Entry No. IRRC-0078

Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Yield gaps
Keyword 2	: Soil and soil health
Keyword 3	: Pest management
Title of Entry	: Effects of Trichoderma Seedling Treatment with System of Rice Intensification Management and Conventional Transplanting of Rice
Presenting author	: Ram B. Khadka
Presenting author email	: vijayautsarga@gmail.com
Co author 1	: Norman Uphoff
Co author 2	:
Affiliation presenting author	: Nepal Agricultural Research Council, Nepal
Affiliation 1	: The Ohio State University, Department of Plant Pathology, USA
Affiliation 2	:
Select only one type of presentation	: 3-5 minute flash talk
Abstract	: Multiple benefits of Trichoderma inoculation for improving crop production have been documented. However, rice is usually cultivated under continuous flooding which creates anaerobic soil conditions that limit the benefits of these beneficial fungi. Cultivating rice with the methods of the System of Rice Intensification (SRI) provides rice plants with a more favorable environment for their colonization by beneficial microbes in the soil because this is more aerobic under SRI. This present study evaluated the effects of Trichoderma inoculation of rice plants under SRI management compared with transplanted and flooded

rice plants, considering also the effects of different means of fertilization and different varieties in rice. Experiments were conducted in 2015 and 2016 under the tropical climate of Nepal's western terai during both the rainy season (July to November) and the dry season (March to July). The results indicated significantly better performance (P=0.01) associated with Trichoderma inoculation for both seasons and for both systems of crop management in terms of grain yield and other growth-contributing factors, compared to non-inoculated rice cropping. Relatively higher effects on grain yield were recorded also with organic compared to inorganic fertilization; for heirloom compared with improved varieties; and from SRI compared with conventional flooded crop management. The yield increase with Trichoderma treatments across all trials was 12.5% higher than in untreated plots (4.68 vs 4.16 mt/ha). With regard to varietal differences, under SRI management Trichoderma inoculation led to 26% higher yield (6.35 vs 5.04 mt/ha) in the improved variety Sukhadhan-3, and 41% higher yield (6.29 vs 4.45 mt/ha) with the heirloom variety Tilkidhan. The study indicated the feasibility of expanding organic SRI in landraces that have high market price and demand due to their premium quality. These varieties' low present level of production can be enhanced by integrating Trichoderma bio-inoculation with SRI management

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