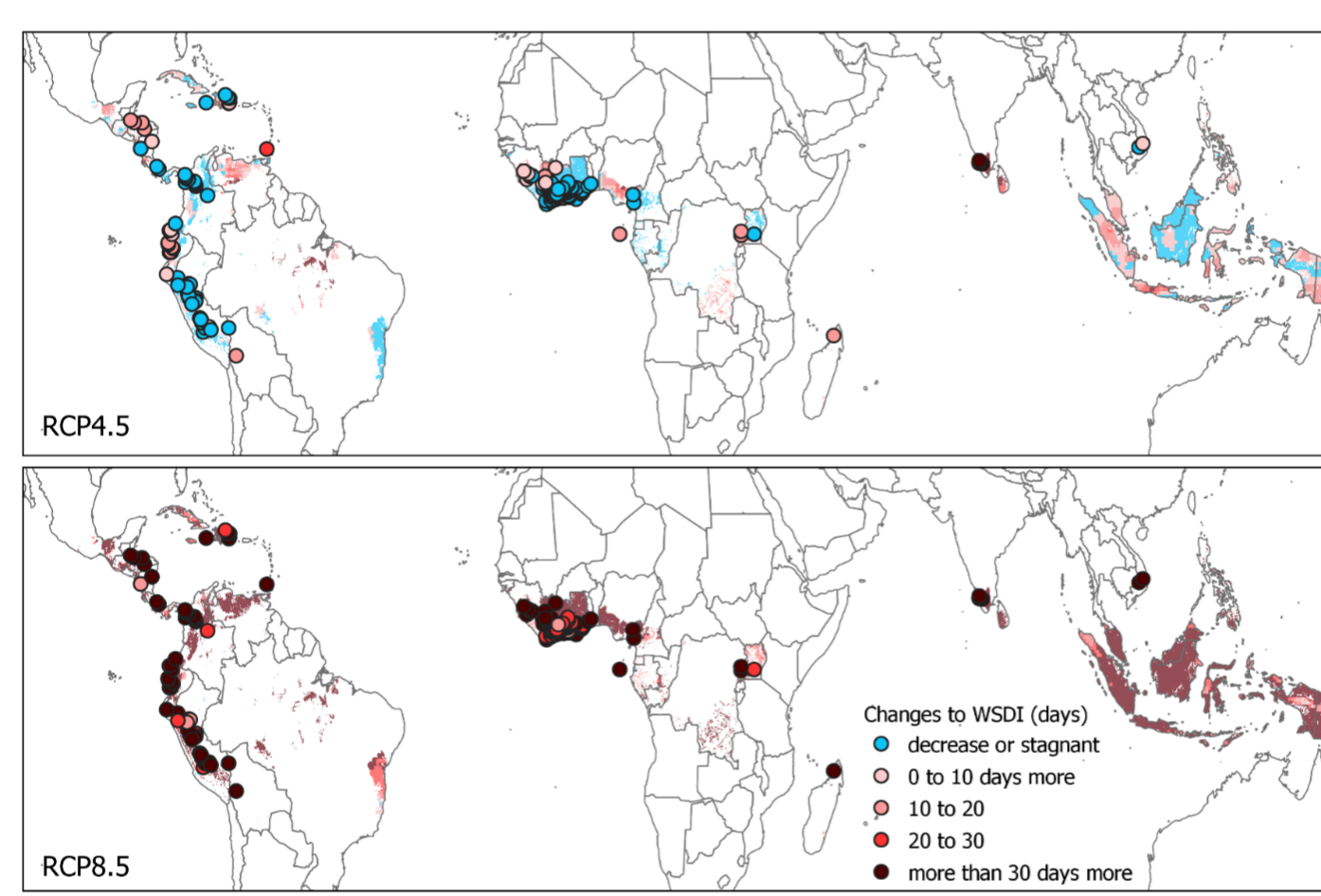


Figure 1: Changes to the warm spell duration index (WSDI, in days) in cocoa producing regions (surfaces) and Fairtrade cocoa producers (points)

