

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

RAJYA SABHA
UNSTARRED QUESTION NO-2902

ANSWERED ON- 20/12/2024

DEVELOPMENT OF SUSTAINABLE TECHNOLOGY AND CLIMATE-RESILIENT CROPS

2902. DR. DHARMASTHALA VEERENDRA HEGGADE:

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

- (a) whether Government has conducted any study on climate change and its impact on productivity of food products like rice, wheat, maize, soyabean and other crops and if so, the details thereof;
- (b) whether Indian Council of Agricultural Research (ICAR) has developed sustainable technologies and climate-resilient varieties of crops tolerant to one or more biotic and/or abiotic stresses in order to improve future food production in the face of changing climate; and
- (c) whether Government has taken any steps as part of food security amid natural calamities, pandemic and unpredictable seasons, if so, the details thereof?

ANSWER

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

(a): Yes, the Government through ICAR flagship network project 'National Innovation on Climate Resilient Agriculture' (NICRA) has assessed impact of climate change on productivity of crops through integrated computer simulation modelling, which 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 yields by 3.5% in 2050 and 5% in 2080. Wheat yield also likely to be reduced by 19.3% in 2050 and 41% in 2080. *Kharif* maize yields to be reduced by 10-19% in 2050 and >20% in 2080. Soybean yields are projected to increase by 3-10% in 2050 and 14% in 2080.

(b): Yes, Indian Council of Agricultural Research (ICAR) has developed sustainable climate resilient technologies viz., resilient intercropping systems, conservation agriculture, crop diversification from paddy to other alternate crops like pulses, oilseeds, agroforestry systems, zero till drill sowing, alternate methods of rice cultivation, green manuring, integrated farming systems, integrated nutrient and pest management, organic farming, site specific nutrient management, in-situ moisture conservation, micro irrigation etc.

ICAR has also developed climate resilient crop varieties. Out of 2900 varieties developed by ICAR since 2014, 2661 varieties (cereals 1258; oilseeds 368; pulses 410; fibre crops 358; forage crops 157, sugarcane 88 and other crops 22) are tolerant to one or more biotic and/or abiotic stresses, amongst which 537 varieties have been developed specially for extreme climate including flood/ water submergence/ water logging tolerance (81), drought/moisture stress/ water stress tolerance (318), salinity/ alkalinity/ sodic soils tolerance (69), heat stress/ high temperature tolerance (51), cold/ frost/ winter chilling tolerance (18).

(c): Yes, Government of India implements National Mission for Sustainable Agriculture (NMSA), which is one of the Missions within the National Action Plan on Climate Change (NAPCC) as part of food security amid natural calamities, pandemic and unpredictable seasons and climate change. The Government of India provides financial assistance to the states through the NMSA to cope with the adverse impacts of climate change. NICRA has contributed to NMSA to develop capacity of farmers & stakeholders in the domain of climate change adaptation and mitigation measures by conducting capacity building programs and demonstrations on location specific promising climate resilient technologies.
