Maize response to biodegradable polymer and urease inhibitor coated urea.

ABSTRACT

One possible approach to improve the nitrogen losses from the surface applied urea is to coat it with biodegradable materials and urease inhibitors. The pot experiment was carried out to compare the effects of newly developed urea on plant yield and nutrient uptake. Their relative residual effects were also investigated on plant and soil by repeating the same experiment without urea application. The treatments were prepared by using fluidized bed coating machine as urea alone, palm stearin +Cu coated urea, agar + Cu coated urea, gelatin +cu coated urea, Cu coated Urea, micronutrient coated urea. The treatments were added at a dose of 100 kg ha-1 by surface application on the pots filled by Munchong soil series. The soil was analyzed for physical and chemical properties and plant samples were analyzed for yield, nutrient uptake and total N. The outcome of the first pot experiment indicated that the application of coated urea increased dry matter yield from 60 to 20% pot-1 and enhanced N uptake up to77% as compare to urea alone. The results of the second experiment indicated improvement in N uptake (80%) of the plant, when it treated by coated urea. The investigation proved that the natural biodegradable polymer and Cu coated urea can reduce N loss; enhance the nutrient uptake and improve the plant production.

Keyword: Cu; Urea; Maize; Natural polymer.