

Assessing the Impact of Climate Change on Pulses Production in Khyber Pakhtunkhwa, Pakistan

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Abstract : Climate change and crop production are intrinsically associated with each other. Therefore, this research study is designed to assess the impact of climate change on pulses production in Southern districts of Khyber Pakhtunkhwa (KP) Province of Pakistan. Two pulses (i.e. chickpea and mung bean) were selected for this research study with respect to climate change. Climatic variables such as temperature, humidity and precipitation along with pulses production and area under cultivation of pulses were encompassed as the major variables of this study. Secondary data of climatic variables and crop variables for the period of thirty four years (1986-2020) were obtained from Pakistan Metrological Department and Agriculture Statistics of KP respectively. Panel data set of chickpea and mung bean crops was estimated separately. The analysis validate that both data sets were a balanced panel data. The Hausman specification test was run separately for both the panel data sets whose findings had suggested the fixed effect model can be deemed as an appropriate model for chickpea panel data, however random effect model was appropriate for estimation of the panel data of mung bean. Major findings confirm that maximum temperature is statistically significant for the chickpea yield. This implies if maximum temperature increases by 1 0C, it can enhance the chickpea yield by 0.0463 units. However, the impact of precipitation was reported insignificant. Furthermore, the humidity was statistically significant and has a positive association with chickpea yield. In case of mung bean the minimum temperature was significantly contributing in the yield of mung bean. This study concludes that temperature and humidity can significantly contribute to enhance the pulses yield. It is recommended that capacity building of pulses growers may be made to adapt the climate change strategies. Moreover, government may ensure the availability of climate change resistant varieties of pulses to encourage the pulses cultivation.

Keywords : climate change, pulses productivity, agriculture, Pakistan

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