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Effect of kieserite and dolamite as a Mg source in black pepper

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Black pepper (Piper nigrum L.) is the second most important perennial spice crop grown in Sri Lanka. Though the crop is extensively grown at wet and intermediate zones in Sri Lanka, national average yield is around 400kg/ha/yr despite of the potential yield under good management conditions over 1500 kg. Poor cultural practices adopted by most of the growers is the main reason for that and due to high cost of fertilizer, soil nutrient management is extremely poor. Out of the cost of production, fertilizer cost is equal to about 30% and as a result most growers applied either inadequate or imbalance fertilizer, which leads to low yields. This study was carried out to find out the possibility of

substitute low cost, locally available dolomite for imported kieserite as a source of Mg fertilizer for pepper. Experiment was conducted at Export agricultural main research station at Matale, soil type is Typic Rhodustal (Matale series) under WM-3b agro ecological region. Dolomite and kieserite are tested as two levels, as the department recommendation (28g Mgo/plant/yr and half of that) with no Mg as a control and all the plots received the recommended amounts of N, P2O5 and K2O (196g, 154g, 196g/plant/yr). Treatment were arranged in RCBD design with 3 replicates. Treatments were applied as two split applications per year. Pepper yield data collected for four years period. It indicated that yield was significantly improved by applying mg compared to the control at P≤0.005. However no significant difference could be found among the treatment received different rates of Mg The highest mean dry pepper yield of 616kg/ha/yr associated with 14g MgO/plant/yr as dolomite while control treatment produced only 360kg/ha/yr. Application of 28g MgO/plant/yr as kieserite gave second highest 550kg/ha/yr. The results suggest that dolomite can be effectively used as a source of MgO instead of high cost kieserite in black pepper.

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