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Effect of biuret contamination with urea on growth and yield of Rice (Oryza sativa L.)

In recent years, there have been several reports of crop damage or poor crop growth after application of urea. The affected crops include paddy, other field crops and vegetables. It was suspected that the crop damage or poor performances could be due to the high biuret concentration in urea. Therefore, a field experiment was conducted at Mahailluppallama in a paddy field with moderately well drained soils to determine the effect of urea with different concentrations of biuret on the growth and yield of the rice variety Bg-300 under broadcast conditions. The treatments were urea having two concentration of biuret (0.87 and 1.44%) applied at two levels of nitrogen (85 and 170 kg ha-1). Tiller number, plant height, leaf chlorophyll content, grain yield and yield components were recorded. Grain yield and other parameters except 1000-grain weight increased significantly ($P<0.05$) with the increasing level of nitrogen. The biuret level had no effect on grain yield and other parameters ($P<0.05$). However, grain yield and all other growth parameters were lower in plots where urea with high biuret content was applied. The percentage reduction due to the application of high biuret

with urea at 85 N kg ha-1 and 170 N kg ha-1 was 10 and 6 in yield, 5 and 4.3 in tiller number per plant, 5.2 and 6.2 in filled grains per panicle, 3.1 and 2.1 in plant height and 3.7 and 5.8 in leaf chlorophyll content. Results showed that growth and yield of rice were affected by the application of urea with a high biuret content.