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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	: Enhancing rice productivity through climate-resilient varieties and conforming management practices in the fragile lowland of South Asia
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Rice is the primary energy source for 40 million population living in 16 m ha stress prone rainfed lowland area of South Asia. These lands are characterized by marginal and small holdings, poor farmers, low and fragile productivity, little use of inputs, use of traditional varieties, limited availability of quality inputs, weak extension network, and slow adoption and diffusion of new technologies. Submergence, drought, salinity/sodicity are significant constraints, which limits productivity around to 1-2 t ha-1 in comparison to 5 t ha-1 of input-intensive irrigated systems. Now, stress-tolerant rice varieties (STRVs) are available to the

farmers, which have 1-1.5 t ha<sup>-1</sup> yield benefits when grown in stress conditions, additionally, have better fertilizer responsiveness and lower disease susceptibility. Studies made to fine-tune management practices for these STRVs revealed that improved seedbed management with proper seed rate (30-40 seeds m<sup>-2</sup>), and a balanced application of inorganic fertilizers and farmyard manure (5 t ha<sup>-1</sup>), could produce 31% higher seedling vigor index, representing healthier and more vigorous seedlings. Transplanting at a suitable age (30-40 days old seedlings) ensure lower mortality under salt and flood stresses, and can recover faster from the transplanting shock, and show better survival, faster post-stress recovery, and growth. Main field management with the fewer seedling number (2-3), closer spacing (15x15 cm), and organic content rich soil could produce 71% higher grain yield than farmers' variety and farmers' management practices in coastal lowland. Additional 20-20 kg N-K<sub>2</sub>O ha<sup>-1</sup> as post-stress nutrient management after 5-6 days of flood water recedes, also help ensure proper plant establishment, quick growth, and about 1-2 t ha<sup>-1</sup> higher grain yield. These management approaches in the nursery, as well as the main field, have provided a yield advantage of 1-1.5 t ha<sup>-1</sup> over the STRVs itself in stress-prone rainfed areas and can help quickly improve the livelihood of smallholder rainfed farmers. It can also contribute substantially to the rice production increment to compensate for high population growth rates, loss of farmlands, and to withstand the ill-effects of climate change on rice productivity in the rainfed lowland of South Asia.

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