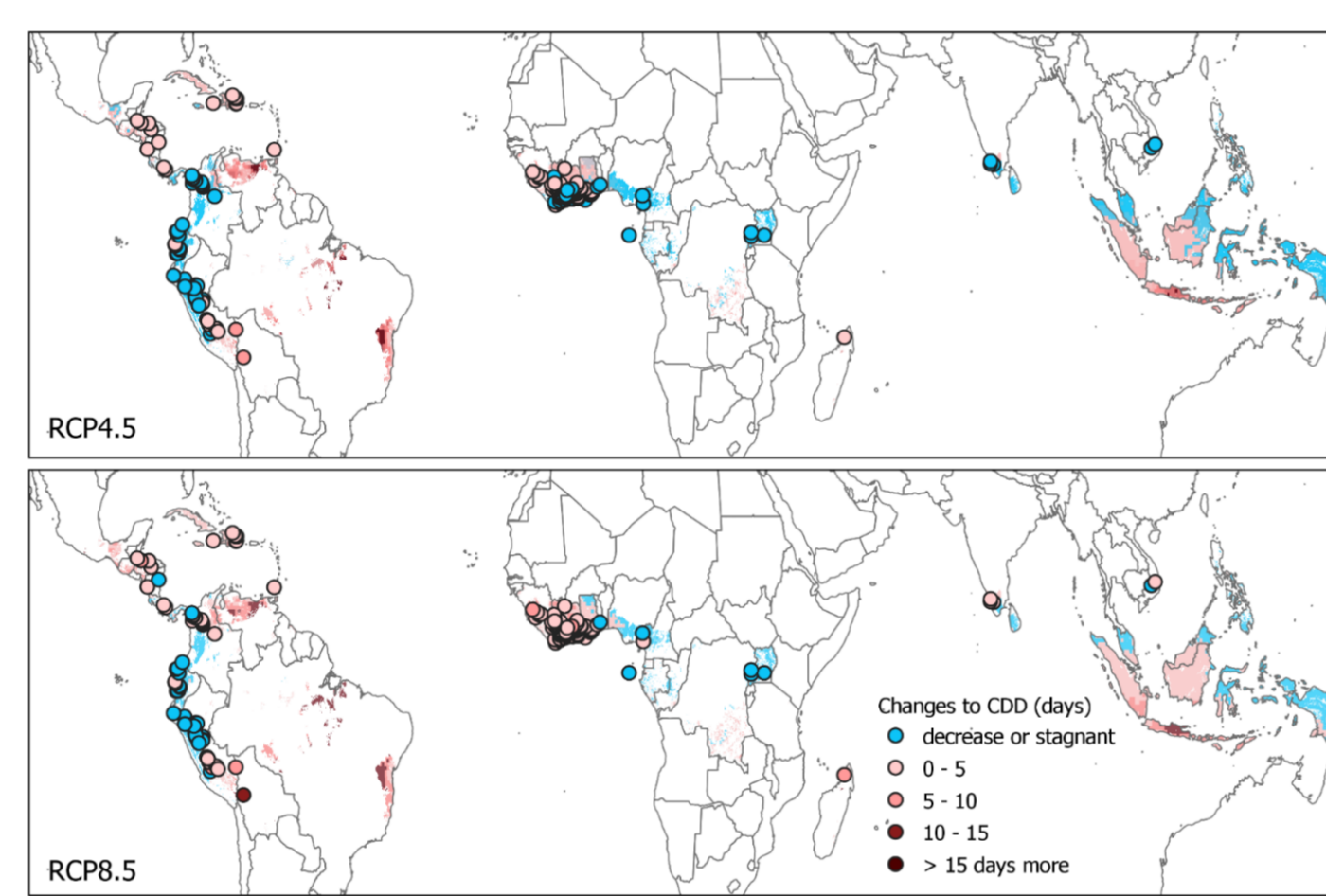


Figure 2: Changes to consecutive dry days (CDD, in days) in cocoa producing regions (surfaces) and Fairtrade cocoa producers (points)

