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Photodependent acetylene reducing activity (ARA) in ricefields under various fertilizer and biofertilizer management

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ARA and rice yield were measured for 3 seasons in 65 plots (4 x 4 m) receiving 13 partial combinations of: 1) urea (0, 30 + 25 kg N/ha broadcast, 55 kg/ha basal deep-placed); 2) P₂O₅ (0, 30 kg/ha basal or split); 3) Algal inoculation (0, 20 kg/ha); and 4) *Azadirachta indica* crushed seeds applied to control algal grazers (0, 100 kg/ha). To measure ARA, 8 core samples (2 cm Ø) including floodwater and the 3 first cm of soil were collected per plot. Floodwater was then removed. Incubation was made under 10% C₂H₂ in air for 1 h at 30 klux and 26-28°C. Acetylene/¹⁵N ratio was 4.7 ± 0.7.

Average ARA per plot was 1.5 µg value equivalent to 2 to 28 kg N

fixed/ha per crop and averaging 10.5 kg N/ha per crop.