

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION

LOK SABHA
UNSTARRED QUESTION NO. 2365
TO BE ANSWERED ON 10TH DECEMBER, 2024

STUDY ON ADVERSE IMPACT OF CLIMATE CHANGE ON CROPS

2365. SHRI DAMODAR AGRAWAL:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि और किसान कल्याण मंत्री be pleased to state:

- (a) whether the Government has conducted any study to understand the negative impact of climate change on the quality and quantity of the crops;
- (b) if so, the details thereof; and
- (c) if not, the reasons therefor?

ANSWER

THE MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE
कृषि और किसान कल्याण राज्य मंत्री (SHRI BHAGIRATH CHOUDHARY)

(a) & (b): Yes. The Government through ICAR flagship network project 'National Innovations in Climate Resilient Agriculture (NICRA)' conducted integrated computer simulation modelling studies to assess the impact of climate change for major crops.

The study revealed that in the absence of adaptation measures, climate change is likely to reduce rainfed rice yields by 20% in 2050 and 47% in 2080. Irrigated rice yield reduce by 3.5% in 2050 and 5% in 2080. Wheat yield may reduce by 19.3% in 2050 and 40% in 2080. Kharif maize yield may reduce by 10-19% in 2050 and >20% in 2080.

Preliminary studies indicated that elevated CO₂ and temperature caused reduction in iron, zinc and protein content in certain genotypes of maize. In rice, elevated CO₂ influenced grain quality viz., chalkiness, amylose and protein content, thereby altering grain, mineral and nutrient composition. In wheat, heat stress caused shrivelled grains, reduced starch and protein content thereby result in lower yield, whereas, excess rains during grain filling stage cause lodging of plants and discoloration of grains.

- (c) Does not arise.
