

## **Nitrogen deposition and release pattern of slow release fertiliser made from urea-impregnated oil palm frond and rubberwood chips**

### **ABSTRACT**

The fertiliser industry faces a continuing challenge to improve the efficiency of their products, particularly of nitrogenous fertilisers, and to minimise adverse impacts. Therefore, a new slow release fertilizer, urea-impregnated woodchips from tropical plant biomass (oil palm frond and rubberwood), was developed. The morphology of the impregnated woodchips was investigated by scanning electron microscopy and the success of impregnation of urea and nitrogen deposition into the woodchips was confirmed by energy dispersive X-ray spectrometry. When nitrogen release patterns from impregnated woodchips fertilizer were simulated using a soil solution and distilled water as leaching solutions in a static condition for 768 h, release was slow and steady, although the release rate was lower in distilled water than in the soil solution.

**Keyword:** Woodchips fertilizer; Slow-release; Urea release pattern; Nitrogen deposition