

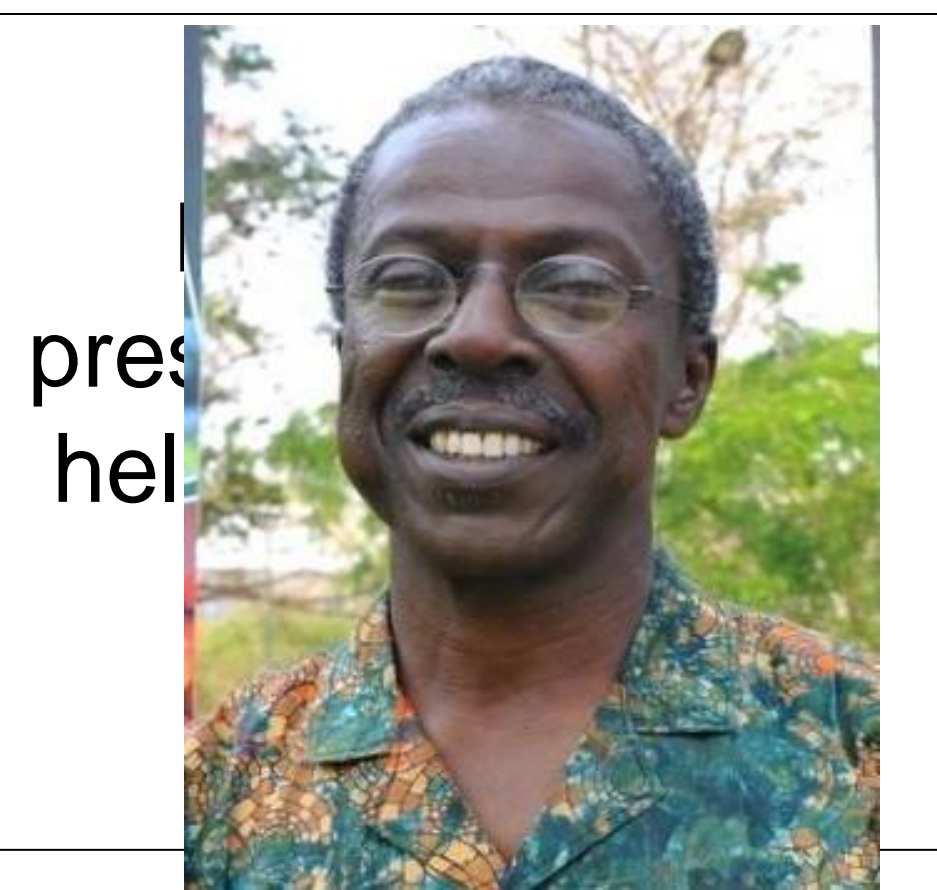


# Growth response of a ratoon crop of plantain (*Musa AAB*) cv. Agbagba to plantain thrash-based compost

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## Introduction

Plantain (*Musa AAB*) is a staple for about 150million people in West and Central Africa. The fruits are eaten boiled, roasted or fried, or milled into flour. Its peels are also used in the production of herbal soap (Akinyemi et al., 2022).Fruit production has not matched population increase thus threatening food security. This can be redressed by increasing productivity of plantain plots. Plantain responds to organic fertilizers (Barerra et al.,2011). This study investigated the effects of compost generated from Plantain thrash+poultry manure +wood ash of the growth of a ratooned plantain. These materials are usually waste material which aotherwise creae a niusance

## Materials and methods

The study was conducted on a four-year old false horn cv. Agbagba plantain plot established on a sandy loam at the Federal University of Agriculture Abeokuta in southwest Nigeria. Plants spaced 2m x 2m were trimmed down to one sword sucker per mat and laid out into four blocks. Each block was subdivided into four plots of four plants with a buffer row of plants. Compost generated from Plantain thrash+poultry manure +wood ash was applied in a single dose at 10t, 20t and 40t ha<sup>-1</sup> and its effects on the vegetative growth compared with that of control (no compost).

