

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

**RAJYA SABHA**  
**UNSTARRED QUESTION NO-3862**  
ANSWERED ON- 04/04/2025

**IMPACT OF RISING TEMPERATURE ON WHEAT PRODUCTION**

3862. SHRI MOHAMMED NADIMUL HAQUE:

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

- (a) whether Government has conducted or commissioned any studies to assess the effects of rising temperature and heat stress on wheat yield, grain quality and overall food security, if so, the key findings of such studies; and
- (b) whether Government is considering policy interventions such as compensation for farmers affected by lower wheat yields due to heat stress, if so, the details thereof?

**ANSWER**

THE MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE  
(SHRI BHAGIRATH CHOUDHARY)

(a): Yes, studies to assess the effect of rising temperatures and heat stress on wheat yield and grain quality is conducted by ICAR-Indian Institute of Wheat and Barley Research, Karnal. Study conducted in North Western Plain Zone (NWPZ) and North Eastern Plain Zone (NEPZ) during 2021-22, one of the heat stress year, revealed that in NWPZ there was a significant rise in maximum temperature by 5.5<sup>0</sup>C in comparison to 2020-21, which led to average yield loss of 5.6% under high temperature stress conditions. However, due to variation in temperature rise, stage of wheat crop and deployment of heat tolerant varieties, there was no reduction in average productivity of wheat at national level during 2021-22 (3537 kg/ha) in comparison to 2020-21 (3521 kg/ha). With the deployment of heat tolerant varieties during past ten years, more than 60% area of wheat is cultivated with heat tolerant varieties in the country.

(b): Till now no drastic yield reduction due to heat stress has been reported in wheat crop. The State Governments provide financial relief to the affected people in the wake of notified disasters, from the State Disaster Response Fund (SDRF). However, in the event of disaster of a severe nature, additional financial assistance is extended from the National Disaster Response Fund (NDRF), as per the laid down procedure. Department of Agriculture and Farmers Welfare, examines and processes request of State Government for financial assistance under NDRF for drought, hailstorm, pest attack and cold wave/frost.

In addition a Central Sector yield index-based Scheme-Pradhan Mantri Fasal Bima Yojana (PMFBY) along with weather index based Restructured Weather Based Crop Insurance Scheme (RWBCIS) is being implemented since Kharif 2016 with a view to provide for comprehensive risk insurance against crop damage due to non-preventable natural risks from pre-sowing to post-harvest for the crops/areas notified by the State Government concerned. Under the crop insurance schemes claims are paid to only those farmers who insured their crops and paid premium under any of the notified crop insurance scheme in the notified area/crop by the State Government. Admissible claims/losses are worked out and paid as per the provisions of the respective schemes.

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