EFFECT OF PLANT GROWTH REGULATOR (NAA) AND LEAF HARVESTING INTERVALS ON THE PERFORMANCE OF COWPEA (*Vigna unguiculata*) IN TIGANIA WEST SUB-COUNTY

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Abstract

The cowpea (*Vigna unguiculata*) belongs to the family of *Fabaceae*. Him is legume grown mainly in the savanna regions of the tropics and subtopics in Africa, Asia and South America. Cowpea is an important food crop in both the tropical and subtropical regions of the world. In developing countries, the seeds are an important source of protein for the rural and urban poor whereas the green part of the plant that are used as vegetable supply roughage and minerals. Cowpea can be harvested in three; leaves, when the pods are young and green, mature and green, and dry. Plant growth and development are the processes regulated by certain chemicals known as plant growth regulators (PRGs). The reason why the researcher carried out the study on cowpea was because it is a typical warm season crop adapted to tropics, drought tolerance, short growing period and its multipurpose use. Machakos 66 (M66) variety was used because can be grown between 1200 and 1500 metre above sea level. The experiment was carried out at Meru University of Science and Technology Farm and laid out in Randomized Complete Block Design (RCBD) and replicated three times in a plot measuring 3 by 3 m each and a path of 60 cm to investigate the effect of leaf harvesting interval and plant growth regulator application on the performance of cowpea. Two treatments were done on the crop; (1) leaf harvesting interval of 7 and 14 days after 28 days of germination, (2) plant growth regulator application on the crop leaves at four (4) levels. The aerial part of the plants was sprayed thrice at 30^{th}, 50^{th} and 70^{th} days after germination (DAG) with plant growth regulator -`synthetic auxin solution at 0, 0.15, 0.2 and 0.25 ml /l (NAA) levels where on control plants were sprayed with distilled water. Plant observations were made mainly on plant height, number of branches, number of pod, length of pod, number of seeds per pod, number of leaves per plant and weight of fresh leaves per plant on ten randomly sampled plants. Analysis of the data collected was done using ANOVAs using SPSS version 20. After the analysis the results showed that defoliation had a significant ($p<05$) influence on the growth and yield of cowpea. The higher growth regulator application of 0.25 ml/litre produced the highest seed yield as compared to control with no growth regulator application. The 7 days harvesting interval was ideal for leaf yield and 14 days interval was ideal for highest seed yield. According to the study growers can be recommended to utilize the plant growth regulator to produce more of leaves and production of seeds for household consumption.

Key words: cowpea, defoliation, plant growth regulator, auxin, NAA, growth, yield.