## Results and discussion

Compost rate did not significantly affect leaf area development, but it significantly influenced canopy diameter, pseudostem height and pseudostemgirth (Figs 2 and 3). At 8 and 10 weeks and 12 and 14 weeks after compost application the effects of compost rates on canopy diameter and pseudostem height did not differ significantly, but they all elicited significantly higher values than control. Conversely, at 12, 14 and 16 weeks after compost application 20t ha<sup>-1</sup> significantly (p<0.05) increased stem girth compared with 0, 10 and 40 t ha<sup>-1</sup> (Figs 2 and 3.) Compost application did not significantly influence residual fertility status of plantain plots. Nonetheless residual soil content of N and Ca tended to peak at 20t ha<sup>-1</sup> suggesting that it supplied sufficient amounts of these nutrients to the plants (Table 1).



Fig. 1: Suckers, fruit bunch and roasted fruits of plantain (*Musa AAB*)

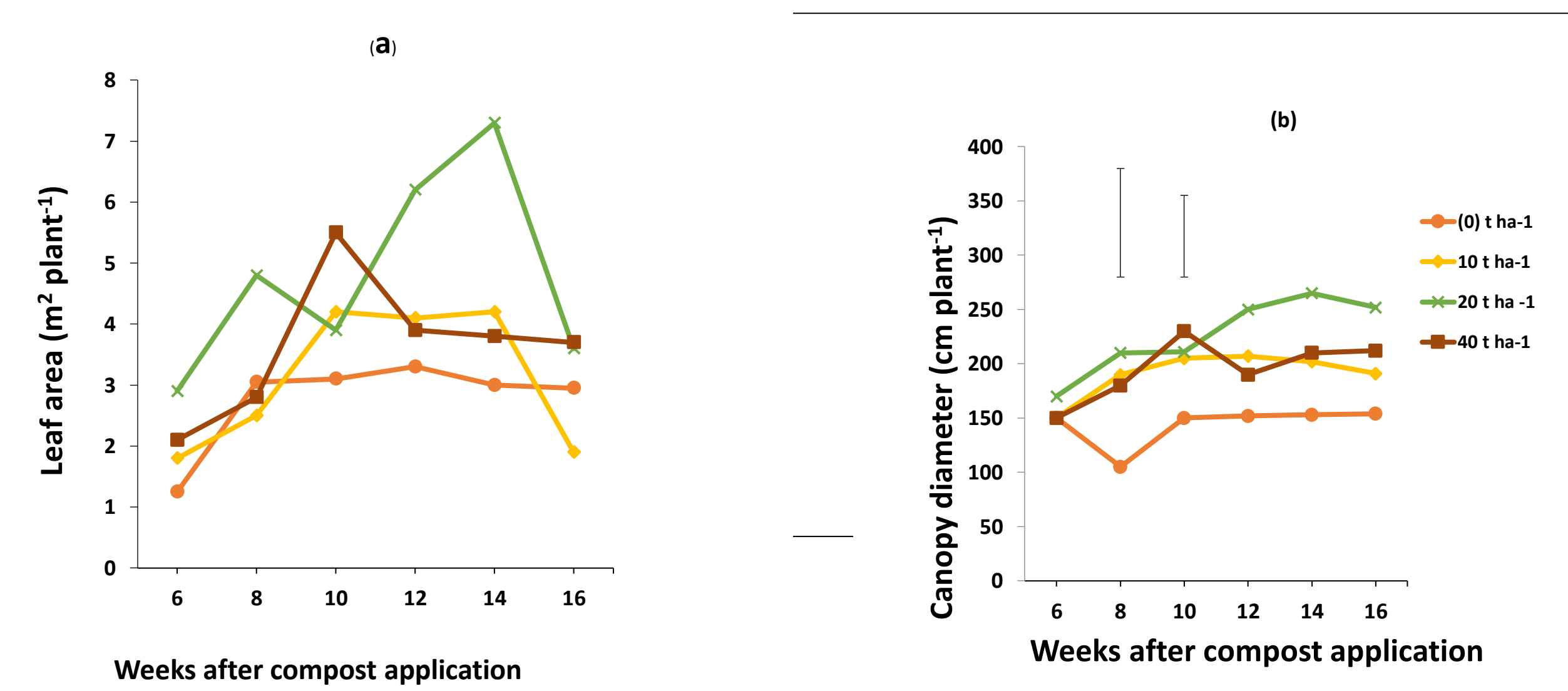