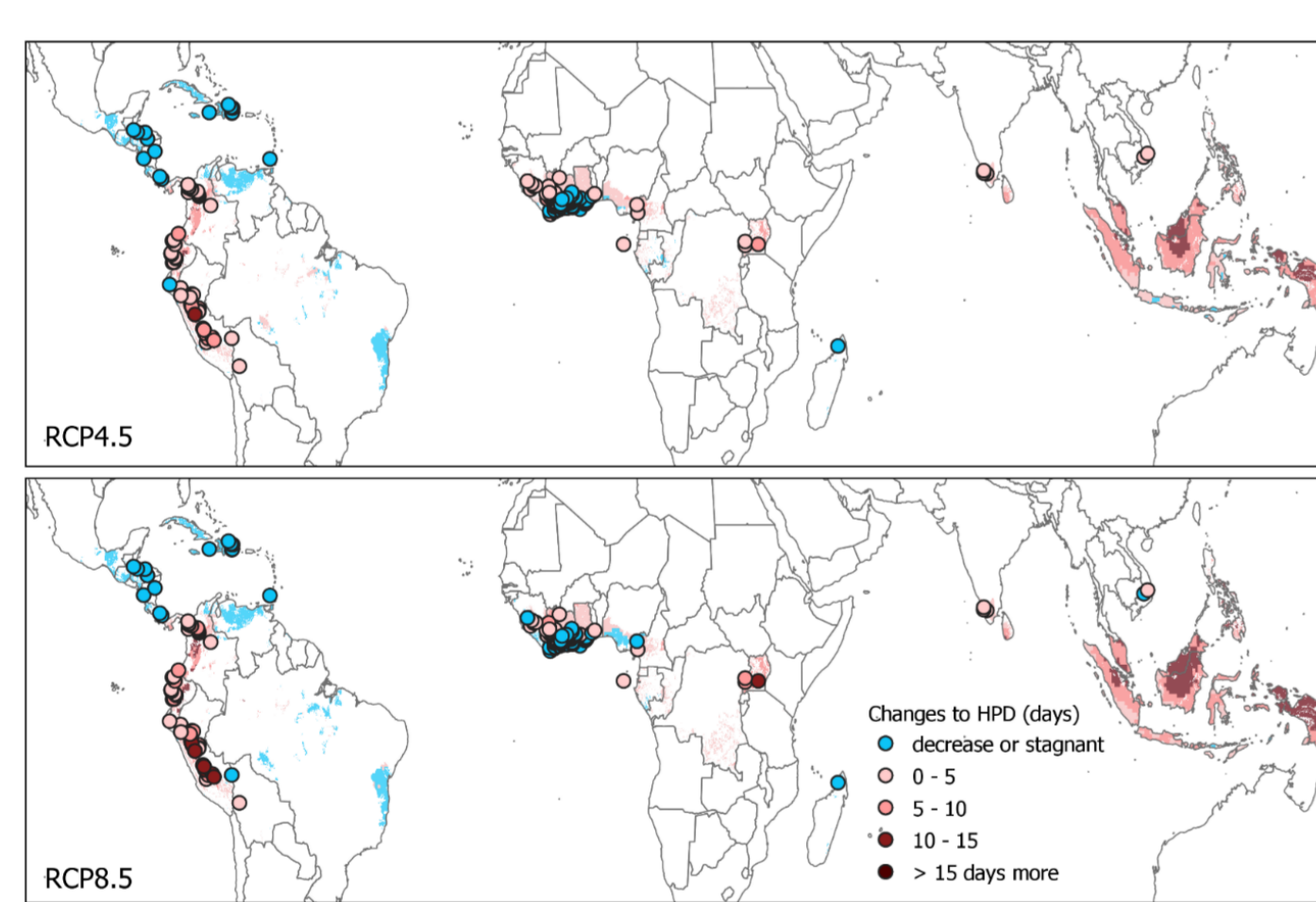


Figure 3: Changes to heavy precipitation days (HPD, in days) in cocoa producing regions (surfaces) and Fairtrade cocoa producers (points)

