

Climatic Change and Agricultural Production

Vera POPOVIĆ^{1*}, Zoran JOVOVIĆ², Ana MARJANOVIĆ JEROMELA¹,
Sanja MIKIĆ¹, Vladimir SIKORA¹ and Ljubica ŠARČEVIĆ TODOSIJEVIĆ³

¹ Institute of Field and Vegetable Crops, Institute of National Importance for the Republic of Serbia, Novi Sad, SERBIA

² University of Montenegro, Biotechnical Faculty, Podgorica, MONTENEGRO

* Correspondence: vera.popovic@ifvcns.ns.ac.rs; Tel.: +381 64 820 5733

Introduction

Climatic extremes have demonstrated the sensitivity of agriculture to climate change. Climate changes shifting climate variables: temperature, precipitation, humidity, evaporation, sunlight, wind speed, etc. Climatic change has created challenges for the agricultural sector, adding to pressures on global agricultural and food systems [1]. Many crops have negative impacts from extreme weather, droughts, floods, higher temperatures and season shifts that climate change brings. Flood and excess rain over a short duration of time cause extensive damage to crops. Rising temperatures and water stress have already led to lower crop yields for maize, wheat, soybean, sunflower, buckwheat, flax and other crops which typically relies on precipitation instead of irrigation. The rising temperature has adverse effect on flowering and leads to pests and disease buildup.

Results and Discussion

Potato production may be positively impacted by elevated CO₂ concentration, as reported by the experts at the Central Potato Research Institute, where they claimed that potato yield will increase by 11.12 per cent at elevated CO₂ of 550 PPM and 1°C rise in temperature. However, further increase in CO₂ with a likely rise in temperature by 3°C will result in decline in production by 13.72 per cent in the year 2050 [2].



Many studies show that global maize yields were 3.8 percent smaller than they would have been without warming and that wheat yields were 5.5 percent smaller. A study projected that global wheat yields could drop between 4.1 and 6.4 percent for each global temperature increase of 1 °C. For every country, a decrease like this has a high fall in production and thus a reduction in budget and economic decline.

Climate change threatens global food supply as certain crops become more expensive due to reduced production and supply. Increasing frequency and duration of droughts strongly require adaptation of agricultural crops and their diversification under changed agro-pedological conditions.

In such situations, alternative crops like sorghum and millet should be sown, because they have pronounced resistance to unfavorable abiotic factors and good adaptive capacity towards the dry conditions which prevail during the growing season.

For one country a decrease like this has a high decline in production and therefore reducing the budget i.e. economic weakening.

Conclusion

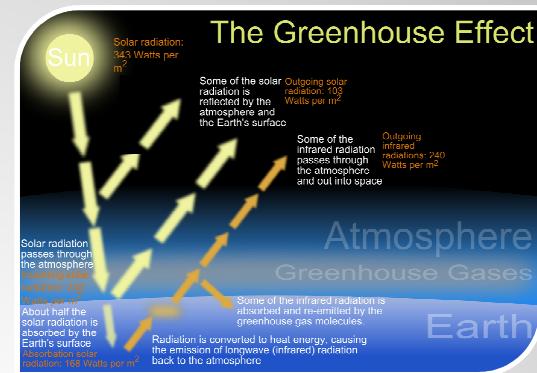
Climate change therefore threatens global food supply as certain crops become more expensive due to a decrease in production and supply.

In such situations, should be introduced into production alternative crops like sorghum and millet, who excel at conditions where the dry season prevails during the growing season of the crop.

The agriculture has to take place and in adverse climatic conditions and enough food will be produced, sowing tolerant varieties to changed environmental conditions.

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The soybean yield and biomass increased for all treatments in the 2030s with positive correlation with the climatic variables. The maximum temperature represented the most significant correlation with yield and biomass for almost all treatments. Finally, soybeans might achieve an optimal threshold temperature in the future, leading to yield increases in the 2030s. Climate change impact assessment can facilitate selection of better adaptation strategies related to irrigation water management [3] and agricultural practices in the future.

