

EFFECTS OF DIFFERENT FERTILIZERS ON ROOT YIELD, ROOT NUMBER PER PLANT AND TOP/ROOT WEIGHT RATIO OF CASSAVA IN TWO CROPPING SYSTEMS IN SIERRA LEONE

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SUMMARY

In two cropping systems carried out on gravelly oxisols in Sierra Leone in which cassava follows cassava and pineapple respectively, the yield responses and financial returns from the use of various fertilizer treatments have been studied. Data indicate that farmers who cannot obtain, or do not know how to use fertilizers, may be right to close their rotation with the cassava crop. However, with a suitable fertilizer application, yields can be sustained in a second crop of cassava. With the prices prevailing at the time of these experiments, the use of fertilizer would be financially advantageous.

RESUME

A partir de deux systèmes de culture menés sur oxisols de gravier sur lesquels deux cultures de manioc consécutives ont été suivies d'une culture d'ananas, les rendements et les bénéfices obtenus à l'issue de l'utilisation de divers traitements ont été exposés. Les résultats obtenus indiquent que les fermiers qui ne peuvent pas obtenir ou qui ne savent pas utiliser les engrais ont peut-être raison de terminer leur rotation avec le manioc. Toutefois, l'application adéquate d'engrais peut permettre d'obtenir des rendements de manioc en seconde culture. Eu égard aux prix en cours au moment de ces essais, l'utilisation d'engrais pourrait être financièrement bénéfique.

RESUMEN

Se ha estudiado el rendimiento de yuca y las tasas de retorno correspondientes usando varios fertilizantes en dos sistemas de cultivo llevados a cabo en oxisoles gravosos en Sierra Leona; en uno, yuca sigue a yuca y en otro yuca sigue a piña. Los datos indican que los agricultores que no pueden obtener o no saben como usar fertilizantes pueden estar en lo cierto cerrando su rotación con yuca. Sin embargo, con una aplicación adecuada de fertilizantes, los rendimientos se pueden mantener en una segunda cosecha de yuca. Con los precios que prevalecían cuando se hizo este experimento sería ventajoso, financieramente usar fertilizantes.

INTRODUCTION

In four experiments at Kenema and in nine of thirteen other trials, marked responses were observed to superphosphate and sulphate of potash, both singly and in combination^{1,2}. The trials however were confined to 'micro' plots, and it was pointed out that the results should be treated with reserve. In the four other trials in the Magburaka area, responses did not reach statistical significance. Sulphate of ammonia depressed yields at all sites whilst liming had no apparent effect. In a trial at Newton, applying single superphosphate and sulphate of potash singly and in combination, sulphate of potash applied alone gave the highest yield of 14.2 tonnes per ha.³

MATERIALS AND METHODS

Experiment 1

The experimental design was a 2⁵ confounded factorial, consisting of 32 plots, each measuring 6 x 10.8 m. Fertilizer rates, applied singly or in combination consisted of the following: 591 kg/ha sulphate of ammonia, 578 kg/ha basic slag, 1217 kg/ha sulphate of potash, 240 kg/ha lime flour and 71 kg/ha sulphate of magnesium and zero rates of each fertilizer. The respective elements actually applied per hectare were as follows: 159 kg N*, 153 kg P, 546 kg K*, 172 kg Ca and 18 kg Mg*.

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*Together with S from sulphate not mentioned by the author. Ed.