

Category	: International Rice Research Conference
Select Theme	: Climate change and environmental sustainability
Endorsement email	:
Keyword 1	: Climate smart agriculture
Keyword 2	: Adaptation to climate change
Keyword 3	: Environmental sustainability
Title of Entry	: Identification of promising bio-regulators and varieties for enhancing productivity of aerobic rice
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Rice is a major staple food item and also a way of life for millions of the people. Scarcity of freshwater resource has threatened the production of the flood-irrigated rice crop (IWMI, 2000). By 2025, 15 out of 75 million hectare of Asia's flood-irrigated rice crop will experience water shortage (Tuong and Bouman, 2003). One way to reduce water demand is to go direct dry seeded aerobic rice instead of the conventional puddled transplanted rice. Yield decline up to 15-20 % has been recorded under aerobic condition as compared to conventional method at various locations (Peng et al. 2006). In order to provide immediate solution to farmers, the concept of Low External Input and Sustainable Agriculture (LEISA) is gaining significant interest among scientific community. Five different genotypes namely Sahbhagi, DRR-42, DRR-44, DRR-46 and Indrayani (locally adapted) were evaluated for drought and edaphically stressed areas of in Bhor area of Pune, Maharashtra. DRR-42 and DRR-44 were identified superior to Indrayani in terms of yield and yield attributes. In case of Aerobic rice nitrogen nutrition is challenging task and it was observed that supplementation of nitrogen through 75% Neem coated Urea + 25% Ammonium Sulphate resulted superior performance than other source. Exogenous application of low concentration of chemicals termed as "Plant Bio-Regulators (PBRs)" helps in minimising stresses. Seed treatment with Salicylic Acid (100ppm) & foliar spray of FeSO ₄ (1%) at maximum tillering and panicle emergence stage has been identified as promising bioregulators to overcome moisture stress in aerobic rice cultivation which enhanced yield by 23.8 % over control. Plants under water stress leads to serious physiological and biochemical dysfunctions including reduction in turgor, growth, photosynthetic rate, stomatal conductance and damages of cellular components (Janda et al., 2007). Salicylic acid (SA) has significant role in controlling

abiotic stresses including drought and salinity stress. At low concentrations SA has been found to alleviate abiotic stress and at higher concentrations it induces oxidative stress (Miura and Tada, 2014). These probable combinations of suitable genotype and use of bioregulators/agrochemicals will help in shifting profound changes in water use, water productivity, nutrient dynamics and farmer's income.

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