



PERSPECTIVE



Climate Changing Impact on Agricultural Field

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ARTICLE HISTORY

Received: 12-Apr-2022, Manuscript No. JENVOH-22-65157;

Editor assigned: 14-Apr-2022, PreQC No. JENVOH-22-65157 (PQ);

Reviewed: 29-Apr-2022, QC No. JENVOH-22-65157;

Revised: 04-May-2022, Manuscript No. JENVOH-22-65157 (R);

Published: 11-May-2022

Description

Drought, heat waves, and flooding, as well as an increase in pests and plant diseases, can all contribute to lower crop yields and nutritional quality as a result of climate change's effects on agriculture. Changes in temperature, precipitation, and atmospheric carbon dioxide levels due to global climate change are causing the effects, which are unevenly distributed around the world. Millions of people are already facing food insecurity as a result of climate change, which is expected to reduce global crop production by 2% to 6% by the end of the decade. Food prices are expected to rise by 80% by 2050, resulting in food insecurity, disproportionately affecting poorer communities, according to a report released in 2019. According to a study published in 2021, the severity of heat wave and drought impacts on crop production in Europe has tripled in the last 50 years, from 2.2 percent losses in 1964–1990 to 7.3 percent losses in 1991–2015. Rising temperatures, heat waves, and changes in rainfall have direct consequences as a result of changing weather patterns (including droughts and floods). Increased CO₂ levels in the atmosphere also have direct consequences: higher crop yields due to CO₂ fertilisation, but the lower nutritional value of crops (lower levels of micronutrients). Pests, plant diseases, and weeds will all change as a result of climate change, potentially lowering yields. Other indirect effects of changing conditions include the loss of agricultural land due to rising sea levels and the creation of more arable land due to less frozen land. Due to melting glaciers, there will be less irrigation water available. There will also be effects on erosion and soil fertility, changes in growing seasons, food safety and losses (caused by fungi, which produce mycotoxins, and bacteria, such as Salmonella, which are

more prevalent as a result of climate change), and additional financial burdens.

Agriculture-friendly zones will shift as temperature and weather patterns change. For major arid and semi-arid regions, the current forecast is for temperatures to rise and precipitation to fall (Middle East, Africa, Australia, Southwest United States, and Southern Europe). Furthermore, the projected moderate increase in temperature (1-2°C) expected during the first half of the century will have a negative impact on crop yields in tropical regions. Crop yields are expected to decline in all areas, including Canada and the northern United States, during the second half of the century as a result of increased warming. Many staple crops are heat-sensitive, and when temperatures exceed 36 degrees Celsius, soybean seedlings die and corn pollen loses its potency. Droughts and floods contribute to lower crop yields, and extreme weather events are becoming more common as a result of climate change. Floods can destroy crops, disrupt agricultural activities, put workers out of work, and obliterate food supplies in extreme cases. Droughts can also cause crop failure. Drought exacerbates poverty in developing countries and fosters famine and malnutrition. Irrigation of crops can reduce or even eliminate the harmful effects of lower rainfall and higher temperatures on yields by providing localised cooling. Using water resources for irrigation, on the other hand, has drawbacks and is costly. Furthermore, the water must come from somewhere, and if the area has been in a long-term drought, the rivers may be dry, requiring irrigation water to be transported from further distances. Floods in the Midwest region of the United States at the turn of the twenty-first century, likely caused by climate change, shortened the planting season, causing damage to the agriculture sector.