

Impact of Climate Change on Agriculture Sector

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SUMMARY

Climate change and variability are foremost concerns of a human being. Climate change and Agriculture are inextricably linked in a picture of changing climate it affects biodiversity, crop yield, and water use, as well as soil health. Continued rise and fall in the frequency and intensity of precipitation, heat waves, and exciting extreme events are likely will impact agricultural production. Warming is predictable to cause hefty damages to agriculture, disturbing economic status because of the size and sensitivity of the sector. Furthermore, compounded climate factors can decline plant productivity, resulting in an increased price for many important agricultural crops. The occurrence of floods, heat, droughts and cold has adverse impact on the livelihood of farmers. The imbalance between increasing greenhouse gases and human-induced aerosols might lead to uncertainty even in year-to-year monsoon behavior. The overall impacts of climate change on agriculture are expected to be negative, threatening global food security.

INTRODUCTION

Agriculture is extremely vulnerable to climate change. Higher temperature eventually reduces yields of desirable crops while encouraging weed and pest proliferation. Change in precipitation patterns increase the likely hood of short-run crop failures and ling-run production decline. Although there will be gains in some crops in some region of the world. Impacts of Climate Change like hydrologic cycle, includes intense and more frequent floods and droughts in many agricultural regions. Temperature increase by at least 1.0 °C over the next 30-50 years it will decrease number of frost days along with longer growing season in temperate zones.

Climate Change

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity (IPCC, 2006). Climate change refers to a change of climate that is directly or indirectly by human activity that alters the composition of the global atmosphere and climate variability observed over comparable time periods (Shukla *et al.* 2002). Climate encompasses the long-run pattern of numerous meteorological factors (e.g. temperature, humidity, atmospheric pressure, wind, rainfall, sunshine etc.) in a given location or larger region. A change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over a given period of time. Estimates indicate that since 1991, the global atmosphere concentration of carbon dioxide has been increasing at a rate of about 1.8 parts per million. These trace gases in the atmosphere notably carbon dioxide, nitrous oxide and methane called “greenhouse gases” can absorb the heat radiated from the earth. The greenhouse gases prevent the heat radiated from the earth from being escaped into space. Human activities have led to an increase in the concentration of these greenhouse gases in the lower atmosphere, resulting in anthropogenic greenhouse effect which is resulting in global warming and its attendant “climate change”.

Effect of climate change on Agriculture

Crop yields and patterns would change because of changes in: Temperature, CO₂ concentration (fertilization), Precipitation, Precipitation and temperature effects on soil moisture, Infestation of pests and diseases, Reductions in input use efficiencies, Increased frequency of floods and droughts, With high temperatures, nutrient release through organic matter decomposition is not synchronized with the time when the plants nutrient requirement is at its peak level (Fahad and Wang 2017). Higher temperatures with moisture favour the germination of spores and spread of bacteria, fungi and nematodes. If climate change results in excessive rainfall, nutrient losses through leaching and erosion result in soil fertility decline. Heat stress and reduced water availability could result in the death of the plant. Extreme climatic events such as storms and windiness can be devastating to plants through logging and flooding. Increasing demands for food: Reducing/stagnating crop yields: fatigue of intensive agriculture; climate change impacts. Competition for resources: For land, water, capital, and labor from industry and urban settlements. Increasing demand for multi-functional agriculture: Produce food, feed, fiber, environmental services.

CONCLUSION

Here we can conclude that the increasing climatic variability keep pressure on agricultural systems and future food production targets. One degree increases in temperature throughout the crop season have no effect. Whereas two degrees increase in temperature will reduce potential yields but will have small effect on irrigated yields. Production of rice, maize has been declined in Asia due increasing water stress and rise in temperature. Drought has larger impact on the yield of dryland crops. Adaptation strategies are needed to offset any future impact of climate change on agriculture. To cope up with this situation drought/heat resistant new varieties need to be evolved.

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