ABSTRACT

Emergence of multi-purpose pumpkin (Cucurbita moschata Duchesne) as an African indigenous vegetable is attracting great attention. This is due to its adaptation to a wide range of climates and high-yielding potential. Sub-optimal pre- and post-harvest factors have greatly contributed to low returns to the farmers through poor yields and high post-harvest loss of pumpkins. There is therefore need to determine the optimal pre- and post-harvest inputs which will provide nutritious pumpkin fruits to consumers. To contribute in solving this challenge, knowledge on the effect of nitrogen fertilizer, mulch and gibberellic acid on the fruit size, flesh thickness and firmness of multipurpose pumpkin (Cucurbita moschata Duchesne) is very important. A field experiment was therefore set at the Chuka University farm for two seasons between January 2019 and July 2020.It was arranged in a split-plot in randomized complete block design and replicated three times. Nitrogen (CAN) (0, 50, 100 and 150 kg N/ha), mulch (nomulch, black-painted and unpainted rice straws) and gibberellic acid (GA3) (0 mg/L, 40 mg/L and 80mg/L) were assigned to the main plots, split plots and sub-plots respectively. Data was collected fortnightly from the fourth week after emergence. Data values were subjected to analysis of variance using the SAS software and means separated using least significant difference. Application of N fertilizer was significant on fruit size (0.013) during the second season, flesh thickness during the first and the second season (0.002and 0.04respectively) and fruit firmness of 0.02 upper and 0.009 lower during the second season. Application of N at150kg N/ha and black-painted mulch resulted to fruit size of 2172 cm 2 and 2199 cm 2respectivelyand flesh thickness of 3.387cm and 3.856cm respectively which was higher than the other treatments. The effect of GA3 on fruit size, flesh thickness and firmness of multipurpose pumpkins was insignificant during both seasons. These results show that application of N at 150kg N/ha and black painted mulch would give the best fruit quality to the farmers while application of GA3 may not necessarily result to beneficial returns.

Keywords— AIVs, Fruit size, Flesh thickness, Fruit firmness, Fruit set, Plant growth regulators.