

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

**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 662**  
TO BE ANSWERED ON 08/12/2023

**EFFECTS OF CLIMATE CHANGE OF KHARIF CROPS IN PUNJAB**

**662. SHRI SANJEEV ARORA:**

**Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:**

- (a) Whether Government is aware of the fact that due to climate change, Punjab which produces 10 per cent of country's foodgrains may witness a decline in yield of its major kharif crops by 1 to 10 per cent by 2035; and
- (b) If so, steps taken by Government for mitigating the risks and adopting measures to lessen the impact of climate change on farmers?

**ANSWER**

**THE MINISTER OF AGRICULTURE & FARMERS WELFARE**  
**(SHRI NARENDRA SINGH TOMAR)**

**(a)&(b):** Punjab has contributed 9.8 per cent of country's foodgrain production during 2020-21. Seasonal climate change projections for Indian region were derived from the bias corrected probabilistic ensemble of 33 global climate models. These studies indicate that without adaptation measures, the irrigated rice yields in India may reduce by 3% and maize yield by 10% for the period 2020-2039.

However, Government has launched National Mission for Sustainable Agriculture (NMSA) to deal with the impact of climate change on food grain production. NMSA is one of the Missions within the National Action Plan on Climate Change (NAPCC), which aims to evolve and implement strategies to make Indian agriculture resilient to the changing climate and to sustain foodgrain production. The National Food Security Mission (NFSM) is implemented in 28 States including Punjab with the objectives of increasing foodgrain production through area expansion and productivity enhancement in a sustainable manner.

To develop and promote climate resilient agriculture, Indian Council of Agricultural Research has launched a flagship network project namely National Innovations in Climate Resilient Agriculture (NICRA) in 2011. Under NICRA project, climate resilient technologies have been developed and identified as adaptive measure *viz.*, resilient varieties in different crops tolerant to climatic stresses, conservation agriculture practices, crop diversification from paddy to other alternate crops, zero-till drill sowing of wheat to escape terminal heat stress, direct seeded rice, green manuring, integrated farming systems, *in-situ* moisture conservation, micro irrigation and drip fertigation etc.

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