

Influence of Organo-Mineral Fertilizer on Growth and Yield of Okra (*Abelmoschus esculentus*)

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OBJECTIVE

❖ To estimate the optimum rate of organo-mineral fertilizer from composted sawdust and poultry manure that gives the highest vegetative and fruit yield in okra gardening.

INTRODUCTION

❖ Okra, *Abelmoschus esculentus*, is an important annual crop widely grown in the tropics mainly for its pod. Young okra leaves are also edible and it is one of the few vegetables available all year round.

❖ Increasing cost of commercial inorganic fertilizer justifies the need for vegetable growers to source plant nutrients from readily available organic materials through composting which involves the biodegradation of organic materials.

❖ Sawdust is considered as a source of environmental pollution and hence, it is burnt indiscriminately in virtually all saw mills in Nigeria. However, as a potential nutrient source, it can be composted with a nitrogen source like poultry manure to reduce the C:N ratio before being used as soil amendment.



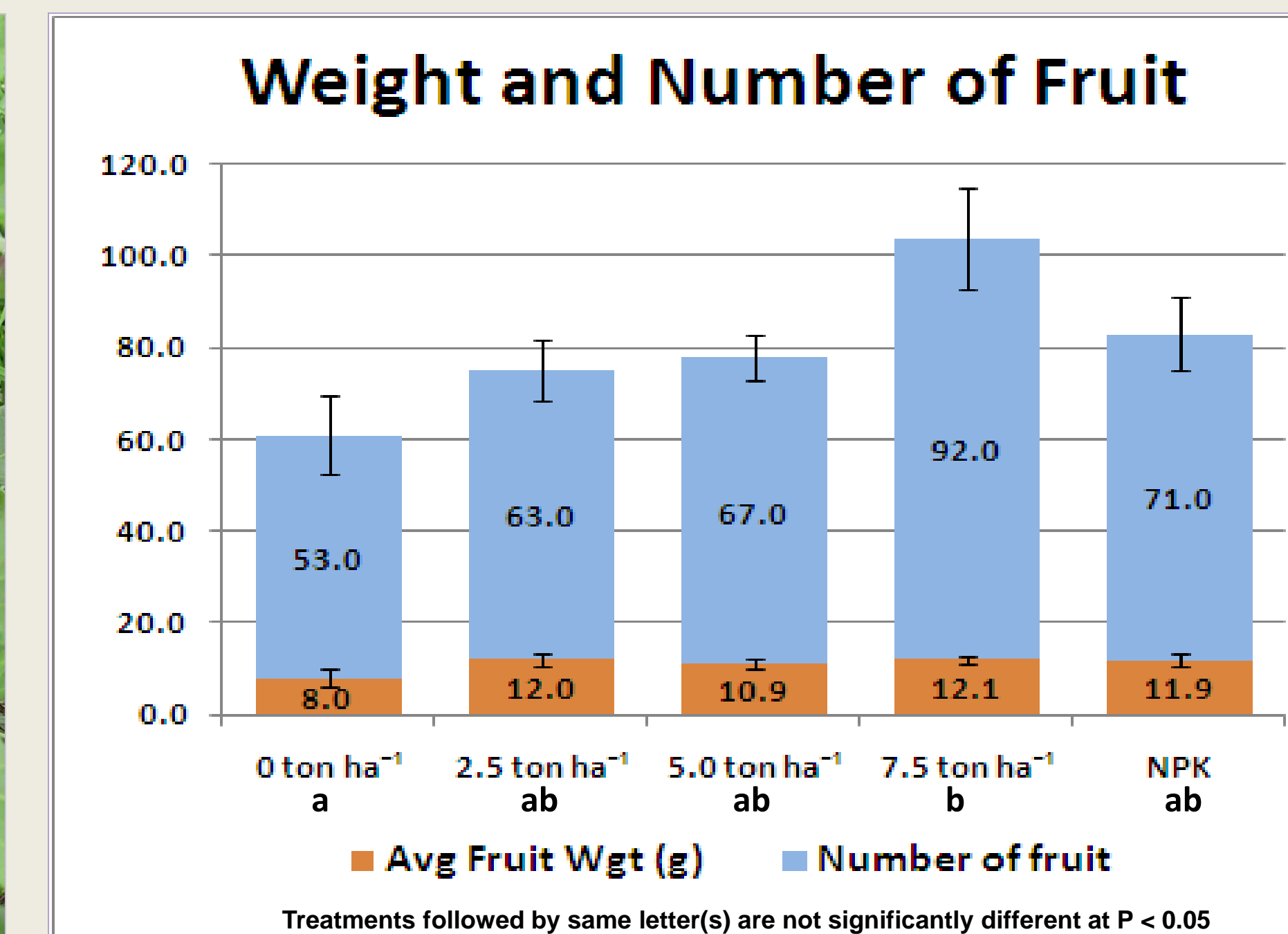
Freshly harvested okra pods



Sliced okra pods



Flowering okra plant growing on the field



RESULT DISCUSSION

❖ The data were analyzed using the General Linear Model procedure in SAS while means separation was performed using the Duncan Multiple Range Test.

❖ The plant height, number of leaves, leaf canopy spread and stem girth were consistently greater in the 7.5 ton ha⁻¹ and NPK treatments compared to the other treatments.

❖ The greatest number of pods and average pod weight were observed in the 7.5 ton ha⁻¹ compost treatment. However, the difference was not significant at P < 0.5 compared to other rates of compost except for the control treatment.

