

Response of Different Mulch Materials on Cowpea (*Vigna unguiculata*) Growth and Yield in Tolon District

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Abstract : Cowpea (*Vigna unguiculata* (L.) Walpis) is a major food grain legume in Ghana and plays a significant role in consumer diets. Drought in rain-fed crop production is known to cause substantial crop yield reduction due to their negative impacts on plant growth, physiology, and reproduction. There are various ways of reducing the effect of drought or addressing the problem of drought stress, including irrigation, breeding, and mulching. Among these three ways of reducing the effect of drought stress, the cheapest and quickest method is mulching. The broad objective of this project is to determine the influence of mulching on the performance of cowpea. The experiment was conducted at Planting for future garden located at Nyankpala Campus of the University for Development Studies (UDS), comprising five treatments (black plastic, rice hull, groundnut hull, dry grass mulch, and control). The treatments were evaluated in a Randomized Complete Block Design (RCBD) with three replications. The result shows that black plastic mulch increased soil moisture by 1, 8, 15, and 24% compared to rice hull, groundnut hull, dry grass, and control, respectively. Increased soil moisture translated into black plastic mulch increasing grain yield by 8, 25, 39, and 46% compared to groundnut hull, rice hull, dry grass and control, respectively. However, black plastic mulch increased the cost of production, resulting in decreased net returns compared to the other treatment. This study recommends the use of rice and groundnut hull as mulching material to improve soil moisture, grain yield, and profit of smallholder cowpea farmers and also because they are almost free and available.

Keywords : mulch, plastic mulch, cowpea, growth response

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