

THE EFFECT OF DEFOLIATION ON THE YIELD OF COCOYAMS

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SUMMARY

Removal of any leaf of *Xanthosoma cocoyams* before the plant attained the age of 23 weeks significantly lowered cormel production. After 23 weeks, up to 4 leaves could be removed without any significant reduction in yield. Two clones showed differences in response.

RESUME

Le retrait de feuille du tarot *Xanthosoma* avant que la plante n'ait 23 semaines, entraîne une baisse appréciable de production de la tige bulbeuse. Après 23 semaines on peut enlever jusqu'à 4 feuilles sans que le rendement ne soit réduit de façon sensible. Deux clones ont montré des différences de réponse.

RESUMEN

La remoción de cualquier hoja de *Xanthosoma* yautfa antes de que la planta alcance la edad de 23 semanas redujo significativamente la producción de cormillos. Después de 23 semanas, se pudieron remover hasta 4 hojas sin alguna reducción significativa del rendimiento. Dos clones mostraron diferencias en su respuesta.

INTRODUCTION

In Ghana, cocoyam (*Xanthosoma* spp and *Colocasia* spp.) known as tannia and dasheen respectively, are vegetable as well as root crops. The leaves are nutritious food⁴. When the leaves are picked periodically for food, corm yield may be slightly reduced and there may be a critical intensity of leaf picking beyond which corm yields will be drastically affected. No previous critical study has been made to establish the nature of the relationship between leaf picking and corm yield.

MATERIALS AND METHODS

Two cultivars of cocoyam were used in this study, Mankani fufuo (i.e. white cocoyam) and Mankani pa (good cocoyam) also known as Mankani koko (red cocoyam). These were assigned separately to the sub-plots. Mankani pa has been grown in this country for a long time but Mankani fufuo has only recently been brought into cultivation.³

Corm setts weighed 140–150 gms each and were obtained from healthy growing mother corms. Two adjacent areas termed A and B measured 120 m x 120 m. In each area there were 4 plots (replicates) of 60 x 60 m each with each plot further divided into two sub-plots (cultivars) of 30 x 60 m each. Within each sub-plot, there was a further sub-division into 9 equal parts (degrees of defoliation, including a zero defoliation control) each of 6.6 x 30 m.

Planting was on the square, with 1 m spacing between adjacent plants. Each sub-plot carried approximately 180 plants. Leaves numbering 1–8 were removed from plants in each sub-plot at regular intervals of 2 weeks. In the plot A leaf removal was started on 3rd June, 1970, when plants were 10 weeks old. The last picking was done on 9th September. In plot B leaf removal started when the plant was 23 weeks old, and the last picking was done on 30th December 1970.

The plants were harvested on 20th April, 1971 (55 weeks after planting) when the tubers were taken. At each harvest records were taken of the fresh weight of cormels for each treatment.

RESULTS

There were significant yield differences due to cultivars, to the degree of defoliation and also to the interactions between cultivars and degree of defoliation.

Yields are summarized in Table 1 and Table 2 and Fig. 1.

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