Fig. 2 Response of Leaf area (a) and Canopy diameter (b) to compost application

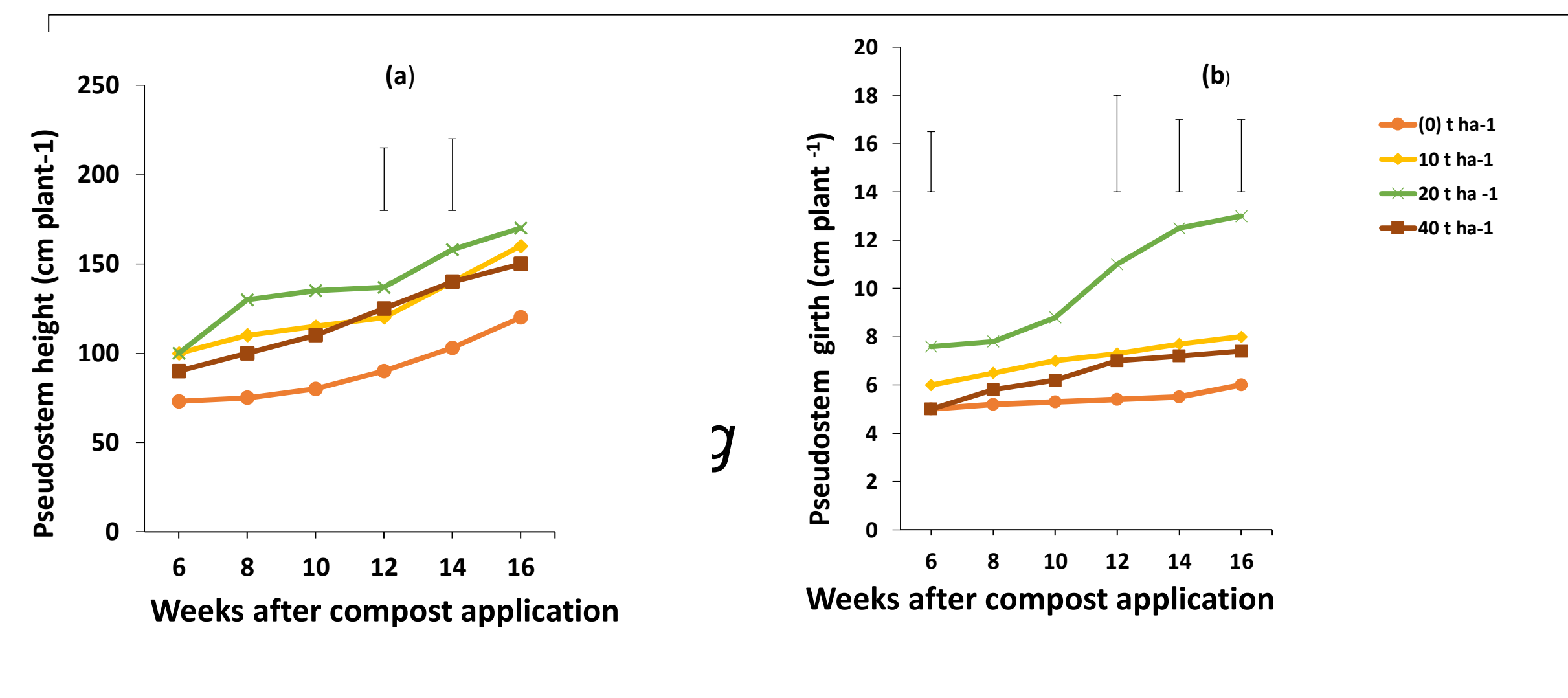


Fig.3 Pseudostem height (a) and pseudostem girth of plantain in response to compost application

Table 1: Residual fertility status of plantain plots in response to compost application

Compost rate (t ha <sup>-1</sup> )	OM (%)	N (mg kg <sup>-1</sup> )	P (mg kg <sup>-1</sup> )	K (mg kg <sup>-1</sup> )	Ca (mol kg <sup>-1</sup> )	Mg (mg kg <sup>-1</sup> )
0	4.30	0.21	70.3	1.73	12.1	5.6
10	4.23	0.21	52.1	1.35	15.8	6.9
20	4.05	0.23	66.1	1.63	23.1	7.8
40	4.09	0.21	45.3	1.51	19.7	8.0
LSD (p,0.05)	ns	ns	ns	ns	ns	ns

## Conclusions and perspectives

Compost produced from plantain thrash, poultry manure and wood ash enhanced vegetative growth of plantain. It is recommended for inclusion in the production protocols of organic plantain at the rate of 20t ha<sup>-1</sup>. It also provides a means of converting waste material into value added product