



Nitrogen value of prunings of *Leucaena leucocephala* (Lam.) deWit, *Senna siamea* (Lam.) Irwin & Barneby and *Enterolopium cyclocarpum* (Jacq.) Griseb.

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1. Introduction

Increasing pressure on land has led to development of many farming techniques for improved crop production and yield. Plant pruning, an organic source of nitrogen for plant growth (Mund et al. 2016) has been identified as a good alternative to inorganic fertiliser. Therefore, we investigated the use of pruning of *Leucaena leucocephala* (Lam.) deWit, *Senna siamea* (Lam.) Irwin & Barneby and *Enterolopium cyclocarpum* (Jacq.) Griseb. (Fig. 1) as nitrogen source for the growth of maize.



Fig. 1. Fresh leaves of *Leucaena leucocephala*, *Senna siamea* & *Enterolopium cyclocarpum*

2. Materials and method

- Fresh pruning of *Leucaena leucocephala*, *Senna siamea* and *Enterolopium cyclocarpum* were applied into 5kg soil in polythene pots using incorporation method and surface mulching after initial soil analysis.
- The treatments were *L. leucocephala* incorporated (T_1), *L. leucocephala* surface mulch (T_2), *S. siamea* incorporated (T_3), *S. siamea* surface mulch (T_4), *E. cyclocarpum* incorporated (T_5) and *E. cyclocarpum* surface mulch (T_6), control (T_7).
- Fresh pruning of *L. leucocephala* (23.93g), *S. siamea* (35g) and *E. cyclocarpum* (26g) were added to the soil based on approximate nitrogen requirement for optimum growth of maize (80kgN/Ha) and nitrogen content of pruning of each species.
- Watering was done daily, and plant height and stem diameter were recorded for 9 weeks while biomass was recorded at the end of the experimental period.
- Data collected were subjected to descriptive statistics and ANOVA at $\alpha_{0.05}$.

3. Results

Significant differences ($p>0.05$) were observed on maize height from 7 weeks after planting (WAP). Highest height was recorded in seedlings treated with T_4 . Post experiment soil test showed that T_5 had highest percentage carbon (2.3), total nitrogen (0.2), and potassium (0.6). Pruning incorporation consistently produced higher shoot and root dry weight over surface application in all treatments. However, nitrogen content in maize plants was highest in plants with T_4 (1.53) (Figs 2 & 3).

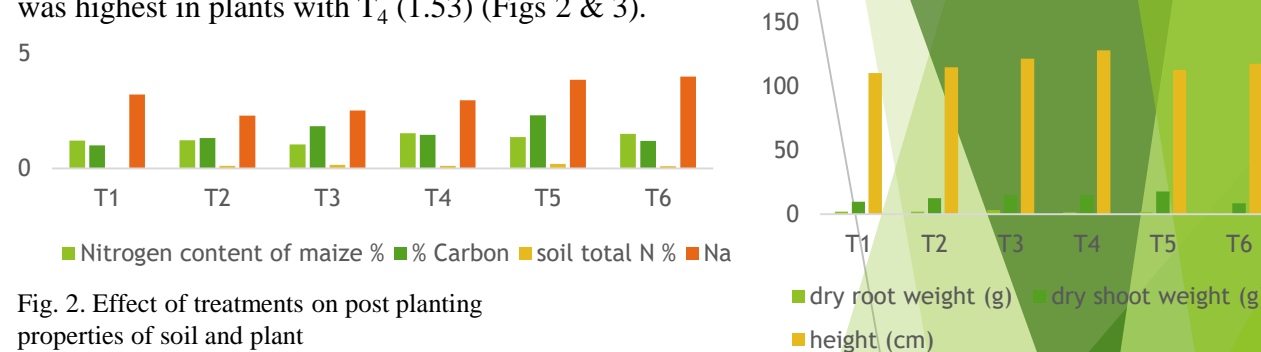


Fig. 2. Effect of treatments on post planting properties of soil and plant

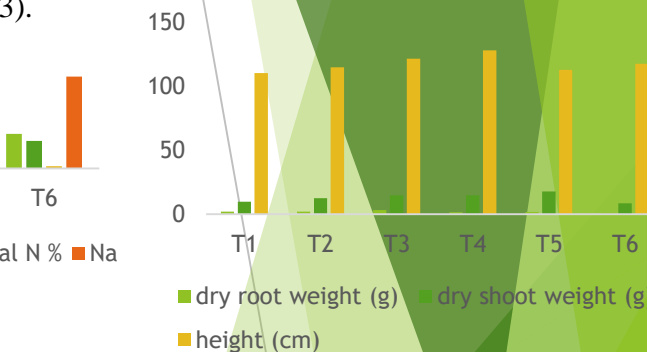


Fig. 3. Effect of treatments on height and dry weight of plant

4. Conclusion

The application of pruning of *Senna siamea*, a slow nitrogen releaser is essential to improving soil fertility as it enhanced plant height which is an indication of nitrogen utilization that is strongly related to yield.

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Reference: Mund N K Dash D Barik C R Goud V V Sahoo L Mishra P Nayak N R 2016 Chemical composition, pretreatments and saccharification of *Senna siamea* (Lam.) H.S. Irwin & Barneby: An efficient biomass producing tree legume [Bioresource Technology](#) 207:205-212