



Climate Change–National Initiatives

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The Indian Council of Agricultural Research (ICAR) initiated the National Innovations on Climate Resilient Agriculture (NICRA) network project in 2011 to increase India's agriculture's resilience to climate change and vulnerability. The project aims to develop better production and risk management technologies teach farmers how to use site-specific technology packages, and improve research on climate resilient agriculture. The NICRA project also examines the effects of climate change on crop production with rice yields expected to decrease in the coming decades. The project includes measures like zero till planting and release of elite varieties.

Introduction

The Indian Council of Agricultural Research (ICAR) initiated the National Innovations on Climate Resilient Agriculture (NICRA) network project in February 2011. Through strategic research and technology demonstration, the initiative aims to increase the resilience of Indian agriculture to climate change and climate vulnerability. Natural resource management, agriculture, livestock, and fisheries are all included in the studies on adaptation and mitigation. There are four components to the project. This includes capacity building, technology demonstration, strategic research competitive and sponsored grants.

Objectives of NICRA Project

With an outlay of Rs. 350 crores for the XI Plan, the ICAR started a large project named National Initiative on Climate Resilient Agriculture (NICRA) between 2010 and 2011. The project's goals are as follows.

1. To develop and implement better production and risk management technologies in order to increase the adaptability of Indian agriculture, which includes fisheries, crops, and livestock, to climatic variability and climate change.
2. To show farmers how to use site-specific technology packages to adapt to the dangers posed by the current climate
3. To improve research on climate resilient agriculture and its application, as well as the capacity building of scientists and other stakeholders.

NAPCC

The National Action Plan for Climate Change (NAPCC) is an initiative of the Indian government that was introduced in 2008 with the goal of reducing and preparing for the negative effects of climate change. It aims to achieve India's developmental goals, with a particular emphasis on lowering the country's economic emission intensity. The strategy will

be dependent on the backing of wealthy nations, with the main objective being to maintain carbon emissions below those of developed economies at all times.

Effect of climate change on crop production

The National Innovations in Climate Resilient Agriculture (NICRA) program examined the effects of climate change on Indian agriculture. In India, the yields of rice that is rainfed is expected to decrease somewhat (less than 2.5%) in 2050 and 2080, whereas rice that is irrigated is expected to increase by 7% in 2050 and 10% in 2080. Moreover, maize yields are expected to decrease by 18–23% and wheat yields by 6-25% in 2100. Chickpea productivity is expected to rise in future climates, with a predicted advantage of 23-54%. The Indian Council of Agricultural Research (ICAR) conducts vulnerability assessments of Indian agriculture to climate change. This type of evaluation covered 573 rural districts in India, omitting the Union Territories of Lakshadweep and the Andaman and Nicobar Islands. 109 districts out of 573 rural districts (19% of total districts) are classified as "very high-risk" districts based on the vulnerability analysis, while 201 districts are classified as risk districts. According to research using integrated simulation modeling, the maximum temperature is predicted to rise by 1.3 to 1.6 °C in 157 districts and by 1 to 1.3 °C in 256 districts between 2020 and 2049. The heat stress that these districts experience is likely to have an impact on wheat cultivation.

Steps taken under NICRA project

Wheat germplasm from land races and advanced breeding lines has been evaluated for heat and drought resistance as part of the NICRA project. Large portions of North-West and North India are being planted to high producing varieties including HD 2967 and HD 3086, which have been issued by the Indian Agricultural Research Institute (IARI). In Punjab and Haryana, the sowing of wheat has advanced due to zero till planting.

Zero tillage

Zero tillage farming involves planting a new crop inside the remnants of the previous crop and not tilling the topsoil of the field after harvesting it. This technique is particularly crucial in light of recent incidences of stubble burning to remove crop remnants.

Conclusion

The Indian Council of Agricultural Research (ICAR) launched the National Innovations on Climate Resilient Agriculture (NICRA) network project in February 2011 to enhance the resilience of Indian agriculture to climate change. The project covers natural resource management, agriculture, livestock, and fisheries, focusing on adaptation and mitigation. The objectives of the project are to develop and implement production and risk management technologies, promote site-specific technology packages for farmers, and strengthen research on climate resilient agriculture. The National Action Plan for Climate Change (NAPCC) aims to reduce the negative impact of climate change in India. NICRA has found that climate change will impact crop production in India, with heat stress affecting wheat cultivation. Steps taken under NICRA include evaluating wheat germplasm for resistance and promoting zero till planting techniques for sustainable farming.