

Impact of nitrification inhibitor with organic manure and urea on nitrogen use efficiency and yield performance of MR219 rice in acid sulphate soil

ABSTRACT

A glasshouse experiment was designed to study the effects of nitrification inhibitor (Dicyandiamide; DCD) with organic manure and urea on nitrogen use efficiency (NUE), growth performance and yield of MR219 rice. DCD along with N source increased NUE and apparent N recovery over that of sole application of urea. Application of DCD along with urea and oil palm compost (OPC) resulted in the highest NUE (25.94 kg/ha) and fertilizer N recovery by rice (61.75%) together with the highest increase of panicles/hill (17.43%) and filled grains/panicle (9.42%) over urea alone. The highest grain (21.95%) and straw (13.86%) yield increase over control was achieved from DCD with urea and OPC reflecting as the most potential combination to improve NUE and rice yield in acid sulphate soil.

Keyword: Dicyandiamide; Organic manure; Urea; N use efficiency; Rice yield; Acid sulphate soil