

ABSTRACT

Cotton as a major cash crop in Pakistan is recognized as the country's economic backbone. It accounts for about 0.8 percent of total GDP and 4.1 percent of the overall agriculture value addition. In the last 2 decades, there is a decrease of 10 percent in the area, 10.02 percent in production, and 1 percent decrease in yield. The farmers hesitate to take risk of growing cotton and shift towards other crops. During the same time period, the trend has clearly shown a major shifting of cotton crop toward rice, sugarcane, maize, and fruits. The primary data were collected from 100 farmers located in 4 tehsils of district Khanewal during 2021. The secondary data was taken from various government websites from 1991 to 2020. The objective of this research was to examine the past trend and future forecast of the area, production and yield of cotton crop. The present study also aimed to find the alternative crops being replaced with cotton. The study also identified the factors affecting the decline of cotton area in the major “Cotton-Wheat System” districts of Punjab. Cotton area, production, and yield was forecasted through ARIMA model. Multiple Liner Regression Model was used to determine the relationship between cotton yield and different explanatory variables. This study finds that the major alternative crops which replaced cotton were rice (35%), maize (22%), citrus (12%), other crops (28%). 3% farmers were found those who did not replace their cotton crop with any other. Age, education, cotton growing experience, total income, and land preparation cost has positive and significant impact on cotton yield. The value of R^2 was 0.286. One of the major causes of this diversion towards alternative crops is continuous increase in temperature. This continuous increase is damaging the cotton crop. In early stage of cotton, the rise in temperature increase humidity, this increase in humidity provides favorable environment to the white fly which is the major pest of cotton. The present study found that more time consuming, high cost of production and highly effected by high temperature as the major social, economic and environmental challenges/constraints respectively. Non availability of canal water and unfit quality of ground water, attack of pests, high cost of production and less demand by local consumer were also issues found in cotton cultivation. Improvement in supply of canal water, proper management of crop residue, allocation of special zones for cotton and sowing of genetically improved varieties resistant to high temperature, and produce good quality lint are some recommendations for the revival of cotton crop in the study area.

Key words: Cotton, forecasting, alternative crops, temperature, cotton yield