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[Abstract Title]

Study on the regional difference of the influence of climate and non-climate change on cotton yield in Hubei Province

[Abstract]

Hubei Province is one of the most important cotton production provinces in China. Climate change and non-climate change have an important impact on cotton growth. Therefore, based on the data of temperature, precipitation, solar radiation, effective irrigation area, agricultural fertilizer application and cotton varieties in Hubei Province from 1986 to 2016, a panel regression model is established to calculate the impact and relative contribution rate of the trend and fluctuation of climatic and human factors on cotton yield. The results show that:

- (1) The fluctuation of climatic and human factors have a greater impact on cotton yield, compared with the trend of climatic and human factors.
- (2) Temperature and solar radiation have a positive impact on cotton yield of most cities in Hubei Province, while precipitation has a negative impact on cotton yield of most cities in Hubei Province. Effective irrigation area, agricultural fertilizer application and cotton varieties have a positive impact on the cotton yield of most cities in Hubei Province.
- (3) Temperature, precipitation and effective irrigation area are the leading factors affecting the cotton yield of most cities in Hubei Province.



(4) The main reason for the increase in cotton yield of Wuhan city and other cities in 1986-2016 is that the positive impact of human factors on cotton yield counteracts the negative impact of climatic factors on cotton yield.

[Keywords]

climate change; trend; fluctuation; cotton; regional differences; Hubei Province