ABSTRACT

MUCHLIS MUHAMMAD BAKRIE. Application of inorganic and bio-organic fertilizer on SRI (System of Rice Intensification). Under the guidance of ISWANDI ANAS, SUGIYANTA and KOMARUDDIN IDRIS.

Excessive use of inorganic fertilizers mainly NPK cause soil degradation, environment pollution, lower yield decreased production, and reduce soil biological activity. System of rice intensification is one method of rice cultivation. SRI main principles are seed transplanting at young age (7-11 days old), transplanting use single seedling method, seedlings at wide plant spacing ≥ 25 cm, intermittent irrigation and field conditions are not flooded, and reduction of chemical fertilizers used and replaced by organic fertilizer. This research was conducted from April 2010 to January 2011 in Situgede Village, West Bogor District, Bogor. The research design used split plot randomized complete block design with three blocks. Two rice cultivation system as the main plot and five combinations of fertilizer application as sub plot. The result showed that the maximum number of tillers on SRI method higher at 25,8 tillers/hill or an increase of 64,33% compared with conventional methods. Wet and dry shoot weight of wet and dry weight of root is greater in successive SRI method of 13,3%, 19,1%, 18,4% and 41,8% compared with the conventional method. The number of productive tillers, grain number/panicle, 1000 grains weight, root wet weight and dry grain at SRI method was higher than those in conventional method respectively 58,6%, 37,0%, 2,5%, 25,1% and 32,6%. Uptake of N and P in the SRI method higher at 72,0% and 100% compared to conventional method. Application 50% inorganic fertilizer + 200 kg bio-organic fertilizer, producing more fresh weight biomass, plant dry weight, wet weight and dry weight, number of productive tillers, 1000 grain weight respectively 13,9%, 42,0 %, 49,8%, 74,0%, 10,7% and 2,48% compared with the dosage recommendations dose or 100% inorganic fertilizer. N, P and K uptake at 50% inorganic fertilizer + 200 kg of bio-organic fertilizer treatment higher (55,6%, 66,7% and 46,2%) than the foal recommendation dose of inorganic fertilizer. Bio-organic fertilizer can be used as substitute of NPK fertilizer.

Keywords : Inorganic fertilizer, bio-organic fertilizer, System of Rice Intensification