EFFICIENT MANAGEMENT OF SOIL AND BIOLOGICALLY FIXED NITROGEN IN INTENSIVELY – CULTIVATED RICE FIELDS

D.K.Kundu and J.K.Ladha

Soil and Water Sciences Division, International Rice Research Institute, P.O.Box 933, 1099 Manila, Philippines

ABSTRACT

A decline in productivity in wetland rice has been detected in some intensively-cultivated experimental farms in Asia since the early 1980s. Increased doses of fertilizer N are being used in both experimental farms' fields to maintain the original yield levels. Little attention has been paid to judicious management of native soil N, which is the principle N source for rice, and to biological N_2 fixation (BNF), which largely replenishes the soil N concentration. We review here various effects of long-term flooding and puddling associated with intensive cultivation of wetland rice on soil N availability and BNF. Some strategies are suggested to efficiently manage these two N sources to sustain high productivity of the rice lands.