

## Transitioning to Ever Green Revolution for enhanced National Food Security

Leading molecular geneticist, Dr. Trilochan Mohapatra, who pioneered substantial increases in domestic production of pulses and rice through research programs at the Indian Council of Agricultural Research besides prevailing over numerous other programs for new rice varieties with improved yields in tandem with advanced bio-fortification methods and crop residue management practices, was invited to BARC to deliver a talk that focused on economic, environmental, and social pillars of sustainable agriculture and India's progress toward achieving an 'Ever Green Revolution' at the popular Trombay Colloquium on 23rd July, 2025. Some of the key points of his talk have been excerpted and presented here. Presently, Dr. Mohapatra is the Chairperson of Protection of Plant Varieties & Farmers' Rights Authority (PPVFR) under the Ministry of Agriculture & Farmers Welfare, Govt. of India.

### On the Significance of Green Revolution...

Highlighting the significance of Green Revolution, he stated that innovations in agriculture, driven by molecular genetics research, have enabled post-independence India to overcome the precarious "ship-to-mouth" situation in securing sufficient domestic foodgrain supplies. Continued advancements ushered in by Green Revolution, he said, later transformed India into a food surplus country and a net exporter of agri commodities. He lauded agricultural researchers, particularly highlighted the contributions of Bharat Ratna Dr. M.S. Swaminathan to India's agriculture landscape.

### For a Sustainable and Remunerative Agriculture...

Emphasizing the greater need for farmers towards adapting to sustainable agriculture practices that are climate resilient and remunerative, he laid out several measures in this regard such as: Diversifying crops and cropping pattern, Conservation agriculture for improved soil health and ecology coupled with Transformation in overall farming system.

### Focus on Bio-fortified Crop Varieties...

Explaining the significance of bio-fortification in crops, he highlighted key achievements such as the introduction of the improved MUKUL CR DHAN 311 variety, now widely cultivated in Assam. This variety offers 10% protein content compared to its parent variety, which has only 6-7%. Similarly, the bio-fortified AHB 1200 and HHB 311 pearl millet varieties contain significantly higher levels of iron and zinc, enhancing their nutritional value.

### Key Enablers of Ever Green Revolution...

He presented several enablers that can lead to a sustained 'Ever Green Revolution' in the country, which encompass Policy Perspectives that deal with MSP and Procurement; Increased Private Partnership and Investment; Revisiting Nuclear Agriculture; Discovering New Molecules translating into enhanced local production of better pesticides and bio-stimulants; Plant Microbiomes for better yield and plant health and ecology restoration; Rhizosphere engineering; and advanced technology that contributes to smart sensors and imaging for farm deployment.

Dr. Trilochan Mohapatra