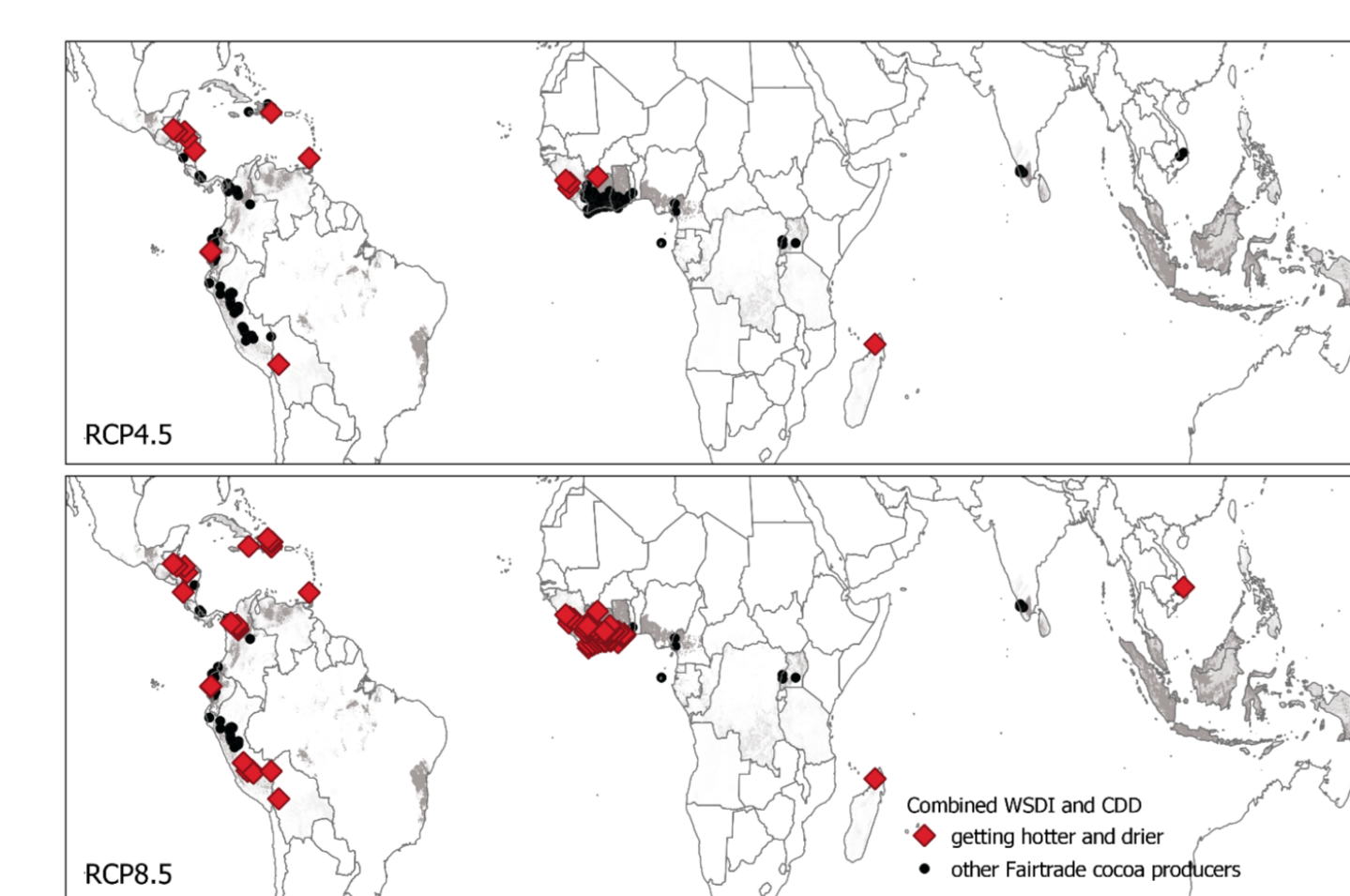


Figure 4: Identified Fairtrade cocoa producing areas, that will get both drier (increase in consecutive dry days) and hotter (increase in the warm spell duration index)

