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Global warming behind crop losses

Indian Agriculture Bears The Brunt As Wheat, Maize and Barley Yield Comes Down

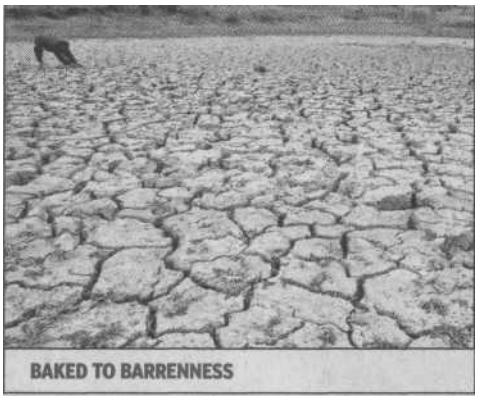
Nitin Sethi | TNN

New Delhi: The UN panel on climate change will tell the world on-Friday what damage global warming can cause. But a recent study shows how temperature changes have already hit the global economy and Indian agriculture is suffering the brunt of it. The study proves that agriculture losses worth US$5 billion annually from 1981-2002 can be correlated to temperature rises over the period.

The study published in 'Environmental Research Letters', a journal published from the UK, has shown that almost 30% of the variation in global agricultural yields can be explained by rise in temperature.

With wheat, barley and maize being the three crops that are hit the hardest due to temperature rise, India, the second largest producer of wheat and the fifth largest producer of maize in the world, is obviously having to contend with a heavy blow to its agrarian economy.

"For wheat, barley and maize, there is a clearly negative response of global yields to increased temperatures....We estimate that annual combined losses of these three crops representing roughly 40 million tonnes or US$5 billion as of 2002," says the research.



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The study was able to correlate about a third of the variation in yield of the three crops worldwide to temperature changes despite other climatic factors, besides temperature variations, were not built into the model.

While the impact on yields goes unnoticed at a micro level, the effect in terms of total global production has been substantial. Wheat, barley and maize production since 2002 would have been roughly 2-3% higher without climate trends since 1981. The foregone production, 19 million tonnes per year of wheat, 12 million tonnes of maize and 8 million tonnes of barley, translate into a huge loss.

The study did not build in the impact of temperature rises after 2002 due to lack of typical data but the authors say the warming effects should be substantially higher over this period as 2003-05 represented three of the five warmest years in a century.

The figures of physical loss of productivity in agriculture must be read in tandem with studies that show that the economic impact of such changes are higher in developing and poor countries than in developed places.

Haryana already affected

The change in sowing season due to temperature variations is impacting the wheat yield in Haryana, one of the key wheat producing states of India. A paper authored by Dr J C Katyal, V-C of Chaudhari Charan Singh Haryana Agricultural University, Hisar, says that the rise of maximum temperatures during February and March over the past seven years coincides with pre- and post-grain formation stages and has had a negative impact on wheat yield. Katyal notes that "this challenges the very sustainability of food self-sufficiency reached in the early nineties, TNN