Yield Response of Cowpea *(Vigna unguieulata* L. Walp) to Different Soil Compaction Levels

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Soil compaction is recognized as one of the major forms of soil degradation. Soil compaction may increase soil potency and thereby can affect on crop production. Under this context, a pot experiment was conducted to see the effect of soil compaction on yield attributes of cowpea (cv. Wijaya) in sandy regosol at the Crop Farm, Eastern University, Sri Lanka. The experiment was arranged in a Completely Randomized Design (CRD) with three replicates. Soil compaction at different bulk density levels (1.60, 1.80, and 2.00 g cm ^{3}) was tested and 1.33 g cm^{-3} was used as the control. All other agronomic practices were followed as per the recommendation of the Department of Agriculture. The measurements were taken at the harvesting stage 60 days after sowing (DAS) of cowpea. The results revealed, the yield parameters such as number of pods, pod length, average number of seeds per pod, and average pod yield per plant of cowpea were significantly ($p < 0.05$) reduced by the higher level of soil compaction compared to the control. The highest performance reduction of above parameters was recorded at the compaction level of 2.00 g cm^{-3} followed by 1.80 g cm ^{3}. Most of the above parameters in the crop treated with the compaction level of 1.60 g cm $^{-3}$ were comparable with control. Therefore, it can be concluded that soil compaction level greater than 1.60 g cm^{-3} significantly reduces the yield attributes of cowpea.

Keywords: Bulk density, Cowpea, Soil compaction, Yield attributes