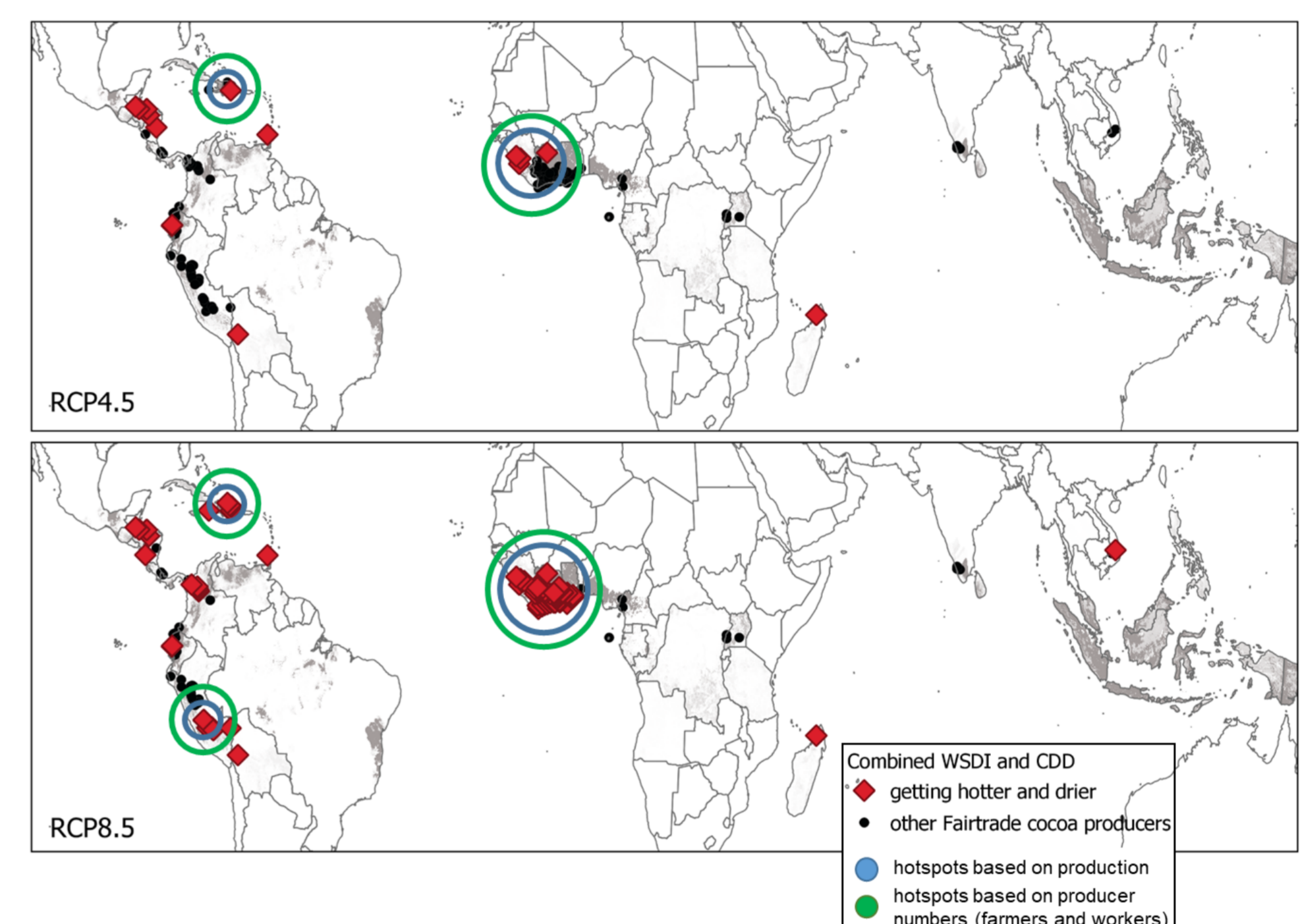


Figure 5: Hotspots of climate change impacts based on Fairtrade cocoa production and producer numbers

- Results of interviews with Fairtrade Producers Organizations and the farmer survey indicate that farmers are aware of severe changes which demand a shift in their agricultural practices and livelihoods.
- In comparison to other crops in the identified hotspot areas, cocoa farmers in Ghana reported the severest climate change impacts, particularly a negative effect on yields. Mitigation strategies include planting shade trees and implementing improved agricultural practices.

