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Point Placement of Multi-Nutrient Super Granules on Rice

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Abstract: Two separate field experiments were carried out in two different agro-ecological zones in Bangladesh. The experimental sites selected were the Bangladesh Agricultural University (BAU) farm in Mymensingh and a farmers' field in Madhupur. The objective was to investigate the response of super granules of urea (USG), Urea-DAP and NPK on HYV rice crops. Soil types under investigation at both the BAU farm site and at the Madhupur farmers' field were silt-loam in texture and poor in nutrient status. The soil reaction was mildly acidic (pH 6.8) at the BAU farm, while it was strongly acidic at the Madhupur farmers' field (pH 5.5). Fertilizer treatments used in the experiments were (1) Control (without any fertilizer), (2) Urea (70 kg N ha^{-1} from urea), (3) USG (52 kg N ha^{-1} from USG super granule), (4) Urea-DAP SG (52 kg N and 20 kg P_2O_5 ha^{-1} from Urea-DAP super granule) and (5) NPK SG (52 kg N, 20 kg P_2O_5 and 20 kg K_2O ha^{-1} from NPK super granule). In treatments 2-3, P, K, S and Zn fertilizers were applied as basal @ 40 kg P_2O_5, 40 kg K_2O, 20 kg S and 3 kg Zn ha^{-1} respectively. In treatment 4, K was applied as basal @ 40 kg K_2O ha^{-1} along with S and Zn as in treatments 2-3, while in the case of treatment 5, S and Zn were applied as basal as in treatments 2-3. USG, Urea-DAP, and NPK super granules were point placed after 7 days of transplanting at a depth of 7 centimeter between every fourth rice mound. Each treatment was replicated four times in a completely randomized block design. Test crops used were HYV rice, BR-30 at the BAU farm and BR-11 at the Madhupur farmers' field. The experiments were conducted during the wet season (July-November) of 2001. Point placement of USG, Urea-DAP and NPK super granules greatly increased the grain yields of rice. The highest increase in grain yield was recorded in NPK super granule followed by Urea-DAP and USG point placemen at both of the experiment site. The maximum grain yield at the BAU farm recorded was 6.23 t ha^{-1}, while at the Madhupur farmers' field it was 5.73 t ha^{-1} using the NPK super granule

point placement. The minimum yields of rice grain were obtained in the control treatment at both the BAU (3.41 t ha^{-1}) and Madhupur farmers' field (3.22 t ha^{-1}). Point placement of USG and multi-nutrient fertilizers in super granules both NP and NPK appeared to be highly promising for application on wetland rice.

Keywords: USG, Urea-DAP, NPK, Super-granules, Rice

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