氣候變遷下茶樹受乾旱之衝擊
The impact of drought on tea under climate change

國家災害防救科技中心

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摘　要

茶樹為臺灣重要的高經濟作物之一，受天然災害影響造成損失最大的前三名類別，分別是低溫、颱風與旱災。最適合茶樹生長的環境為日均溫約18~25℃，年降雨量最少1,500㎜，而生長期月降雨量需多於100㎜。近年來氣候變遷衝擊影響，極端高溫與連續不降雨日數增加等氣候變異，影響著茶樹的生長，近10年茶樹因乾旱造成的損失有明顯增加趨勢。最近一次乾旱事件發生於2020年夏季至2021上半年間，由於2020年沒有來自侵臺颱風降雨的貢獻，以及來年春季降雨偏少，此乾旱事件前後歷時12個月，使得茶樹面臨嚴重的乾旱問題。根據2021年行政院農業委員會農糧署統計資料顯示，茶樹的種植面積為12,251公頃，年產量為11,883公噸，相較於過去10年，其產量有明顯減產的趨勢。對於未來氣候情境下，月雨量不足，茶樹適栽區減少，將影響整個茶樹經濟產值。本研究使用國科會「臺灣氣候變遷推估資訊與調適知識平台」計畫所產製之未來情境下網格化推估資料，進一步分析不同區域茶樹降雨門檻值，評估暖化情境下茶樹種植區域的乾旱衝擊，以提供後續農業擬定茶樹調適作為之參考。

關鍵詞：氣候變遷、災害、乾旱、茶樹

Abstract

Tea is one of Taiwan's important high economic crops of which losses are caused by natural disasters like low temperature, typhoons, and drought as the top three. The most suitable environment is daily average temperature ranging from 18 to 25°C, the annual rainfall amounting 1,500mm, and the mean monthly rainfall amounting more than 100mm for productivity of tea crop. In recent years, due to impacts of climate change, climate variability such as extremely high temperatures and the increase in the number of consecutive days without rainfall, have affected the growth of tea, as a result, the losses of tea due to drought have increased significantly in the past 10 years. The extreme drought event in the period of 2020 summer to 2021 summer that occurred 12 months duration. The typhoon precipitation contributed important water resource, 2020 non typhoon rainfall and the decrease spring rainfall in 2021 induced this extreme event. This condition affected many crops included the high economy agriculture of tea. According to the statistics from the Agriculture and Food Agency, Council of Agriculture, Executive Yuan, in 2021, the planting area of tea is 12,251 hectares, and the annual output is 11,883 metric tons, compared with the past 10 years, there is an evident decreasing tendency in production. In the future climate scenario, the lack of monthly rainfall and the reduction of suitable tea planting areas will affect the economic output value of the entire tea market.

We used the future projection gridded data constructed by "Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP)" which provided high special and time resolution atmosphere information to evaluate the drought events applying to the impact of tea crops as reference for agricultural adaptation of tea.

Keywords : Climate change , disaster , Drought , Tea