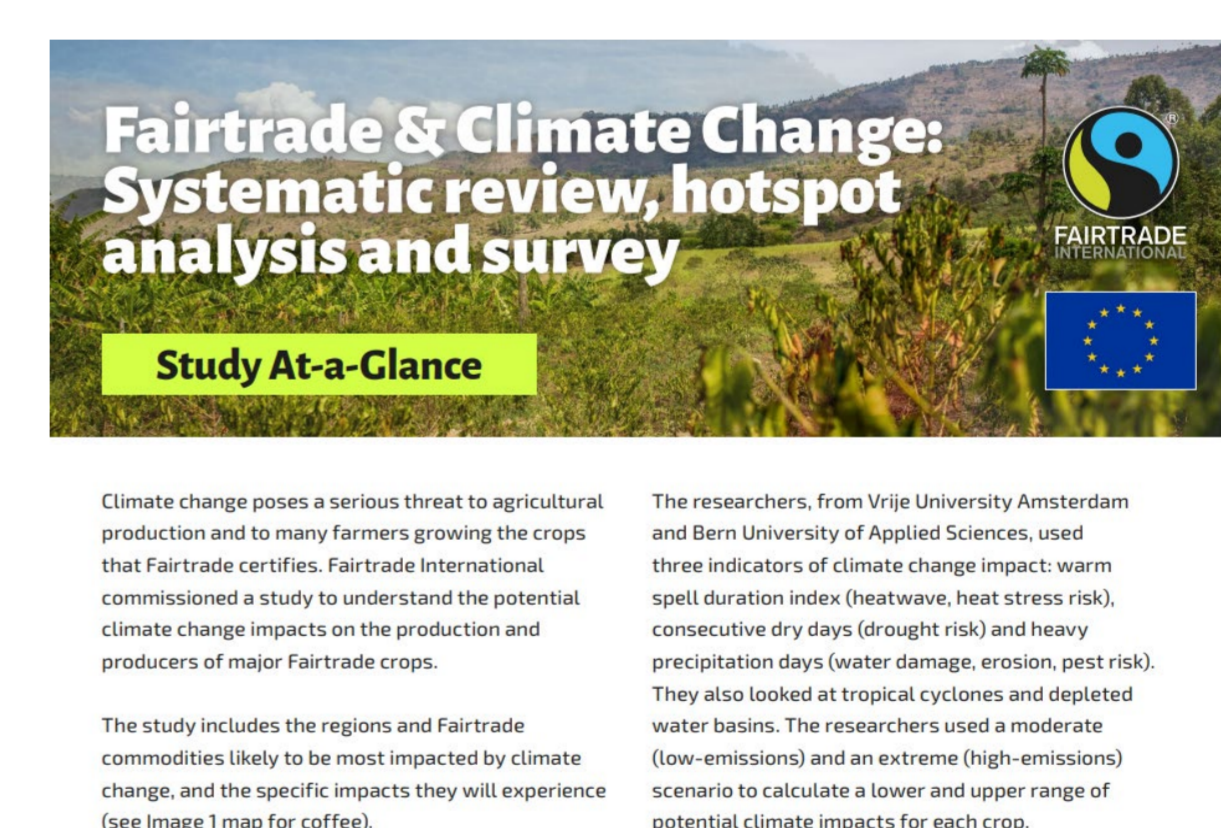


Figure 6: Final Report available at <https://www.fairtrade.net/library/fairtrade-and-climate-change-systematic-review-hotspot-analysis-and-survey>

## Conclusion

West Africa is among the geographic areas that will be most impacted by future heating and consecutive dry days. Fairtrade production regions seem to be less affected by climate change indicators (consecutive dry days, warm spell duration index, extreme rainfall events). In Ghana, overall responses and the degree of changes in practices vary considerably between farmers. The right interventions could help cocoa farmers mitigate these effects.

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