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Impact of Climate Change on Agriculture

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Introduction:

We often hear about climate change scrolling through Instagram or on random videos on our Facebook feeds, but most of us just ignore it. Barely any of us know what exactly climate change is. But, considering the situation right now, we should all know what climate change really is. So, let me tell you all a little about climate change and its impact on our AGRICULTURE.

What exactly is climate change?

Climate change is a significant variation of average weather conditions—say, conditions becoming warmer, wetter, or drier—over several decades or more. It's that longer-term trend that differentiates climate change from natural weather variability.

How is climate change measured over time?

Earth-orbiting satellites, remote meteorological stations, and ocean buoys are used to monitor present-day weather and climate.

Cause of climate change

- **Natural causes of climate change**

As we all know, the earth has gone through warm and cool phases in the past, and long before humans were around. Forces that contribute to climate change include the sun's intensity, volcanic eruptions, and changes in naturally occurring greenhouse gas concentrations.

- **Anthropogenic causes of climate change**

Humans—more specifically, the greenhouse gas (GHG) emissions we generate are the leading cause of the earth's rapidly changing climate.

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Climate change impact on Agriculture

Climate change affects farming in a number of ways, including through changes in average temperature, rainfall, and climate extremes (e.g. heat waves), changes in pests and diseases, changes in atmospheric carbon dioxide and ground-level ozone concentrations, changes in the nutritional quality of some foods and changes in sea level.

Present and future impacts of climate change on Agriculture

- Climate change is already affecting agriculture, with effects unevenly distributed across the world.
- Future climate change will likely negatively affect crop production in low latitude countries, while effects in northern latitudes may be positive or negative.
- Climate change will probably increase the risk of food insecurity for some vulnerable groups, such as the poor. For example, South America may lose 1–21% of its arable land area, Africa 1–18%, Europe 11–17%, and India 20–40%.

Direct impacts of climate change on agriculture

- The accelerating pace of climate change, combined with global population and income growth, threatens food security everywhere.
- Agriculture is extremely vulnerable to climate change. Higher temperatures eventually reduce yields of desirable crops while encouraging weed and pest proliferation.
- Pests management become less effective, meaning that higher rates of pesticides will be necessary to achieve the same levels of control.
- Heat waves can cause extreme heat stress in crops, which can limit yields if they occur during certain times of the plants' life-cycle (pollination, pod or fruit set).
- Heat waves can result in wilted plants (due to elevated transpiration rates) which can cause yield loss if not counteracted by irrigation.
- Heavy rains that often result in flooding can also be detrimental to crops and to soil structure.

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- Most plants cannot survive in prolonged waterlogged conditions because the roots need to breathe.

'The overall impacts of climate change on farming are expected to be negative, threatening global food security.'

How agriculture contributes to climate change?

Agriculture contributes to climate change by anthropogenic emissions of greenhouse gases (GHGs), and by the conversion of non-farm land (e.g., forests) into farm land. Agriculture, forestry and land-use change contributed around 20 to 25% to global annual emissions in 2010.

Ways to reverse climate change

- Food production in vulnerable areas can remain viable, but investments in the appropriate agriculture innovations are needed now, because some of the most effective ways to deal with climate change, like more resilient crop varieties and livestock breeds, can take up to 20 years to develop.
- Our efforts to mitigate the effects of climate change, urgent as they are, will have little effect over the next 50 years.
- Limiting greenhouse gas emissions will only affect climate change in the long-term (beyond 50 years). So we must learn to adapt to the changes in climate that will occur over the next 50 years.

Conclusion

We often hear the word climate change in our day to day lives and most of us don't even care what exactly climate change is. Whenever that video comes on our Instagram feed about climate change I know most of us skip that, I do too. But, we have to start caring about it. Climate change is real, the rise in temperature is real, people losing their lives are real and the animals losing their homes are real. It not only impacts agriculture sector but all the possible areas we can think of.