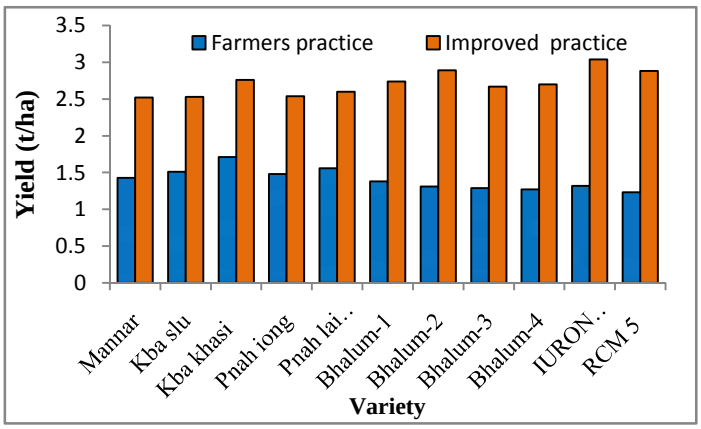
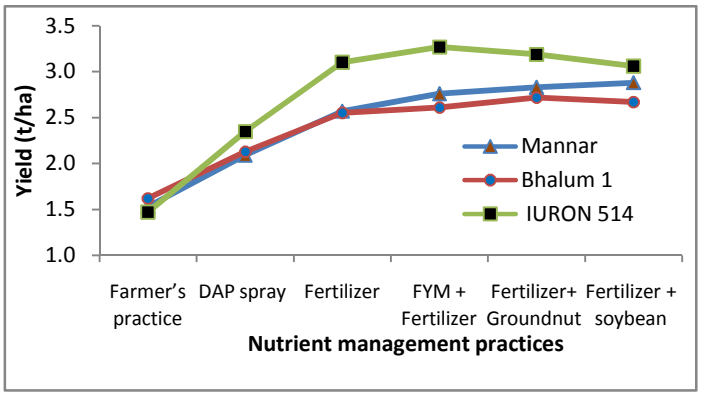
Improving productivity of jhum rice through agronomic management practices

Jhuming (shifting cultivation) is still practiced in an area of 0.88 m ha in the North Eastern Region of India. Rice occupies majority of the area under jhum and entirely rainfed. Growing local varieties, no fertilizer or manure application, broadcasting of seeds and lack of soil conservation and pest and disease management practices are the major reasons for low productivity of jhum rice (<1 t/ha).A participatory research was conducted in the farmers' *jhum* field of Sonidan village, Ri-Bhoi District, Meghalaya to identify suitable rice varieties/lines and improved agronomic management practices for improving productivity and sustainable soil health. Five local rice varieties (Mannar, KbaKhasi, KbaSlu, Pnha Lai Spah, Pnahiong) and six improved varieties (Bhalum-1, Bhalum-2, Bhalum-3, Bhalum-4, RCM-5 and IURON-514) were evaluated under both local and improved management practices. Soybean and groundnut were successfully grown as intercrops with rice. Tephrosia were grown along the contour at suitable intervals for checking soil loss and improving soil fertility.



Under improved agronomic management practices, both local and high yielding rice varieties performed well. The highest rice yield was obtained under IURON 514 (3.084 t/ha) followed by Bhalum -3 (2.89 t/ha) and RCM -5 (2.88 t/ha). On an average, 68% and 116% yield enhancement was recorded with local and high yielding rice varieties, respectively, when grown under improved agronomic management practices as compared to farmers' practice (control). Sowing in lines 25 cm apart across the slope in *jhum* land as well as dibbling resulted in significant enhancement in rice yield as compared to broadcasting. The highest yield of Manner and IURON 514 was recorded with line sowing (2.42 and 2.96 t/ha, respectively) as compared to dibbling (2.05 and 2.34 t/ha) and broadcasting (1.60 and 1.71 t/ha). Application of 50% recommended dose of nutrients (RDN) (30:30:20 kg N:P_2O_5:K_2O/ha) either through fertilizer or fertilizer+FYM both recorded 40 to 60% enhancement in rice yield in *jhum* field. Foliar spray of DAP twice at 30 and 60 days after sowing resulted in 20 to 35 % yield enhancement in rice across the varieties as compared to farmers' practice (no manure or fertilizer).



Rice+soybean intercropping

Bhalum-1 under line sowing

Farmers visiting jhumrice field

Director, ICAR NEHR in jhum field

Improved jhum rice field in Sonidan, Ri-Bhoi

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