World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:17, No:06, 2023

Mapping the Land Use Changes in Cultivation Areas of Maize and Soybean from 2006 to 2017 in North West and Free State Provinces, South Africa

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Abstract : There is high demand and competing needs when it comes to land use practices. Several factors contribute to this trend, for example, the ever-increasing human population, the need to produce more food than before, and the expansion of industrial and agricultural areas. This paper, focused on the cultivation patterns, land use change over time, of maize and soybean (i.e. both genetically modified and non-genetically modified) in two South African provinces to establish their land cover changes over time. From a global context, genetically modified crops have been advocated by some to be saving land – due to more yield over small cultivation area(s); while other argue and even criticise their cultivation as they take up more land, replace other crops or are the expense of natural (pristine) vegetation. The study quantified and mapped land used for the cultivation of maize and soybean from 2006 to 2017 in Free State and North West provinces, using ArcGIS. The results show both provinces to have minimal expansion or change in cultivation area for both maize and soybean between 2006 and 2017. The results further indicate that both maize and soybean cultivation areas in these provinces, did not expand beyond the current agricultural areas (space), and did not encroach onto new land areas. This suggests that both maize and soybean, do not currently pose a threat to the surrounding landscape and are not in direct coemption with other neighboring land use practices.

Keywords : agriculture, crops, cultivation, genetically modified, land use, maize, soybean
Conference Title : ICABBBE 2023 : International Conference on Agricultural, Bioengineering, Biological and Biosystems Engineering
Conference Location : San Francisco, United States
Conference Dates : June 05-06, 2023