氣候變遷農業客製化臨界門檻改變量圖資研發

The study of the customized critical threshold change map for climate change in agriculture

國家災害防救科技中心

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摘　要

氣候變遷的影響為近年研究重要課題，除全球溫度升溫以外，也造成降雨、颱風等氣象因子的變化，對於氣候敏感度高的農作物來說，更有必要掌握氣候因子的變化，作為防災與調適之參考依據。

本研究以行政院農業委員會之作物防災栽培曆，作為常見災害臨界門檻參考，分析歷史氣候資料與氣候變遷推估資料(臺灣氣候變遷推估資訊與調適知識平台計畫，TCCIP)，計算其每月平均發生日數變化量，並以極座標圖(Polar)為概念，設計扇餅狀圖資，以一年 12 月份週期式展示，完成特定作物各月份氣象因子變化，可同時呈現溫度、雨量於未來與歷史情形之變化圖資。以雲林縣水稻為例，於 12 至 3 月低溫小於 15℃平均發生日數減少 12.7 至 10 日之間；而 6 至 9 月高溫大於 35℃平均發生日數增加 0.9 至 9.2 日之間；7 至 9 月日雨量大於 200 ㎜ 平均發生日數則增加約 0.1 日。於實務上，期可用於未來產期調節、品種改良或政策研擬等參考。

關鍵詞：氣候變遷，作物防災，圖資

Abstract

The impact of climate change is an important subject of research in recent years, in addition to global temperature rise, it also causes changes in meteorological factors such as rainfall and typhoons. Consequently, it is more necessary to understand those climate factors that related those highly climate-sensitivity crops and developed the reference basis for disasters prevention and adaptation methods.

The "Disaster preventing culture calendars" of the Council of Agriculture (COA) were employed in the study. It was the main reference for critical thresholds for common hazards, and analyzes historical climate data as well as climate change projection data obtained from the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP). By calculating the monthly change in the average number of days, a pie-shaped graph with the concept of polar coordinates is designed, which presents the changes of meteorological factors in each month of a specific crop in the form of 12 months of a year, along with the changes in temperature and rainfall in the historical and the future situations. In case study of the rice production in Yunlin County, the average number of days with low temperature below 15°C from December to March decreased by 12.7 to 10 days, while the average number of days with high temperature above 35°C increased by 0.9 to 9.2 days from June to September; From July to September, the average number of days with daily rainfall greater than 200 mm increased by about 0.1 days. In practice, it can be used expectedly as a reference for production adjustment, variety improvement or policy research in the future.

Keywords: Climate change，Crop disaster prevention，Graphics