❖ Overall, there was a significant treatment effect on the vegetative growth and pod yield parameters as greater levels of these parameters were measured in the compost treatments compared to the control. Since the growth and yield parameters increased with increasing rate of compost treatment, the 7.5 ton ha⁻¹ is considered as the optimum rate of application.

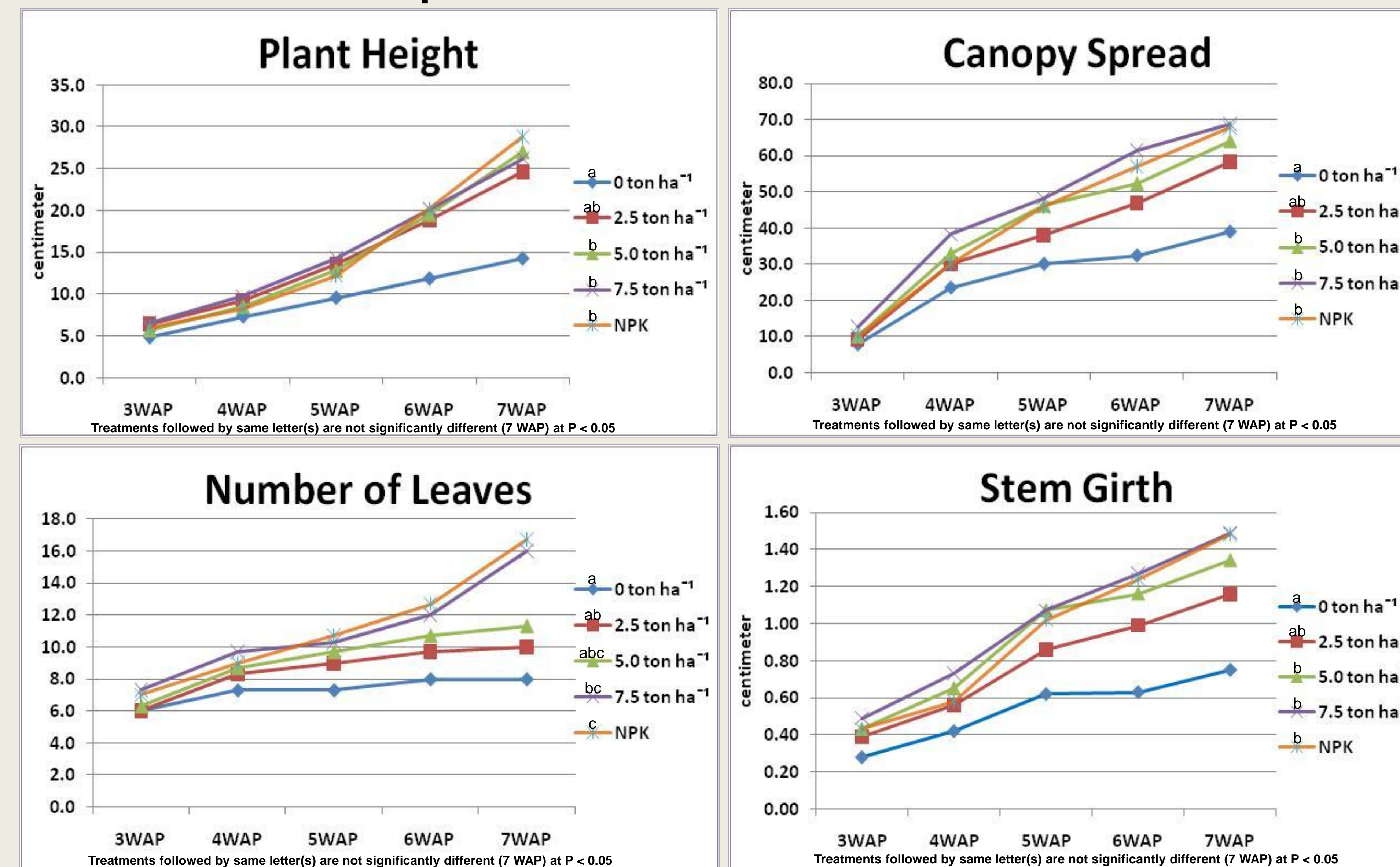
FIELD STUDY

❖ The experiment was conducted at the research site of the University of Agriculture, Abeokuta, south-western part of Nigeria. The soil at this site is predominantly loamy sand. The organo-mineral fertilizer, sourced from the University of Ibadan, was made from composted sawdust and poultry manure at a ratio 1:3, fortified with trace inorganic minerals. The fertilizer was broadcasted on the soil surface two weeks before planting at various treatment levels.

❖ Five treatments were compared: compost at 0 ton ha⁻¹ (control), 2.5 ton ha⁻¹, 5.0 ton ha⁻¹, 7.5 ton ha⁻¹ and NPK 16-16-16 at 200 kg ha⁻¹ in a completely randomized design of fifteen plots with three replicates for each treatment.

❖ Starting from the third week after planting (WAP), growth parameters such as plant height, number of leaves, leaf canopy spread and stem girth were observed on weekly basis. Pod yield parameters such as the number of pods and pod weight were observed after each harvest, which was staged at three days interval from the first harvest.

Graph of Growth Parameters Monitored



FUTURE IMPLICATION

❖ It will be interesting to study the long-term residual effect of compost from sawdust and poultry manure on the physical and chemical properties of the soil.

❖ Possibility of industrial utilization of composted sawdust as organic nutrient source, thereby reducing environmental pollution associated with sawdust.

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