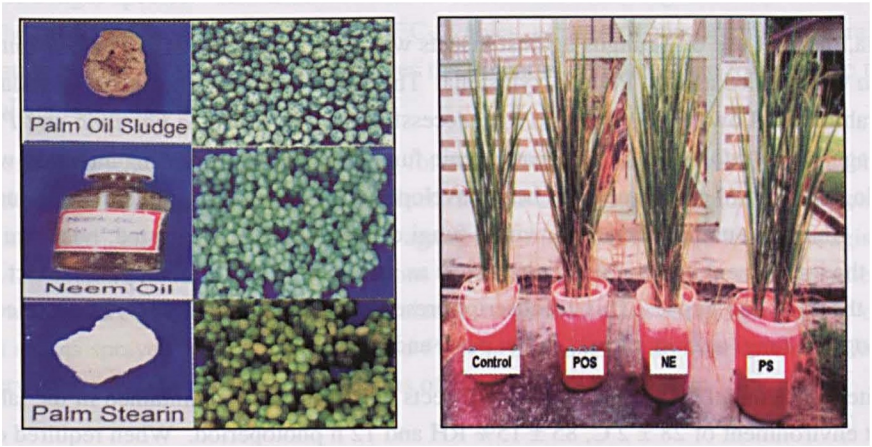
The Development of Copper Coated Urea Fertilizers for Rice Production

Y.M. Khanif and K.L.Tai

Urea is the main fertilizer used in the rice production throughout the world. Like other N fertilizers, the efficiency of urea in rice soils is generally low due to high losses through volatilization, denitrification and leaching. Slow release fertilizers can be used to minimize loss of N. The largest rice growing area in Malaysia is located in the Muda Irrigation Scheme, Kedah. Recent investigations indicated that there are deficiencies of Cu in soils of many sites in this 95,000 ha. irrigation scheme. Therefore Cu fertilization is important to meet the crop requirement. Since the amount of Cu needed is small conventional methods of fertilizer application is not feasible.



This study utilizes the technique of Cu-coated urea whereby slow release of N with the addition of Cu through copper coating will increase the rice yield. Further in this study, palm oil sludge (POS), neem oil (NE) and palm stearin (PS) were used as materials and Cu carrier, while the source of Cu used was copper sulphate. Results showed that as compared to urea alone, all amended Cu-coated urea fertilizers resulted in a significantly higher dry matter yield, N uptake and Urea-N utilization efficiency by rice crop. Using soils of the Kangar series POS, NE and PS increased the yield by 34% (2.19kg ha^{-1}), 29% (2.02kgha^{-1}) and 23%(1.86kg ha-^{1}) respectively over the control.

Reader Enquiry
Faculty of Agriculture
Universiti Putra Malaysia
43400 UPM, Serdang, Selangor
Malaysia

Tel: +603 8946 6975
E-mail: khaniff@agri.upm.edu.my