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DEVELOPMENT OF CLIMATE CHANGE ADAPTABLE/RESILIENT CROP VARIETIES THROUGH NUCLEAR TECHNIQUES

To support rice agriculture withstand the climate change driven problems like salinity, drought and extreme temperatures and maintain or increase crop production with Bangladesh Institute of Nuclear Agriculture (BINA) released a late Boro rice variety, 'Binadhan-14' in 2013 which is tolerant to high temperature (38-40°C), has short duration to maturity (105-125 days), saves 20% irrigation water and gives high yield (average yield is 6.9 t/ha). This variety was developed by irradiating the seeds of Ashfal, a local salt tolerant land race of rice, with 200 Gy dose of carbon ion beams. The late transplanting potential of this variety helps avoiding seedling injury due to severe cool temperature. Another variety, 'Binadhan-19' was developed by irradiating the seeds of NERICA-10 rice with 40 Gy dose of carbon ion beams. This was released by the National Seed Board of Bangladesh (NSB) in 2017 as a drought tolerant, short duration cycle (95-105 days) and high yielding (average 4.0 t/ha in Aus season and 5.16 t/ha in Aman season) variety. BINA also developed a salt tolerant wheat variety, 'Binagom-1' by selecting segregating population, collected from NIAB, Pakistan. This variety was released in 2016 and can tolerate 12dS/m salinity and produces average yield of 2.8 t/ha, which equals the average yield of wheat in Bangladesh. Apart from these, BINA developed four salt tolerant groundnut varieties 'Binachinabadam-5', 'Binachinabadam-6', 'Binachinabadam-7' and 'Binachinabadam-9' by irradiation with gamma rays. All these four varieties can tolerate 8 dS/m salinity during flowering to maturity stages and give 1.8 to 3.4 t/ha pod yields under saline soil conditions. The average yield of groundnut in Bangladesh is 1.6 t/ha. All these varieties are playing significant role in food security and enhancing nutritional status of common people of Bangladesh.

Country or International Organization

Bangladesh

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