Annals of Tropical Research 34[1]:29-51(2012)

Comparative Performance of Biofertilizers on Irrigated Lowland Rice (*Oryza sativa* L.)

Michelle B. Castillo and Cezar P. Mamaril

Philippine Rice Research Institute Los Baños, College 4031 Laguna, Philippines

ABSTRACT

Biofertilizers have been claimed as an alternative source of nutrients for plants in order to increase yield and reduce the inorganic fertilizer use by 50%. Sixteen trials were undertaken nationwide covering the provinces of Ilocos Norte, Isabela, Nueva Ecija, Laguna, Camarines Sur, Negros Occidental, Leyte, Samar, Bohol, Agusan, and North Cotabato during wet and dry seasons of 2008-2010 to verify the effectiveness of biofertilizers (Bio N, Vital N, BioCon) under lowland or anaerobic ecosystem. The experiment consisted of nine treatments which included control, and biofertilizers applied alone or in combination with inorganic fertilizers either at one-half or full recommended rate. Generally, biofertilizers evaluated showed no positive effect on grain and straw yields of lowland rice and yield components such as plant height, tiller count, number of productive tillers, spikelet count, number of filled grains and unfilled grains, and weight of 100 grains. The positive effect of BioCon, Vital N and Bio N on root length at seedling stage may be attributed to the microorganisms producing plant growth hormones which might have enhanced root growth under "dapog" seedbed condition. However, the beneficial effect on root growth was not sustained and reflected in the yield when the seedlings were transplanted in the field. Generally, results show that biofertilizers evaluated were not effective under anaerobic condition.

Key Words: anaerobic condition, biofertilizers, microorganisms, root growth

Correspondence: M. B. Castillo. *Address*: Philippine Rice Research Institute Los Baños, College 4031 Laguna, Philippines. *E-mail*: mbcastillo@email.philrice.gov.ph . *Tel/Fax*: 049-501-1917