



Tropentag, September 9-11, 2020, virtual conference

“Food and nutrition security and its resilience
to global crises”

Bt Cotton Technology Impacts on Agricultural Land Use Dynamics of Nagpur District of Maharashtra in India

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Abstract

Sustainable land management is now recognised as a major policy instrument due to severe land degradation problem in India. Understanding the temporal dynamics and trends of agricultural land use will help in planning suitable efforts to materialise the long term sustainable land management goals and improvement in life quality standards of the farmers of the region. In this perspective we analyse the temporal dynamics of agricultural land use change in Nagpur district of Maharashtra in the perspective of Bt cotton adoption since the year 2002. This study finds that a 3.84 percent growth in area under cotton cultivation in Nagpur district for the period 2000–20001 to 2017–18 and a 9.27 percent growth in production for the period studied. Cotton area, production and its yield has shown a significant improvement in the state since year 2000–2001. The study finds negative growth in area and production in case of then major crops of the district viz Black gram, Soybean, Green gram and Sorghum. The increase in the area of cotton finds to be at the cost of other competing crops like millets and other pulses, given inelastic supply nature of land. Cotton got an utmost importance in Nagpur district over the study period as revealed by the compound growth rate (CAGR) analysis. Growth performance of the cotton sector of Nagpur district is examined with a break up into two sub-periods viz; 2000–01 to 2008–09 , 2009–10 to 2017–18 and 2000–01 to 2017–18. The significant and positive growth trends in cultivated area for few crops such as cotton, rice and red gram in the studied district clearly show that there is shifting from diversified cultivation to intensive monoculture which adversely affect the sustainable land management in the area.

Keywords: Bt Cotton, compound agricultural growth rate, sustainable land management, temporal land use dynamics